CHAPTER 6

ANALYSIS AND DISCUSSION OF THE RESULTS

6.1 INTRODUCTION

The aim of this chapter is to analyze and discuss the results of the empirical investigation reported in chapter 5. It is divided into nine sections. The first section covers the introduction while the subsequent three sections deal with quantitative analyses. The last three sections deal with the factor analyses. As noted by Stevens (1996) and Stapleton (1997), exploratory factor analysis is used to explore data to determine the number or the nature of factors that account for the co-variation between variables. Confirmatory factor analysis, based on the first factor analysis, specifies which variables will be correlated with which factors, and which factors are correlated. Thus, confirmatory factor analysis provides the researcher with an effective method of evaluating the validity of constructs derived from the first factor analysis. Regarding factor analysis, therefore, for analysis and discussion of the results, the researcher focused on the 2nd generation factor analysis. Both quantitative and factor analyses of the study centred on the analysis and discussion of the results of the principals', teachers' and learners' responses to the research questionnaires and the lessons learned from relevant literature. The seventh section attempts to find common ground between the quantitative analyses and factor analyses. The eighth covers the main findings of the investigations and highlights the significance of the research. The ninth is the summary of the chapter.

Chapter six provides the foundations for chapter seven, which is concerned with the main conclusions, recommendations and implications elicited from the research, harking back to the research questions and theoretical framework.

A. RESULTS OF THE FREQUENCY ANALYSIS

6.2 DISCUSSION OF RESULTS OF THE QUANTITATIVE ANALYSIS OF PRINCIPALS' QUESTIONNAIRES

6.2.1 Academic qualifications of participating principals

As stated earlier in this report, most of the principals working in Sofala province (16 out 17, i.e. 94.1% of the sample) had a primary education qualification only. By contrast, a large number of participating principals in Maputo City (17 of the 24 respondents or 73.9% of the sample) had a senior secondary qualification.

However, there was no significant difference ($p = 0.990$, $p \geq 0.05$) between male and female participating principals' academic qualifications across the three provinces (see Table 5.5a).

6.2.2 Training in school management

The findings indicate that 40 (32.3%) of the principals who participated in the study attended regular or formal programmed training in school management. Again, 47 (37.9%) of respondents mastered their school management task by training themselves. This applied to the total sample across the three provinces. Finally, 37 (29.8%) respondents received school management training through induction workshops. However, induction workshops were hardly attended in Niassa (only 19.5%).

6.2.3 Extent of principals' experience as school managers

The majority of participating principals had less than 6 years of school management experience, which could indicate a possible instability in the management of the schools concerned. In Sofala this instability was higher compared to the other two provinces. Indeed, 43 of the 78 participating principals with less than 6 years of school management experience worked in Sofala Province.

6.2.4 Attitudes of participating school principals to their leadership role in the process of curriculum implementation

Participating principals' attitudes to their leadership role in the process of curriculum implementation in their schools were summarized in Table 5.10.

Discussion

As noted by Middlewood (2001), participating school principals' statements (see above) showed that they saw their organizational leadership as centred on curriculum or learning, which is the core function of schools, thus confirming the findings of earlier studies concerning the key role of school leadership in the process of implementing curriculum change. This key role of school leadership is emphasized in the theoretical framework (see section 1.6.7).

Ninety-two point eight per cent (92.8%) of participating principals agreed they were developing strong collegialities with teachers, other staff members, students and parents in order to promote student achievement under the new curriculum. With this aim, 87.9% respondents affirmed that they were bringing into operation an action plan produced collectively in school for effective implementation of the new curriculum. Both findings reveal the school leadership role in adopting a system approach to curriculum design or development (see section 2.3.3). The first finding especially shows principals' realisation of the paramount importance of active involvement of teachers, students and parents in curriculum implementation. The second indicates that the democratic participation implied by the system approach to curriculum design or development may only be effective if a common vision is shared and all efforts of school members are channelled accordingly. This common vision is translated into an action plan collectively produced under school leadership.

Effective professional development was assumed by a large majority of participants (88.7%) as critical for successful implementation of the new curriculum. However, only 80.7% stated that they were challenging teachers and students continuously to meet curriculum goals. It is also remarkable that 20.1% implicitly expressed their dissatisfaction with the level of school climate created in their schools in terms of sharing and cooperation on all issues relating to effective implementation of the new curriculum. Strikingly 94.4% of the surveyed principals asserted that they make

efforts to ensure good student performance under the new curriculum, promoting collaboration among teachers through which they develop new skills by sharing professional knowledge regarding the new curriculum. It may mean that there is a gap between efforts made by principals towards sharing and cooperation among teachers in the context of the new curriculum and the effectiveness of those efforts in schools. The research shows that the success of meetings with teachers on the new curriculum introduced by principals is somehow doubtful. This observation is in line with the finding which shows that 15.3% of the surveyed principals indicate that they were not making efforts to ensure good student performance in the context of the new curriculum, nor were they arranging and holding regular and productive meetings on the new curriculum.

Similarly, only 79.9% of the principals involved in the study clearly stated that they were making efforts to promote student achievement in the context of the new curriculum, maximizing the amount of school time used for learning. At the same time, 91.9% of the surveyed principals indicated that they were making efforts to ensure good student performance in the context of the new curriculum through proper coordination and management of the learning process. This major contradiction clearly reflects that reculturing and retiming are difficult to achieve. It is a big concern because other studies had already shown that they make an enormous difference in learning processes. In this regard, Fullan (1998:226) avers that "reculturing and retiming should drive restructuring because we already know that they make a huge difference on learning, although they are very difficult to change."

The Local Curriculum (school-based local curriculum) should be regarded as an important innovation in the Mozambique New Basic Education Curriculum (see subsection 3.3.5). While 13.7% of the surveyed principals explicitly disagreed that schools under their leadership had developed the local curriculum and started implementation, 16.1% were undecided. This data presumably shows that a significant number of principals ($p = 0.001, p \leq 0.05$, see appendix D2, Table D2a.28) did not understand:

- the pertinence of the local curriculum
- how to design the local curriculum, and
- how to implement it.

This may imply that the instructions given by the Ministry of Education and Culture, through the National Institute for Education Development (INDE) to the principals about development of the local curriculum were not sufficiently clear or were poorly disseminated. This impacted the lack of "*clarity among members about and receptivity to do new goals and role expectations* that is one of the basic conditions for successful implementation change (see subsection 1.6.1).

The issue of maximizing the amount of school time in Mozambique needs special attention. It is known that the school year comprises only 660 school hours for the schools operating in treble shifts and 835 school hours for the double-shifts schools, while internationally, the school year averages 1 200 school hours[12]. If the school year is already shortened from the outset, it is absolutely required that available time be duly rationalised towards optimal fulfilment of changing goals. This point is endorsed by Mingat (2005:114):

> (i) time spent in school is a fundamental ingredient for learning (which should encourage some countries to increase this time), and (ii) the productivity of this time can vary greatly depending on how efficiently it is used.

Furthermore, the maximizing of school time is impeded by teachers' absenteeism. This fact is come out by the following statement:

> "Teacher absenteeism is a widespread problem, partly due to inadequacy of management and supervision. Statistical data available on the extent and causes of teacher absenteeism, however, are rare and make the implementation of an effective action program difficult." Sedel (2005:45)

In fact, school resocialization should be analyzed in its complex dimensions of *restructuring*, *retiming* and *re-culturing* in the continuous process of curriculum change, which takes time and solid commitment and perseverance (see section 1.6.5).

[12] Data extracted from introduction of the document: Guidance and Obligatory School Tasks (OTEO's) for the years 2007-2009 produced by the Ministry of Education and Culture under coordination of General Education and Culture Inspectorate Body of Republic of Mozambique.

To sum up, the findings above show that successful implementation of the new curriculum requires strong school leadership, extending teachers' capacity and innovative classroom practice. With a view to meeting these requirements have to be upgraded so that can fulfil their obligations.

6.3 DISCUSSION OF RESULTS OF THE QUANTITATIVE ANALYSIS OF TEACHERS' QUESTIONNAIRES

6.3.1 Academic qualifications of participating teachers

A consistent majority of participating teachers throughout the three participating provinces had a senior secondary education, except that Maputo City led the other two provinces by a distinct overall margin. Out of 35 participants who had a primary education, 28.6%, 31.4% and 40% respectively came from Niassa, Maputo City and Sofala (see Table 5.12).

So, in terms of academic level, we may conclude that the teachers met the requirement in accordance with Mozambican legislation. Nevertheless, it is known that many secondary school graduates do not necessarily have the basic skills and knowledge specified in the national curricula. Moreover, teacher's new role of serving as facilitators of students' learning is highly challenging, even for those who concluded their secondary education with distinction. In this regard, Van den Akker (2003: 68) notes:

> The transition from subject matter expert to facilitator of learning creates strongly ambiguous feelings, touching the professional identity of teachers. Student-centred coaching approaches appear to require even more profound disciplinary knowledge and a more flexible pedagogical repertoire in order to provide adequate responses to various conceptions, questions and interests of students.

Indeed, as attested by the above analysis of teachers' attitudes many teachers lack the confidence to stand up to their role in implementing the new curriculum. Therefore, incentives to motivate teachers to enhance and consolidate their academic knowledge on the basis of self-learning and cooperation among colleagues are needed.

6.3.2 Professional qualifications of participating teachers

Professional qualifications of participating teachers varied although they were teaching at the same level. However the largest contingent among them (98 or 44.3%) had IMAP teaching qualifications (see Table 5.16).

Teachers' professional qualifications across the participating provinces vary significantly ($p = 0.028$) as shown by chi-square tests values (Pearson chi-square and Likelihood ratio values were 0.028 and 0.035 respectively) which are less than 0.05, the cut-off value for strategic significance (see Table 5.17).

The variety of pedagogical qualifications held by educators teaching primary education shows how difficult it is to define a coherent and consistent strategy for teachers training in Mozambique. The history of teachers training in Mozambique is mainly and greatly influenced by a Portuguese colonial inheritance and by the world movement towards Education for All (EFA). It is important to realise this fact, with a view to devising a coherent and consistent strategy of teachers training in Mozambique. Briefly, concerning the colonial inheritance it is worth remembering that when Mozambique became independent on 25th June 1975 barely 5% of Mozambican people were literate.

Thus, the Government of independent Mozambique under FRELIMO leadership, following the experiences acquired in "free zones" established during the national liberation struggle, took education as one of the priorities of national reconstruction. Well known are the mottos which were widespread in "free zones" during that time such as" Educar o Homem para vencer a guerra, criar uma sociedade nova e desenvolver a Pátria"[13], and "Fazer da Escola uma base para o povo tomar o Poder"[14]. After National Independence, for instance, the mottos were: "Fazer do país inteiro um lugar onde todos aprendemos e todos ensinamos"[15], "Estudemos e façamos dos nossos conhecimentos um instrumento de libertação do nosso Povo"[16] and " A Educação é tarefa de todos nós"[17].

[13] Educate the man to win the war, to create a new society and to develop the country
[14] Turn the school into a basis for the people to take over the power
[15] Turn the whole country into a place where all learn and teach
[16] Let us learn and turn our knowledge into a tool for the liberation of our people
[17] Education is task for all of us

On one hand the mottos mentioned above show how FRELIMO always conceived the role of education in the process of political, social and economic development and on the other hand they are indicative of the effort involved in providing mass access to education. Both of these motivating concerns are consistent with the world movement towards EFA. Consequently, the problems posed in the aftermath of Independence, are to some extent still prevalent, except that circumstances have changed. Similar solutions for identical problems may produce different results in different periods. This is a primary consideration informing the strategies for teacher training that have been adopted in Mozambique, especially for primary education.

Effectively, already in the transitional government set up in September of 1974, short teacher training courses of two weeks, one month, three months, et cetera, were organized and delivered for lower primary education. After Independence, courses for primary education were created at the Centres of Teacher Training with a view to improving the professional competence of teachers. These courses known as CFPPs, initially lasted a year and were later extended to a standard period of three years. The entry level for attending these courses was Grade 6 (upper primary level). At the same time, courses were established at the Schools for Training and Teacher Education, known as EFEPs to prepare teachers for upper primary levels (Grades 6 and 7). The admission level for these courses was Grade 8[18]. The length of EFEP courses was two years, but with a view to improving professional competence at upper primary level the EFEP's were later replaced by Pedagogic Medium Institutes, known as IMPs. The entrance level was Grade 9 and the duration of the programme was three years.

The Eduardo Mondlane University (UEM) was also involved in the quick delivery of teachers, preparing teachers for upper primary, junior secondary and senior secondary educations. The entry level was Grade 9 and the length of the course was one year for upper primary and two years for junior secondary level training. Meanwhile, for the two year programme of senior secondary training entry level was Grade 11. The teacher training courses offered by UEM were replaced by the programme of the Pedagogic Higher Institute, known as ISP. This institution later became the Pedagogic University, commonly known as UP.

[18] Before introducing the National Education System, the lower primary level comprised Grades 1 to 4, upper primary level Grades 5 and 6, junior secondary Grades 7 to 9 and senior secondary e grades 10 and 11.

It is important to note that among other responsibilities the main task of ISP (later UP) was to prepare teachers for secondary education (Grades 7 to 11, now Grades 8 to 12)[19]. The admission level was Grade 11, now Grade 12 and the length of the training course was 5 years, conferring the *Licenciatura* degree.

The National Education Policy, approved in August of 1995, laid down guidelines for the new teacher training courses for primary education. It was intended that this change in teacher training should accompany the transformation of the basic education curriculum: instead of one teacher per subject (like secondary education), two or three teachers are assigned to upper primary education.

Thus, the IMP's were abolished and replaced by the Primary Teaching Institutes, commonly known as IMAP's. These Institutes prepared teachers to deal with Grades 1 to 7, delivering two-year teacher training courses. The admission level was Grade 10. Transitional, IMAPs were operating side by side with CFPPs. It was decided to gradually close these institutions (CFPPs), which where intended to prepare teachers for lower primary teaching (Grades 1 to 5).

However, it should be noted that when the IMAPs and UP were created it seemed reasonable to assume that these institutions would provide sustainable teacher training models for primary and secondary teacher education in Mozambique. Unfortunately, the reality looks different. Why?

To understand the need for alternative teacher training models it is important to note that rapid expansion of the demand for schooling created a need for short training courses, especially for primary education teachers. It is equally important to note that the gradually rising admission level for attending teachers training courses and extending duration of teacher training courses necessitated upgrading of the quality of teaching competence in tandem with a massive expansion of access to schooling. In other words, new courses meant progress in education delivery, ensuring continuous expansion of access accompanied by better teacher training. This successful and progressive movement was seriously undermined by the disastrous

[19] Under the new National Education System lower primary level comprises Grades 1to 5, upper primary level Grades 6 and 7, junior secondary Grades 8 to 10 and senior secondary, Grades 11 and 12.

16 years of so-called “civil war”, which placed Mozambique among the poorest countries in the world.

Since the peace accord signed in Rome in 1992, Mozambique has made substantial progress in the social, political and economic domains, particularly in education, but this progress is seriously hampered by the capacity problem of providing access to schooling to keep pace the exploding demand for primary and secondary education. The quality of education delivery has become a central issue, and the following is therefore proposed as a possible solution.

Firstly, after the IMAPs had been operating for a year, proposals were made to reduce the length of the training course from two years to one year. We should remember that the trainees were admitted with Grade 10 and were supposed to be prepared to teach Grades 1 to 7. The discussion led to a compromise solution that the courses of one year should only be introduced in the new IMAPs, which were being constructed and not yet functioning. Theoretically those who would have one year of training would benefit from in-service training. But, it did not happen because the conditions were unfavourable.

Secondly, a decision was taken recently to abolish IMAPs and to replace them with Teachers Training Institutes with the aim of preparing teachers for Grades 1 to 7. The academic level of entry is 10th grade and the duration of the training course is one year. The CFPPs courses were definitely closed.

Thirdly, junior secondary training courses of one year were introduced at UP. The current academic admission level is Grade 12.

The last two changes need a much deeper reflection. They were undertaken while the new curriculum of Basic Education was being implemented and the new curriculum for secondary education was to be introduced. Both curriculums are challenging. In this regard Monyokolo and Potenza (1999: 236) aver:

> Teachers are in many senses the most important educational resource we have and they will determine whether the new curriculum succeeds

> or not. Therefore, the success of the new curriculum depends on the training and support that teachers receive, and their ability to mobilize and manage the resources around them to implement the curriculum.

The advocates of these new courses argued that it was not a new experience for the country. But the short training courses at the beginning of National Independence were attended with great enthusiasm due to the freedom euphoria. In-service training courses were effective and teachers' salaries had not attained to the present level of significances.

Another consideration is that the existing literature does not relate teachers' competency to the length of their training courses. Obviously the duration of training cannot be the only determinant of competence. In this regard, note the following observation by Sedel (2005:40):

> …the relationship between the length of the training received and the teacher's competencies is not clear. As Lockheed and Verspoor (1991) pointed out, it is often important to reform the content and quality of training programs and not simply their length.

The researcher agrees that it could be a serious mistake attempting to achieve better training by merely extending the training course at the expense of content: clearly a balance should be found between duration and quality of content rather than effectively equating duration with quality.

Short teacher training may be an option, but only if it is supplemented by effective in-service training, which requires a teachers' support network in the field and the necessary incentives for teachers generally to commit themselves to improving their knowledge collectively and individually towards successful teaching.

In fact, short new courses are inadequate for the purpose of preparing teachers for their professional task. Even when the courses concentrate training in methodology we are facing with the fact that the student teachers' academic background is not sufficient to ensure, for instance, mastery of the content required as primary education teachers for grade 1 to 7 in only one year training. In this regard, Mingat (2005:117) emphasizes that "it is important for teachers to have an academic training

that enables them to fully master the content of the information they are to transmit to the pupils."

But the real reason for adopting these courses is explained by Mingat (2005:118), who observes that "since short training has lower costs and is more likely to produce the number of teachers necessary to reach the EFA goals, it is quite clearly more cost-effective to operate this way."

The researcher's position is slightly at variance with that Mingat (2005) and others as mentioned. Even taking into account the need to be realistic in terms of the affordability of training courses, we cannot opt for alternatives which lead us to solutions of fairly low quality. This kind of solution may seem cost-effective, but becomes unaffordable over time as it makes inroads on effectiveness of the work force.

In-service training cannot be effective without career incentives. Teachers are concerned with the improvement of their living conditions. Short training courses that are not supplemented by in-service training are doomed to failure. These matters are discussed in detail in section 6.3.4.

Obviously, there was a need to redefine the duration of the teachers' training at UP, which has been done by introducing bachelor's degrees. The current teacher training strategy, especially for primary education, should therefore be appropriately adjusted.

6.3.3 Teachers from the three participating provinces' experience of working at upper primary level (EP2)

The majority of the surveyed teachers have only been working at upper primary level for five years or less, which clearly indicates a great instability in the cohort of practising teachers. It was in Sofala where this instability seemed to be higher.

6.3.4 A discussion of the attitudes and beliefs of participating teachers in the investigation

The discussion of the attitudes and beliefs of the teachers who participated in the investigation is based on Table 5.22.

Discussion

Almost half of the teachers (45.3%) expressed explicitly or implicitly that they did not feel intrinsically rewarded for doing their job well in the context of the new curriculum (see table 5.22). These teachers' demand requires special attention from the Education System, Society and Government as a whole. It is a concern that goes beyond the capacity of the Ministry of Education and Culture as the institution in charge of administration of the education system. In this regard Rasool (1999:179), in referring to the South African context, makes a valid point that also bears on the reality of Mozambique:

> To move from the present situation to one in which schooling can begin to be transformed in a serious way, requires that the nation at large develops the political will to transcend the evils of the past. All stakeholders face a great challenge in this regard.

In fact, it is argued that a c*ompatible organizational or social envelope* is a prerequisite for innovative educational change. This, as it was pointed out earlier, includes the establishment of leadership necessary to ensure a shared vision, support, assistance, mastery and motivation, especially commitment and stability for all members. The establishment and use of feedback mechanisms was another factor to overcome barriers to the implementation of changing towards achieving envisaged goals (See subsection 1.6.4).

Teachers' remuneration is a thorny problem for many developing countries, including Mozambique, where financial resources remain a problem, despite considerable economic growth during the last few years in the context of the open market system.

Mingat (2005:120) comments as follows on teachers' remuneration issues which are frequently raised by respondents:

> Teachers' salaries should be sufficient to make it possible to recruit and retain adequately qualified teachers who will be happy with their profession. The conditions of the local employment market are an important reference in this respect. If the teachers are too poorly paid (i) recruiting the people needed in terms of quality and quantity may be difficult; (ii) high staff turnover may result, which is not desirable as it jeopardizes the development of a stable teaching body consisting of individuals who build their professional capacities over time; (iii) underpaid teachers may be tempted to pursue another activity and allocate less time to their teaching job; (iv) underpaid teachers may impose (illegally or in a disguised way) school fees on the parents of children in their charge.

Mozambique is no exception and is experiencing similar situation as outlined by Mingat (2005) above. It is becoming quite hard to recruit and retain adequately qualified teachers, especially at primary level. As Mozambique grows economically, new job opportunities and entrepreneurial initiatives are being created, such as banking and insurance services, which require qualified manpower and offer competitive salaries and attractive working conditions. Financial constraints and poor working conditions have understandably resulted in a high staff turnover in the teaching profession which tends to be used as a stepping stone to better paid occupations. Many teachers invest less time in their teaching profession, performing other activities in order to supplement their low salaries towards getting a better life. Corruption is also becoming rife as a means of supplementing low income.

While it is true that the capacity of the government is low to offer teachers better salaries, it is also true that teachers are working under difficult conditions for low salaries that need immediate attention with a view to delivering good education. The initiatives that government is already taking to motivate teachers and help them to be more effective (e.g. loan schemes funded by agreement with financial institutions such as commercial banks), need to be expanded to reach more teachers. Medical aid schemes are another initiative used by government to motivate teachers.

The vast majority (81.9%) of participating teachers stated that they had a sense of belonging to their schools (see Table 5.22). The same percentage confirmed that they worked with colleagues who listened to them if they had ideas about doing better in the context of the new curriculum. They also declared that they treated each other with respect in their schools.

It was notable however, that 33.9% of the teachers did not agree that teaching the new curriculum was fun at their schools (see Table 5.22). Instead, contended that the new curriculum lacked a c*ompatible organizational or social envelope surrounding the innovation.* This has negative consequences for teachers' motivation, commitment and interest in teaching the new curriculum at their schools. The issue of teachers' remuneration deserved better elaboration and treatment, in which regard Mingat (2005:120) notes that "it is important for teachers to share experiences and remain motivated to actively improve personal practice". In fact teachers' motivation can influence their performance and increase efficiency in their daily careers including implementation of the new curriculum.

Another issue under review was the importance of involving parents or the community as a whole to aid successful implementation of the new curriculum. Again (81% of respondents affirmed that parents' and other stakeholders' involvement was necessary for successful curriculum implementation (see Table 5.22). This finding is confirmed by several researchers. For instance, Steyn (2007:29) asserts that:

> Parents and the community should be involved in matters related to school discipline or learner performance, in the utilisation of the education process, and in providing financial support for the school.

Similarly, Mentz and Xaba (2007:47) assert the following:

> It is imperative that parents and teachers should be partners in attainment of the objectives of education. Conflict is not a necessity (as Berg and Wallin assert), but is the result of a breach in a relationship- a breach which can and must be repaired. The parent is a participant in the functioning of the school as an organization.

Mentz and Xaba (2007) emphasize an important point regarding involvement of parents and community in school life, advocating a partnership between parents (members of community located around the school) and teachers in pursuing educational goals, to which end parents' and teachers' attitudes and beliefs should change, especially those of teachers who should open doors, allowing parents to become effective participants in the functioning of the school. This procedure may contribute to end the parents' accusation of school inefficiency and to develop an

excellent school atmosphere towards successful implementation of the school curriculum objectives.

According to Table 5.22, about 80% of teachers agreed that their principals facilitated communication effectively and that they had enough opportunities to develop their teaching skills individually and cooperating with colleagues on the new curriculum.

However, only 75.1% of the teachers who participated in the study expressed that their principals were effective instructional leaders and they had enough opportunities to grow professionally in the context of the new curriculum implementation (see Table 5.22). Therefore, it seems that the principals' teaching ability as well as the use of active methods were questioned by the teachers. This attitude may be the result of common problems such as teachers' experience of working with large classes under very poor conditions. Such environments shed doubt on the applicability of active learning methods, which are the core of the new curriculum.

Moreover, teachers' responses revealed misgivings about their capacity to meet the demands of the new curriculum. About 30% of the surveyed teachers gave the impression that they had not been given the necessary support for the implementation of the new curriculum (see Table 5.22).

6.4 DISCUSSION OF RESULTS OF THE QUANTITATIVE ANALYSIS OF STUDENTS' QUESTIONNAIRES

The following discussion of results of the quantitative analysis of students' questionnaires is based on Table 5.25.

Discussion

6.4.1 Students' beliefs regarding school and learning

According to Table 5.25 the majority of respondents (86.4%) affirmed that they liked their schools. Niassa province had an even higher majority (92.9%) who shared this feeling while in Maputo City and Sofala the corresponding figures were (80.4%) and (89.0%) respectively.

Further, 81.3% of participating students reported that they were attending good schools, while only 72.3% agreed that their schools were fun and enjoyable. These opinions were more widespread among participants from the Niassa Province (see Table 5.25).

It is important to note that 73.5% of the students (see Table 5.25) who participated in this research affirmed that they felt safe at their schools while 78.4% affirmed a sense of belonging at their schools. The corresponding figures were higher for Niassa Pronice.

The school safety might have influenced the level at which the students enjoy the school, both of which (school safety and school enjoyment) seem to be linked to the sense of school ownership. Strikingly, as noted above, a considerable proportion of students affirmed that they liked their schools and rated them as good ones. Ascertaining other students' beliefs and attitudes about school and learning results obtained in this research might help us build the possible connections and therefore an overall picture of the situation.

As it was also the researcher's intention to look at other factors influencing school atmosphere, the relationships between teachers, administrators and office staff when dealing with students at their schools were also investigated. Incidentally, 75.5%, 79.7% and 64.1% of students (see Table 5.25) who participated in this study agreed that their teachers, administrators and office staff treated them with respect. This affirmation was more pronounced in Niassa Province. (see Table 5.25).

This discussion leads us to the concept of school climate. According to Freiberg and Stein (1999: 11)

> school climate is about that quality of a school that helps each individual feel personal worth, dignity and importance, while simultaneously helping create a sense of belonging to something beyond ourselves.

In fact, as Freiberg and Stein (1999), a conducive school climate leads a child to love the school and to look forward to being there every day; it nurtures the child's

enthusiasm and therefore the enjoyment of school climate is an essential element of creating a *compatible organizational or social envelope for innovation* as indicated in the theoretical framework (see subsection 1.6.4).

Regarding relationships among students, only 55.9% agreed that other students treated them with respect and 53.5% respected colleagues whose appearance was different from their own (see Table 5.25). Impressively, 82% of the respondents (see Table 5.25) agreed that in their schools they had opportunities to learn about each other. This perception was more pronounced in Niassa.

Looking at student relationships at the schools, we are still concerned with the issue of school climate. At this stage, three aspects were examined in this regard: whether a student felt treated with respect by other students at the school; whether the students respected other students who seemed different from themselves; and whether they had opportunities to learn from and about each other at school. The results of the first two aspects were indicated above and they were almost the same. The low rate recorded for the first two aspects was cause for concern, particularly in contrast with the high rate of the third. Apparently, there is a contradiction. Nevertheless, the following remarks by Hamayer, (2003: 41) should be noted here:

> Future work/ living and learning situations will be increasingly characterized by teamwork. Children must be able to adapt to others, to take in the new ideas and transmit them, as well as giving different forms of work-sharing serious thought. They must also at least be able to understand someone else's tasks, so that their own tasks can be carried out efficiently. It also implies that they are prepared to and capable of sharing responsibility.

Similarly Tedesco (1997:65) asserts that:

> Teamwork, active solidarity between members of a group and developing the ability to listen are just some of the key elements of this new form of pedagogy, which we should be developing in both theory and practice

Therefore, agreeing with Hamayer (2003) and Tedesco (1997), it appears that there is a strong need to redress the students' relationships among themselves at their schools, particularly in Maputo City and Sofala province, ensuring effective use of

opportunities to learn from each other at school, enabling them to become real citizens of the school. As noted by Freiberg and Stein (1999:11), “when students become citizens of the school, they take responsibility for their actions and those of others.”

With respect to attitude to learning, the overwhelming majority of participants (94.4%), (see Table 5.25) declared that they liked to learn. This opinion was more prominent in Maputo City.

On the same topic of attitude to learning, it is notably that 82.4% of participants overall agreed that doing well at school made them feel good about themselves. Seventy-nine point nine per cent of the students stated that they were doing their best at school. Maputo City rated higher in both categories (see Table 5.25).

Furthermore 81.40% of participants overall agreed that their teachers encouraged them to assess the quality of their own school work, but only 73.9% professed that they did actually assess their own work (see Table 5.25).

Around 73.4% of respondents declared that their teachers were responsible for what they learnt at their schools, but in fact 74.0% avowed that they themselves were mainly responsible for what they learnt at their schools. Both opinions were more prominent among students from Niassa Province (see Table 5.25).

In addition, 74.0% of participants agreed that they had opportunities to learn from each other at their schools. This opinion was more prominent among students from Niassa Province (see Table 5.25).

The results mentioned above are consonant with the preponderance of opinion (77.3%) that they were successful in the school. The stated preponderance was more prominent in Niassa Province (see Table 5.25).

However, concerning the work done at schools, only 60.5% of the respondents agreed that the work at their schools was challenging in context of the new curriculum. Meanwhile, 64.6% of respondents from the three participating provinces

felt challenged at their schools. The corresponding figure for Niassa was higher (see Table 5.25).

From the list of findings mentioned above, the following questions could be posed:

- If 94.4% of the surveyed students stated that they liked to learn (evidenced by 82.4% agreeing that doing well at school made them feel good about themselves), why did only 79.9% of them state that they were doing their best at school?
- Does it make sense that the proportion of respondents who confirmed that teachers were responsible for what students learned was almost the same as the proportion who took the view that students were responsible for their own learning?
- Why did only 60.5% of the students who participated in this study agree that the work at their school was challenging in the scope of the new curriculum?
- How might the fact be justified that only 64.6% of the students from the three provinces who participated in the study felt challenged at their schools?

An attempt to answer these and other pertinent questions leads us to the following concepts: student learning, student learning responsibility, student school work and student learning assessment.

It is beyond the scope of this chapter to discuss these concepts, but a few comments on them as they relate to the pertinent theme are in order:

- It has become generally acceptable to think and speak of the importance of learning within families and schools. More and more, in modern society quality of life is being linked to quality of knowledge in all walks of life. In this regard, Hameyer (2003:37) avers that “quality of life depends on the quality of knowledge and its integration into individual and societal action”, and Malcolm (1999:89) likewise asserts that “the primary purpose of schooling is to prepare students for adult life”. Freiberg (1999:2) also emphasizes the importance of learning:

> It is predicted by economists, that education will be the next great global battle ground. The ability of a country to create and

> disseminate new knowledge and utilize existing knowledge and intellectual resources will determine the economic and social well-being of a country. A nation's ability to enhance its education systems and schools will be the pathway to this well-being.

- In light of the above it should be noted that 91.3% of participants agreed that what they were taught at school was relevant to real life (see Table 5.25). The large contingent of the students professing that they liked to learn shows students' awareness of the importance of learning.

- But, learning is not a pure desire. Slavin (1989:9) makes the valid point that:

> Learning is work. This is not say that learning must be drudgery, but it is certainly the case that students must exert themselves to pay attention, to study, and to conscientiously perform the tasks assigned to them, and must somehow be motivated to do these things. This motivation may come from intrinsic interest value of the material being learned, or it may be created through the use of extrinsic incentives, such as praise, grades, stars, and so on.

Thus, student learning can be seen as an active and enjoyable commitment of the student in the process of acquiring knowledge and skills grounded on prior skills or information; hence it is characterized (*cf*. Schubert 2005) as being *incremental and developmental*, requiring motivation, active study, perseverance, and obviously the necessary support, especially from teachers, colleagues and parents.

Clarifying the learning concept above and focusing on the classroom situation, Slavin (1989:6) avers that:

> "…effective instruction is not just good teaching. No matter how high the quality of instruction, students will not learn a lesson if they lack the necessary prior skills or information, if they lack the motivation, or if they lack the time needed to learn the lesson."

It follows, therefore, that teachers must be thoroughly aware of learners' background knowledge in order to teach any lesson successfully. Bernhardt (1999:64) notes in this regard that:

> when standards are known, teachers can design a continuum of learning for students, articulate curriculum across grade levels and age groups, ensure basic skills attainment for all students, and ensure coverage of curriculum frameworks.

Who really is responsible for what the students are supposed to learn at school? The following remark by Slavin (1989:5) is apposite:

> Ability to understand instruction and perseverance are partly under the control of the teacher, but partly characteristic of students. For example, ability to understand instruction is partly a product of student ability, but also a product of what teachers do to make sure that students have all the prerequisite skills and information they will need to successfully learn a new lesson. Perseverance results both from the motivation to learn that a student brings to school and from specific strategies a teacher or school might use to motivate students to do their best.

Therefore, the finding of the study is coherent: the equal numbers declaring that teachers are responsible for what students learn and that students themselves are responsible for what they learn are not contradictory but complementary propositions.

According to Slavin (1988:4-6), the level of challenge as perceived by students can be explained at school level (macrolevel) as well as at classroom level (microlevel):

- At school level, the challenge resides in how principals and/ or central administrators fulfil the school leadership role in context with curriculum implementation (e.g. establishment of policies concerning grouping of students, provision and allocation of special education including remedial resources, monitoring of classroom practices, collaboration with parents and other stakeholders).

- At classroom level, the challenge consists in using the four elements as described below to achieve effective instruction:
  - *Quality of instruction*: The degree to which information or skills are presented so that the students can easily learn them: largely a product of the quality of the curriculum and lesson presentation itself.

- *Appropriate levels of instruction:* The degree to which the teacher makes sure that students are ready to learn a new lesson (that is, they have the necessary skills and knowledge to learn it) but have not already learnt the lesson.

- *Incentive***:** The degree to which the teacher makes sure that the students are motivated to work on the instructional tasks and to learn the materials being presented.

- *Time:* The degree to which the students are given enough time to learn the materials being taught.

In this regard, careful analysis of the above factors reveals four basic conditions for successful curriculum implementation, which is consonant with the theoretical framework, namely:

- Compatible organizational or social envelope for innovation;
- Deliberate process of role **resocialization**; and considerable
- Time, coordination, support, and encouragement; as well as
- School leadership in assuring the presence and maintenance of these conditions

  (see section 1.6 in the introduction to the thesis).

If on the one hand barely 60.5% of the students who participated in this study agreed that the work at their schools was challenging in terms of the new curriculum and on the other hand only 64.6% of the students from the three provinces who participated in the study felt challenged at their schools, it can be concluded that not enough was done in terms of implementing of the new curriculum and that considerable effort is required to meet the basic conditions and requirements referred to above (see Table 5.25).

Regarding relevance of the content of the new curriculum, it was remarkable that an overwhelming majority of the participants (91.3%) agreed that they found what they learnt in their schools relevant to real life (see Table 5.25). Moreover, there was no

significant difference $p = 0.062$ between provinces regarding the opinions of the students about school learning relevancy to real life situations (see Appendix F2, Table F2.30).

On one hand, 83.5% of the students agreed that they understood how to apply to real life situations what they learned at school in the context of the new curriculum. On the other hand, 78.4% of the students who participated in this research expressed a favorable opinion about the usefulness of participation in extracurricular activities (see Table 5.25).

As noted, the findings regarding learning relevancy justify to some extent why the majority of the students indicated that they liked to learn and liked their schools, and also considered effective learning a significant motivating factor for themselves. Good and Brophy (1989:32) aptly remark that:

> Student will not be motivated to learn if presented with pointless or meaningless activities. Activities should be selected with worthwhile academic objectives in mind. That is, they should teach some knowledge or skill that is worth learning either in its own right or as step toward some higher objective.

Thus, Good and Brophy (1989:32) emphasize that they should avoid pointless or meaningless activities, such as:

- continuous practice of skills that have already been mastered thoroughly;
- memorizing lists for no good reason;
- looking up and copying definitions of terms that are never used in readings or assignments; or
- reading material that has not been presented in enough detail or integrated well enough to allow students to understand it.

Assuming from the research that the new curriculum is regarded by the students as relevant, the huge challenge is to implement it effectively.

In connection with participation in extracurricular activities, 8.6% of respondents did not consider such activities important while 12.9% were undecided (see Table 5.25).

Therefore, it seems that there is a need to revise extracurricular activities to fit in with the new curriculum and to gain an overall picture of students' involvement in such activities with a view to adopting measures that are calculated to persuade those who are undecided, or who do not see the usefulness of the activities, to change their opinions.

6.4.2 Students' opinions about their teachers in the context of the new curriculum implementation

Eighty-one point seven per cent (81.7%) of respondents felt that their teachers expect from them to do their best. The corresponding response was higher in Niassa than in its counterparts (Sofala and Maputo City). This rate is slightly lower when responses are individualised. Thus, only 79.9% of the students individually confirmed awareness that teachers expect them their best. Maputo City stood out above their counter parts when the responses were individualized for students. In all cases these students' opinions concerning their school performance correlate with their attitude to learning (see above).

Aligning with students' opinions concerning their school performance, 78.6% of the student participants agreed that their teachers helped them to gain confidence in their ability to learn. It was surprising that students did not consider the fact that teachers helped them to gain confidence in their ability to learn as an indication that teachers themselves had confidence in their ability to learn. In fact, only 66.1% of participants confirmed their realisation that teachers had confidence in individual students' ability to learn while 71.3% agreed that their teachers were paying individual attention to them when needed.

Linked to these students' opinions regarding their teachers' attitude, other interesting findings were recorded:

- Only 68.8% agreed that their teachers listened to them individually.
- Only 65.5% agreed that teachers understood the personal problems confided to them by students.
- Only 66.5% agreed that their teachers knew each of them well.
- Only 59.8% agreed that their teachers cared about all of them individually.

There is a discrepancy between the fact that teachers expect students to perform well, yet teachers do not actively promote achievement of that goal.

The results show that the proportion of respondents from Niassa who agreed that teachers helped students to gain confidence in their ability to learn and had confidence in individual students' ability to learn, and that teachers attended to individual students when it was needed, was higher in that province than in its counterparts.

Similarly, most students in Niassa province stated that their teachers understood them when they had personal problems, knew each one of them well and also cared about each one of them, while in Sofala more respondents than in its counterparts affirmed that teachers accepted and entertained individual students' ideas.

The findings concerning students' opinions about their teachers in the context of the new curriculum reveal the degree of *positive teachers' expectation* translated into teachers' belief that their students can learn and consequently they expect from them to do their best at the school (*cf*. Good and Brophy, 1989). The findings also show the level of students' learning *supportive environment* expressed in opportunities to learn and to receive appropriate encouragement and support for their learning efforts at school, especially from teachers.

Therefore, as noted by Good and Brophy (1989:36), "teachers monitor each students' progress and provide feedback and remedial instruction as needed, making sure that material is mastered".

Looking at the results of the study, we may conclude that considerable effort will be required to ensure successful implementation of the new curriculum. This requirement upholds the second basic condition incorporated in the theoretical framework, namely *member's ability to enact the new role expectations* (see subsection 1.6.2). This is a big challenge, especially in urban schools, for example, in Maputo City and in Beira in Sofala Province, where class sizes at the upper primary level reach an average of more than 60 students. It is important to note that each

teacher should manage at least four classes, depending on the subject he/she teaches.

Obviously, as noted by Mingat (2005:123) "*the question of class size is often controversial and hotly debated.*" However, although there is no clear consensus on the relationship between class size and quality of education, in many countries of sub-Saharan Africa, as in the case of Mozambique, there are situations where the number of students in the class is so large that instruction of a high quality is hardly possible (*cf.* Michaelowa, 2003).

The first principle is stated by Bernhardt (1999:62):

> A true learning organization will understand its student population. It will know who the students are ethnically, socially, emotionally what they value and believe, how they like school and learning, and what the impacts of current processes are on their learning.

Previously, Tedesco (1997:16) argued that:

> Discussing the purposes of education regardless of operational considerations would be not only sterile from the point of view of action, but also abstract and infertile from a theoretical point of view.

Thus, a feasible strategic plan in each school is needed to meet the challenges of implementing the new curriculum, to which end a "clarity among members about and receptivity to do new goals and role expectations and members' ability to enact the new role expectations", should be cultivated as noted earlier (see subsection 1.6.1)

The majority of respondents (86.3%) agreed that their teachers are excited about the subjects they teach (see Table 5.25). This could be the reason why students indicated that they liked school and considered that they were attending good schools. This view was represented by a higher proportion of students from Niassa than those from other two participating provinces.

Around 72.3% of students overall considered that their schools were fun and enjoyable. This figure varied slightly (74.8%) for students who agreed that their teachers made learning activities fun and enjoyable (see Table 5.25). Niassa

Province led the other two provinces in the proportion of respondents who endorsed this view (i.e. that teachers made learning fun and enjoyable).

These findings clearly have a bearing on the *supportive learning environment* endorsed by teachers who agreed with students' perception. Good and Brophy (1989:36) note in this regard:

> Despite their strong academic focus, teachers who elicit good achievement gain, maintain pleasant, friendly classrooms and are perceived as enthusiastic, supportive instructors.

This study therefore shows that there is a need to revise teachers' classroom practices. This opinion is in line with the argument put forward by Bernhardt (1999:61):

> until teachers are able to predict the impact of their actions on students, change their actions based on these predictions, corroborate the effect of their actions with students, and work with peers to build a comprehensive learning organization, any increase in student achievement and change in the classroom will be temporary.

6.4.3 Students' opinions about preparing themselves for life in the real world by learning in the context of the new curriculum

The overwhelming majority of participating students participating expressed the conviction that they were learning for the real world in the context of the new curriculum, to which end they considered reading (91.6%) and writing (90.6%) to be pivotal accomplishments. On the one hand, 87.9% agreed that the new curriculum would contribute to their education for the real world, enabling them to deal better with issues requiring knowledge of Mathematics as applied in the real world of practicalities. On the other hand 81.8% of the students confirmed that the new curriculum would contribute to their education in the specific sense of enabling them to present information (see Table 5.25).

Only 72.2% of participating students agreed that the new curriculum would contribute positively to their education for the real world by enabling them to cope with new technology. This view was endorsed by respondents from Niassa than from the other two participating provinces (see Table 5.25).

These findings reflect participating students' perception of the new curriculum. As noted in the discussion of the curriculum concept, the implemented curriculum as seen by users is definitive for how the curriculum is seen, understood or interpreted (see Chapter 2, section 2.2).

These results of the study show, to some extent, how the implementation of the new curriculum of basic education in Mozambique meets the essential knowledge requirements of primary education, namely writing, reading, arithmetic, communication and technology. They indicate that reading and writing are perceived as accomplishments to be mastered by every student. Regarding mathematics and communication in general (information presentation), there is a need to adopt strategies to improve students' motivation and mastery of these accomplishments.

Concerning technology the findings correspond closely to the expectations in the context of implementing the new basic curriculum. It is important to recall that:

- technology in the context of this curriculum includes arts and crafts; and
- the main objective of the new curriculum is to develop not only knowledge, but skills and values in an integrated and interdisciplinary way (See section 1.5).

Hameyer (2003:40) notes in this regard:

> "Problem solving capacity, ability to interact socially, readiness to share responsibility, learning how to learn, knowledge about how to decide, analytical abilities, and intellectual curiosity are the key qualifications required to be taught in schools".

In similar vein Parker and Harley (1999:183) observe that "globalization generates a demand for citizens who are economically competitive, multiskilled, flexible, and performative." Inorder to meet these demands as required by the new curriculum, the technology of knowing- how- to- do and how to convey as well as present information should be cultivated.

6.4.4 Students' opinions about time use in their classes in the context of the new curriculum

The results obtained regarding students' opinions about time use in their classes in the context of the new curriculum revealed that a variety of strategies were applied in classroom practices. Some strategies were used more frequently than others. For instance, analyzing individual or class performance (60.8%), reading (63.5%), working in small groups (69.7%) and answering questions from a book or worksheet (71.5%). The strategies claimed to be infrequently used in teaching the new curriculum were whole-class discussions with the teachers (50.1%) and listening to teachers' talk (50.9%).

These findings are consistent with efforts towards moderation and variation in strategy use in classroom practice required in the context of implementing the new curriculum. This setting is supported by the assertion by Good and Brophy (1989: 25) that "no single model is appropriate for all situations. What constitutes effective instruction varies with the subject matter, students, and other factors."

6.4.5 Effective learning methods for students

Similarly, the findings concerning students' opinions about learning methods that they found to be effective suggest that the best solution for them was a combination of learning strategies, hence the low rate of support for individual learning methods used by individual students. The following learning methods were identified as being effective: working on projects or research (65.5%), discussion with the whole class led by the teacher (71.0%), working in small groups (71.4%) and individual work (71.9%).

Regarding the projects or research method, which is an activity-based inquiry, only a few students indicated it as an effective learning method compared to other methods like discussion with the whole class led by the teacher, working in small groups, and individual work. Incidentally, the projects or research method has been emphasized as important by other scholars, such as Hameyer (2003:32) who noted that:

> A considerable number of practitioners and theorists are convinced that basic domains of school knowledge can be more easily acquired

> by activity-based inquiry than other learning methods. …inquiring enriches instructional work and increases the students' motivation.

One of the reasons for the disparity in results could be that the activity-based inquiry methods introduced by the new curriculum represent a critical departure from the habitual learning methods used to date at most schools, especially at upper primary level.

It is impressive that working in small groups and individual work gained more preference from the students. Slavin (1989) classifies work in small groups as cooperative learning with the aim of helping one another learn academic content. However, Slavin (1989:130) calls attention to the fact that:

> …other reviewers have concluded that cooperative learning does not always enhance student achievement, but that positive achievement effects depend on the practice of two factors: group goals[20] and individual accountability[21] .

Therefore, the way the work group is organized and assessed may or may not contribute towards motivating student learning, and therefore, to enhanced student achievement.

Regarding individual work (independent learning), Van den Akker (2003:61) argues that "a major restructuring strongly emphasizing the need for more independent learning and asking for a radical shift of traditional classroom pedagogy."

For the researcher independent learning is a basic method for the successful use of any learning strategy, especially for group work when it provides the necessary preparation for active participation, raising questions or doubts and in short, contributing positively.

In fact, working on projects or research, whole-class discussions led by the teacher, working in small groups, and individual work should be seen in the light of the new role allocated to teachers as guides to information sources, rather than as sources of

[20] Group goals: rewards given to groups in accordance with performance of the group or of its members.

[21] Individual accountability: the contribution of group member's is identifiable.

information; as facilitators of learning rather than as transmitters of knowledge. Therefore, the students should take a great responsibility of their learning.

6.4.6 Students' opinion about the relative importance of subjects and their preference for relevant textbooks in the context of implementing the new curriculum

The surveyed students expressed a clear preference for Portuguese as a subject and respective textbook in the order of 94.9% and 93.2%, respectively (see Table 5.25). This attitude, as discussed earlier, is in keeping with students' affirmation that the new curriculum will contribute to their education in the sense of promoting their ability to: read (91.8%), write (90.6%) and present information (81.8%).

Mathematics was rated the second most important subject by the vast majority (92.4%) of participating students, while 88.7% of the students overall confirmed an overriding preference for the Mathematics textbook, which is particularly significant considering that 87.9% of these respondents agreed that the new curriculum would contribute to their education for the particular reason that it would improve their mathematical skills. These findings are a reflection of students on their expectation that the new curriculum would enable them to deal better with issues requiring knowledge of Mathematics in the real world of practicalities (see Table 5.25).

Natural Sciences held the third position in the order of importance as indicated by 87.3% of the students. The relevant textbook was preferred by a considerable percentage of the students (85.1%). Fourth on the list, Moral and Civic Education was considered an important subject by 80% of the students. The relevant textbook was preferred by a good percentage of the students (78%). Strong majority of students (77.9%) attributed special importance to Physical Education and a commensurate preference (77.9%) the associated textbook. Physical Education held the fifth position in order of importance attributed by the students (see Table 5.25).

Sixth in order of attributed importance was English (77.2%). More or less the same percentage (77.3%) stated that the English textbook is one of their preferences. For the seventh position a good percentage of the students (76.8%) indicated Social Sciences and 74.4% of the students preferred the associated textbooks. Around 70.6% of the students stated that Music Education was an important subject, holding

the eighth position in order of attributed importance. The relevant textbook was preferred by 70.2% of the students (see Table 5.25).

Visual/Aesthetic Education was ninth in order of attributed importance (69.4%), borne out by a preference for the relevant textbook expressed by 68.5%. Tenth in line was Crafts/Arts (66%) with a textbook preference expressed by 62.5%. Finally, in the eleventh position in terms of importance, according to the students, a relatively small percentage (46.9%) attributed special importance to and a corresponding preference (43.9%) for the related textbook (see Table 5.25).

The findings above call for comment as follows:

- Regarding subject preference, the four elements of effective instruction (see above) namely *quality of instruction*, *appropriate levels of instruction*, *incentive* and *time* play an important role, influencing students' choice of subjects. So, the way teachers function as guides to information sources or as facilitators of learning, is critical. Steyn (2007:28) confirms:

  > Apart from different abilities, attitudes and interests, learner characteristics represent a wide range of cultures, languages, religions and socio-economic backgrounds. Learners also have different educational needs.

  Good and Broophy (1989:26) endorse further:

  > It is difficult to create lessons that are effective for all the students in a class or group, because students differ in ability, reading level, possession of relevant background information and vocabulary, content interests, and preferences for different types of lessons and assignments. Often it will be necessary to supplement group lessons with enrichment assignments for some students and remedial work with others.

- Concerning textbook preference, the findings show that the level of choice is close to the degree of subject preference. However, the textbook preference may be linked to textbook quality in terms of structure, illustration, clear specification of lesson objectives, allowance made for students' background knowledge, and adequacy of content in an appropriate language, et cetera.

- A brief comment on local language and associated textbook in Grade 6 is apposite. It appears that local language is being introduced gradually and the materials used are still at the piloting stage and relatively scarce.

- The results of inquiry concerning subject and textbook preferences at upper primary level bear out the view that some subjects (e.g. Local language, Crafts/ Arts, Visual/ Aesthetic Education, Music Education) should either not be taught at upper primary level or should be taught without using formal textbooks. The main argument for this position is the high cost to Government of purchasing textbooks, since the Basic education is free of charge in Mozambique.

The researcher must deviate from the above position for the following reasons:

- We are living in a globalization era that requires multiskilled citizens.
- Textbooks are essential resources for curriculum implementation. Mingat (2005:126) emphasizes that "in general, empirical studies highlight textbooks as a variable with a high cost-effectiveness ratio for improving learning."

The researcher must therefore, agree with Monyokolo and Potenza (1999:243) that "in order for the new curriculum to be successfully implemented, every learner should receive a textbook for each learning programme under study."

Mingat (2005:126) endorses this view as follows:

> Around 15 years ago it was thought that in situations with limited resources, one textbook for two students would be a reasonable compromise. More recent empirical studies suggest that it is important for all students to have textbooks.

In fact, the textbooks will help teachers (provided quality requirements are met) to fulfill their role effectively as guides to information sources or as facilitators of learning. Mingat (2005:126) aptly observes: "When all of the students have textbooks, the teaching approach can change and the teacher can use the book as support material, both for the lessons and for the students' individual work."

That it is to say, in a situation where textbooks are not available for all students, teachers will be inclined to remain the exclusive source of information or content transmitter, placing students in a position where they become passive receptacles of knowledge. This attitude based on a misconception about learning behaviour should change in order to enable student-centered learning as emphasized in the new curriculum.

Obviously, appropriate use of textbooks requires good preparation by teachers. As noted by Mingat (2005:135): “the resources are only means that create a context that is more or less favorable for learning. They are not the learning itself.” In this case, the textbooks are intended to enable student-centered learning, to which end have to assume the role of a guide or facilitator.

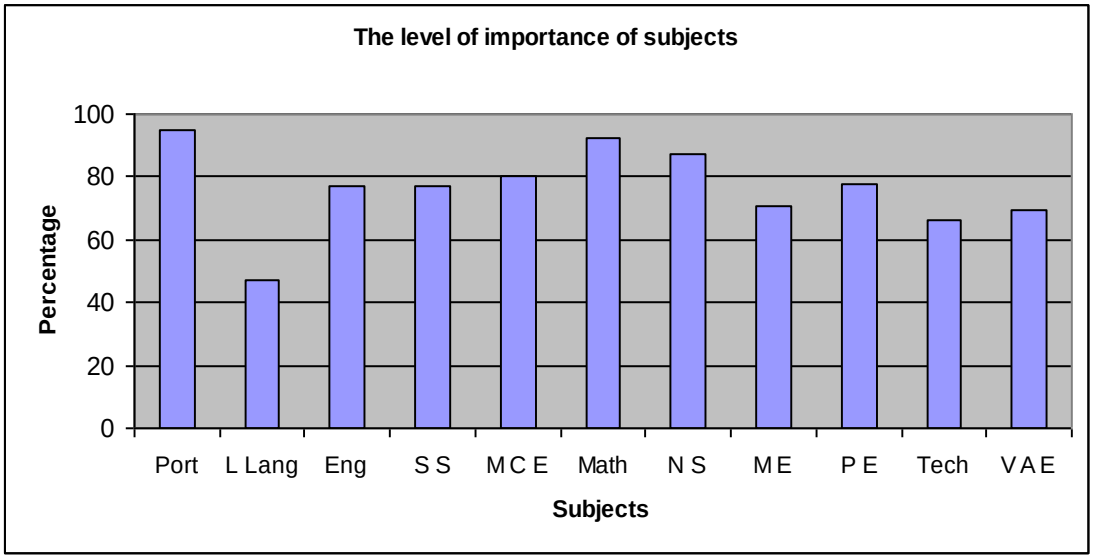
Students’ opinions about the relative importance of subjects and their concomitant preference for the related textbooks in the context of implementing the new curriculum are reflected in Figures 6.1 and 6.2.

6.4.7 Participating students’ reading of books other than textbooks

It was remarkable that an overwhelming majority of participating students (91.4%) agreed that they read books other than their school textbooks. This extended reading range was found to be most prevalent among Maputo City’s students compared to Sofala and Niassa (see Table 5.25).

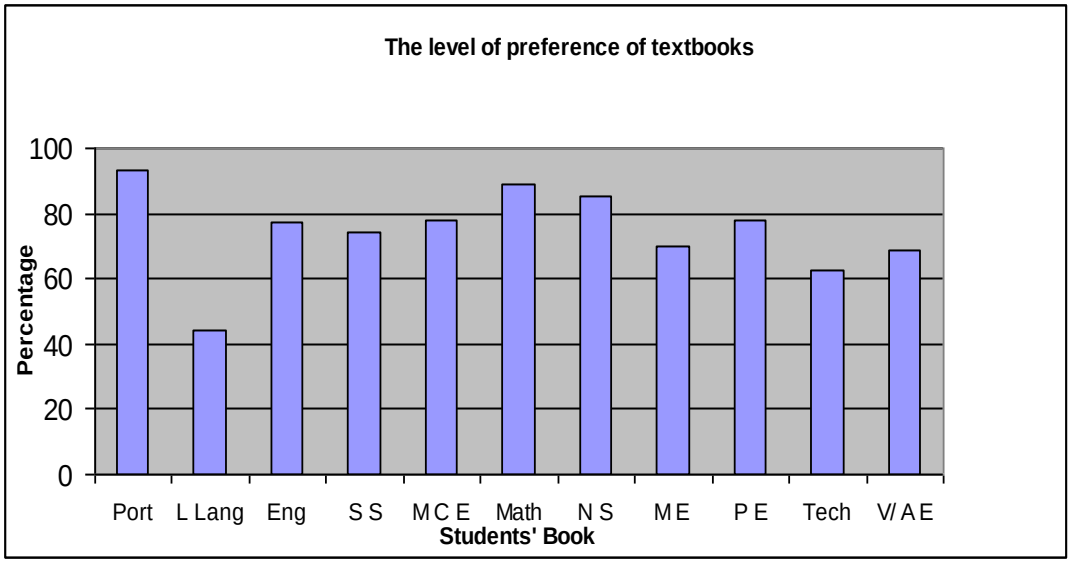
To control the above findings, the students were required to state as well whether they did not read books other than their school textbooks. Notably, 22.5% responded in the affirmative. Nevertheless, even if a margin of error is allowed in their responses, it became obvious that most of the respondents do read books other than their textbooks. The lowest affirmative response came from Niassa respondents.

Figure 6.1: Bar chart reflecting students' attribution of relative importance to subjects taught in the context of implementing the new Curriculum



Port- Portuguese; L Lang- Local Language; Eng- English; SS- Social Sciences; M and CE- Moral and Civic Education; Math- Mathematics; NS- Natural Sciences; ME-Musical Education; PE- Physical Education, Tech-Technology; V/AE- Visual/ Aesthetic Education

Figure 6.2: Bar chart reflecting students' expressed preference for textbooks used in the context of implementing the new Curriculum



Port- Portuguese; L Lang- Local Language; Eng- English; SS- Social Sciences; MCE- Moral and Civic Education; Math- Mathematics; NS- Natural Sciences; ME-Musical Education; PE- Physical Education, Tech-Technology; V/AE- Visual/ Aesthetic Education

6.4.8 Students' perceptions of learning outcomes in the context of implementing the new curriculum

According to Deacon and Parker (1999) an outcome can be described as a "demonstrated ability". Malcolm (1999:91) similarly describes it as follows:

> Outcomes must be demonstrations or performances, not thoughts, understandings, beliefs, attitudes, mental processes, not grades, numbers, averages.

Malcolm (1999) holds briefly and more precisely that an outcome is sometimes similar to *behaviour*. This concept is in a wide sense also associated with the effectiveness of education as Steyn (2007:30-31) clarifies:

> The effectiveness of education can properly be indicated by how well school leavers are prepared for further education and training or by how well school leavers are prepared to engage their skills to meet entrepreneurial opportunities that present themselves, even in the most rural and remote areas of developing nations. The effective education system should prepare learners for job creation and / or job placement.

Indeed, *outcome is the effect or result of an action or event*[22]. In the present context, therefore, outcomes devised for students can be seen as the effect or result of learning. In this context, outcome is linked to success as *the achievement of a desired aim.*[23] Thus, student success at school may be understood as the achievement attained in the process of learning.

In view of the above, it was justifiable for this study to analyze the achievements of students and their learning outcomes in the new curriculum. However, the measuring of students' outcomes, in a wide sense, would require a reasonable period of learning practice, among other aspects. As Bernhardt (1999:61-62) points out:

> It is often stated in the literature that it takes about five years from the time a school starts to rebuild for increased student achievement to the time it will see sustainable increases in student achievement directly attributable to school improvement efforts. This time may be decreased if the entire school is committed to the school improvement effort and

[22] Definition extracted from Oxford Advanced Learner's Dictionary of Current English, fifth edition, edited in 1995 by Jonathan Crowther, Oxford University Press.
[23] Definition extracted from the same Dictionary indicated at footnote 1.

understands the following at the school level and at the individual teacher level:

Who the school's clients are, and how they learn best
The impact of current processes on all student learning
What the school community expects students to know and be able to do.

The current study intended to analyze the efforts in progress towards rendering student learning effective by ensuring effective implementation of the new curriculum (see Research Questions, section 1.4).

Many aspects of efforts to promote students' achievement have been analyzed in the discussion of other items above, especially s*tudents' beliefs: attitudes about school and learning*.

So, at this stage, with the outcome concept in mind, the analysis of students' outcomes centred on their perception of learning in the context of the new curriculum, assuming that this perception may exert a significant influence on their behaviour. Incidentally, Good and Brophy (1989:33-34) have also observed that "students' reactions to their own performance will depend not so much on their absolute levels of success but on their perceptions of what they have achieved."

Consequently, it was considered that students should take more responsibility for their own learning with teachers serving as guides or facilitators. It is appropriate, therefore, to consider students' opinions on their performance in order to draw important lessons as evidenced below:

- The majority of students (82.4%) who participated in the study confirmed that doing well in school makes them feel good about themselves. Students from Maputo city rated higher (85%) compared to Niassa (82.1%) and Sofala (81.1%) (see Table 5.25). Section 6.5.2 showed that 81.7% of the students agreed that their teachers expected them to do their best. It seems, therefore, that these findings reflect the high expectations of schools as relayed to students, especially by teachers. In effect, the findings under discussion show that the surveyed students were aware of a strong relationship between learning efforts required from them and achievements resulting from their

effort as a personal reward that is highly regarded by their teachers, parents and all the interested parties.

- Similarly, the results showed that 79.9% of the surveyed students (see Table 5.25) agreed that they were doing their best at school, and that students from Maputo City consistently rated higher than other participating provinces. This finding not only reveals the individual efforts of students or commitment to learning activity, but also the level and effectiveness of guidance and support they receive, especially from their teachers and families.

- Finally, 77.3% of participating students (see Table 5.25) in the study indicated that they felt successful at school. The highest rate of agreement on this matter was scored by Niassa (81.7%), followed by Sofala (76.5%) and lastly by Maputo City (76.3%). Normally students attribute their success to school achievements, translated into good results, especially in tests. The Mozambican situation in this regard is not far removed from the reality of other learning contexts, from which important lessons can be drawn. O'Leary (2008: 109) notes the following in this regard:

> Among the problems they found in reports from countries such as Belgium, Canada, England and France were making that failed to offer guidance for improvement, poorly defined criteria to support judgements, tests that encourage rote learning, use of approaches were pupils are compared to one another, a focus on filling records than analyzing pupils' work, a lack of attention to the assessment records or practices of other teachers in the same school, little engagement in critique of what is assessed or the methods used.

In view of these and other findings discussed above, it follows that considerable effort will be required to translate what students consider as an achievement into learning performance if they are to regulate their own learning. Good and Brophy (1989:33) contend that;

> "…teachers need to encourage students to develop the following perceptions and attributional inferences concerning their performance at school if students are to come to regulate their own learning: effort-outcome covariation[24], internal locus of control[25], concept of self as

[24] Students need to recognize that there is a predictable relationship between the level of effort they invest in a task and the level of success they can expect (Cooper, 1979).

> origin rather than pawn[26], sense of efficacy or competence[27] and incremental concept of ability[28]."

The quotation above highlights the new role of teachers as facilitators of students' learning. In light of this, it brings to our attention the main change that should be operated in our schools towards effective implementation of the new curriculum. While this is the case, it should be clear that there is a hard task ahead to achieve the goals of the new curriculum, as it requires time and patience. Van den Akker (2003:68) points out that:

> the transition from subject matter expert to facilitator of learning creates strongly ambiguous feelings, touching the professional identity of teachers. Student-centred coaching approaches appear to require even more profound disciplinary knowledge and a more flexible pedagogical repertoire in order to provide adequate responses to various conceptions, questions and interests of students.

The teachers' challenge is to ensure that the students become active subjects in the teaching-learning process and that all of them achieve measurable learning outcomes. In other words, as Mahomed (1999: 164-165) points out,

> "…the challenge of teaching in the context of the problems we have has to be met in innovative and creative ways of teaching and learning. These should enable teachers to respond to the varied needs of learners and conditions which exist."

B. RESULTS OF SECOND-GENERATION FACTOR ANALYSIS

6.5 DISCUSSION OF RESULTS ANALYZING PRINCIPALS' RESPONSES

The factor analysis that was applied to the responses of principals on the implementation of the new basic education curriculum in Mozambique revealed the following two factors:

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[25] Students should believe that they can from performing achieve success on their own initiative, at least to some extent, rather than believing that their performance is determined by external factors that they cannot control (Stipek and Weiss, 1981)

[26] Students needs to recognize that they can bring about desired outcomes through their own actions (De Charms, 1976)

[27] Students must believe that they have the ability to succeed on a task if they choose to invest the necessary effort (Weisz and Cameron, 1985).

[28] Students should see academic ability as a potential that is developed continually through learning rather than a fixed capacity that predetermines and limits what can be accomplished.

- Leadership and capacity building
- Innovative classroom practice

This result basically coincides with that obtained through quantitative analysis of principals' responses. It shows the importance of school leadership, capacity building and innovative classroom practice as a means towards successful implementation of the new curriculum. Pertinent comments were made during the discussion on quantitative results of principals' questionnaire. Additional remarks are presented in 6.7 below. Nevertheless, it is worth noting that in terms of leadership and capacity building in the context of implementing the new curriculum implementation, the principals' responses to the survey linked with the present research:

- Promoting collaboration among teachers through which they were developing new skills by sharing professional knowledge relating to the new curriculum (94.4%, V16)
- Close relationships with teachers, other staff members, students and parents (92.8%, V10)
- Coordinating and managing the learning process in context with implementing the new curriculum (91.9%, V17)
- Effective professional development programme for implementing the new curriculum (88.7%, V12);
- Operation of an action plan produced collectively in school for effective implementation of the new curriculum (87.9%, V11);
- Undertaking regular and productive staff meetings on implementing the new curriculum (84.6%, V14);
- Challenging teachers and students continuously to meet curriculum goals (80.7%, V13).

Concerning innovative classroom practice for successful curriculum change, the participating principals asserted the relevance of:

- Teachers' use of a variety of active methods in classroom practice as required by the new curriculum (92.7%, V22);

- Considerable efforts made by teachers to observe interdisciplinarity principle in the lesson plans drawn up in context with implementing the new curriculum (92%, V20);

These findings highlight the key issues involved in preparing Mozambican principals to meet the obligations of their school leadership role in the context of implementing curriculum change, starting from school resocialization in its complex three dimensions: restructuring, reculturing and retiming (see section 1.6.5). Furthermore, the findings indicate that principals should spend at least equal amount of time on curriculum leadership tasks and school administration. The Mozambique experience shows that principals in that and many other countries of the world are inclined to spend more time on administrative tasks than on pedagogical issues. In this regard, Marsh and Wills (1999:198) observe:

> School principals should spend as much time concentrating on pedagogical tasks (providing leadership, support, instruction) as they do on administrative tasks (answering inquires from the public, writing letters, filling out forms, making financial decisions). However, various studies indicate that school principals do not spend equal time on these two areas; instead, they spend far more time on administrative tasks.

The problem articulated in the above quotation implies also the school resocialization (see above).

6.6 DISCUSSION OF THE RESULTS OF FACTOR ANALYSIS OF TEACHERS' RESPONSES

The analysis applied to teachers' responses concerning implementation of the new basic education curriculum in Mozambique revealed the following two factors:

- Leadership and rewarding
- Innovative classroom practice and capacity building

Throughout the discussion of the quantitative results of teachers' questionnaires, both factors were highlighted and analyzed in some detail. However, it is worthy to stress the relevant role of school leadership in creating a conducive environment, that enables true sharing of the decision-making process; community participation; better use of government support or of external contribution; putting in place a

common agreed plan; adequate support to members; and provision of resources by a process that is secured by effective ability of communication, all in accordance with the theoretical framework.

Effective school leadership must promote students' learning without fail. Monyokolo and Potenza (1999:236*)* support this argument, observing that:

> "Teachers are in many senses the most important educational resource we have and they will determine whether the new curriculum succeeds or not. Therefore, the success of the new curriculum depends on the training and support that teachers receive, and their ability to mobilize and manage the resources around them to implement the curriculum."

Similarly, Malcolm (1999) argues that effective teaching and capacity building as well as creating conditions that enable teachers to strive effectively towards desired student outcomes must be primary concerns of school leadership. Real change is translated into positive school atmosphere, by means of an effective teaching-learning process and innovative classroom practice.

6.7 DISCUSSION OF THE RESULTS OF FACTOR ANALYSIS OF STUDENTS' RESPONSES

From the responses of students, the factor analysis leads to four factors that are critical for the success or failure of implementing the new basic education curriculum:

- Student attitude to learning activity
- Subject content of the curriculum
- Friendly and supportive school environment
- Curriculum relevancy to real life and self-learning motivation

These four factors are clearly expressed and they encapsulate the main conclusions derived from discussion of the results of the quantitative analysis of students' responses. Therefore, the pertinent comments were already made. Nevertheless, it turns out to be opportune to go back to those comments and whenever necessary to make additional remarks.

6.7.1 Factor 1: Student attitude to learning activity

The study shows that student attitude to learning activity includes students' expectations, learning opportunities and outcomes (understood as learning performance in line with the discussion in section 6.5.8).

In connection with students' expectations, the concept of *positive teachers' expectations* translated into teachers' beliefs that their students can learn, has already been highlighted. Consequently, the students were expected to do their best at school. However, according to Good and Brophy (1989), this concept covers other important matters such as: (1) teachers assuming the role of facilitators; they accept responsibility for teaching their students; (2) teachers do not only believe that their students can learn, but above all, that they can teach the students successfully; (3) teachers help their students to overcome their learning difficulties, repeating explanation when required; and (4) if the regular curricular materials are not adequate, teachers obtain additional resources to help students to master the content.

Given these considerations, we argue that students' expectations are associated with positive teachers' expectations, which not only place the students in a challenging situation, but also in a supportive learning environment. Thus, in a sense students are to some extent, "forced" to perform well at school and have high expectations about learning effectively.

Students' learning opportunities depend mainly on the amount of time available for learning. Mingat (2005:114) argues that:

> "…(i) time spent in school is a fundamental ingredient for learning (which should encourage some countries to increase this time), and (ii) the productivity of this time can vary greatly depending on how efficiently it is used."

Therefore, on the one hand, learning time may be analyzed in terms of a school year calendar or a daily school timetable, or on the other hand, in terms of how teachers

organize and guide learning activities, allowing students to spend time effectively and consequently perform better at school.

Teachers' and students' absenteeism should be vigorously counteracted and tolerated exclusively in serious emergencies. However, even under these circumstances, it is imperative that school leadership endeavour to find replacement teachers or assign effective learning tasks to students. Furthermore, teachers should take remedial measures to combat absenteeism.

High students' expectations associated with effective learning opportunities open the door to desired students outcomes. Meanwhile, as Good and Brophy (1989:34 -35) aver, it is extremely important that:

- Students should be aware that learning may take time and involve confusion or mistakes, but that persistence and careful work can eventually yield knowledge and skills mastery, which not only represents success on a particular task, but provides them with knowledge or skills that will make them more capable of handling future tasks at a higher level.

- Students need to know that their intellectual abilities are open to improvement rather than fixed and limited, and that they possess a great many such abilities. In short, students must realize that success depends not only on general ability but on the possession and use of specific knowledge and strategies.

- According to the teachers' behaviors, students should see that their efforts (even if they are wrong in the short run) lead to useful feedback that can help them achieve desirable goals.

6.7.2 Factor 2: Subject content of the curriculum

With regards to factor 2 (subject content of the curriculum), the students' responses indicated that some groups of students prefer certain subjects more than others. For instance, while a group of students stated preference for subjects linked to practical

activities such as arts and Physical Education, another group expressed a preference for Portuguese, Mathematics, English, Natural Sciences and Social Sciences. Levels of preference also vary considerably within groups.

As noted during the discussion of quantitative results, this finding raises the question that has been hotly discussed: should some subjects be removed, or should school textbooks for these subjects be withheld? The specific subjects include Arts, Crafts (Practical Arts), Music Education and Mozambican Languages: some people have boldly asserted that these subjects should be removed from the new upper primary curriculum in Mozambique.

Pursuant to arguments presented against the subjects' removal during the discussion on the quantitative results, the following remarks were pertinent:

- Concerning Mozambican local languages, to be taught as facultative subjects at upper primary level, it seems apposite to suggest that schools where Mozambican languages are not taught, could utilize the time scheduled for these languages to teaching Portuguese or another subject at discretion of the school leadership to meet the students' need with a view to improve their learning performance.

- Local language (i.e. home language or mother tongue) determines individual identity and exemplifies group or communal identity. Local languages therefore have to be preserved and developed as an integral part of presenting the local cultural heritage and protecting and respecting human rights. Moses (2002:27) aptly remark that:

> If people cannot honor their own culture and history; both privately and publicly, they are essentially giving in to the oppressive pressure of forced assimilation into the dominant culture.

So, on the one hand, schooling in Mozambican languages is intended to renew and deepen students' connection with Mozambican culture, while promoting communication in a multi-lingual context with a view to enhancing national unity.

Music Education plays an important role in full and harmonious development of the psychomotor, emotional, communicative, cognitive and intellectual aspects of students' personal development.

Crafts (Practical Arts) are aimed at making the curriculum of basic education more relevant to real life. Thus, through Craft subjects it is intended in an early stage to set up the linkage between education and labour community activities of the geographical area in which the school is located, ensuring the development of the necessary skills of young students towards real life situations.

- According to PCEB (2003), Art subjects are intended to develop the ability to observe, discover, imagine and communicate through image as part of aesthetic education: creating, drawing, painting, modelling and making geometric constructions, among other activities. It is also an important contribution to full and harmonious development of students' personality potentialities in the psychomotor, emotional, communicative, cognitive and intellectual domains.

Obviously, as Tedesco (1997:16) points out

> discussing the purposes of education regardless of operational considerations would be not only sterile from the point of view of action, but also abstract and infertile from a theoretical point of view.

However, Mahomed (1999:168) further avers that:

> We have to set high goals for our education system if we are to reach any level of meaningful quality. Of course, the plan has to be shaped by the reality principle, and implemented solidly on pragmatic grounds.

According to Rasool (1999: 179), "learning areas are organized so that learners go beyond isolated facts, make connections across disciplines and help shape a more holistic view of life."

Thus, with a view to integrating the basic education curriculum through interdisciplinarity, some school textbooks may be combined to form one textbook instead of two or three different textbooks (e.g. Art and Craft subjects, Music and

Physical Education subjects, or Arts, Crafts and Music Education). In such cases it is important to take account of the resultant volume of material included in combined textbooks which will naturally depend on the goals defined for the integrated subjects.

Above all, as indicated earlier, the factor associated with subject preference calls attention to the need to revise classroom practice to ensure effective teaching-learning processes that cater for the interests of all learners in a variety of subjects and that motivate them to engage in active and sustained learning to achieve envisaged outcomes. Hameyer (2003:41) contends that *"the quality of a curriculum can only be as good as the quality of the curriculum process."*

6.7.3 Factor 3: Friendly and supportive school environment

During discussions of the quantitative results yielded by the students' questionnaire, the items that suggest a friendly and supportive environment were isolated and the conclusion was drawn, accordingly, that the domain of school climate was being entered. Freiberg and Stein (1999:11) assert that,

> "school climate is the heart and soul of a school. It is about that essence of a school that leads a child, a teacher, an administrator, a staff member to love the school and to look forward to being there each school day."

Therefore, nationwide implementation of the new curriculum cannot be achieved unless all schools are committed to creating and ensuring a school climate that conduces to a friendly and supportive school environment. Freiberg (1999:10) argues that:

> any one factor will not in itself determine a school's climate and its influence on the learning of students. However, it is the interaction of school and classroom climate factors that create a fabric of support that enable members of the school community to teach and learn at their optimum levels. While climate is mostly an affective or feeling element of learning, it has clear implications for achievement and academic well being. Lasting change comes from the little things in schools and classrooms.

A brief comment on the essence of this argument is appropriate. Going back to the discussion regarding students' opinions about the level of their school challenges and how they themselves felt challenged at their school, it is concluded from the above quotation that the level of challenge from the students' point of view can be explained at school level (macrolevel), and at the classroom level (microlevel) (See page 176).

Furthermore, it was noted that in the context of this environment, teachers maintain pleasant, friendly classrooms in ways that are perceived as enthusiastic and supportive facilitators or learning guiders. Undoubtedly, the school climate, with these features, appears as an affective element of learning with clear implications for students' achievements.

It is extremely important that the school leadership and teachers pay special attention to details of school organization with focus on classroom practice. If these things are done, lasting change will come from little things in schools and classrooms. According to Moises (2002:91) the students should feel valued and worthy, an essential condition through which "*they are more likely to have a sense of possibilities of their lives*", that is, of having a sense of being able to learn successfully if they engage seriously in study with the support of their teachers, and therefore achieve the desired outcomes.

Meanwhile, in order to ensure that all these remarks are translated into fruitful action, it is fundamental to not lose sight of the following remark of Van der Akker (2004: 9):

> Cross-fertilization between curriculum teacher and school development is a **condition sine qua non** for effective and sustainable curriculum improvement. The increasingly popular mission statement of schools to become attractive and inspiring environments for students and teachers can only be realized when such integrated scenarios are practised.

6.7.4 Factor 4: Curriculum relevancy to real life and self- learning motivation

At an earlier stage of this report, more precisely in the beginning of the background information, it was highlighted that the main objective of the Basic Education

Curriculum Transformation Project was to make the curriculum more relevant to the new socio-economic and political reality of Mozambique.

In harmony with the students' responses to the survey questionnaire, the new curriculum is perceived as being relevant to real life, a feeling that, from the outset, might stimulate the students to learning. Nevertheless, the students' perception of curriculum relevancy may only last and be reflected in learning outcomes if the new curriculum is implemented effectively in classroom practices and other supplementary school activities.

As noted in section 2.2 of this report, the new curriculum as planned and formalised in a written document is only the intended curriculum, the ideal curriculum, which may look different from the operational, experiential or implemented curriculum. In this regard Hamayer (2003:31) avers:

> The operational curriculum comprises other conditions compared to what is written in syllabus; and the perceived curriculum, in turn, emphasizes the views of students or parents of how they encounter the school curriculum.

Furthermore, Hamayer (2003:41) goes on to say:

> The quality of a curriculum can only be so good as the quality of the curriculum process. This process has to take into account the self-renewing capacity of the individual school."

Although this quotation clarifies the discussion up to here, three factors relating to curriculum relevancy remain outstanding: (1) quality of curriculum; (2) quality of curriculum process; and (3) self-renewing capacity of the individual school.

The quality of a curriculum is mainly characterized by relevant content that provides knowledge and develops skills and attitudes, taking into consideration national education goals and the demands emerging of the process of regional integration as well as the global context. The quality of the curriculum process is exemplified by the quality of curriculum implementation, that is, how effectively the intended curriculum is puts into practice.

Regarding the self-renewing capacity of the individual school, note the following consideration (*cf*. Bernhardt, 1999:2-4):

- The success of a school depends on its prior thinking about the improvement or restructuring process.

- School staff must understand from the beginning that major elements of change are internal rather than external, requiring a transformation of all individuals' thinking about schools, students, teachings and learning.

- A true collegial school must be learner centred; its staff must communicate effectively and continuously about student learning; and, they must work together, developing a learning continuum for students as their highest priority.

- These new ways of thinking and operating require strong teachers and principals who are capable of new levels of communication — who know from the start that there is no final destination, only the hard road ahead and that school improvement is a continuous process.

So, curriculum relevancy should be made appropriate in effective implementation, which in turn is reflected in students' desired outcomes.

We have discussed the correlation between the relevancy of curriculum and the related process, which is mainly driven by and dependent on students' motivation. As noted by Slavin (1989:10):

> Students will be motivated to learn about a topic that is presented in an interesting way that makes sense to them, that they feel capable of learning. Further, students' motivation to exert maximum effort will be influenced by their perception of the difference between their probability of success if they exert themselves and their possibility of success if they do not.

It is important to note that students' self-motivation to learn is greatly determined by laying emphasis on the possibility of success if their sincere efforts are supported by their teachers.

6.8 ALIGNMENT OF RESULTS OF THE FREQUENCY ANALYSES WITH RESULTS OF THE FACTOR ANALYSES (COMMONALITIES)

6.8.1 Principals' questionnaires

The reliability analysis of data from the principals' questionnaire was based on 14 items. A Cronbach alpha value of 0.8418 was recorded, which is above the critical value of 0.7 serving as the benchmark for reliability of the measuring instrument.

Looking at the "corrected-item-total correlation" reveals no decline below the critical value of 0.3. This implies a sound correlation between individual items and the total score (Appendix D1).

Therefore, a comparison of Table 5.10 (summary of participating principals' attitudes, determined from the results of quantitative analysis) with Table 5.33 reflecting a rotated factor pattern matrix of the four factors extracted from principals' responses during the first-order factor analysis, and with Table 5.34 reflecting the clustering of four factors into two confirmed factors extracted from the responses of participating principals during the second-order factor analysis, we can see that:

- In the quantitative as well as the first factor analysis, the investigation accepted all 14 items of the concerning principals' questionnaire.
- The resulting factors were clustered or grouped into variables or items, some of which show strong internal consistencies, given their factor loadings in the factor analysis.
- The quantitative analysis shows how often each variable or item occurs (frequency of recurrence) and what percentage of the total this represents.
- Factor analysis revealed no correlation between the frequency of each variable and the relevant factor loading.
- The second-order confirmatory factor analysis excluded four items with low factor loadings. The excluded items were variables 15, 16, 21, and 23 (although the factor loadings indicated for the determined factors (*cf.* Table 5.10) are greater than 0.3, they are low, nevertheless, in comparison with other factor loadings).

[Note that according to Kline (1994: 6) "it is usual to regard factor loadings as high if they are greater than 0.6 (the positive or negative sign is irrelevant) and moderately high if they are above 0.3. Other loadings can be ignored." Moreover, Kline (1994:6) asserts that "all interpretations of factors, based on loadings, should be validated against external criteria."]

- Frequency or quantitative analysis and factor analysis basically led to the same conclusions (see section 6.7).

In effect, comparing the results of the quantitative analysis of the questionnaires given in Table 5.10 with the results of the first-order investigative factor analysis presented in Table 5.27, both relative to the principals' leadership role can lead to meaningful conclusions. Thus, it became clear from the results of quantitative analysis that some aspects of the new curriculum had a critical bearing on implementation, as is shown by the relatively low percentage of participating principals who rated those aspects positively, namely:

- Level of school principals' satisfaction with "local curriculum" development within their schools (70.2%, V23);
- School principals' efforts to maximize the amount of school time provided for learning under the new curriculum (79.9%, V18);
- Level of satisfaction derived by principles from existing school climate, evidenced by sharing and cooperation towards successful curriculum implementation (79.9%, V21).

Table 5.27 illustrates, in reflecting the results of the first-order investigative factor analysis that all the aforementioned critical aspects are subsumed under the variables that were clustered to form a common factor - "school restructuring and reculturing" (see Table 5.27). Note that variable twenty-one (V21, see Table 5.27), is tied up with the other two factors (mutual support and professional development, as well as innovative teaching initiatives). In turn variables (V19) and twenty-three (V23) are also tied up with the factor "mutual support and professional development". According to Table 5.27, other variables falling under "school restructuring and reculturing" are indicated below together with the related percentage of agreement ascertained from the quantitative analysis:

- Level of school principals' satisfaction with the renewal school organization to suit the requirements of the new curriculum (87.9%, V19);
- Principals' efforts to challenge teachers and students continuously to fulfil curriculum goals (80.7%, V13).

So, while in the first-order factor analysis, the variables V23, V18, V21, V19 and V13 were clustered in a common factor "school restructuring and reculturing", the frequency analysis highlighted the 'correlation' of the first three variables (V23, V18 and V21) and the last two variables (V19 and V13) through relatively low and high percentages respectively. The fact expressed in this statement shows that both analyses (quantitative and factorial) in light of the content of the clustered variables "school restructuring and reculturing" is a suitable common factor", except only that by joining the factor analysis together the variables as shown help to identify of 'correlation' even for investigation through frequency analysis. From the literature we know that restructuring and reculturing together with retiming are the three important dimensions of school resocialization, which is a time-consuming process (see section 1.6.5). Therefore, it makes sense that at the same time when 87.9% of the principals expressed their satisfaction with the level of school organization that was being created to cope with the requirements of the new curriculum, only 79.9% stated that the existing school climate enabled sharing and cooperation towards successful curriculum implementation. This also express the apparent contradiction between variable thirteen (V13) and variables twenty-three (V23) and eighteen (V18). The fact that some variables included in the factor labelled "restructuring and reculturing" are also connected with the factors "mutual support and professional development" as well as "innovative teaching initiatives" indicates the complexity and all encompassing nature of school resocialization, as indicated earlier (see the last paragraph of section 5.6.1).

In the quantitative analysis (Table 5.10), the following variables are notable:

- School principals' efforts to ensure improved achievement and to promote collaboration among teachers and develop new skills by sharing professional knowledge of the new curriculum (94.4%, V16);

- School principals' efforts to ensure improved student achievement by fostering a close relationship with teachers, other staff members, students and parents (92.8%, V10);
- Level of school principals' satisfaction with teachers' use of a variety of effective methods as required by the new curriculum (92.7%, V22);
- Level of school principals' satisfaction with efforts made by teachers to observe the interdisciplinarity principle in the lesson plans they devise in accordance with the new curriculum (92%, V20);
- School principals' efforts to ensure improved student achievement by coordinating and managing the learning process (91.9%, V15)

Regarding this group of variables derived from quantitative analysis, note that in accordance with Table 5.27, while the variables sixteen (V16) and ten (V10) are grouped with variables that were clustered in a common factor labelled "mutual support and professional development", the remaining variables (V22, V20 and V15) were clustered in another common factor labelled "innovative teaching initiatives". Notably, Table 5.27 shows that variable sixteen (V16) is also associated with the factor "innovative teaching initiatives". Furthermore, Table 5.27 illustrates other variables (of which percentages of agreement obtained in quantitative analysis are indicated in brackets) falling under the factor "mutual support and professional development". The variables are:

- School principals' efforts to ensure improved student achievement by putting in place an action plan produced collectively by the school for effective implementation of the new curriculum (87.9%, V11);
- School principals' efforts to ensure improved student achievement by means of effective professional development of the new curriculum (88.7%, V12).

Therefore, from both analyses (quantitative and factorial) two more factors for effective curriculum change were extracted: "mutual support and professional development" and "innovative teaching initiatives". This result is also supported by previous studies undertaken around the world concerning curriculum change (see sections 1.6.2 and 1.6.6).

Finally, in Table 5.10 another two variables — also highly rated — concerning school principals' efforts to ensure improved student achievement are indicated:

- Undertaking regular and productive staff meetings about the new curriculum (84.6%, V14);
- Continuous monitoring of teachers' performance on implementing the new curriculum (87.1%, V17).

As shown in Table 5.27, these two variables (V14 and V17) were clustered under the common factor labelled "Leadership", which is the key factor, shown up in both analyses (quantitative and factorial), for successful curriculum change: they definitely condition the other identified factors of effective curriculum implementation in light of the school principals' role (see section 1.67).

It emerged earlier that some of the items representing certain factors have high internal consistencies with other factors. This fact was taken into consideration in confirmatory factor analysis. Furthermore, as indicated above, when the second-order confirmatory factor analysis was conducted four items with low factor loadings were excluded. So, in accordance with the Table 5.35, the reclustering of variables led to two factors: (1) Leadership and capacity building and (2) Innovative classroom practices. This result reflects, in essence, the quantitative analysis as discussed in connection with the first-order factor analysis and it corroborates the findings of previous studies on successful implementation of curriculum change.

6.8.2 Teachers' questionnaire

Twenty (20) items were included in the reliability analysis of responses to the teachers' questionnaire. The Cronbach's alpha value was 0.9142, which is above the critical value of 0.6, which implying that the measuring instrument provided reliable results.

The "corrected-item-total correlation" produced no value below the critical value of 0.3, which means that each item correlates well with the total score (Appendix F). Comparing Table 5.22 (summary of participating teachers' attitude) reflecting the results of the quantitative analysis with the rotated factor pattern matrix incorporating the five factors extracted from teachers' responses during the first-order factor

analysis (see Table 5.38) and with Table 5.39 on clustering of five factors into two confirmed factors, extracted from teachers' responses during the second-factor analysis, reveals the following:

- In the quantitative analysis as well as the first factor analysis, the investigation confirmed all 20 items concerning teachers' questionnaires.
- The resulting factors were clustered or grouped into variables or items with show strong internal consistencies, taking into consideration their factor loadings.
- The quantitative analysis shows how often each of the variables (items) occurs (frequency) and what the percentage of the total this represents.
- No correlation between the frequency percentage of each variable and related factor loading emerged from the factor analysis.
- The second-order confirmatory factor analysis was conducted excluding six items: V25, V29, V30, V33, V36 and V40.
- Frequency or quantitative analysis and factor analysis led to the same conclusions.

Thus, looking carefully at Table 5.22 (summary of participating teachers' attitude) reflecting the results of the quantitative analysis with the rotated factor pattern matrix of the five factors extracted from teachers' responses during the first-order factor analysis (see Table 5.39) and with Table 5.40 which shows the clustering of five factors into two confirmed factors extracted from teachers' responses during the second factor analysis, some meaningful conclusions were drawn. From the results obtained in quantitative analysis, as noted earlier, some variables were positively and highly rated by the surveyed teachers. The content of those variables involves aspects of factors that can enable successful implementation of the new curriculum. The variables concerned indicated with the rate of alignment in brackets and associated factors as follows:

- "I feel like I belong at this school" (81.9%, V24). The content of this variable expresses the sense of school ownership associated with the factor "Positive work environment".
- "I work with colleagues who treat me with respect" (88.3%, V29). The substance of this variable is related to mutual respect among staff. It is associated with the factor "Positive work environment".

- "I work with colleagues who listen if I have ideas about doing things better in the context of new curriculum" (81.9%, V30). The content of this variable expresses the possibility of teachers sharing suggestions in the context of implementing of the new curriculum. It is associated with the factor "Positive work environment".

  (Note that the associations of variables mentioned above with positive work environment is underpinned by Freiberg and Stein (1999:11), in their assertion that "school climate is about that quality of a school that helps each individual feel personal worth, dignity and importance, while simultaneously helping create a sense of belonging something beyond ourselves").

- "My principal/ principal assistants/ learning cycle leader, learning area coordinator facilitates communication effectively" (80%, V32). The content of this variable emphasizes that principals are effective facilitators of communication in the process of implementing of the new curriculum. It is associated with the factor "Leadership". In fact, effective communication is an essential aspect of leadership. As Lovat and Smith (2003:11) observe, "poor communication breeds suspicion and breaking down of group cohesion" (See sections 1.6.6 and 1.6.7).

- "I realize that effective involvement of parents and other stakeholders is needed for successful implementation of the new curriculum" (81%, V41). The substance of this variable emphasizes the need for effective involvement of parents and other stakeholders for successful implementation of new curriculum. It is associated with the factor "Capacity building". The association of parents' and other stakeholders' involvement as a requirement for successful implementation of the new curriculum with capacity building is explained by the fact that parents and communities are becoming partners in striving for attainment of educational objectives, that is, active helpers and not only providers of financial or material support (Mentz and Xaba, 2007; Steyn, 2007). Middlewood (2001:116) noted earlier that "the recognition of the importance of parents to be more closely involved in learning partnerships with schools is vital".

In light of the above discussion, three factors can be identified from the quantitative analysis of teachers' responses, namely:

- Positive work environment
- Leadership
- Capacity building

However, the quantitative analysis of teachers' responses also presents other variables, indicating that many aspects of the new curriculum implementation require special attention, as shown by the relatively low percentage of participating teachers who rated those variables positively, as follows:

- "I realize that student achievement data are an important tool for the improvement of student learning" (69.6%, V40). This variable refers to how teachers recognize the importance of student achievement data for monitoring the progress of each student or to what extent the teachers use those data to undertake appropriate measures to ensure good performance from students. So, the variable may be linked with the factor "Effective teaching". Indeed, effective teaching implies supportive teachers who, as noted by Waxman and Chang (2006:199), "can create a learning environment for students at-risk of academic failure to enhance learning outcomes". Hence, the importance of student achievement data.
- "I realize that effective professional development is helpful in fulfillment of curriculum goals" (67.5%, V38). The content of this variable is related to teachers' understanding of the importance of professional development, which is connected with "Effective teaching" or with "Capacity building". Freidus, Grose and McNamara (2001: 58), echoing several researchers such as Fullan (1993), Hargraves (1996) and McLaughlin (1991), emphasize that "reform success is contingent not only upon the sincere commitment of teachers and administrators, but also upon the knowledge and skills they bring, their willingness to learn and implement new practices, and the opportunities available to explore what they know and need to know". So the way to achieve effective teaching is capacity building, which, through the result indicated above, requires to be revisited to ensure successful implementation of the new curriculum.

- "I realize that the new curriculum has clear learning objectives and emphasizes the acquisition of basic skills" (71.1%, V37). This variable refers to teachers' appreciation of the new curriculum with particular reference to basic skills. It may also reveal the depth of teachers' understanding of the new curriculum and how they implement it. The result of the quantitative analysis indicates that there are doubts about the viability of the new curriculum in providing clear learning objectives and basic skills. So, this variable is associated with the factor "Effective teaching" and implies a special reconsideration since it also reflects the level of clarity, vision and goals reflecting in the new curriculum (See section 1.6.1).
- "I realize that student achievement can increase through active learning methods" (72.8%, V39). This variable underlines teachers' understanding of using active methods in classroom practices. It is associated with "Effective teaching". In this regard, Lovat and Smith (2003:74) note that "the essential components of effective teaching are command of subject, and knowledge of and **capacity to implement effective pedagogical practices**".
- "I feel intrinsically rewarded for doing my job well in the context of the new curriculum" (54.8%, V28). This variable refers to the extent to which teachers consider themselves rewarded for working well in the context of the new curriculum. It can be associated with the factor "Rewarding" or with "Leadership" (see section 1.6.4).
- "I feel that teaching the new curriculum is fun at this school" (66.1%, V26). This variable is associated with the factor "Rewarding" or with "Leadership". Notable in this regard is the observation by Brown, Oke and Brown (1982) that a dedicated and hardworking teacher will find the job quite rewarding owing to the success achieved in teaching as exemplified by the outcomes of his/her learners (see section 1.6.4).
- "I fell acknowledged for good work in the context of the new curriculum" (68.8%, V27). This variable is associated with the factor "Rewarding" or with "Leadership" for the same reason mentioned above.
- "I feel that school organization is changing and enabling successful implementation of the new curriculum" (70.6%, V25). This variable is associated with the factor "Leadership". In this connection, McCallister

(2001:55) notes that “unless organizational structures are changed to promote collegial learning, reforms are likely to fail” (see sections 1.6.4 and 1.6.5).

- “My principal/ principal assistants/ learning cycle leader/ learning area coordinator is effective in helping us reach the new curriculum vision” (70.6%, V36). This variable is associated with the factor “Leadership” (see section 1.6.2).
- “My principal/ principal assistants/learning cycle leader, learning area coordinator supports shared decision making” (71%, V34). This variable may be associated with the factor “Leadership” (See section 1.6.4).
- “My principal/ principal assistants/ learning cycle leader, learning area coordinator allows me to be an effective instructional leader” (72.9%, V35). This variableis associated with the factor “Leadership”.
- “I have the opportunity to develop my teaching skills individually and to cooperate with other colleagues on the new curriculum” (79.7%, V42). This variable is associated with the factor “Capacity building” (see section 1.6.2)
- “I have the opportunity to grow professionally in the context of new curriculum implementation” (75.1%, V43). This variable is associated with the factor “capacity building” (see section 1.6.2)

As noted above, the variables that rated poorly after the quantitative analysis of responses to teachers’ questionnaire, considering their content may be connected with the following factors:

- Effective teaching
- Rewarding
- Capacity building
- Leadership

In a nutshell, five factors may be identified from examining the content and the frequency of the items: (1) Positive work environment, (2) Effective teaching, (3) Rewarding, (4) Capacity building and (5) Leadership. This result is reiterated through the first factor analysis (see Table 5.29). However, we saw earlier that some of the items or variables representing certain factors have high internal consistencies with other factors. This fact was taken into consideration in the confirmatory factor analysis. So, in accordance with Table 5.39 reflecting a rotated factor pattern matrix

incorporating five factors extracted from teachers' responses extracted during the first- order factor analysis, the reclustering of variables led to two factors: (1) Leadership and Rewarding, and (2) Innovative classroom practice and capacity building (see table 5.40). This result is corroborated by the findings of the previous studies on successful curriculum change implementation referred to in relevant literature.

6.8.3 Students' questionnaire

The reliability analysis of responses to the students'questionnaire involved 75 items. A Cronbach alpha value of 0.9257 was recorded, which is above the critical value of 0.6, thus indicating that the measuring instrument was reliable.

However, looking at the "corrected-item-total correlation", it shows that 11 items, namely V46, V54, V85, V86, V88, V89, V90, V94, V96, V107 and V118, are items with values below 0.3, indicating that, according to Kline (1994), they can be ignored (see Appendix F1).

The 11 items indicated above were therefore excluded from the process of the first-factor analysis. The possible reasons for low loading of the ignored items were:

- The measuring questions were not collecting relevant information for the study.
- The measuring questions were not clear to the respondents, so they were giving irrelevant information.
- The questions seem to be randomly answered and not reliable. Therefore, they were not correlated with other items, which were thought to be correlated with them.

A comparison of Table 5.25, in which the perceptions, beliefs and attitudes of learners who participated in the investigation are summarised with Table 5.31 reflecting a rotated factor pattern matrix transformed into eight factors, extracted from students' responses during the first-order factor analysis (see Table 5.32) and with table 5.45 in which the reclustering is shown of the eight factors into four confirmed factors, extracted from students' responses during the second factor analysis, reveals that:

- Whereas all 75 items were examined in the quantitative analysis, the investigation in first-order factor analysis excluded 11 items with low values identified through “corrected-item-total correlation” in the process of reliability analysis.
- The resulting factors were clustered or grouped into variables or items which show marked internal consistencies, considering their factor loadings.
- The quantitative analysis shows how often each variable or item occurs (frequency of recurrence) and what percentage of the total this frequency represents.
- Factor analysis did not reveal a correlation between the frequency percentage of each variable and the corresponding factor loading.
- Following the result of the first factor analysis, the second-order confirmatory factor analysis was conducted in which twelve items with low factor loadings were excluded. The excluded items were variables V72, V78, V56, V57, V62, V67, V45, V8, V47, V91, V55 and V105 (see Table 5.31).
- Frequency or quantitative analysis and factor analysis led to the same conclusions.

The results of quantitative analysis showed that some elements of the new curriculum were crucial for implementation, given the high percentage of the participating learners, who rated the said elements positively, namely:

- Their schools were good (81.3%, V61).
- Their teachers encouraged them to assess the quality of their own work, that is, work produced by students themselves (81.4%, V48).
- Their teachers expected them to do their best (81.8%, V69).
- The new curriculum would contribute to their education by inculcating the ability to present information (81.8%, V83).
- At school, they had opportunities to learn about each other (82%, V66).
- Doing well in school made them proud (82.4%, V63).
- They understood how to apply what they had learnt to real-life situations (83.5%, V47).
- Preference for Natural Sciences textbook (85.1%, V112).
- Their teachers were excited about the subjects they were teaching (86.3%, V78).

- They liked their schools (86.4%, V60).
- Natural Sciences regarded as the important subject (87.3%, V101).
- The new curriculum would contribute to their education by enhancing their skill at Mathematics ((87.9%, V82).
- Preference for Mathematics textbook (88.7%, V111).
- The new curriculum would contribute to their education by cultivating their writing skills (90.6%, V80).
- They found what they learnt in school to be relevant to real life (91.3%, V56).
- They read books other than their textbooks (91.4%, V117).
- The new curriculum would contribute to their education by cultivating their reading skills (91.6%, V81).
- Mathematics regarded as the important subject (92.5%, V100).
- Preference for Portuguese textbook (93.2%, V106).
- They like to learn (94.4%, V62).
- Portuguese regarded as the important subject (94.9%, V95).

Table 5.31, which reflects the results of the first-order investigative factor analysis of students' responses, shows that variables V106, V100, V95, V117 and V112 were clustered to form a common factor – "Portuguese, Mathematics and Natural Sciences as the most important subjects". Variable V78 is an element of the factor labelled "Guidance and supportive role of teachers". Six other variables falling under this factor were rated relatively lower in the quantitative analysis and were therefore excluded from the variables above. The variables were as follows:

- Teachers cared about their students (59.8%, V76).
- Teachers were understood when students had personal problems (65.5%, V71).
- Individual attention was given individual students when needed (71.3%, V79).
- Teachers had confidence in students' ability to learn (66.1%, V73);
- Teachers knew their students well (66,5%, V74);
- Teachers helped students to gain confidence in their ability to learn (78.7%, V72).

Variables V63, V69, V56 and V62, which were isolated by quantitative analysis shown in Table 5.31, were clustered in a common factor labelled "Student expectations and self-learning motivation". Another three variables falling under this factor were rated

relatively lower in the quantitative analysis and were therefore excluded from the group of variables indicated above. The variables were as follows:

- Teachers expect students to do the their best (79.9%, V70);
- Students were doing their best (79.9%, V64);
- Students' participation in extracurricular activities was considered important (78.5%, V67).

Variables V60 and V61, which were isolated by quantitative analysis as indicated above, were subsumed under the factor "Friendly school environment" (see Table 5.31):

- School enjoyment (72.3%, V59).
- School safety (73.5%, V44).
- School ownership (78.4%, V45).

Variables V81, V80, V83, V84 and V82, which were isolated by quantitative analysis as indicated above, were subsumed under the factor "Curriculum relevancy to real life" (see Table 5.31). Variable V84 concerning the contribution of the new curriculum by cultivating ability of students to cope with technology also falls under this factor. It was not listed above, since it was rated lower (72.2%) in the quantitative analysis.
Variable V101 was subsumed under the factor "Civic and Moral Education, Social and natural Sciences as the most important subjects". Another three variables falling under this factor rated relatively lower in the quantitative analysis and were therefore excluded from the group of variables indicated above were:

- Social Sciences as the important subject (76.8%, V98);
- Preference to Social Sciences textbook (74.4%, V109);
- Moral and Civic Education as the important subject (80%, V99).

Variables V48 and V47, which were isolated by quantitative analysis as shown in Table 5.31, were consolidated as the factor labeled "Supportive school environment". Another three variables falling under this factor were relatively lower rated in the quantitative analysis and were therefore excluded from the group of variables indicated above. The variables were as follows:

- Students treated with respect by the school administrators (79.7%, V51);
- Students treated with respect by the teachers (75.5%, V50);

- Students treated with respect by the school office staff (64.4%, V52);

Variable V66 was subsumed under the factor “Relationships among students”. Another three variables falling under this factor were rated relatively lower in the quantitative analysis and were therefore excluded from the group of variables indicated above. The variables were as follows:

- Opportunity for students to learn from each other at their schools (74.4%, V65);
- Students respect other students who are different than they are at their schools (53.5%, V68);
- Mutual respect among students (55.9%, V53).

The variable V111 underscored above in reference to the quantitative analysis, as shown in Table 5.31, constitutes the factor labelled “Preference to Mathematics textbook”. It is important to note that a factor is inherently an aggregation of several measured variables. Therefore, it is not a true factor that is reflected in only a single measured variable. This implies looking for the other variables which correlate with that variable for building an inherently true factor as discussed earlier.

A number of variables covered by the factor analysis have not been discussed yet as a result of their low rating in virtue of the quantitative analysis. The content and the frequencies of the remaining variables are as follows:

- Students’ preference for Crafts/ Arts textbook (62.4%, V113).
- Students’ preference for Visual/ Aesthetic Education textbook (68.5%, V114).
- Music Education as the important subject (70.5%, V104).
- Students’ preference for Music Education textbook (70.2%, V115).
- Crafts/Arts as the important subject (66%, V102).
- Visual/ Aesthetic Education as the important subject (69.4%, V103).
- Students’ preference to Moral and Civic Education textbook (78%, V110).
- Teachers make learning enjoyable, fun (74.9%, V77).
- Teachers listen to their students’ ideas (68.8%, V75).
- Time spent working in small groups when teaching the new curriculum (69.7%, V87).
- Working in small groups as the appropriate learning strategy for students (71.3%, V93);

- Time spent on whole-class discussions with the teacher when teaching the new curriculum (50.1%, V86).
- Working in projects or research as the suitable learning strategy for students (65.5%, V91).
- Students are themselves responsible for what they learn at school (74.1%, V58).
- Students assess their own work (73.8%, V49).
- The work at school is challenging (60.4%, V55).
- English as the important subject (77.1%, V97).
- Student preference for English textbook (77.6%, V108);
- Student preference for Physical Education textbook (77.8%, V116).
- Physical Education as the important subject (77.9%, V105).

Variables V113, V114, V104, V115, V102, V103 and V110 were clustered to form a common factor labelled “Preference to Art and Moral Education”. The variables V77 and V75 were consolidated as a common factor named “Teachers competency”, while the variables V87, V93, V86 and V91 were subsumed under a common factor “Classroom practices”. The variables V58, V49 and V55 were grouped as the factor “Learning awareness”, while variables V97 and V108 as well as the variables V116 and 105, respectively subsumed under common factors labelled “Preference to English subject” and “Preference to Physical Education subject”.

As noted above, the quantitative analysis covered all items or variables, while the factor analysis discarded eleven low-rated items or variables identified from the outset through “corrected-item-total correlation”. The content and frequency percentage of these items as follows:

- Students felt challenged at their schools (64.7%, V46).
- Teachers have to assume responsibility for what students learn at school (73.4%, V54).
- Time spent listening to the teacher talk when teaching the new curriculum (50.9%, V85).
- Time spent in whole-class discussions with the teacher while teaching the new curriculum (50.1%, V86).
- Time spent reading in the process of teaching the new curriculum (63.5%, V88).

- Time spent answering questions from a book or worksheet in the process of teaching the new curriculum (71.6%, V89).
- Time spent analyzing individual or class performance in the process of teaching the new curriculum (60.9%, V90).
- Independent work as suitable learning for students (71.9%, V94).
- "Local Language" as the important subject (47%, V96).
- Preference for "Local Language" textbook (44%, V107).
- Exclusive reading of textbooks (22.4%, V118).

This last group of variables also deserves special attention. For instance, variables 46 and 54 can be relegated to the category "students' expectations and self-learning motivation", as indicated in sections 6.5.1.and 6.5.2. The variables V85, V86, V89, V90 and V94 give relevant information about students' perceptions regarding classroom' practice, teaching and learning methodologies (see section 6.4.5). Variables V96 and V107 show as was discussed in section 6.4.6 the incipient signs of "local language" subject, which should be reconsider if the effective implementation of this innovation is to be implemented to good effect.

The considerations mooted in the general discussion above lead us to understand how quantitative analysis and factor analysis supplement each other. It was shown earlier that some of the items or variables representing certain factors have high internal consistencies with other factors. Therefore, in the first-order factor analysis through clustering of the correlated variables only eight factors were extracted: (1) Preference for Art subjects, (2) Mathematics and Natural Sciences perceived as the most important subjects, (3) Competence of teachers and classroom practices, (4) Student expectations and self-learning motivation, (5) Friendly and supportive school environment, (6) Curriculum relevancy to real life and self-motivation, (7) Preference for Moral Education and Social Sciences, and (8) Portuguese and English perceived as the most important subjects (see Table 5.32). Following the second-order confirmatory factor analysis, the number of factors was reduced into four factors: (1) Student attitude to learning activity, (2) Subject content of the curriculum, (3) Friendly and supportive school environment and (4) Curriculum relevancy to real life and self-learning motivation (see Table 5.45).

As indicated during the analysis of the results throughout section 6.5, these factors are consistent with the main findings identified in similar studies reported in the literature.

6.9 SUMMARY

This chapter analyzed and discussed the results of the empirical investigation reported in chapter 5. The association of quantitative analysis, factor analysis and reflection on pertinent literature regarding curriculum change implementation produced valuable insight into the subject of the current study. In the section analysing teachers' attitude a widespread lack of confidence is recorded by teachers in their capacity to perform their teaching role effectively in the context of the new curriculum. Therefore, incentives to motivate teachers to enhance and consolidate their academic knowledge on the basis of self-learning and cooperation among colleagues are needed. Above all, the findings lead us to reiterate that strong school leadership, enhancement of teachers' capacity and innovative classroom practices should be ensured, if implementation of the new curriculum is to succeed. It follows too, that principals' expertise needs to be upgraded to ensure positive fulfilment of their obligations.

The study reveals that students confirmed their readiness to learn to which end they needed appropriate guidance, support and learning opportunities from the school.

The main conclusions of the research under review will be brought into closer alignment with the research questions in chapter seven, the final chapter which concludes this study. The final chapter will also contain pertinent recommendations as well as a discussion of the consequences that can be expected if they are implemented. Finally the limitations of the study will be outlined and suggestions will be made towards the implementation of the new Basic Education Curriculum (BEC) in Mozambique.