Chapter 8

Conclusion and afterthoughts

Introduction

This final chapter of the study consists of two sections. Section 8.1 contains a concise overall conclusion, based on the discussion of the research findings undertaken in the previous chapter. Afterthoughts are drawn in Section 8.2. They comprise an account of the relevance and limitations of the study; suggestions for further research, and a suggestion for classroom practices. A ‘last word’ is then said to close the thesis.

Paving the ground for the drawing of the overall conclusion of the study, an abridged review of the study is in order, just as a reminder of its purpose and objectives. Thus, we recall that the ultimate purpose of the present study was to contribute insights towards education quality improvement in Mozambique, by depicting high school students’ epistemological beliefs and perceptions of education. The assumption was that, once knowing students’ patterns of epistemological beliefs and perceptions of education, one may draw inferences into their likely learning problems. Thence, the broad working hypothesis of the study was that culturally rooted beliefs and values would epitomise students’ epistemological beliefs and perceptions of education and, eventually, impact their learning approaches and learning strategies, with effect on their learning outcomes.

Against the stated purpose, the objectives of the study were:

i. to depict and interpret the patterns of both the epistemological beliefs and the perceptions of education of a representative sample of Mozambican high-school students,

ii. to identify and explore relationships between the two constructs, and

iii. to assess eventual impact of those constructs on students’ academic achievement.
8.1 Conclusion

The Mozambican high-school students in this study were not found portraying a neat and stable belief pattern that could be assumed as typical of the target group. Methodological pitfalls and, above all, the hazy nature of the construct may have contributed to that inconclusiveness. However, specific features were scrutinised, namely the complex character of the belief-factors extracted (composed of a fusion of beliefs about knowledge with beliefs about learning), and the prevalence of authority (teacher) dependency components in most of those belief-factors. To a certain extent, those features, particularly the latter (i.e. the belief in the teacher as an authoritative and unfailing source of knowledge), are found to conform to epistemological stances that are deemed typical within African traditional values, beliefs and practices of knowing and learning. A relevant and, apparently, hitherto not reported finding in epistemological beliefs studies is the one concerning the relationship between parents’ level of education and their children’s epistemological beliefs. Thus, a conclusion was drawn that home educational background is a good predictor of the level of epistemological sophistication of the children. On the whole, it came to light that students targeted in this study seem to portray less sophisticated beliefs, notably beliefs in simple learning and authoritative knowledge, and beliefs in quick learning. Such outcome gives support to our working hypothesis about a predominance of less sophisticated beliefs amongst our target group.

On the other hand, students uncovered to perceive education from a rather narrow and self-seeking perspective, namely that of being schooled for future material advantages and personal welfare. Such perception of education does not seem to reflect the communalistic and altruistic values that, purportedly, are conveyed by the Ubuntu (Humanness) philosophy, deemed to be a way of being necessarily intrinsic to all African people. That seems to be one of the most telling outcomes of the study regarding the pervasive impact of formal education and the values it conveys. Thenceforth, we conclude that communalistic perceptions of education in Mozambique (Africa) are no longer an abiding value, if they once were at all.

Epistemological beliefs were not found to exert direct impact on academic achievement. Their impact was rather intermediated by the perceptions of education. Utmost, and paradoxically, less sophisticated
beliefs seemed to work out positively on academic achievement, challenging the theoretical assumption that naïve epistemological beliefs are likely to result in low achievement, as they induce students to approach knowledge and learning in a superficial and passive way. The apparent paradox has been tentatively explained through the assumption that the manner in which students are taught, may, probably, impel them to adopt strategic learning approaches, conducive to (good) performance, rather than to understanding.

All in all, the study – which is unprecedented in the context in which it was undertaken, brings into play new perspectives through which research on and around epistemological beliefs and perceptions of education can be furthered. In sum, we cannot but conclude that in order to improve education in contexts like Mozambique we must not lose sight of socio-cultural factors and their possible impact on the educational enterprise. After all, learning and teaching are by no means ‘a-cultural’ or ‘a-contextual’.

8.2. Afterthoughts

8.2.1 Relevance and limitations of the study

Relevance
This study has been a pioneering endeavour to explore epistemological beliefs in Mozambique. Complementarily, the study has proposed the concept of perceptions of education and, upon it, surveyed students’ views about schooling and learning. Ultimately, the interplay between epistemological beliefs, perceptions of education and academic achievement was explored. In so doing, the study has attempted to broaden awareness about the characteristics of Mozambican secondary students. Epistemological beliefs and perceptions of education are advocated to be part of students’ characteristics and to constitute useful indicators for a better understanding of students’ learning patterns and learning problems. In contributing to an understanding of those constructs and their intricate relationships, the study holds obvious relevance at the contextual level. As a matter of fact, the Strategic Plan of the Educational Sector in Mozambique (MINED, 1999) urges research conducive to the improvement of the quality of education in the country to be undertaken and, we believe, the study here reported seems to
conform to that recommendation. The assumption is obvious: the best we know the characteristics of the learner, the best we can design and implement appropriate curricula and appropriate teaching and learning strategies. At the theoretical level, the relevance of the present study lies on its contribution towards the broadening of the existing body of knowledge and issues concerning epistemological beliefs which, hitherto, has been an unprivileged area of research in Africa. In parallel, the atypical concept of perceptions of education being put-forth is relevant to stimulate further views and research.

Limitations
In spite of its relevance, and although, to some extent, the present research has met its exploratory aim, several caveats are to be acknowledged. Some are inherent to the paradigmatic approaches under which the study was conducted, while others are intrinsic to the study itself. As discussed in Chapter 3, along with its strengths, the beliefs system approach to personal epistemology embodies unsettled conceptual and methodological issues, ‘inherited’ in the present study. On the other hand, conceptualising perceptions of education as congregating perceptions about schooling and perceptions about learning may sound appealing but needs further elaboration and more empirical evidence to be validated as a viable construct. Limitations intrinsic to the study include aspects such as literature sources, sampling, data gathering instruments, and reliability of some data, as well as data treatment. In the following lines, these aspects are elaborated.

Theoretical sources of the study were almost confined to literature in English, for reasons within and beyond the academic nature and circumstances of the study. Other relevant advancements in the area that may have been published in other languages may have been missed out. About the sample, being Mozambique such a wide and diversified country, either in ethnic/cultural terms and also in levels of development, a more diversified sample (e.g. involving students from at least the three major regions of the country – northern, southern and central regions) would, perhaps, have been more representative of the country’s high-school student population. Regarding the research instrument, despite careful translation and piloting of the adopted epistemological beliefs scale, it seems that a number of items have remained somehow vague for the respondents, judging from the rather low reliability of the scale. Quite blurry was also
the questionnaire on *Perceptions of Education*, developed by the researcher from the interview data. Concerning the reliability of other data, a lesson was learnt in *Study A* that students do not feel at ease to declare their family income and, in some cases even their actual religion. Thus, variable *Family Income* had even to be dropped. Important to the study but probably yielding not so reliable data, we single-out the variable *Academic Marks* (marks in mathematics and language). Familiar with the generally low marks in schools, our conjecture is that data collected under this variable may not be so accurate. We recall that, for ethical reasons, we did not want our respondents to regard our study as a supposedly ‘official’ or suspicious inquiry. Therefore, the questionnaire was anonymous and academic marks were declared by the students themselves and not provided by the school authorities. As observed in Chapter 5, answering to questionnaires like the ones used in this study has not yet been a common practice in Mozambican schools. Additionally, although confidentiality and anonymity were ensured, it could be that, for unclear reasons (e.g. self-esteem?), some students may have been tempted to inflate their marks in their self-reports. Finally, and with regard to the dimension *Innate Ability*, our afterthoughts compel us to admit that despite the fact that this dimension had collapsed in our first study, maintaining it in both studies (*Study A* and *Study B*) would have lent more similarity to both studies, allowing more solid conclusions to be drawn regarding this theoretical dimension of epistemological beliefs.

### 8.2.2 Suggestions for further research

Firm conclusions about the patterns of epistemological beliefs and perceptions of education of our target group require not only more replication studies but also studies under different approaches to be undertaken. If pure replication studies are to be undertaken, the above outlined limitations of the present study ought to be taken into consideration. It would, however, be much more interesting if forthcoming studies on personal epistemology could be conducted under more integrated approaches or frameworks, such as those proposed by Schommer-Aikins (2004), Hofer (2004), Louca et al., (2004) and Bendixen & Rule (2004). In common, those frameworks have been devised with the purported aim of mitigating the shortcomings of both the developmental and the beliefs system paradigms.
At the outset of the Introduction to this book we mentioned that the general concern of the current study could be abridged into the question “How do Mozambican high-school students perceive knowledge, learning and education?”. We have, however, remained aware that education is inherently an interactive process, involving two chief agents: the teacher and the students. Thus, in itself, the partial scope of the present study is plainly outspoken as to the need for complementary studies to be undertaken, specifically studies on Mozambican teachers’ beliefs about knowledge, teaching and education.

Worldwide, teachers have been urged to rethink their mission and to shift from a ‘transmissive’ to a constructivist approach to teaching. Constructivism has been regarded to embrace inputs with the potential to enlighten more efficient and effective teaching and learning processes, towards quality outputs in education. Constructivism rests on cognitive and epistemological principles (Fosnot, 1996; Von Glasersfeld, 1996). The gist of the cognitive principle is that knowledge is not received passively but actively built up by a cognising subject, from his a priori related knowledge. The epistemological principle endorsing constructivism is that individuals do possess a priori informal knowledge about knowledge and knowing, which is to say that individuals possess personal epistemologies. As recurrently stressed in this dissertation, to some extent, personal epistemologies exert influence in the way in which individuals are likely to perceive and approach knowledge and knowing. Being a ‘knowing’ related activity, teaching is likely to be influenced by teachers’ personal epistemologies or epistemological beliefs. In sum, it is drawn that teachers also bring to the teaching and learning context their own views of knowledge and teaching, which impart the way they practice teaching.

Research findings suggest a relationship between teachers’ educational beliefs and their instructional decisions and classroom practices (Pajares, 1992), or, more specifically, between teachers’ beliefs about knowing and their beliefs about teaching (Brownlee, 2003a, 2003b, 2004; Chan & Elliot, 2000, 2002). Studies addressing that matter have found that teachers who have sophisticated beliefs about knowing, that is, those who perceive

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81 - Stressing this principle, in an introductory statement to his seminal book *Educational Psychology: A cognitive view*, Ausubel asserts: “If I had to reduce all of educational psychology to just one principle, I would say this: The most important single factor influencing learning is what the learner already knows. Ascertain this and teach him accordingly” (Ausubel, 1968, p.vi).
knowing from a constructivist perspective (knowledge as actively constructed by the individual), are more likely to conceive of teaching as facilitation of learning rather than ‘transmission’ of knowledge. Explicitly, it is more likely that teachers who believe that students construct knowledge will also conceive and conduct teaching in a constructivist or transformative perspective. Conversely, teachers with less sophisticated beliefs may tend to trust that knowledge is acquired through ‘transmission’ models and act accordingly, even though that practice does not ensure that new information will be well integrated into students’ prior knowledge. That new knowledge may, however, be articulated and strategically accessed by the students, especially and sometimes only for assessment purposes (Richardson, 1997). A propos this matter, in discussing the results of the present study (Chapter 7), we have hypothesised that the ‘good’ academic results that seem to be revealed by epistemologically ‘less sophisticated’ students may be due to a recourse to strategic learning approaches vis-à-vis good school marks. That subsumed learning approach may be stimulated by the type of teaching.

First year university students in Mozambique have been reported to face idiosyncratic problems when it comes to understand science concepts, such as the concept of ‘energy’ (Mutimucuio, 1998). Interventions towards conceptual development and conceptual change amongst those students require, above all, teachers that are capable of identifying that kind of problems. Hasweh (as cited in Brownlee, 2003b) has advocated that teachers with constructivist epistemological beliefs are more likely to discern students’ misconceptions as well as to make use of a wide range of teaching strategies, thus acting towards promoting conceptual change in their students.

In sum, knowing or unknowingly, teachers’ conceptions and approaches to teaching (imparted by their beliefs about knowledge and knowing) are likely to influence students’ epistemological development (Schommer-Aikins, 2002). On those grounds, we may infer that the kind of epistemological beliefs portrayed by our subjects in the present study may well also reflect their teachers’ epistemological beliefs. So, if education, through the teacher, is to coach students towards a sophistication of their beliefs about knowledge, knowing, and learning, we definitely need to know and eventually promote changes in teachers’ personal epistemologies. Additionally, having learnt from the outcomes of the present study that high-school students tend to conceive of their
teachers as ‘omniscient authorities’, reasons increase to find out, through research, about teachers’ perceptions about themselves and about the students.

The foregoing arguments are meant to sustain our suggestion that studies on teachers’ personal epistemologies are needed in Mozambique, in order to know how they perceive knowledge and teaching, thence design possible interventions. One of those interventions could be to include topics of personal epistemology in teacher training programmes, so that pre-service and in-service teacher trainees are made aware of their own epistemological beliefs, as well as of those of their students and, thus, come to know about the influence of those beliefs in the teaching and learning practices in the classroom.

8.2.3 Suggestion for classroom practices

As discussed earlier, naïve epistemological beliefs, particularly those suggesting convictions about the simplicity of the learning process and the dependency on authoritative sources of knowledge seem to be widespread amongst the target group of our study. The epistemological beliefs system paradigm, under which the present study was undertaken, has been deemed valuable for allowing large scale surveys and for allowing the examination of relationships between epistemological beliefs and other learning related aspects. Nevertheless, this paradigm does not provide clues as to how to tackle naïve beliefs or to promote and foster a shift towards sophisticated beliefs.

In our literature review (Chapter 3) we discussed some personal epistemology models which suggest handy classroom practices, supposed to play a role in personal epistemology sophistication. These are the practice of argumentative reasoning (Kuhn, 1991), and reflective judgement (King & Kitchener, 1994). We would suggest those handy practices to be encouraged and expanded as part of learning tricks in classrooms.

... and a last word

All told, I conclude that the present study, undertaken in an African context, has confirmed what has been the state of the art in the field of personal epistemology: That research on personal epistemology, in general and epistemological beliefs research, in particular, is as tempting, interesting and prolific undertaking, as it is muddled and slippery.
Meanwhile, understanding beliefs about knowledge and learning and their interplay with other relevant factors remains a challenge that, in someway, has to be faced, especially in underdeveloped countries, where clamours towards improving education are relentlessly echoing.