

**THE RELATIONSHIP OF CLASS SIZE TO
TEACHING STYLES AND TEACHER - PUPIL
INTERACTIONS IN GEOGRAPHY:
AN OBSERVATIONAL STUDY**

BY

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**A dissertation submitted to the University of Zambia in partial
fulfilment of the requirements of the degree of Master of Education of
the University.**

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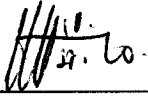
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DECLARATION

I, KANGUMU GABRIEL LIFALALO, do hereby solemnly declare that this dissertation represents my own work and that it has not previously been submitted for a degree at this or another University.

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APPROVAL

ABSTRACT

This dissertation of Mr. Gabriel Lifalalo Kangumu is approved as fulfilling part of the requirements of the award of the degree of Master of Education by the University of Zambia.

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The study establishes the relationship of these class sizes to the adoption of varied teaching styles in geography classes. It further discusses the levels of teacher-pupil interactions (lower, core or high) which characterise each class size in relation to the adopted teaching styles. The study identifies 14 geography teaching styles which fall into three categories, namely formal, informal and mixed. The formal styles are lecture, direct and indirect observations, and demonstration styles. The informal consists of discussion, project, discovery, debate, role-playing and simulation game styles. Fixed has question - answer, problem - solving, inquiry and field (study) - trip styles.

ABSTRACT

This observational study was designed to investigate the relationship of class size to teaching styles and teacher - pupil interactions in geography. This study focused on the secondary school classes at senior level encompassing grades 10 to 12. Class sizes in these grades tend to be large, not only in geography but also in other subjects. Unlike in developed countries where a class size of 35 pupils is considered large, class enrolments in developing countries like Zambia may range from about 40 to 60 pupils. Yet, such large enrolment patterns are not in conformity with those stipulated by the Education Act (1966). Three class sizes are identified, namely standard (45 pupils or fewer), large (46 to 55 pupils) and very large (56 pupils or more).

The study establishes the relationship of these class sizes to the adoption of varied teaching styles in geography classes. It further discusses the levels of teacher-pupil interactions (fewer, more or high) which characterise each class size in relation to the adopted teaching styles. The study identifies 14 geography teaching styles which fall into 3 categories, namely formal, informal and mixed. The formal comprises lecture, direct and indirect observations, and demonstration styles. The informal consists of discussion, project, discovery, debate, role-playing and simulation game styles. Mixed has question - answer, problem - solving, inquiry and field (study) - trip styles.

The three class sizes (standard, large and very large) were found to be characterized by different patterns of teacher - pupil interactions. Standard classes were found to be characterized by high teacher-pupil interactions due to the teachers' ability to adopt both informal and mixed teaching styles. The large classes experienced more teacher-pupil interactions while very large classes had less interactions. The fewer interactions in very large classes are due to the adoption by teachers of more formal teaching styles which are teacher - centred and thus impede pupils' full classroom participation.

A number of recommendations are suggested for desirable class sizes and the adoption of geography teaching styles that may enhance high teacher - pupil interactions. In addition, areas for further studies have been suggested.

DEDICATIONS

This work is dedicated to the following

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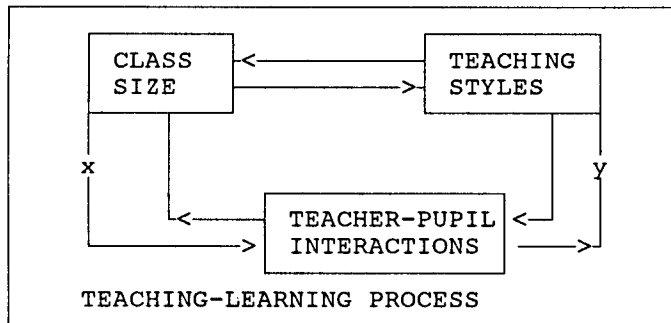
CHAPTER ONE

STATEMENT OF THE PROBLEM

1.1 INTRODUCTION

The Zambian educational system comprises three major stages, namely primary, secondary and tertiary. The two lower stages enrol pupils in accordance with regulations regarding the number of pupils to be enrolled in each class. They also employ teaching models which are meant to facilitate an effective teaching-learning process.

FIGURE 1. VARIABLES AFFECTING THE TEACHING-LEARNING PROCESS



NOTE: —————> indicates a relationship between variables.
 ———x————> indicates the direction that a teacher may take to achieve more interaction by splitting class into smaller groups.
 ———y————> direction indicating the need for a teacher to change a teaching style in order to achieve a particular level of interaction

Notwithstanding the teaching-learning materials such as textbooks and other teaching aids, one can conceive of a theoretical framework of three major variables which may affect the teaching-learning process, namely, class size, teaching styles and teacher-pupil interactions, as illustrated in figure 1.

This study examines the relationship between these three variables in the context of geography teaching at the senior secondary stage. The discussion in this chapter, therefore, will deal with these variables.

1.2 CLASS SIZE

Among other constraints such as low morale among teachers, poorly furnished classrooms and scarcity of visual-aids and textbooks, large classes have led to the decline in the quality of education in Zambia since the mid-70s (GRZ, 1989; Kelly, 1991). Large classes are a common feature in government secondary schools, in particular. For example, an average class in the Southern Province has been found to have as many as 57 pupils at junior and 63 pupils at senior level (Appendix A, p.67). However, this is contrary to the Education Act (1966) which stipulates a class size of 40 pupils or fewer for both primary and junior secondary classes, and 35 pupils or fewer in senior secondary classes.

The Zambian enrolment norm articulated by this Act is in line with international norms of 25 or 35 pupils at primary level and 20 to 40 pupils at secondary level. The argument is that such classes tend to allow teachers to invent and adopt new teaching styles, understand individual pupils through teacher-pupil interactions and employ a wide variety of teaching styles (Westbury, 1973; Bennet, 1976; Cotton, 1990). Table 1 (p.3) shows some examples of enrolment patterns found in developed countries. Such enrolment patterns may be influenced by one or more class size determinants, namely, the demand for school places, the nature of the subject, the ability levels of pupils and the capacities of available classrooms (Kidd, 1952; Johnson and Scriven, 1967; Hyman, 1974). In Zambia, the demand for school places is high due to social and economic benefits after successful completion of studies and therefore surpasses other

TABLE 1. CLASS SIZES IN SELECTED COUNTRIES

SCHOOL SYSTEM/PROFESSIONAL ASSOCIATION		PRIMARY/ELEMENTARY	SECONDARY
1	England and Wales	30 (Senior Classes) 40 (Others)	30
2	Scotland	25 (1 teacher) 30 (2 teachers) 35 (3 teachers) 10-20 (Special classes)	30 - 40 20 (practical)
3	Sweden	30	30
4	Denmark	28	24
5	United States of America (National Education Association)	25	25
6	New South Wales, Australia (Teachers' Federation Policy)	25 - 30 35	20 (practical) 22 (remedial) 35
7	New South Wales, Australia (Teachers' Federation Policy)	30	30 20 (senior) 1/2 class (practical lessons)

SOURCE: Adopted and abridged from Eastcott (1973, p.241)

determinants, leading to very large classes. Two reasons explain this. First, the high national population growth rate of 3.2 per cent has greatly increased the school-aged population. Pupil enrolment at primary level has increased at the same rate. Similarly, the enrolment at secondary level has increased. Thus, secondary school enrolment rose from 52,472 in 1970 to 95,595 in 1980 and to 161,349 in 1988 (Appendix B, p.68). Second, the number of classrooms has not increased proportionately due to the few resources available for the construction and provision of classrooms. Therefore, the available number of classrooms falls below the increase in numbers and this in turn has made the average class size to keep on rising over the years (Table 2)

TABLE 2 PUPIL ENROLMENTS (PE), CLASSROOM PATTERNS (CP) AND AVERAGE CLASS SIZE (ACS) IN GOVERNMENT SECONDARY SCHOOLS FOR SELECTED YEARS

GRADE	1976			1981			1986		
	PE	CP	ACS	PE	CP	ACS	PE	CP	ACS
8	22,113	566	39	26,091	614	42	46,757	1,035	45
9	21,263	566	38	25,411	587	43	51,909	1,125	46
10	18,867	489	39	24,331	581	42	17,324	427	41
11	8,837	253	35	11,538	302	38	16,665	415	40
12	7,724	238	32	11,491	311	37	14,324	355	40
8-12	78,805	2,112	37	98,862	2,395	41	146,979	3,357	44

SOURCE: Ministry of General Education and Culture, Planning Unit, Educational Statistics, 1984; 1986

Since the class sizes given in Table 2 are averages, the data suggest that there are many very large classes in some schools. This has resulted in classroom overcrowding since many classrooms were designed to seat 35 pupils or less (Kelly et al., 1986). For example, some schools in the Southern Province have an average class size of up to 57 pupils at junior level and up to 65 pupils at senior level. In most schools, the increase in enrolments does not mean that more classrooms have been constructed. Instead, already existing structures such as laboratories are being used to accommodate both practical and non-practical subjects for teaching purposes. In addition, some classes have been time-tabled for production unit and preparation study periods. During such periods, the classes involved engage in manual work in the school garden or farm, or they have their preparation study in the school hall. These arrangements make it possible for the same classrooms to be used by many classes for regular teaching purposes. However, this has been found to be detrimental to learning because some subjects,

for instance, science and biology are sometimes taught in rooms other than laboratories. Additionally, some of these rooms, for instance, the school hall do not have desks (other than benches) on which pupils can sit while learning, let alone a chalkboard.

1.3 TEACHING STYLES

Among other things, geography teaching styles are guided by the aims of geography teaching. As stated by a few scholars, these are to impart useful geographical knowledge, foster better understanding between people and their environment, and contribute to general education (Gopsill, 1965; Morris, 1968; Graves, 1971). In addition, the styles must be inspired by the following principles which state that geography

- (i) is concerned with visible phenomena and describes the earth's surface in its real and present aspects. It deals with invisible factors (psychological, political, religious) in so far as they account for visible facts;
- (ii) seeks to localize and delimit the phenomena it studies through mapping the world and analysing location factors, thereby revealing the problems that need to be solved and factors that explain them;
- (iii) seeks to study the relations between phenomena of similar and different orders and analyses the interplay of reciprocal influences exerted by natural conditions and by human groups, and

- (iv) must be taught as an applied science (contemporary and practical) at all educational stages as well as in research (UNESCO, 1965; Boden, 1976).

These principles can only be maintained if the teacher always relates the ideas and concepts presented and the styles applied or employed to the learning capabilities of pupils (Bailey, 1974).

Geography teaching styles which a teacher may apply to fulfil some or all of the above principles may be divided into three categories. The first is Formal and consists of four styles: lecture, indirect and direct observations and demonstration. The second is Informal, comprising six styles: discussion, project, discovery, debate, role-playing and simulation games. The third is Mixed with four styles: question-answer, problem-solving, inquiry and field (study)-trip (Fitzgerald, 1970; Wilkinson, 1971; Nanico-Brown et al., 1982). The choice of any of these styles will depend on a number of factors such as the subject topic, class size, teacher-pupil interactions and learning ability of pupils (Walford, 1981; Fien et al., 1984; Fontana, 1988).

1.4 TEACHER-PUPIL INTERACTIONS

There are two ways in which teacher - pupil interactions take place in a class, namely, teacher - initiated and pupil - initiated (Open University, 1976; Good et al., 1980). These interaction ways may either increase or decrease during a teaching - learning process mainly depending on the size of the

class or the teaching styles employed by the teacher. For example, Dunkin and Doevan (1982) point out that interaction decreases as the size of the class increases, say, from a small class of about 30 pupils or fewer to a large one of 40 pupils or more. Thus, if it were possible for a teacher to split a large class of 50 pupils into two or more groups, then the desired interaction would be achieved, provided the right teaching styles are employed.

Similarly, a teacher may change the teaching style to enhance a particular level (fewer, more or high) in the patterns of interaction which may be teacher - initiated or pupil - initiated. For example, if a teacher employs the lecture style (formal) then the patterns of interaction are teacher - initiated. Such patterns of interaction are usually directed to the class in general. However, the employment of the question - answer style (mixed) gives a chance for both teacher - initiated and pupil - initiated interactions. Thus, it can be noted that each of the three variables (class size, teaching styles and teacher - pupil interactions) influences each other either in a positive way or negative way. Hence, each variable has an arrow that points to the other (Figure 1, p.1).

1.5 THE ZAMBIAN SITUATION

Class sizes in Zambia exceed the stipulated enrolment figures. This has made even the average class sizes to be large and sometimes very large (Appendix A, p.67) For example, in Table 3 the average class sizes at Kalomo and Linda Secondary Schools

are seen to be quite large. Yet, they do not differ much from the actual geography class sizes (Table 4, p.9). These two tables show that the senior level at the secondary stage has many large and very large classes with only a few standard ones, especially at Linda Secondary.

TABLE 3. AVERAGE CLASS SIZE BY GRADE: KALOMO AND LINDA SECONDARY SCHOOLS, 1988-1990

SCHOOL	YEAR	GRADE				
		8	9	10	11	12
KALOMO	1988	44	53	44	63	55
	1989	44	55	52	61	59
	1990	48	56	40	61	60
LINDA	1988	43	49	38	42	44
	1989	45	50	46	46	45
	1990	41	50	42	46	45

SOURCE: Ministry of General Education, Youth and Sport, Planning Unit, Unpublished data.

The existence of such large classes has been a source of concern, not only for scholars but also teachers and headmasters, since they may be affecting the teaching-learning process resulting in relatively poor geography results in Grade 12 School Certificate and General Certificate of Education Examinations. At Kalomo and Linda Secondary Schools, for instance, only 24.8 percent of the candidates (291 out of 1,175) who sat for the Grade 12, 1986 to 1989, Examinations attained grades one to six. Grades one to six are considered as passing grades. The remaining 72.2 percent (884 out of 1,175) of the candidates attained grades seven to nine which are seen as failing grades (Appendix C1, p.69 and C2, p.70). Kalomo, which has larger classes than Linda, seems to have been more affected resulting in a smaller percentage of

candidates who attained grades one to six.

TABLE 4. GEOGRAPHY CLASS SIZES AT KALOMO AND LINDA SECONDARY SCHOOLS 1992*

GRADE, CLASS AND NUMBER OF PUPILS FOR EACH CLASS								
GRADE	KALOMO	LINDA	GRADE	KALOMO	LINDA	GRADE	KALOMO	LINDA
10 A	58	-	11 A	55	-	12 A	45	-
10 B	56	-	11 B	56	-	12 B	53	-
10 C	55	55	11 C	55	54	12 C	47	45
10 D	56	54	11 D	49	52	12 D	52	46
10 E	56	50	11 E	60	47	12 E	44	48
10 F	58	53	11 F	51	50	12 F	51	49
10 G	46	-	11 G	-	49	12 G	-	-
10 H	-	-	11 H	-	50	12 H	-	-
TOTAL OF PUPILS	385	212		326	302		292	188
AVERAGE CLASS SIZE	55	53		54	50		49	47

NOTE: - Geography class not existing.
*Pupil Enrolment only up to June, 1992.

Four features may be derived from the existing large classes in relation to the teaching-learning process of geography in Zambia. Firstly, such large classes may be a limiting factor in the choice of teaching styles in secondary schools. Thus, some styles may not be employed at all, thereby depriving some pupils who would have benefitted from the employment of such styles. For example, the teacher may fail to employ some styles such as project (Informal) due to the pressure of work on the part of the teacher in marking the pupils' project manuscripts. But the use of the project style, like others in the Informal category, may

assist the teacher to identify not only slow but weak pupils who may need specific assistance.

Secondly, the teacher may not fully interact with individual pupils through the two channels of interaction which may help in knowing each individual pupil. As a result, the teacher may not come to understand each pupil's capabilities and incapacabilities which can help in structuring the teaching material for meaningful learning (Ausubel, 1963; Hyman, 1974). Thus, many pupils may feel neglected and subsequently display negative attitudes to learning (Garner and Bing, 1973).

Thirdly, geography teaching requires the use of visual aids such as models, atlases, wall maps, textbooks and projectors. However, the use of any of these may be affected by class size. For example, explaining population patterns shown by shading in an atlas may be easier in a standard class of 45 pupils than in a very large one of 60 pupils.

Lastly, there is the aspect of classroom management and of preparing the class for instruction (Bruner, 1966; Dube, 1978; Fontana, 1985). Classroom management involves activities such as marking the class register, distribution of visual aids and splitting the class into groups. Such activities may consume more of the teaching time in a large class than in a small one.

In view of this, there is need to study and understand the relationship of class size to teaching styles and teacher-pupil

interactions in geography. The understanding of these three variables would help in their utilization, particularly by teachers within the teaching-learning situation that they actually experience.

1.6 THE PROBLEM

The size of classes in geography, as in any other subject, should be determined together with other factors by the need to provide the best classroom environment for the teaching-learning process. Such an environment must provide good opportunities to both the teacher and pupils to carry out their respective roles of teaching and learning.

In the light of this, therefore, the problem of this study is enshrined in the following questions:

- (i) Does the class size have an influence on the teaching-learning process?;
- (ii) Do geography teachers employ categories of teaching styles more in standard classes than in large, or very large ones? and
- (iii) Is the class size such that every individual pupil can gain the attention of the teacher during a geography teaching-learning session?

Consequently, this study investigates whether geography teachers are aware of the need to adopt different teaching styles according to class size. It also investigates if these teachers adopt different strategies in managing, organizing and teaching large-sized classes.

1.7 OBJECTIVES AND HYPOTHESES

The precise objectives of this study are:

- (i) to determine to what extent geography teachers employ a variety of teaching styles on the basis of class size;
- (ii) to identify teaching styles which are employed in classes of various sizes, and
- ~~(iii) to find out whether teacher-pupil interactions are~~
affected by class size.

In the light of these objectives, the study is guided by the following hypotheses:

- (i) there is no significant relationship between teaching styles and class size in geography classes, and
- (ii) there is no significant relationship between teacher-pupil interactions and class size in geography classes.

1.8 OPERATIONAL DEFINITIONS OF TERMS

In this study the terms used have the meanings set out below:

1. **Class Size:** the number of pupils in any given class - a standard class is one of 45 pupils or fewer; a large class is one of 46 to 55 pupils and a very large class is one of 56 pupils or more.
2. **Teaching Style:** recurrent patterns of classroom behaviour of a teacher that are applicable to the teaching of geography. There are 14 geography styles divided into formal, informal and mixed categories.
3. **Formal Teaching Style:** a teacher-centred classroom

situation in which the teacher allows only minimum or no active participation from pupils. This category comprises four styles:-

- (i) **Lecture**: a process of verbally delivering a pre-planned body of knowledge to a class in a one-way teacher-pupil communication system.
- (ii) **Indirect observation**: a process in which pupils observe features about a topic on a map, diagram or a photograph.
- (iii) **Direct observation**: a process in which pupils observe features about a topic by watching a film or video.
- (iv) **Demonstration**: a process of audio-visual explanation in which the teacher emphasises important points of a product or an idea.

4. **Informal Teaching Style**: a more open pupil-centred classroom situation in which pupils actively and fully participate with minimum guidance from the teacher. This category comprises six styles:-

- (i) **Discussion**: a process in which the teacher introduces a problem and allows the pupils as a whole class or in smaller groups to participate in solving it.
- (ii) **Project**: a process in which an individual pupil or a group of pupils carry out an activity on a component of a particular topic in order to attain a desired goal.
- (iii) **Discovery**: a process in which a pupil internally mediates some concept or principle leading to an

effective way of solving a problem or to the grasp of an insight.

- (iv) **Debate:** a learning situation in which a class is divided into groups to discuss the merits and demerits of a topic.
- (v) **Role-playing:** a learning situation in which individuals or groups of pupils are assigned roles in which they perform and display actions pertaining to the solution of a particular problem.
- (vi) **Simulation game:** a process in which pupils learn by participating in a make-believe situation that requires decision-making about issues in real life.

5. **Mixed Teaching Style:** a teaching process which allows the teacher and pupils to participate 'equally' in a two way teacher-pupil communication during the teaching-learning process. It comprises four styles:-

- (i) **Question-answer:** a process in which questions are either teacher-initiated or pupil-initiated to further the pupils' understanding.
- (ii) **Problem-solving:** a process in which the teacher either structures an initial lesson with a task (guided problem-solving) or introduces a task (modified free problem-solving) and then assumes the role of a resource person to assist pupils as individuals or in groups in solving it.
- (iii) **Inquiry:** a process in which pupils themselves formulate a problem and themselves devise techniques

for solving it.

- (iv) **Field (study)-trip**: a process in which pupils are allowed to observe a geographical phenomenon, seeking and recording information, reasoning and drawing conclusions.

6. **~~Teaching Styles Observation Categories (TESOC)~~**: a schedule of quantitative and qualitative dimensions of a geography teacher's classroom behaviour during a teaching-learning session covering content and the categories of teaching styles.
7. **Teacher-Pupil Interactions**: interactions between the teacher and each individual pupil or group of pupils, either teacher-initiated or pupil-initiated, observable by the use of the Teaching Styles Observation Categories schedule.
8. **Classroom overcrowding**: a situation in which a geography class accommodated in a classroom results in congestion thereby limiting or impeding free movements of both the teacher and pupils.
9. **Classroom management**: the way in which the teacher organises pupils, allocates resources, and establishes and maintains a classroom environment that facilitates good teaching-learning activities.

1.9 SIGNIFICANCE OF THE STUDY

No known empirical study has been conducted in this area in

Zambia. Therefore, it is felt that the findings will help improve the training of geography teachers, both at pre-service and in-service levels, in handling large classes whenever they encounter them. Indeed training of all teachers for Zambia's schools should realistically include helping the trainees to cope with large classes.

~~The study is also intended to produce a body of knowledge from~~ schools in Zambia about geography teaching styles and teacher-pupil interactions which can be useful in teacher training programmes. This will help in making geography teachers aware of their responsibilities to each individual pupil regardless of the class size.

Furthermore, the findings can be used in educational planning, administration and management of class size policies. This is because class size has been identified as a significant school quality indicator that is relevant to academic outcomes (Haddad, 1978; Cotton 1990). Therefore, this study may contribute to a better understanding of the classroom environment. In turn, this may enable teachers to adopt a variety of teaching styles for the benefit of every pupil despite the size of the class being taught.

1.10 LIMITATIONS OF THE STUDY

- (i) The investigation was conducted as an observational study in two government secondary schools, Kalomo and Linda, in the Southern Province. Thus, the findings

may not be easily generalized to other schools in Zambia. A study of this nature would have been comprehensively and representatively complete if a national survey was conducted. But such a study was not possible due to financial and time constraints.

- (ii) A study of this nature would probably have reflected a stronger relationship between the three variables (~~class size, teaching styles and teacher-pupil~~ interactions) if a longitudinal research procedure was followed. This would have helped to stabilize some intervening variables such as home-based factors (Cuttance, 1980; Bleiss and Achola, 1988).
- (iii) The limited time period within which this research was conducted affected the use of one of the research instrument (Teaching Styles Observation Categories) which requires adequate time for several class observations.

CHAPTER TWO

REVIEW OF THE RELEVANT LITERATURE

2.1 INTRODUCTION

Large classes of 46 pupils or more are mostly a Third World phenomenon. In the developed world, classes of between 30 and 40 pupils are considered to be large. Since most of the literature on class size come from developed countries, it deals mostly with classes of less than 40, and sometimes even less than 20 pupils. Moreover, information on teaching styles and teacher-pupil interactions generally derive from classroom observation. This is a costly way of gathering information and hence it has tended to be used more extensively in affluent than in less developed countries.

Because of these two factors, almost all the relevant literature dealing with the relationship between class size and teaching styles (and/or teacher-pupil interactions) refers to conditions prevailing in developed countries where classes of more than 35 pupils are the exception rather than the rule. This limitation must be borne in mind in the review that follows.

2.2 CLASS SIZE AND TEACHING STYLES

Little (1951) found that small classes of up to 20 pupils have an advantage over large classes of 35 pupils in promoting the employment of a variety of formal, informal and mixed teaching styles. Additionally, in small classes, there was more individual pupil attention, more teacher knowledge of individual pupils and more inter-personal relationships between individual

pupils and the teacher on the one hand and amongst pupils themselves on the other.

Furthermore, Whitsitt (1955) found that more classroom activities occur in small classes of 24 pupils or fewer than in large ones of 34 or more. He observed both small and large classes, in Social Studies and English, in 35 high schools. Small classes proved to be superior to large ones in attracting the employment of more enrichment materials, more detailed and current subject matter, more group participation and more opportunity for personal interactions not only between the teacher and individual pupils but also amongst the pupils themselves. In addition, teachers in small classes adopted more of the informal teaching styles such as discussion, project and role-playing.

Trathen (1960) also found that teaching styles are related to class size. He reported that small class sizes of about 21 students were 'easy' to teach by employing a variety of informal teaching styles which could not be employed in large classes of 40 students. He also found that large classes were 'difficult' to handle in terms of classroom management, resulting in an uncondusive classroom environment. This led him to suggest the need to train teachers and develop teaching styles for large-sized classes.

McKenna and Pugh (1964) studied small classes of 30 pupils or fewer, and large ones of 31 pupils or more to find out if teachers employed a variety of teaching styles in relation to

class size. Although they cite more individualized instruction (informal teaching styles) in small classes, they found that 43 percent of the teaching styles employed in small classes were still mass instruction (formal type). Somewhat similar findings were reported by Danowski (1965) who studied small classes of 20 pupils or fewer after developing an instrument to measure individualization of instruction. This was done in 132 small classes. ~~The results indicated that 64 teachers individualized~~ their teaching, while a similar number of teachers did not, despite the opportunity afforded in small classes for the employment of these individualized teaching styles.

In their separate studies, Pugh (1965) and McKenna (1975) also found that small classes were superior in promoting many beneficial activities within the class during the teaching-learning session. Pugh found more classroom activities taking place within a particular period of time in 90 small classes (20 pupils) than in 90 large ones (30 pupils). The activities included active participation of individual pupils on the one hand and small groups on the other. Furthermore, Pugh observed cognitive activities such as listening, outlining, generalizing and analysing which occurred more frequently in small classes than in large ones. He also observed greater use of motor and reading skills. Along the same lines, Applegate (1969) also found that there was more pupil participation in groups of 15 pupils than in groups of 20 and 30 (Dillon, 1982).

McKenna (as reported by Haddad, 1978 : 3) states that in small classes (20 pupils):

- (a) the teacher can apply (employ) a wide variety of instruction strategies and learning activities and thus develop a more positive attitude and better morale;
- (b) students can benefit from more individualized learning, engage in more creative activities and divergent thinking processes, and develop better human relations, and
- (c) there are less problems of discipline and classroom management.

Haddad (ibid) reports other studies which concentrated more on educational objectives related to the teaching-learning process. Some of these studies found small classes to be superior in enhancing the teaching-learning process while others found small classes to be complex structures which prove difficult in the teaching-learning process. Many of these studies from the United States of America propose that classes should have 30 pupils or fewer. In fact the majority of American teachers consider class size as a problem in organizing various individual pupil learning activities and cannot cope with individual differences in classes of 35 to 40 pupils.

Other studies, however, found small classes (20 pupils or fewer) to be complex structures to teach. In a study reported by Haddad (ibid., p. 3), Milstead (1973) found that such small classes "make greater emotional and intellectual demands on both teachers and students in terms of more involvement, alertness,

scrutinizing, communication, interaction and personality exposure". Along the same lines, Haddad reports a study by Lawson (1993) which found that teachers frequently tend to intervene in their pupils' learning activities in small classes thereby denying them the opportunity of solving problems and finding solutions on their own.

~~Sindelar et al. (1984) report two studies, one by Moody et al. (1971) and the other by Fisher et al. (1980), which found small classes to be superior to large ones since they allow the maximization of instruction (teaching styles). Moody et al. (1971) found that the size of the group in small group instruction of 15 pupils may have considerable influence on learning which in turn has been found by Marklund (1963) to increase student achievement. Marklund found that student achievement decreases as group size increases.~~

The study by Fisher et al. (1980) found substantive teacher interactions (used by the authors to refer to teaching styles) in a classroom to be affected by class size. They state that the smaller the group size the greater the opportunity for substantive teacher-pupil interactions, especially through monitoring and feedback. Thus, a teacher may be hampered from teaching effectively in a large class (20 pupils or more) because there will be inattention and poor discipline on the part of pupils (Flanders, 1967). Along the same lines, Byrne (1975:1031) found that overcrowding due to limited space led to "inattention, poor discipline and lecture methods instead of pupil-centred

integrated work...". Under such conditions only the very able and motivated children tend to learn the taught material (Maxson, 1975; Croll, 1985).

Fuller (1985) reports a study by Beebout (1972) which examined the magnitude of the class size effect (or lack thereof). The study carried out in Malaysia, involved 89 secondary schools termed as "Poorer Schools". Beebout found a significant effect of small classes on pupil achievement in language learning. This seems to suggest that the teaching-learning process is better in smaller classes than in large ones.

Cotton (1990) reports several studies among them Brown and Saks (1986), Kulik and Kulik (1987), Tenenbaum and Goldring (1989) and Slavin (1989-90). These studies focus on the characteristics and practices as well as outcomes both in classrooms and schools which may improve student performance. These include classroom organisation and management, classroom learning time, instruction (teaching styles), feedback and reinforcement. Cotton points out that these characteristics, practices and outcomes can only be effectively attended to when a teacher is dealing with a small group size (class size). For example, on classroom organisation and management it is stated that "small groups...within the classroom are needed to make sure all students learn thoroughly..." (Cotton, 1990:7). And on feedback, it is stated that

Students (should) receive immediate feedback on their in-class responses and written assignments...to help them understand and correct errors.

However, some studies while sympathetic to the need to have small classes point out that large classes have certain advantages. Anderson and Walberg (1972) considered class size within the socio-psychological framework and identified four classroom needs: discipline, coordination, communication and group resources. They admit that, to some extent, the four needs are difficult to meet as large classes (30 pupils) become even larger. However, they point out that large classes meet the need for group resources by providing a wide range of student abilities and resources. A somewhat similar but extreme view is adopted by Fleming (1959 : 35) who states that

...it is not only possible for one teacher to teach several hundred scholars at once, but it is also essential; since for both the teachers and their pupils it is by far the most advantageous system. The larger the number of pupils that he sees before him the greater the interest the teacher will take in his work...and the keener the teacher himself, the greater the enthusiasm that his pupils will display...since they will mutually stimulate and assist one another.

2.3 CLASS SIZE AND TEACHER-PUPIL INTERACTIONS

Studies have also found some relationship between class size and teacher-pupil interactions. These interactions are carried out in two ways, namely teacher-initiated and pupil-initiated (Brophy and Good, 1970, 1974; Hough, 1967). Whatever the direction of these communication channels, a vital role is played by the teacher who "...represents the crucial classroom learning resource, and...all students should have their fair share of access to that resource" (Kelly, 1988:1).

Garner and Bing (1973) studied a class of 30 pupils and found there was unevenness in teacher-pupil interactions. They state that in a class of 30 to 40 pupils, a teacher finds it more difficult to provide attention to all needy pupils during the teaching-learning session. Thus, many pupils may have the problem of not being noticed by the teacher in a crowded classroom.

Dunkin and Doevan (1982) reported studies which indicated that teacher-pupil interactions decreased as the class size increased, for instance, from a small class of 30 pupils or fewer to a large one of 40 pupils. They state that teacher-pupil interactions are at the core of the educational process and as such vital "in judging the quality of educational opportunity" (Dunkin and Doevan, 1982 : 172). In large classes, however, a number of pupils may be denied this essential interaction with the teacher. A situation may arise in which the teacher fails to call upon some pupils to participate and this will lead such pupils to lose "enthusiasm and involvement in classroom life" (Garner and Bing, 1973 : 241). Thus, as Good and Brophy (1973) pointed out, if these interactions are indeed beneficial, then many pupils are being deprived of such benefits.

Cotton (1990) reports several studies, which include Corno and Snow (1986) and Cotton and Savard (1981c), which focused on teacher-pupil interactions within the realm of the classroom, school or district. It is pointed out that these interactions must be positive to improve student performance. In order to

achieve this, for instance, it is urged that teachers must

- (a) pay attention to student interest, problems, and accomplishments in social interactions both in and out of the classroom;
- (b) communicate interest and caring to students both verbally and through such non - verbal means as giving individual attention, maintaining eye contact, smiling, and positive head nodding, and
- (c) foster positive teacher-student and student-student relationships through the use of cooperative learning strategies (Cotton, 1990).

These practices, however, are more attainable in small classes than in large ones. Thus, there is need to have classes of a size which will enable the teacher to focus on each individual pupil to enhance learning and subsequently improve student achievement.

2.4 LIMITATIONS OF THE STUDIES REVIEWED

In addition to the two drawbacks mentioned in the introduction to this chapter, the literature that has been reviewed has some limitations. Firstly, none of the studies focused on specific teaching styles to find out if teachers of the investigated classes were adopting them in relation to the size of classes. Secondly, there has been no well-defined focus on a particular subject which could have revealed patterns in the teacher's adoption of teaching styles for such a subject. Lastly, the studies do not examine the teacher-pupil interactions through the application of a variety of teaching styles.

This study, however, addresses these limitations in a number of ways. Firstly, it deals with the large classes as they exist in secondary schools in Zambia by defining size of classes in three categories, of which only the standard class size (45 pupils or fewer) covers the size of the classes considered in the literature. Secondly, the study focuses on well defined teaching styles widely employed by geography teachers. The focus on teaching styles has shown which of these styles are employed in which class size.

Thirdly, this study focuses on geography. Geography was chosen because it is one of the less explored major subjects taught to both junior and senior secondary school pupils in Zambia. This has helped in determining which of the teaching styles are considered effective in the geography teaching-learning process.

Lastly, this study investigates teacher-pupil interactions by finding out teaching styles which make the teacher and each individual pupil fully interact during the teaching-learning session. The identification of such teaching styles (styles which bring about interactions) will in turn identify which channel of interactions, teacher - initiated or pupil - initiated, make interactions fewer, more or high. The investigation therefore is done in order to identify not only the teaching styles but the channel of interactions which may assist teachers to improve the teaching-learning process in a geography class of any given size.

CHAPTER THREE

METHODOLOGY AND PROCEDURE

In this chapter the method and procedure of the study will be discussed under the following subheadings: nature of study, data needed and research instruments, data collection procedure, pilot study and data analysis.

3.1 NATURE OF THE STUDY

The investigation was conducted as an observational study in two secondary schools in the Southern Province of Zambia. Data was gathered from nine geography teachers and 19 senior geography classes (Grades 10 to 12) at Kalomo and Linda Secondary Schools. The choice of these two schools was due to their proximity to each other, their easy accessibility and their similar educational profile. Senior grades were chosen because it was felt that senior pupils would respond more maturely than junior pupils to the presence of the researcher in their classrooms during field research. Some of the educational characteristics of the two schools are shown in Table 5 (p.29). However, the total number of classes does not equal the number of geography classes which are in fact less. Both schools are government-run and co-educational.

This was an observational study in which all geography teachers were to be observed twice and each was to complete a self-administered teacher questionnaire. It was also intended that all 33 senior geography classes would be observed twice. However, only 19 of these were observed twice.

TABLE 5: SOME EDUCATIONAL CHARACTERISTICS OF KALOMO AND LINDA SECONDARY SCHOOLS, 1990-92

CHARACTERISTICS	SCHOOL	
	KALOMO	LINDA
1. CLASS PATTERN		
JUNIOR 1990	26	10
1991	9	5
1992	8	4
SENIOR 1990	12	12
1991	14	14
1992	19	18
2. No. OF GEOGRAPHY TEACHERS		
1990	4	5
1991	4	5
1992	5	5
3. ENROLMENT		
1990	1,354	1,095
1991	1,382	899
1992*	1,350	1,007

NOTE: * Pupil enrolment only up to June, 1992.

SOURCES: (1) Ministry of Education, Planning Unit, Unpublished data.

(2) Careers Department of Kalomo and Linda Secondary Schools, Unpublished data.

3.2 DATA NEEDED AND RESEARCH INSTRUMENTS

Nominal and ordinal data was needed on geography size of class teaching styles learned by geography teachers, the adoption and employment of teaching styles, teacher-pupil interactions, teachers' opinion on class size and availability of teaching aids.

Two major research instruments are used in this study, namely the Teacher Questionnaire and the Teaching Styles Observation Categories (TESOC). The Teacher Questionnaire solicited information in four areas: personal, grade and class size, teaching styles and teachers' opinion on class size. All these parts were designed to elicit specific information according to

the subheadings on these parts (Appendix D, p.71). However, the major parts are those dealing with the teaching styles adopted and sizes of class.

The other instrument, TESOC, was formulated by the investigator of this study to observe teaching - learning sessions. Thus, TESOC is used as a method for capturing teaching styles in a classroom. However, TESOC is meant to show whether a geography teacher is using a variety of teaching styles, what is the status of the material being presented to the class, and for how long the presentation lasts. Furthermore, it is meant to show the teaching styles which are employed. This will in turn indicate some levels of teacher-pupil interactions (Figure 2, p.31).

TESOC has two subdivisions for the teacher's activities, namely the Content (status of the material being presented) and the Teaching Styles employed in the teaching of the material. In addition, there are two other sections, one for Coding and one for Notes. The content section has four codes of which 1 to 3 are specific (for example, 1 is introduce a new topic) while 4 covers any content not catered for by the first three codes.

The teaching styles subdivision has nine codes covering the 14 geography styles defined in Chapter One. The 10th code is left open for any other style which the teacher may employ. The question-answer style is subdivided into two in order to pinpoint where the question originates, whether from the teacher or from the pupil.

FIGURE 2: TEACHING STYLES OBSERVATION CATEGORIES (TESOC) SCHEDULE

TEACHING STYLES OBSERVATION CATEGORIES				
PURPOSE: To find out (i) if a geography teacher employs a variety of teaching styles whenever a class is involved in curriculum organisation, and (ii) the levels of teacher-pupil interactions attained in a class through the employment of such teaching styles in (i).				
WHAT TO DO: Code down time and figure representing type of activity whenever the teacher changes activities during a lesson.				
SCHOOL _____ GRADE/CLASS _____ NO. OF PUPILS _____ TOPIC _____				
C CODING				
BEHAVIOUR CATEGORIES	START	CODES		TIME TAKEN ON
	TIME	A	B	ACTIVITY (in Min)
<u>A. CONTENT</u>	1.			
Status of material being presented by the teacher	2.			
1. introduce new topic	3.			
2. continue with existing/old topic	4.			
3. Revise of current/old topic	5.			
4. Other (specify)	6.			
<u>B. TEACHING STYLES</u>	7.			
What style(s) is/are being used to achieve contents in A above.	8.			
1. Lecture	9.			
2. Question and Answer	10.			
(i) Teacher-initiated	11.			
(ii) Pupil-initiated	12.			
3. Indirect/direct observation	13.			
4. Demonstration	14.			
5. Discussion/debate/discovery	15.			
6. Problem-solving/inquiry	16.			
7. Project (assignment or home-work)	17.			
8. Field (study)-trip	18.			
9. Role-playing/simulation game	19.			
10. Other (specify)	20.			
<u>D. NOTES</u>	21.			
	22.			
	23.			
	24.			
	25.			
	26.			
	27.			
	28.			
	29.			
	30.			
	31.			
	32.			
	33.			
	34.			
	35.			
	36.			
	37.			
	38.			
	39.			
	40.			

By grouping the teaching styles into three categories, namely formal, informal and mixed, the patterns of interactions are identified, for example, formal teaching styles entail a teacher-initiated interaction in which the teacher is a major initiator of the interaction. Under mixed teaching styles, however, both the teacher and pupils 'equally' participate in the initiation of interactions.

The Coding section has four columns: Start time, Code A, Code B and the period, in minutes, taken on the activity. The start time has the figures 1 to 40, denoting 40 minutes for a single class-period. Finally, there is a Notes section for notes under which information on any special episode occurring during a class session must be stated.

3.3 DATA COLLECTION PROCEDURE

The study was to have commenced at the beginning of term two in Mid-May, 1992, but was delayed by a teachers' go-slow (teachers reported for work but refused to teach) until July, 1992. The study eventually commenced at the end of July and lasted until the end of October, 1992. The actual work was conducted after an observation time-table based on the main school time-table had been presented to the geography teachers who accepted it during an introductory session at each school. The observation of geography classes was done from the back of the class during which data was collected by completing the Teaching Styles Observation Categories (TESOC) Schedule (Figure 2, p.31).

The delay in commencing the study affected the use of TESOC, which was to have been used on two separate occasions in each of the classes being observed. As a result the expected number of class observations was reduced in two ways. First, not all geography classes could be observed. Second, not all classes which were observed for the first time could be observed for the second time. The study bases its findings, however, on data from ~~classes which were observed twice.~~ There were 19 geography classes which were observed twice of which 11 were from Kalomo and 8 from Linda.

The teacher questionnaires were given to the headmaster in each school who in turn gave a copy to each geography teacher. This was done after all the geography classes had been observed. The teachers were given a week to complete and return the questionnaires. A week was considered sufficient for completing the questionnaire. In order to keep the teachers' responses confidential, the teachers were asked to return the completed questionnaires directly to the investigator.

3.4 PILOT STUDY

In order to test the research instruments, a pilot study was conducted at two secondary schools, Munali (boys only) and Kamwala (co-educational) in Lusaka. These schools were chosen because they are similar to the two schools investigated in the principal study in that they are large government schools.

After the pilot study, some items in the Teacher Questionnaire were abandoned because they elicited responses which were ambiguous and therefore unreliable. Also, some items were rephrased; for instance, the term always in item 20 in the teacher questionnaire (Appendix D) was replaced with often. On the Teaching Styles Observation Categories (TESOC) item (ii) under 'purpose' was included. Item (ii) refers to the levels of interaction (Figure 2, p.31). The use of TESOC in the pilot study provided the investigator with experience and ability in its use.

The reliability of both the Teacher Questionnaire and TESOC lay in the fact that both were eliciting responses from the same geography teachers. Each instrument served as a check on the other. TESOC in particular acted as a checking device to detect unreliable responses which may have been included in the Teacher Questionnaire.

3.5 DATA ANALYSIS

1. The nominal and ordinal data from the Teacher Questionnaire was analyzed in two ways:
 - (i) Specific data on teaching styles was analyzed by Chi-Square to determine whether class sizes are related to the teaching styles which teachers choose.
 - (ii) Other data was analyzed through the use of percentages, ranks and frequencies in order to determine whether teachers view their adoption of teaching styles as related to class size.

2. Data from the Teaching Styles Observation Categories (TESOC) schedule was analyzed by percentages to show the levels of interaction (fewer, more or high) for each of the three categories of teaching in each class size. In addition, some information is reported in tables to show the teaching styles which were widely employed by teachers in classes of given sizes.
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CHAPTER FOUR

RESULTS AND DISCUSSION

4.1 OVERVIEW

This chapter presents the findings of the study. It is broadly divided into two:- Section A: Presentation of Results, and Section B: Discussion of Results. Section A is subdivided into four parts:

- (a) ~~Part One: Geography Class Size.~~
- (b) Part Two: Teaching Styles (Methods) Adopted.
- (c) Part Three: Teacher-Pupil Interactions.
- (d) Part Four: Hypotheses Testing.

4.2.0 SECTION A

PRESENTATION OF RESULTS

The results are presented in a combined form for both Kalomo and Linda Secondary Schools. However, where necessary the results are presented separately to facilitate a clear discussion on teaching styles. In addition to the descriptive presentations, data is presented in tables.

4.2.1 PART ONE: GEOGRAPHY CLASS SIZE

Teachers are knowledgeable about the enrolment norms for the secondary stage as stipulated in the Education Act (1966). However all the classes at senior level have enrolments which are well above the maximum of 35 pupils. Teachers cited the following as reasons for this situation:

- (a) There is a high public demand for school places, and
- (b) Interference by senior authorities such as the Provincial

Education Officers who sometimes send lists of names to schools for enrolment.

However, a standard geography class (45 pupils or fewer) at senior level is found to be manageable by teachers for the following reasons:

- (a) It allows the effective use of the available teaching aids;
- (b) It increases teacher-pupil interactions;
- (c) It allows the teacher to focus more on weaker pupils;
- (d) It gives the teacher enough time to mark pupils' work;
- (e) It improves individual pupil participation, and
- (f) It makes class control easy.

In keeping with the above cited reasons, some educational outcomes have been identified with standard classes. Table 6 (p.38) shows teachers' opinions on such outcomes which are considered beneficial to the pupils.

In contrast, large classes (46 to 55 pupils) have been found to be characterised by educational outcomes which are not beneficial to the pupils. For example, less-able pupils are more disadvantaged because the teacher-pupil interactions are likely to be less. As a result, such pupils may not be identified and assisted by the teacher during a teaching-learning session. Such outcomes are shown in Table 7 (p.38).

4.2.2 PART TWO: THE ADOPTED TEACHING STYLES (METHODS)

The following salient features on teaching styles and other classroom activities emerged:

TABLE 6: PERCENTAGES OF GEOGRAPHY TEACHERS' OPINIONS ON OUTCOMES IN STANDARD CLASSES (45 PUPILS OR FEWER)

OUTCOMES		Agree (%)	No opinion (%)	Disagree (%)
1	Result in higher pupil academic achievement	89	-	11
2	Provide good teaching-learning atmosphere	89	-	11
3	Enable the teacher to easily identify and assist pupils who have learning problems	89	-	11
4	Enable the teacher to use a variety of teaching styles during a class period	78	11	11
5	Result in better behaviour on the part of pupils	56	22	22
6	Provide greater chance for teacher-pupil interactions	78	-	22
7	Enable feedback on pupils' work since it can be marked in time	78	-	22

TABLE 7: PERCENTAGES OF GEOGRAPHY TEACHERS' OPINIONS ON OUTCOMES IN LARGE CLASSES (46 TO 55 PUPILS)

OUTCOMES		Agree (%)	No Opinion (%)	Disagree (%)
1	Result in a reduction of the number of teachers required	22	-	78
2	Make teaching exhausting	67	22	11
3	Result in pupils' failure in Geography	89	11	-
4	Lead to less active pupil - participation	89	-	11
5	Hinder high teacher-pupil interactions	89	-	11
6	Result in more disadvantage for less-able pupils	100	-	-
7	Result in less opportunity for individual pupil assignments such as projects	100	-	-

1. There are 14 teaching styles from which geography teachers draw as shown in Table 8 (p.39). The table also shows the variations in the employment of these teaching styles. Teachers liked to employ eight teaching styles namely, lecture, question-answer, indirect observation,

demonstration, discussion, project, inquiry and role-playing quite often. However, only five of these styles were widely employed and these are lecture, question-answer, indirect observation, demonstration and project. Table 9 (p.40) shows these styles with the percentages of class time given to each style in each grade and class size. The remaining time in all the classes was taken up by other styles and some activities such as providing notes to the pupils and classroom management.

TABLE 8: PERCENTAGES AND FREQUENCY DISTRIBUTIONS OF GEOGRAPHY STYLES EMPLOYED

TEACHING STYLES		ON		SS		NR.		TOTALS	
		F	%	F	%	F	%	F	%
1	Lecture	1	0.8	8	6.3	0	-	9	7.1
2	Question - Answer	5	3.9	4	3.2	0	-	9	7.1
3	Indirect observation	4	3.2	5	3.9	0	-	9	7.1
4	Direct observation	0	-	2	1.6	7	5.6	9	7.2
5	Demonstration	2	1.6	6	4.8	1	0.8	9	7.2
6	Discussion	4	3.2	4	3.2	1	0.8	9	7.2
7	Project	2	1.6	7	5.6	0	-	9	7.2
8	Problem - solving	0	-	9	7.1	0	-	9	7.1
9	Discovery	0	-	5	3.9	4	3.2	9	7.1
10	Debate	0	-	7	5.6	2	1.6	9	7.2
11	Inquiry	1	0.8	4	3.2	4	3.2	9	7.2
12	Field (study) trip	0	-	4	3.2	5	3.9	9	7.1
13	Role - playing	1	0.8	1	0.8	7	5.6	9	7.2
14	Simulation game	0	-	0	-	9	7.1	9	7.1
TOTAL (F and %)		20	15.9	66	52.4	40	31.8	126	100.1

NOTE: ON = Often SS = Sometimes NR = Never F = Frequency % = Percentage
 The presentation of Table 9 (p.40) shows the division of senior level into grades. This is in order to show which teaching style

was employed most or least in each given class size for each grade. The question-answer style for instance, was employed for only 8 percent of the teaching time in grade 10 large classes while the same style was employed 21 percent of the teaching time in grade 12 large classes.

TABLE 9: TEACHING STYLES WIDELY EMPLOYED AT SENIOR SECONDARY LEVEL IN PERCENTAGES.

GRADE	CLASS SIZE (No. of pupils in brackets)	TEACHING STYLES	AVERAGE TIME (%)
10	LARGE (50 - 55)	Lecture	46
		Question-Answer	8
		Indirect observation	7
		Demonstration	5
		Others	34
	VERY LARGE (56-58)	Lecture	50
		Demonstration	40
		Others	10
11	LARGE (49-55)	Lecture	28
		Question - Answer	14
		Demonstration	7
		Project	4
		Others	47
	VERY LARGE (56-60)	Lecture	48
		Question - Answer	28
		Indirect Observation	9
		Others	15
12	STANDARD (45)	Question - Answer	24
		Lecture	18
		Demonstration	15
		Others	43
	LARGE (46-53)	Lecture	29
		Question - Answer	21
		Demonstration	6
		Project	4
		Others	40

2. Geography teachers seem to employ teaching styles differently according to class size. From Table 10 it can be noted that in classes of standard size a greater variety of teaching styles is used. This explains the frequency response of 101 in standard classes as compared, for instance, to 38 in very large ones.

TABLE 10: FREQUENCIES AND PERCENTAGE ON THE CHOICE OF GEOGRAPHY TEACHING STYLES

TEACHING STYLES		SCS		LCS		VLCS		TOTAL	
		F	%	F	%	F	%	F	
A	FORMAL TEACHING STYLES	x	x	x	x	x	x	x	
1	Lecture	5	2.7	5	2.7	6	3.2	16	
2	Indirect observation	6	3.2	7	3.7	4	2.1	17	
3	Direct observation	8	4.3	4	2.1	4	2.1	16	
4	Demonstration	8	4.3	5	2.7	3	1.6	16	
B	INFORMAL TEACHING STYLES	x	x	x	x	x	x	x	
1	Project	7	3.7	2	1.1	3	1.6	12	
2	Discovery	7	3.7	1	0.5	1	0.5	9	
3	Debate	7	3.7	1	0.5	1	0.5	9	
4	Role-playing	9	4.8	3	1.6	1	0.5	13	
5	Discussion	7	3.7	1	0.5	1	0.5	9	
6	Simulation game	5	2.7	3	1.6	1	0.5	9	
C	MIXED TEACHING STYLES	x	x	x	x	x	x	x	
1	Question-Answer	7	3.7	5	2.7	6	3.2	18	
2	Problem-solving	8	4.3	6	3.2	3	1.6	17	
3	Inquiry	8	4.3	2	1.1	1	0.5	11	
4	Field (study) trip	9	4.8	3	1.6	3	1.6	15	
TOTAL (F AND %)		101	53.9	48	25.6	38	20.1	187	

NOTE: SCS = Standard Class Size LCS = Large Class Size
VLCS = Very Large Class Size F = Frequency

3. The teaching styles employed are ranked in Table 11 (p.42). The rank orders are based on the scores which represent the

total number of teachers who chose each particular teaching style in each class size. It can be noted from the table that each teaching style is ranked differently in each class size. For example, field trip is ranked 1st in standard classes, 7th in large classes and 5th in very classes.

TABLE 11: RANK ORDERS ON THE CHOICE OF TEACHING STYLES BY CLASS SIZE

TEACHING STYLES		SCS		LCS		VLCS	
		Score	Rank	Score	Rank	Score	Rank
1	Lecture	5	13	5	3	7	1
2	Question-Answer	7	6	5	3	6	2
3	Indirect observation	6	11	7	1	4	3
4	Direct observation	8	3	5	3	3	5
5	Demonstration	6	11	4	6	4	3
6	Discussion	7	6	1	13	1	11
7	Project	7	6	2	10	3	5
8	Problem-solving	8	3	6	2	3	5
9	Discovery	7	6	2	10	1	11
10	Debate	9	1	3	7	1	11
11	Inquiry	8	3	2	10	2	9
12	Field (study) trip	9	1	3	7	3	5
13	Role-playing	7	6	1	13	1	11
14	Simulation game	5	13	3	7	2	9

NOTE: SCS = Standard Class Size. LCS = Large Class Size
VLCS = Very Large Class Size

The rank-order correlation (ρ) yielded the following results from the data in Table 11:

- (a) Standard class size and large class size, $\rho = .15$
- (b) Standard class size and very large class size, $\rho = .19$
- (c) Large class size and very large class size, $\rho = .80$

The first two correlations are too small to be significant, but

close agreement between the ranks in large classes and very large ones is highly significant at $p < .01$. This implies that teachers adopt more or less the same kinds of teaching styles in both types of classes.

4. There are two main class learning activities on which teachers spend between 60 - 90 percent of each teaching period. One is continuing with either an existing or an old topic. The other is revising the current or an old topic. Between 10 and 40 percent of the teaching time is spent on introducing a new topic and doing other activities such as providing notes to pupils by using any of the four methods in Table 12. The table indicates the extent to which teachers tend to use these methods of providing notes to pupils.

TABLE 12: METHODS OF PROVIDING GEOGRAPHY NOTES IN PERCENTAGES

METHODS		ON	SS	NR
1	Writing notes on chalkboard, pupils copy	16.7	8.3	-
2	Dictating notes to the pupils	-	11.1	13.9
3	Instruct pupils to make notes from various sources	-	8.3	16.7
4	Provide pupils with prepared handouts	-	5.6	19.4
TOTAL		16.7	33.3	50

NOTE: ON = Often SS = Sometimes NR = Never

5. The following reasons were cited to support the notion that pupils should know about the topic before it was taught:
 - (a) The advance information stimulates pupils to prepare and actively participate when called upon during the teaching-learning session

- (b) Pupils' advance preparation makes the teaching of topics dealing with non-indigenous phenomena such as glaciation, oceans and volcanoes less abstract, and
- (c) Pupils who have made some preparation in advance can follow the progress of the lesson better.

4.2.3 PART THREE: TEACHER-PUPIL INTERACTIONS

Teacher-pupil interactions characterised classes of varying sizes through the teaching styles employed. From Table 13 (derived from Table 10, p.41,) it can be noted that the percentage employment of each category of teaching styles differed from one class size to the other. For example, 22.5 percent of the category of informal teaching styles was employed in classes of standard size as compared to 5.9 percent of the same category which was employed in classes of large size and 4.3 percent in classes of very large size.

TABLE 13: EMPLOYMENT OF TEACHING STYLES BY CLASS SIZE IN PERCENTAGES

CATEGORIES OF TEACHING STYLES		CLASS SIZE		
		Standard	Large	Very Large
1	Formal	14.4	11.2	9.1
2	Informal	22.5	5.9	4.3
3	Mixed	17.1	8.6	6.9
TOTAL		54.0	25.7	20.3

4.2.4 PART FOUR: HYPOTHESES TESTING

In its null form, the first hypothesis stated that there would be no significant relationship between teaching styles and class size in geography classes. From the data in Table 14, page 45 (derived from Table 10) a χ^2 of 9.57 is obtained. With 4 degrees

of freedom this value is statistically significant at the .05 level. The study fails to accept the null hypothesis. It therefore concludes that the size of class has a statistically significant influence on the choice and use of each category of teaching styles. In standard classes, for instance, more informal teaching styles were employed as compared to formal ones.

TABLE 14: CHI-SQUARE (χ^2) FOR FREQUENCIES OF EMPLOYMENT OF TEACHING STYLE CATEGORIES IN RELATION TO CLASS SIZE

CATEGORIES OF TEACHING STYLES		CLASS SIZE			TOTAL
		STANDARD	LARGE	VERY LARGE	
1	Formal	27 (35.1)	21 (16.7)	17 (13.2)	65
2	Informal	42 (32.9)	11 (15.7)	8 (12.4)	61
3	Mixed	32 (32.9)	16 (15.7)	13 (12.4)	61
TOTAL		101	48	38	187

$\chi^2 = 9.57$ (p, 0.05, df=4).

NOTE: The figures in brackets are the expected frequencies.

In its null form, the second hypothesis stated that there would be no relationship between teacher-pupil interactions and class size in geography classes. Table 13 (p.44) shows that teaching styles (which bring out interactions) are employed in all three class sizes. But the percent of each category of these teaching styles employed tend to be high in standard classes and become smaller as the class size increases.

In standard classes therefore there is much greater flexibility and variety in the teaching styles employed. Thus, although teacher-pupil interactions exist in all the class size, these

interactions tend to be more if not higher in standard classes than in either large or very large ones. The study fails to accept the null hypothesis. Therefore, it can be concluded that classes of different size do influence teacher-pupil interactions.

4.3.0 SECTION B

~~DISCUSSION OF RESULTS~~

This section is based on section A (with four subdivisions) and it is subdivided into three parts:

- (a) Part One: Geography class size.
- (b) Part Two: Class size and Teaching Styles.
- (c) Part Three: Class size and Teacher-Pupil Interactions.

4.3.1 PART ONE: GEOGRAPHY CLASS SIZE

There are two factors that seem to influence the enrolment norms in secondary schools. First is the high demand for school places which exceeds the possibilities provided by the establishment of new schools or an increase in the number of classrooms. This demand for school may be attributed to the rapid increase in the school-aged population and to the perception of secondary education as a passport to better life opportunities.

The second factor is the pressure exerted on heads of schools by senior education officials to enrol pupils who were not officially selected because of not getting the required selection mark. It is alleged that some parents, usually the affluent in society, politicians and relatives use these senior officials to find school places for their children.

As a result of these two factors, and possibly others, pupil enrolment exceeds the provisions of the Education Act (1966). Thus, there are very large, large and standard classes, all of them with enrolments that exceed the legal norm of 35 pupils at senior level. For example, at Kalomo Secondary School all geography classes are either large or very large. In fact at the time of research for this study, there was only one standard class out of 18 geography classes at senior level at Linda secondary school.

However, this study found that standard geography classes at senior level are considered to be teachable and manageable. The following reasons advanced for this view may act separately or interactively. Firstly, the available teaching aids can be put to better use in standard class than in a very large one. For example, it would be more convenient to have 20 atlases shared by 45 pupils than by 60.

Secondly, there is a greater chance for teacher-pupil interactions because these are more likely to be both teacher-initiated and pupil-initiated. The reason for the interactions being teacher-initiated and pupil-initiated is due to the fact that the teacher has more chance of employing not only the informal teaching styles, but other styles from formal and mixed categories. More interaction between the teacher and pupils is necessary because it will help the teacher to understand individual pupils' capabilities and weaknesses (Ausubel, 1963; Hyman, 1974). Thus, each pupil is likely to be given some

attention by the teacher thereby encouraging each one of them to participate fully during the teaching-learning session. In addition, the teacher's understanding of pupils is likely to lead to a structuring of teaching materials for meaningful learning.

Thirdly, the teacher will have enough time to mark pupils' work because there will not be too many exercise books or manuscripts. ~~Such a situation of having less books to mark therefore~~ will help the teacher to provide some feedback to the pupils soon after each piece of homework or test.

Lastly, class control may be easier because each pupil will be aware of the teacher's attention to him or her. Such an awareness is likely to inhibit disruptive classroom behaviour. Apart from class control, other classroom activities such as distributing visual aids and splitting the class into groups may be more economically managed in terms of time spent on such activities in classes of standard size than in those of very large size (Fontana, 1985).

The above reasons are in line with some classroom outcomes which make standard classes superior to large ones in terms of being manageable and teachable. These outcomes, among others, state that classes of a standard size provide greater chance for teacher-pupil interactions, result in better behaviour among pupils and enable the teacher to easily identify and assist pupils who have learning problems (Table 12, p.43).

In contrast, large classes have been found to make teaching exhausting. For example, the teacher may be forced to speak loudly at all times in order to attract and retain pupils' attention. In addition, large classes are likely to put less able pupils at a greater disadvantage as the teacher may fail to identify and assist them. This may therefore lead to the failure of such pupils in geography examinations (Table 13, p.44).

However, some studies have found large classes to be better because the large number of pupils widens the base for pupils' abilities and resources (Fleming, 1959; Anderson and Walberg, 1972). This view may be difficult to accept in Zambia because the large sizes referred to by these studies are 30 pupils or fewer. In this study such classes fall under standard with 45 pupils or fewer.

The reasons advanced for standard classes in Zambia are in line with the argument for international enrolment norms on which the Zambia Education Act (1966) is based. It is argued that classes of 20 to 40 pupils (standard classes for this study) tend to allow teachers to invent and adopt new teaching styles, understand individual pupils through teacher-pupil interactions and employ a wide variety of teaching styles (Westbery, 1973; Bennet, 1976; Cotton, 1990),

This study has established that many geography classes in schools of the type considered here are large while some are very large. Second, classes of 45 pupils or fewer seem to be rare in such

schools. Yet, teachers believe that the large and very large classes tend to affect the teaching-learning process in an adverse way.

4.3.2 PART TWO: CLASS SIZE AND TEACHING STYLES

There are 14 geography teaching styles that have been identified according to categories. The formal category styles are lecture, ~~indirect observation, direct observation and demonstration~~; informal category styles are project, discovery, debate, role-playing, discussion and simulation-games; and mixed styles are question-answer, problem-solving, inquiry and field trip. Briefly, formal styles use a teacher-centred approach while the informal ones use a pupil-centred approach. The mixed category uses both the teacher-centred and pupil-centred approaches.

There are four points of interest regarding these teaching styles. Firstly, the employment of these styles varies not only among schools but also among teachers. The reasons for such variations may be attributed to the lack of equal availability of teaching aids and different training courses undergone by Nkrumah trained teachers and University trained teachers. Nkrumah trained teachers indicated lack of exposure to styles such as simulation games and role-playing, for instance.

There are three aspects of variations in the employment of teaching styles that can be derived from Table 8 (p.39). The first is that the variation in the use of styles such as demonstration, discussion, lecture, inquiry and question-answer

reflect the need by teachers to inject some life into the teaching-learning process in the face of non-availability of teaching aids. As earlier pointed out, the variation in the employment of teaching styles tends to attract the attention of some pupils who may have been left behind during the use of other styles. The second aspect is that only 57 percent (8 out of 14) of the teaching styles were employed often. Among these styles, ~~the question-answer style (teacher-initiated and pupil-initiated)~~ is more frequently employed followed by indirect observation and discussion. These styles tend to be more effective when they are interactively employed. The last aspect is that the simulation games are never employed by any of the teachers due to lack of or limited knowledge about the style. Some styles are not employed by a considerable percentage of teachers and these include role-playing, direct observation, field-trip, inquiry, discovery, debate, demonstration and discussion. Although teachers are aware of these styles, employing them requires specific teaching aids which are lacking in most if not all schools. Direct observation style requires a projector and films, for instance.

The variation in the employment of teaching styles according to class size is further shown in Table 9 (p.40). From the table, there seem to be only five teaching styles which are employed most often and these are lecture, question-answer, demonstration, project and indirect observation. The table shows that each of these styles was employed for a specific time depending on class size and grade. For example, in large classes (grade 10)

question-answer was employed for 8 percent of the time whereas the same style was employed for 21 percent of the time in large classes (grade 12). The reason for this can be attributed to the level of the pupils' understanding as well as the contents of each given topic.

It can be noted from Table 9 (p.40) that other styles and various ~~other classroom activities~~ such as the giving of notes to pupils by teachers and classroom management take up less than half of the teaching time. For example, in large classes (grade 10) 34 percent of the teaching time was utilised for other styles (other than those shown in the table) and other activities. The little amount of time (less than 50% and sometimes as little as 10%) utilised for other styles and other activities seems to be in contrast with what Dube (1978) observed when he stated that about 50 percent or more of the teaching time is taken up in large classes by such activities. In Zambia, the little time spent on classroom management may be due to the lack of teaching resources. This means that only class control as one of the aspects of classroom management is focused on and usually this can be done during the course of the lesson.

Secondly, Table 10 (p.41) shows that formal styles are generally preferred in classes of all sizes. The difference among the percentage of employment for formal teaching styles is minimal as compared to the informal styles. However, formal styles are employed more often in very large classes as compared to the employment of other categories in the same classes. The

preference for formal styles is due to the teacher-centred approach. Apart from direct observation, all the other styles may be employed with or without teaching aids. Furthermore, the number of pupils in class tends to influence teachers to use the teacher-centred approach. This is despite the misgivings about the overuse of the approach which was learned by teachers during their training either at Nkrumah Teachers' College or the ~~University of Zambia.~~

Lastly, teaching styles are adopted in different ways according to the size of the class. This difference is indicated by each styles's score and rank as shown in Table 11 (p.42). For example, both debate and field trip have a rank of 1 in standard classes while the same styles have a rank of 7 in large classes. In very large classes, however, field trip style has the rank of 5 while debate has a rank of 12. This finding shows which teaching styles are given priority in a given class size during the teaching-learning process. In standard classes, for instance, the five teaching styles which are most widely used are debate, field-trip, direct observation, problem-solving and inquiry. In very large classes they are lecture, question-answer, demonstration, indirect observation and project.

4.3.3 PART THREE: CLASS SIZE AND TEACHER-PUPIL INTERACTIONS

The relationship between class size and teacher-pupil interactions has been found to be determined not only by the category of teaching styles but also by specific teaching styles. The relationship may be explained in three ways. Firstly, the

employment of informal styles (22.5%) in standard classes has led to more interaction which is further accentuated by the employment of mixed styles (17.1%). Both categories of teaching styles are pupil-centred which means that apart from being a resource person, the teacher also initiates interaction and the pupils have a wider chance to initiate teacher-pupil interactions by participating actively. Thus, there seems to be a balanced two-way interaction initiated by the teacher and pupils. This perhaps explains why so many varieties of teaching styles have been employed in standard classes as compared to those employed in large and very large classes. The pupil-centredness of the teaching styles which have been mostly employed in standard classes seem to incline teachers to the belief that these classes provide a good teaching-learning atmosphere. Additionally, it is felt that standard classes provide a greater chance for teacher-pupil interactions. Such views are in line with the findings by Cotton (1990) who points out that small classes boost interaction which may improve student performance.

Secondly, there has been greater employment of formal teaching styles in both large and very large classes. In comparison, informal styles are seldom employed in large and very large classes. Since the formal styles are teacher-centred it means that pupils may not be given a chance to participate fully. Thus, there will be fewer teacher-pupil interactions. It can be said that large and very large classes hinder teacher-pupil interaction. It is for this reason perhaps that teachers pointed out that these classes result in less opportunity for individual

pupil assignments such as projects. Yet, such assignments help to increase interactions. This finding is in line with that of Dunkin and Doevan (1982). They reported that teacher-pupil interactions decreased as the class size increased. Their small class size had 30 pupils or fewer while the large one had 40 pupils or more.

~~Lastly, it can be noted that despite the flexibility which the~~ teacher may show in the employment of informal and mixed categories of teaching styles (which have been found to provide for more interaction), teachers in both large and very large classes prefer the formal styles. Because of their teacher-centredness, however, these styles do not facilitate active pupil participation. In addition, the presence of many pupils whose individual assignments may be considered too many by teachers, seems to induce teachers to give few, if any, such assignments. Garner and Bing (1973) also reported a similar finding and went on to state that such a situation makes the pupils lose enthusiasm and involvement in classroom activities.

The above discussion suggests that apart from the formal category, the other two categories, informal and mixed, do promote more teacher-pupil interactions. However, both informal and mixed styles may only be effectively employed (that is, to the advantage of pupils) in standard classes. Thus, in large and very large classes the frequency of teacher-pupil interactions is greatly reduced. It can be stated therefore that both informal and mixed styles are less employed as class size

increases resulting in fewer teacher-pupil interactions in large and very large classes.

CHAPTER FIVE

CONCLUSION AND RECOMMENDATIONS

5.1 CONCLUSION

Class size is vital for the effective adoption of varied geography teaching styles. In addition, it is through the adoption of these varied styles that teacher-pupil interactions can be enhanced and thereby allow full pupil participation in the classroom. But the present large-size classes in Zambia seem to hinder teachers from adopting varied teaching styles.

Although the blame for these large classes is placed on the high population growth coupled with high demand for school places on the one hand, and on few available school places on the other, ways and means must be urgently sought to correct the situation. Some of these are given in this study in form of recommendations. However, it is important to note that three geography class sizes exist side by side in secondary schools. The existence of these three class sizes (standard, large and very large) is contrary to the enrolment norms as stipulated in the Education Act (1966). Thus, there is need to consider the usefulness of this provision of the Act, given the social and economic constraints that presently besiege the educational system. An amendment to the Act may help to bring it more into line with the realities of the present educational situation. There is need also for the creation of more school places, even through reasonable increase of class size whenever there is high demand. This would help to respond to the high school demand while more efforts are being made to construct more schools and classroom blocks that would

eventually stabilise class size.

The identification of the 14 geography teaching styles shows the wide choice of styles that may be employed by teachers. These styles which are classified into three categories (formal, informal and mixed) should be utilized. As much as possible, a balanced mixture of these three categories of teaching styles should be used to cater for differences in pupils' learning abilities and disabilities. The present practice, however, was found to be that of making more use of the category of formal teaching styles than of the other categories. Such a trend seems to be due in part to the prevalent large size geography classes and the lack of essential teaching aids such as models, terrestrial globes, weather instruments, textbooks and wall maps.

Despite the failure by teachers to adopt varied teaching styles, five main styles appear to be in common use. These are lecture, indirect observation, demonstration, question - answer and project. The first three of these styles belong to the category of formal teaching styles. This means that there is not much pupil participation whenever these styles are employed. Yet, these are the styles which are widely employed by teachers at senior level. However, such situations are not in accordance with theories of meaningful learning and pupil centred approaches in which pupils are supposed to be given a chance to participate as much as possible in learning activities.

5.2 RECOMMENDATIONS

On the basis of the findings of this study, the following recommendations are proposed:

- (a) More relevant geography teaching styles must be identified through research and be brought to the attention of the subject teachers through short seminars, pre-service and in-service training. This will help to equip teachers with ~~teaching styles which will be based on the real classroom~~ situations.
- (b) The Curriculum Development Centre should recruit geography teachers to develop various teaching aids in order to alleviate the scarcity of such aids. The teachers can be identified through competitions on developing teaching aids for specific topics and teaching styles. Furthermore, teacher training institutions such as the University of Zambia and Nkrumah Teacher Training College should instruct both trainee and in-service teachers in techniques of developing teaching aids, for example, models. This will provide teachers with basic knowledge to enable them develop some teaching aids once they are deployed in schools.
- (c) Teacher Training institutions should train trainee teachers as well as in-service teachers on how to teach in classes that are very large and in classrooms that may be overcrowded.
- (d) Teachers should be flexible with their teaching in order to manipulate class size to achieve specific desired special learning outcomes. Such arrangements would help to reduce

the impact exerted by increased class sizes on the social learning climate of the classroom.

- (e) There is need for studies to identify variables, for example, teacher's knowledge of the subject matter, the actual subject matter or topic grade level, pupils' learning ability, availability of teaching aids, or a combination of some or all of the above, or some other factor, which apparently reduce many teachers' capacity to modify their geography teaching styles or adopt other styles according to class size.

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APPENDIX A: AVERAGE CLASS SIZE BY GRADE IN SELECTED GOVERNMENT SECONDARY SCHOOLS (SOUTHERN PROVINCE) 1988 - 1990

		GRADE AND AVERAGE CLASS SIZE				
		JUNIOR		SENIOR		
SCHOOL	YEAR	8	9	10	11	12
Kalomo	1988	44	53	44	63	55
	1989	44	53	52	61	59
	1990	48	56	40	61	60
Linda	1988	43	49	38	42	44
	1989	45	50	46	46	44
	1990	41	50	42	46	45
Monze	1988	45	54	47	54	54
	1989	41	49	50	55	53
	1990	51	52	37	51	55
Pemba	1988	53	50	52	48	45
	1989	51	54	55	52	46
	1990	57	56	43	62	53
Namwala	1988	46	53	42	45	44
	1989	53	53	46	44	40
	1990	-	-	-	-	-
Hillcrest (Technical School)	1988	x	x	28	34	33
	1989	x	x	37	36	34
	1990	x	x	38	34	36
Chipepo	1988	48	50	54	51	48
	1989	43	48	48	48	49
	1990	38	38	46	55	49
Maamba	1988	-	-	-	-	-
	1989	47	56	47	53	x
	1990	47	56	48	49	53

NOTE: - = Data not available. x = Grade not existing.

SOURCE: Ministry of General Education, Youth and Sport, Planning Unit, Unpublished data.

APPENDIX B: SECONDARY SCHOOL PUPIL ENROLMENTS AND NUMBER OF CLASSES BY GRADE, 1975 - 1986

G R A D E											
8		9		10		11		12		TOTAL	
YEAR	E	C	E	C	E	E	C	E	C	E	C
1975	21,462	547	19,060	490	17,941	442	237	7,341	220	73,949	1,936
1976	22,183	566	12,263	566	18,867	489	253	7,724	238	78,805	2,112
1977	22,659	570	22,185	563	21,460	547	267	8,307	250	83,887	2,197
1978	23,237	573	23,099	568	22,536	559	291	9,120	266	88,980	2,257
1979	23,240	579	23,609	573	23,398	574	304	10,426	298	91,795	2,328
1980	24,437	586	24,258	578	23,683	570	304	10,739	304	94,595	2,342
1981	26,091	614	25,411	587	24,331	581	302	11,491	311	98,862	2,395
1982	27,279	643	27,500	621	26,224	595	324	11,678	313	104,859	2,495
1983	30,906	743	29,910	675	28,786	634	348	12,434	334	104,919	2,734
1984	35,098	826	32,583	731	31,406	663	345	13,253	339	125,811	2,904
1985	48,132	1,126	39,961	844	15,914	412	352	13,585	345	131,361	3,079
1986	46,757	1,035	51,909	1,125	17,324	427	415	414,32	355	146,979	3,357

E = Enrolments C = Classes NOTE: More recent data not available.

SOURCES: (i) Ministry of General Education and Culture, Planning Unit Educational Statistics, 1984
1986.

(ii) Ministry of Education, Planning Unit, Unpublished data

Appendix C1: GRADE 12 SCHOOL CERTIFICATE AND GCE RESULTS IN GEOGRAPHY AT KALOMO AND LINDA SECONDARY SCHOOLS, 1986 - 89

YEAR AND SCHOOL	GRADE AND NUMBER OF CANDIDATES WHO OBTAINED EACH GRADE									TOTAL NUMBER OF CANDIDATES
	ONE	TWO	THREE	FOUR	FIVE	SIX	SEVEN	EIGHT	NINE	
1986	K 0	1	4	10	4	21	21	22	26	109
	L 0	3	9	10	10	26	22	22	24	126
1987	K 0	0	0	0	1	12	31	42	82	168
	L 0	1	3	0	5	15	38	25	39	126
1988	K 0	0	1	3	4	21	46	64	95	234
	L 0	1	7	9	13	35	32	18	9	124
1989	K 0	0	1	3	2	17	35	41	72	171
	L 0	1	3	5	7	23	39	19	20	117
TOTAL CANDIDATES	0	7	28	40	46	170	264	253	367	1,175

K = KALOMO L = LINDA * Figures only include candidates who sat for the geography examination

NOTE: For explanation of grades see appendix C 2, p.69.

SOURCES: KALOMO DATA: Ministry of Education, Kalomo Secondary School Careers Department, Unpublished data.
 LINDA DATA: Ministry of Education, Regional/Headquarters (Livingstone) Examinations Department, Unpublished data.

**APPENDIX C 2: THE GRADING SYSTEM OF SCHOOL CERTIFICATE AND
GENERAL CERTIFICATE OF EDUCATION**

MARK	GRADE	STANDARD
75-100	One Two	Distinction
65-74	Three Four	Merit
55-64	Five Six	Credit
40-54	Seven Eight	Satisfactory
0-39	Nine	Unsatisfactory

SOURCE: Certificate of Grade 12 (Form V) School
Certificate of Education (overleaf)

APPENDIX D

THE UNIVERSITY OF ZAMBIASCHOOL OF EDUCATIONDEPARTMENT OF LANGUAGES AND SOCIAL SCIENCES EDUCATION

Dear Teacher,

The attached questionnaire is designed for geography teachers. The questions asked do not attract right or wrong answers. You are therefore requested to answer each one of them as accurately as frankly as you can. All answers will be treated CONFIDENTIALLY and be used only for academic purposes.

I greatly appreciate your taking time off to complete this questionnaire.

Yours sincerely,

K.G. LIFALALO

THE UNIVERSITY OF ZAMBIA
SCHOOL OF EDUCATION
DEPARTMENT OF LANGUAGES AND SOCIAL SCIENCES EDUCATION

TEACHER QUESTIONNAIRE

STRICTLY CONFIDENTIAL

INSTRUCTIONS: Where provided, choose an answer from a number of alternatives, for each item by ticking (✓) in the box against the appropriate response(s) is/are required either in the form of sentences or figures both of which must be written accordingly in the spaces provided. However, certain questions have specific instructions.

PART 1: PERSONAL DETAILS

1. School: _____

2. Sex: ☐ Female ☐ Male

3. Educational Qualification(s):

☐ Certificate ☐ Diploma ☐ B.A.Ed

☐ B.Sc.Ed ☐ M.Ed.

☐ Other specify

4. In which institution were you trained as a geography teacher?

☐ Nkrumah T.T. College ☐ University of Zambia

☐ Other specify

5. Which other subjects you now teach in addition to Geography?

PART 2: GRADE AND CLASS SIZE

6. At what grade level do you teach Geography? Tick (✓) the appropriate unshaded boxes.

GRADE LEVEL	GRADE				
	8	9	10	11	12
Junior			xxx	xxx	xxx
Senior	xxx	xxx			

7. Are you aware of the Education Act's regulation on class size regarding Secondary Schools in Zambia under which a maximum of 45 pupils for Junior level and 35 pupils for Senior level must be maintained?

☐ YES

☐ NO

8. Would you say your School is adhering to this Education Act?

☐ YES

☐ NO

9. If your answer in (8) above is No, tick (✓) any of the following reasons you feel contribute to such a failure by your School to adhere to the Education Act:

☐ Over enrolment by the School due to high demand for school places by the public;

☐ Interference by higher authorities such as the Provincial Education Officer who sometimes send a list of names to the School for enrolment;

☐ Other reason(s), specify _____

10. Does the number of pupils you have in a class affect the way in which you teach?

☐ Often

☐ Sometimes

☐ Never

Give reason(s):

11. What is the size of the Geography classes you teach in the following grades (tick the appropriate column)?

GRADE	CLASS SIZE		
	45 or Fewer	46 to 55	56 or More
10			
11			
12			

12. What class size do you consider manageable for Geography in the following grades?

GRADE	10	11	12
Class size			

13. Tick (✓) any of the following reasons which you think are applicable for the class sizes you have suggested in (12) above:

- ☐ make class control easy;
- ☐ give the teacher enough time to mark pupils' work;
- ☐ allow the teacher to focus more on weaker pupils;
- ☐ increase teacher-pupil interaction;
- ☐ improves individual pupil participation;
- ☐ allows effective use of the few available teaching aids;

- ☐ other reasons; specify:

PART 3: TEACHING STYLES (METHODS) ADOPTED**A. CLASSROOM MANAGEMENT**

14. During your training as a teacher, were you exposed to specific geography teaching styles?

☐ Yes; Mention Three _____
 _____and

☐ No

15. Do you usually distribute learning materials to your class for reference during the teaching period?

☐ Yes; How much time does it take? _____ minutes.

☐ No, Explain: _____

16. Does the School have sufficient geography textbooks for the pupils?

☐ Yes; Examples of most useful ones: _____

☐ No; _____

B: CURRICULUM ORGANISATION

17. Do you require your pupils to know about the topic to be learned before you teach it?

☐ Yes ☐ No

Give reason(s) for your answer

18. How many periods of geography for each class in a week are allocated to you? If these are INADEQUATE, how many would you suggest:

GRADE	10	11	12
Actual periods (in a week)			
Suggested (periods in a week)			

19. Below are some aspects which may determine the styles of teaching adopted during the classroom teaching-learning process. Assign a figure to each by giving "1" to the one you think MOST IMPORTANT and 7 to the one you think LEAST IMPORTANT.

ASPECTS	1 OR 7
1. Class size	
2. Subject matter (topic)	
3. Grade level	
4. Pupils' learning ability	
5. Time allocated to geography	
6. Availability of teaching aids	
7. Teacher's knowledge of subject matter	

20. Certain geography teaching styles are listed below. By ticking (✓) under the frequency usage, indicate which of them you use:

TEACHING STYLES	Frequency Usage		
	Often	Sometimes	Never
1. Lecture			
2. Question and Answer			
3. Indirect observation e.g. Use of Wall maps			
4. Direct observation e.g. Use film strips			
5. Demonstration			
6. Discussion			
7. Project e.g. Homework			
8. Problem-solving			
9. Discovery			
10. Debate			
11. Inquiry			
12. Field (study)-trip			
13. Role-playing			
14. Simulation game			

21. List any of the teaching styles provide in (20) above which you are not familiar with:

22. Which other teaching styles do you use other than those given in (20) above:

23. Indicate by a tick (✓) which of the geography teaching styles listed below you would use with each given class size. You may tick under two or three class sizes for each teaching style provided you would use the style in classes of those sizes:

TEACHING STYLES	CLASS SIZE		
	45 Pupils or fewer	46 to 55 Pupils	56 Pupils or more
1. Lecture			
2. Question and answer			
3. Indirect observation			
4. Direct observation			
5. Demonstration			
6. Discussion			
7. Project			
8. Problem-solving			
9. Discovery			
10. Debate			
11. Inquiry			
12. Field (study)-trip			
13. Role-playing			
14. Simulation game			

24. In order of preference, list below FIVE important teaching styles you feel should be used in geography teaching at senior level:

(i) _____ (ii) _____
 (iii) _____ (iv) _____
 (v) _____

25. Indicate, by tick (✓) the way in which pupils have geography notes on various topics that you teach them:

	Often	Sometimes	Never
1. Pupils copy notes written for them on the classroom board			
2. Notes are dictated to them			
3. Pupils receive prepared notes on handouts			
4. Pupils make their own notes from textbooks			

C: TESTING

26. Do you give your pupils homework regularly (i.e. about once or more in a fortnight)?

☐ Yes ☐ No; give reason(s) _____

27. Do you give your pupils 'topic tests' regularly (i.e. about once in a month)?

☐ Yes ☐ No; give reason(s) _____

PART 4: TEACHER'S OPINION ON CLASS SIZE

28. In this section, you are provided with various statements under two subsections: Standard class and large class. The statement may be viewed differently accordingly to one's opinion on their relationship with the two class sizes in question. Indicate by ticking (✓) under an alternative response which best responds to your opinion.

A. STANDARD CLASS: 45 PUPILS OR FEWER

OUTCOMES	Agree	No opinion	Disagree
1. Result in higher pupil academic achievement			
2. Provide good teaching-learning atmosphere			
3. Enable the teacher to easily identify and assist pupils who have learning problems			
4. Enable the teacher to use a variety of teaching styles during a class period			
5. Result in better behaviour on the part of pupils			
6. Provide greater chance for teacher-pupil interactions			
7. Enable feedback on pupils' work since it can be marked in time			

B: LARGE CLASS: 46 TO 55 PUPILS

OUTCOMES	Agree	No Opinion	Disagree
1. Result in a reduction in the number of teachers required			
2. Make teaching exhausting			
3. Result in pupils' failure in Geography			
4. Lead to less active pupil participation			
5. Hinder high degree of teacher-pupil interactions			
6. Result into giving more disadvantage to less able pupils			
7. Result into less opportunity for individual pupil assignments such as projects			

THE END - THANK YOU FOR YOUR PARTICIPATION.

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