A STUDY OF THE RELATIONSHIP BETWEEN TEACHER’S REINFORCEMENT BEHAVIOUR IN THE CLASSROOM AND THE STUDENTS’ INTERACTION IN BISHOP GATIMUMU NGANDU GIRLS’ HIGH SCHOOL

BY

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A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILLMENT OF THE DEGREE OF MASTER OF EDUCATION IN KENYATTA UNIVERSITY.

2003
DECLARATION

This is my original work and has not been presented for a degree in any other university.

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This research has been submitted with my approval as a university supervisor.

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DEDICATION

TO

God Almighty,

My Loving Parents,

My dear husband,

All without whose support,

I could not have accomplished my dream.
 ACKNOWLEDGEMENT

Glory and honour go to the Almighty God for granting me life in abundance. His enabling me to complete this course is truly a favour and an honour.

I thank Kenyatta University for granting me an opportunity to study and realize my dream. God bless and prosper Kenyatta University.

My dream might not have metamorphosized into reality without the generous assistance I received from Professor M..M. Patel. I greatly appreciate his concern and dedication towards my success. I will be forever indebted to him.

I thank God for my parents, the Kinyagia's, who took me to school when I understood not what education was. They have tirelessly educated and guided me. May God’s blessings rest upon them.
Finally, I bless God for my loving husband, Jim, for loving me unconditionally. He encouraged me when things were tough. He trusted me and was patient even when I left him alone at home as I stayed away in college studying. I love him for this.
ABSTRACT

This research work encompasses an investigation of the relationship between the reinforcing behaviour of teachers in the classroom and how this behaviour is related to the learners' interaction.

The research was carried out in Nyeri District, in Bishop Gatimu Ngandu Girls High School. The sample selected included five teachers, all of whom were observed teaching classes of forty to forty-four students. The teachers were observed teaching for forty minutes each.

The researcher used an observation schedule to record the data collected. The observation schedule comprised various categories of reinforcement under which he noted the number of times the teacher(s) used them.

Contained, too, in this research is the literature review. It formed the background that propelled the researcher towards the study. Theories dealing with the significance of reinforcement in shaping behaviour are highlighted.
Amongst the theorist discussed are skinner, Pavlov and Hull. Articles underscoring the relevance of interaction in learning are also highlighted.

From the research, it was concluded that reinforcement is vital in promoting classroom interaction. It was observed that majority of teachers were not ignorant of reinforcement. However, teachers lacked balance in their usage of different modes of reinforcement for different results. The researcher recommended that courses based on relevance and application of reinforcement be made compulsory to student teachers. Teachers in the field (in schools) should also be in-serviced in the same. Further research in the same field was also recommended.
1.1 Background of the problem.

Communication is vital in the lives of men. Men are social beings. No man is self-contained to a point of staying alone. Biblically, from the beginning, God created two people, a man and a woman for company.

Then the Lord God said: “It is not good that the man should be alone. I will make him a helper fit for him”... Then the man said. “This at last is bone of my bones and flesh of my flesh, she will be called woman, because she was taken out of man”.

(Genesis chap. 2)

God had observed the magnitude of the man’s loneliness. He, therefore, created someone to interact with him. The usage of the phrase “at last” shows a great pleasure that filled the man’s heart at the sight of the woman.
Technology today in the world of communication is of great quality. One can communicate with people from any part of the world any time through the Internet. We have radios and televisions amongst others. Of late, there has been the influx of cell-phones in our country, Kenya, to reinforce the landlines. One can communicate at his own convenience. There is also the literature in books, magazines, journals and daily newspapers.

Communication today is a very competitive area that is highly sophisticated and esteemed.

A speaker can only be sure that he is communicating when he gets a feedback or response from his audience. Generally, people will prefer to make calls rather than write letters or short messages since calling provides immediate feedback. A speaker who has been invited to give a speech to some people gets fulfilled when the audience asks questions, makes comments, claps, nods etc. An active audience encourages the speaker to go on while a dull one discourages the speaker.

The realization of the beauty of communication has dawned on our institution
The mode of instruction is changing from teacher-centred. In this mode, the teacher acts as a know-all. He knows his subject matter and ensures that he has classroom control. The student is silent, attentive, speaks only when spoken to and leaves his seat only with permission. Instruction is moving towards learner-centred where the teacher acts as a facilitator. Today’s teacher must know his subject matter well and also understand the individual and group behaviour of children. He must be able to adjust to a variety of methods to suit the needs of the class. Today, the learner is allowed to talk more while the teacher is expected to talk less.

This move is meant to ensure that the teacher becomes less exclusively and predominantly the source of data and dispenser of information. The learners are supposed to be taught how to learn. The teachers are meant to come up with strategies for motivating and facilitating learning. Today, teachers are likely to answer students’ questions by telling the students where and how to find answers instead of giving them information directly.

Unfortunately, in spite of this shift of the teacher’s role, teachers today still insist on doing so much for the students.
More than ever before, there are tuitions in almost all secondary, as well as, primary schools. Other teachers have established private tuitions. Teaching has also become so rigorous in schools such that in some schools, especially boarding ones, teachers are in classes as early as six in the morning and as late as ten in the night. Lunch breaks are also not spared. Teachers seem to be operating on the maxim of the pragmatists: “The end justifies the means”. A student is therefore pumped with information, is drilled, until she passes. The learner has no voice in the whole process. It is as though learners are there to listen and not be heard. At this stage, a student falls short of initiative and interpretation abilities. Creativity dies.

The ASCD 1962-year book committee (6) reacting to the ideas of Earl C Kelly, Carl R, Rogers, A. H. Maslow and Arthur W. Combs wrote:

Experiences, which inhibit the individual’s freedom to be and to express his deeper self, reduce his ability to be creative. Creativity is not learnt from restraint. It is a product of the lowering or removal of barriers. It is a matter of being different, of daring to change, of venturing forth........Conformity and creativity are essentially antithetical. What produces ane tends to destroy the other. (P 144)
From this information, it is clear that we have no choice as instructors, but to grant learners time and opportunities for self expression (communication). It is good to note that the school is the most valuable industry of all industries. This is basically because the finished product is supposed to be empowered with knowledge, skills and attitudes that will enable him/her fit in the community.

Teachers at times talk too much. Sometimes, they talk more than all the students combined. This applies to nursery schools, all the way to the university level. The problem is not how much they speak but the quality of what they say. Even when they ask questions, more than two-thirds of all teachers’ questions are concerned with narrow lines of interrogation which stimulates a certain response. It follows that chances of student’s participation in class are minimal. Some teachers even fear challenges from students and do anything to silence them. This means that very little teacher
talk is devoted to a consideration of the ideas or opinions expressed by pupils, their ideas are not dealt with adequately.

Communication (interaction) is the best method of maintaining discipline amongst the learners. Gone are the days that we used to employ the use of threats to make the students participate in class. In Kenya, for instance, the Ministry of Education recently withdrew the power of the cane from the classroom. This does not imply that everyday problems of discipline are gone. Conduct problems and personality problems amongst students are still evident. Conduct problems consist of behaviour that is grossly disturbing to others and may in fact be directed towards them since it is hostile, aggressive, destructive and / or disobedient. Personality problems may take the form of "withdrawal" behaviour – behaviour suggesting that the child is fearful of others, feels anxious and is avoiding situations that might expose him to criticism, ridicule or rejection.

Apart from withdrawal of the cane, a teacher in Kenya is not supposed to send a student out of class as a way of punishing him / her.
This is in accordance with the Ministry of Education regulations. Every pupil/student is entitled to his/her forty minutes in class.

Marvin Marshall, Ed. D in his article “Discipline without stress, punishments or rewards” is opposed to punishment as a way of disciplining learners. He observes:

Punishment is based on the belief that it is necessary to cause suffering to teach, to hurt in order to instruct. The fact of the matter, however, is that people learn better when they feel better, not when they feel worse. If punishment were effective in reducing inappropriate behaviour, then discipline problems in schools would be footnote in history. The irony of punishment is that the more you use it by trying to control others behaviours, the less real influence you have over them. Students should behave because they want to and not because they have to in order to avoid punishment.
William Glasser in his book “Choice Theory: A new Psychology of Personal Freedom” observes the best tool to enhance discipline as being positive noncoercive interaction. When a teacher interacts with the learner in a caring and understanding way, he acts as a role model to the learner who changes for the better. He feels that people can be coerced into compliance, but internal motivation – where people want to change is more lasting and effective.

Lindgen, H.C in his book “Educational Psychology” emphasizes the need for interaction in the class. He also feels that the teacher is responsible over ensuring that the students learn how to communicate. One of the most essential tasks of the school is to help future citizens to learn how to communicate. Communication involves not only reading, writing and speaking but also learning things that are worthy communicating, learning to recognize the desirability of effective communication is something worth working for. One should not just learn adequate ways in which to express himself but also be willing to listen to others with sympathetic interest and attention. Communication is a difficult task that has to be worked at continually if better understanding is to take place.
The task of improving communication falls more on the shoulder of the Teacher than on those of the learners. This is because the teacher as an educated and mature person has a greater communicative skill. Again, his position, by the virtue of being a teacher, enables him to create the kind of emotional climate that will facilitate or frustrate communication.

The teacher is responsible for creating a stimulating environment that will enhance learning.

Thomas J. Ryan (1968) shows the great responsibility and power that the teacher has over the pupils. He had first graders play a simple game consisting of pressing a lever to obtain marbles. One half of the children were reinforced for every response; one half were reinforced for fifty percent of the responses. This practical reinforcement led to more rapid responses than did the total reinforcement. The same is applicable in our classes today. When a student feels appreciated for good participation, he gets encouraged to repeat the same behaviour. Other student would be vicariously included and will take up the challenge.

Keliher came up with various types of communicative relationships between teachers and students in their order of effectiveness-
1. Least effective. The teacher attempts to maintain one-way communication with students in his class.

More effective. The teacher attempts to maintain two-way communication in with students in his class.
Even More effective: The teacher maintains two-way communication with the students and also permits some communication between students on a rather formal basis.

Most effective: The teacher becomes a co-participant in the group and encourages two-way communication among all members of the group including himself.
1.2 Rationale of the study.

It may not be reasonable to assert that the more a teacher responds to pupil behaviour, the more the pupil will learn. Other factors came into play. The factors are like the pupil's attitude, creativity and memory. However, when there is a balance between teacher's and learner's initiative, certain assumptions can be made. "We assume that certain amount of pupil initiation during class discussion is essential in order to reach those levels of cognitive functioning that require independent thinking and self direction".

(Flanders 1970 p 402)

The focus is so much on the teacher (What the teacher does) because for most of their time, the learners are with the teacher. It follows, therefore, that the teacher has a lot of influence on the learners. Study by Garner (1963) showed that students leaning algebra were apparently influenced by their teacher’s attitude towards the subject. Lenin, Lippit and White (1939) demonstrated that the behaviour of children could be modified in very consistent way by the kind of leadership displayed by the adult in-charge. Ned A. Flanders (1970) notes that more than two- thirds of all teachers' questions are concerned with narrow specifics and have only one possible
answer. When a team of six researchers observed two fourth-grade teachers 90 minutes a day over a two-week period, they found that the teachers showed a decided preference for narrow factual questions, emphasizing recall and not the broad, open question which permits choice in ways of answering. The kinds of questions the teachers ask the students not only serve as stimuli for learning responses but they also indicate to the students what is important.

There has been a shift from teacher-centred to learner-centred mode of learning. This is based on the considerable body of research that indicates learning proceeds more effectively if the teacher takes a major share of responsibility for his learning and participates actively in the making of decisions about his own learning.

The success of this research will be of great help ensuring progress towards an improved teacher education program. The student teachers will be imparted skills that will enable them to teach effectively when they complete their studies. No matter how difficulty improving the teacher education programs it may be, it would be worth the pains since in the final analysis, the students will benefit.
It will also be of invaluable relevance in the in-service education. This will enable the teachers to do away with their rigidity of holding fast to the traditional methods. This will help the teacher change his behaviour so that a different chain of events takes place in the classroom.

The learners would also gain some independence. They don't have to be told what to do, how to do it, when to start, when to stop, and how well they did what they did. They would therefore develop and improve their communicative ability.

1.3 Statement of the problem

Much as there has been a change in the mode of teaching from teachers-centered to learner centered, this has remained theoretical than practical. To a greater extent, teachers in schools and colleges still hold the central position in the activity of teaching and learning. One may wonder, now that they are the ones in the field, have they discovered through experience that this by far is the best mode of instruction? They remain rigid holding fast onto the traditional view of the teacher as the dispenser of information.
Teachers take pride in covering the syllabuses as early as when the students are in form three. Allowing students' participation would slow their pace and they are not ready to risk that.

Perhaps this could be blamed on the stiff competition that there is when it comes to national examinations. Revision by teachers and students is so rigorous so that the school may shine. It results in some kind of art whereby students are drilled for exams only. This is evident from the many school based and private tuitions that have mushroomed in Kenya today. It is a money making project! Even the standard one children are still subjected to what they term as "tuition"! In this research, the question of how the instructional materials should be presented is of great importance. What is the most effective method? Does one present concrete materials first in such a way as to elicit questions from the learners? How can maximum interaction among the learners be achieved?

With the advancement of technology, there could be some hope. Possibly, when computers will become widely used in our institutions, we will have individualized procedures and let pupils and students proceed at their pace.
The teacher then can only step in when prompted by the students to clarify issues or words. It will be students-initiated sort of instruction. However, we cannot wait until then. Something has to be done pretty soon.

One thing to be appreciated is the fact that when learners are involved in the process of learning, they develop self-confidence and hence high self-esteem. Such a person as an adult can discuss the affairs of the world and the community since he has developed a background against which to carry on such discussions. He is also able to comprehend broad and pervasive relationship that unites him and other people; therefore, he may act in ways that show co-operation. He becomes independent and is able to act on his own behalf.

The question arising is how a teacher, being a model to the learners can manipulate the environment to enhance interaction amongst the students. This research focuses specifically on reinforcement used by the teachers in the classroom. Pavlov, Skinner, Hull amongst other theorists felt that reinforcement could be used effectively to shape behaviour.
This study capitalizes on this and seeks to find the relationship between teacher's reinforcement behaviour in the class and the students' interaction.

1.4. Research questions.

It is very important that educators should be concerned about anything that may improve classroom instruction. My research has this goal. However, certain questions arise from this study:

1.4.1 does teacher reinforcement behaviour increase student's participation in class?

1.4.2 do all teachers use the same mode of reinforcement in their classes?

1.4.3 does reinforcement influence classroom interaction irrespective of the forms (form 1-4) in which they are used?

1.5. Objectives of the study

From the research questions given, certain objectives related to this study have been generated:
(a) to find out the usage of reinforcement by the teachers (do they use it?)

(b) to investigate the types of reinforcements used by the teachers.

(c) to examine the effect of reinforcement used by the teachers on classroom interaction

(d) to examine the different effects of reinforcements on classroom interaction from one form to another.

1.6 **Limitation of the study**

It would be wise to point out at this junction that despite the admirable analysis and recommendations of this study, one has to apply them cautiously due to the following limitations of the study.

1.6.1 The research was carried out in a secondary school,

1.6.2 Only seven teachers were observed (for both pilot and final study) despite there being about 28 teachers in the school.
1.6.3 There was variation in the time the observations were done. Some classes were observed early in the morning and others late in the afternoon.

1.6.4 Only seven classes were observed though the school has a total of twelve classes.

1.6.5 Guinea-pig effect. Learners observed showed undue co-operation with their teachers. I tried to overcome this by visiting the class several times before collecting the data. Still, I could tell that the researcher's presence initiated learning and this may have affected the validity of subsequent observations.

1.7 Definition of concepts used in the study

Some of the terms used in this paper may confuse the reader since in this paper, the concept may not be used in their commonly used version. Some terms that require clarifications are:

**Reinforcement:** It is used to refer to a reward.
Any stimulus, which can increase the strength of a response when it is presented in close temporal conjunction with the occurrence of that response.

**Interaction**: Means teacher-talk and students' talk. Teacher talk in the sense of reinforcing the student's behaviour. Students talk in the sense of response or initiation.

**Initiation**: To make the first move, to lead, to begin or to express a concept for the first time.

**Response**: To take action after an initiation by the teacher or others.

It is against this background that the researcher went out for any literature concerning this area of study. Literature review is presented in the next chapter.
CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

In chapter one, it has been stipulated that the main concern of this research is to establish the relationship between teacher's reinforcement in the classroom and the students' interaction. In this chapter, literature revolving around the subject has been discussed. Literature review related to the methodology that was used in carrying out the research is also discussed briefly.

2.2 Reinforcement

James Deece (1952) defines reinforcement as "Any stimulus which can increase the strength of a response when it is presented in close temporal conjunction with the occurrence of that response."

To explain this, he quotes an example of learning in a rat. The example involves an experimental situation where a white rat is
introduced for the first time into a relatively sound proof box about 8 by 12 inches high. At the end of this box, a small lever projects from the wall and beneath the lever is a small opening. The lever is connected to an automatic recording device and to a magazine filled with small pellets of food. The lever and the magazine are so arranged that when the lever is depressed slightly, a pellet of food is dropped through the opening into the box containing the rat. The lever is the only conspicuous feature of the inside of the box. The wall is painted a uniform neutral colour and the box is entirely bare. The apparatus were designed by B.F. Skinner (1938) for an exhaustive study of the behaviour of the rat.

The rat is introduced in the box while hungry. It explores the box readily. It sniffs the air, paws the wall of the box and bites here and there. Eventually due to lack of things to do, it is inevitable that it will manipulate the lever in some way. Sooner or later, it will depress the bar far enough to release a pellet of food. The rat may not discover this immediately but when it does, it definitely eats the food. We may be assured that the rat's interest in the box will increase.
Exploration and manipulation of environment will become more intense. It is inevitable for the rat to press the lever for a second time. This time, perhaps, it will discover the food immediately. The behaviour of the rat will become markedly altered. Instead of resuming its casual exploration of the box, it will now proceed to press the lever repeatedly. If it is hungry enough, it will press the lever at a rate determined only by the time it takes to put its nose down and eat the food before pressing the bar a second time. This change of behaviour from slow pressing to very fast is the increase in the strength of a response. Because of the reinforcement in the form of pellets, the pressing of the lever is more frequent and with greater force.
Deece in support of Skinner observes that reinforcement is vital in shaping behaviour.

The increase in the rate of the bar-pressing of the rat is as a result of the reward it was getting in the form of pellets. The greater the number of reinforcement, the greater the strength of response. Latency period is inversely related to the strength of the response. When latency period is short, response strength is high and the vice versa is true. Latency period is the time, which intervenes between a stimulus and the beginning of a response. It follows, therefore, that when we intend to teach a new behaviour, we must ensure that the duration between when the response occurs and when the reward is given to the person (subject) is short.

2.3 Amount of reinforcement

The more the amount of reinforcement, the more the increase of the response strength. This could imply that the more the reinforcement that teachers may give to the learners, the faster the acquisition of a certain behaviour.
An experiment by Gantt, which Hull (1943) made use of clarifies this. This was a study with the conditioned salivary response of the dog. A dog in question was conditioned to four different stimuli, one of which was reinforced by half gram of food, one by one gram, one by two grams and one by twelve grams. These four conditioned responses were reinforced in a random order. After a long period of training, the animal apparently learned to respond differentially to the four different stimuli, according to the amount of reinforcement associated with them. This could be taken literally to mean that students can do better in a certain subject and not another because one teacher reinforces them more than the other. Students being more intelligent than the animals will quickly differentiate between teachers and will be inclined to some teachers and their subjects and not others. One of the factors that could cause this according to Deese, is the amount of reinforcement given.
2.4 Patterns of reinforcement

Different patterns of reinforcements affect the response in different ways.

Some patterns are good at maintaining learned behaviour than others. Skinner varied reinforcements and he came up with schedules of reinforcements. They can be divided into two:

(a) Continuous
(b) Intermittent/ partial reinforcement.

**Continuous** - A reinforcer is given after every desired behaviour is shown. This schedule is very good in establishing behaviour; however, one who is being reinforced is likely to become dependent on the reinforcement so that in the end, desired behaviour can only be shown if the reinforcer is expected.

Intermittent: The reinforcement is given with a break.

Under this we have:
(a) **Fixed interval:** where a reinforcer is given after a fixed passage of time, for example, workers who are paid at the end of every month.

(b) **Valuable interval:** The reinforcement is given after an unpredictable varied interval. One (subject) does not know when the reinforcement will be given. It is good for maintaining behaviour. The assumption is that the learners (if they are the subjects) will continually perform well for they don’t know when the reinforcement will come.

It could be used in class when one is teaching.

(c) **Fixed ratio:** The reinforcement is given after a specified number of accepted responses. One must set a standard, which is achievable; otherwise, the students will be discouraged. Unless used with a lot of care, it can demoralize those learners who are not intelligent. For example, after every correct response one is rewarded.

(d) **Variable ratio:** Reinforcement is given after a valuable number of acceptable responses. It could be at first – one
correct response, then three, then two e.t.c. It also could help maintain behaviour.

2.5 Extinction

We have to continually reinforce learnt behaviour; otherwise, it will diminish in strength and finally become extinct. Psychologists define "extinction" as the operation of removing reinforcement, following the occurrence of some response that has been reinforced in the past. When the reinforcement of a particular response is withdrawn, the response declines in strength. The loss in response strength occurs as a function with the withdrawal of reinforcement, since there are other variables which also may produce a decline in response strength.

In the simplest examples of learning, a response is reinforced each time it occurs. Thus, in simple reward learning, each time the rat presses the lever in the Skinner box, the rat receives a pellet of food. After the rat learns the correlation between food and pressing of the lever, it will continue to press the lever at a reasonable steady rate so long as it remains hungry. If the reinforcement is discontinued, the rat
will continue to respond for a while but it does so at a gradually diminishing rate and with increasing irregularity. The response eventually disappears.

From Skinner's experiment, one of the most important discoveries he made about partial reinforcement is that this procedure increases resistance to extinction. Partial reinforcement accumulates much greater response strength per reinforcement than does simple reinforcement.

The same was observed by Humphreys (1939). He conditioned the eyelid response in human subjects. Human being will blink their eyelids when a puff of air is suddenly blown at the eye. Humphrey took advantage of this unconditioned response by pairing it with a flash of light. In the conditioning trials, however, he divided his subjects into three groups of 96 individuals each. One group had the conditioned stimulus paired with the puff of air on every trial. A second group had the light paired with the puff on only 50% of the trials.
In this condition, the pairings of the light with puff of air occurred more or less at random. A third group was like the first one in having reinforcement on every trial, but like the second group in having only half the number of reinforced trials. To this, he had rest intervals for the third group at the same time when the second group was getting reinforced trials.

Humphrey found that there were no differences in the rate of acquisition between the 100% and the partial reinforcement groups. There was, however, a striking difference between these two groups in resistance to extinction. The partially reinforced groups extinguished much more slowly than did the groups with reinforcement every trial. This conclusion has been well supported by a number of studies (Sheffield 1949, Grant and Hake, 1949; Jenkins, Mc Fann, and Clayton, 1950).
He came up with the theory of expectancy. Organisms come to respond to conditioned stimuli because the conditioned stimuli lead them to expect the unconditioned stimuli. Humphrey's subjects, for example, blinked to the light because they expected the puff of air; and rats press levers because they came to expect food as a result.

2.6 Theories of learning

Many theories of learning have been advanced. E.L. Thorndike (1898) came up with the law of effect.

What the law stated is that “responses were learned or fixated because of their effects or consequences. This principle has been restated by other psychologists. Mc Georch (1942) subdivided the principle into three:

(1) acts are fixated and eliminated as functions of their effects.

(11) acts followed by a state of affairs, which the individual does nothing to avoid, and which he often tries to preserve and attain are selected and fixated, while acts
followed by states of affairs, which the individual avoids or attempts to change, are eliminated.

(111) other things being equal, acts leading to consequences, which satisfy a motivating condition, are selected and strengthened, while those leading to consequences, which do not satisfy a motivating condition, are eliminated.

The third issue brings out the issue of reinforcement very clearly. It gives reasons why reinforcing stimuli are reinforcing. It says that they are reinforcing because they satisfy a motive state.

Hull (1943) has given the most complete theory of relationship of motivation to the effect theory of reinforcement. He says that organisms can be regarded as bundles of needs. The needs occur due to the continuous active processes of the body.

He says that the function of behavior is to satisfy these needs, so as to get the organism back into a state of equilibrium. Thus, needs brings about responses.
When a behaviour succeeds in reducing a need, the stimulation that arises from the need is also reduced. This characteristic of need reduction, according to Hull is the defining characteristic of reinforcing stimuli. Reinforcement is reinforcement because it has the effect of reducing needs in an organism.

According to Hull, whatever the fundamental nature of the learning process, experience and practice in a new situation have no effect—learning will not occur unless practice is reinforced. Not all theorists agree with Hull’s observation.

Guthrie (1935, 1959) postulates that reinforcement is not necessary for learning to occur. According to him what is necessary is that the elements which are to constitute the new learning (whether they are stimuli, responses or whatever) be contiguous – be closely paired and related to each other in time.

According to contiguity theory, motivation and reward simply determine what the animal (subject) does. The pellet of food keeps the rat from doing
other things, like wondering around the cage, after it presses the bar, and thus, it keeps the rat from learning the “wrong” responses.

From the theory, however, much as they say that the reinforcement has no intrinsic effect, it is clear that indirectly, it plays a key role in learning. It prevents the organism from learning any other response but what is desired. It also serves to prevent the organism from unlearning what it has already learnt, by keeping it from reacting in other ways other than stimuli that lead to the desired response pattern. These two theories do lead to nearly the same predictions. If one can get beneath the different words that they use, they may be essentially the same!

2.7 Application Of Skinner’s Operant Conditioning

Theories of learning have made a major contribution in the field of learning. An example is Skinner’s Operant Conditioning. Part of his success is gaining adoption for programmed learning. The major concepts of emitted response and its strengthening through carefully timed reinforcement, importance of reward over punishment, shaping through small -step gains, the subjects
control of his own pace, all came from the experimental background of operant conditioning.

The notion of shaping through reinforcement is clearly implied. One of his associates enunciated the laboratory principles as suggested by the following six topics (Hollard, 1960):

- Immediate reinforcement
- Emitted behaviour
- Gradual progression to complex repertoire
- Fading; gradual withdrawal of stimuli support
- Controlling observing (attentive) behaviour
- Discrimination training (abstractions concepts)

2.8 Interaction of the classroom

Danielson in his article, “Teacher Education to enhance Professional Practice”, observes that the conception of learning and hence good teaching has gradually shifted from a behaviorist to a more
constructivist view. 1970’s Hunter model-learning styles (encouraged emphasis on teacher -centered) involving anticipatory set statement of objectives, instructional input, modeling e.t.c.

In 1980’s, teacher effectiveness: expectancy studies, discipline model, hunter derivations, effective schools research, co-operation learning and brain research. It changed in 1990’s to critical thinking: content knowledge, content pedagogy, alternative assessment, multiple intelligence, collaborative learning, cognitive learning theory, constructivist classrooms, engaged teaching and teaching for understanding. In 2000: engaged teaching and learning and teaching for understanding.

Because of this shift, he came up with components for professional practice.

Among the domains he identifies, one really emphasizes the rapport between the teacher and his learners. This is domain three which he called ‘instruction’. It states that the teacher should:

(a) Communicate clearly and accurately,

(b) Use questions and discussion techniques,
(c) engage the students,
(d) provide feedback to students and
(e) demonstrate flexibility and responsiveness.

It emphasizes on student-centred sort of instruction.

Questions and discussions would enable the learner to be an active participant and not a passive one.

Learner can be heard. This is why the teacher is called upon to demonstrate flexibility and engage the learners. He highlighted different types of interaction challenging the teachers to aim for the highest level of interaction. This level he called “distinguished”. It is at such a level that learning is at its peak and interesting.

Types: Teacher Vs Students

Unsatisfactory: -

Teacher interaction with at least some students is negative, demeaning, sarcastic or inappropriate. Students exhibit disrespect for the teacher.

Basic: - Teacher student interactions are generally appropriate but may reflect occasional inconsistencies, favouritism or disregard for
students' cultures. Students exhibit only minimal respect for the teacher.

**Proficient**: Teacher is friendly and demonstrates general warmth, caring and respect. Such interaction is appropriate to developmental and cultural norms. Students exhibit respect for the teachers.

**Distinguished**: Teacher demonstrates genuine caring and respect for individual students. The students exhibit great respect for the teacher.

**Student Vs Student**

**Unsatisfactory**: Student’s interactions are characterized by conflicts, sarcasm or putdowns.

**Basic**: Students do not demonstrate negative behavior towards each other.

**Proficient**: Student’s interactions are generally polite and respectful.

**Distinguished**: Students demonstrate genuine caring for one another as individuals and as students.

According to Danielson, it is only when the interaction is good that the students can gain a lot.
Marvin Marshal, Ed. D. emphasizes on the importance of interaction in learning. He says that proper learning takes place in a learning community. He defines a learning community as a place where teachers and students want to be and where teachers and students have positive feelings about what they are doing.

Teachers become more effective when they begin assessing their interactive instructional approaches, where students are consistently involved and active in contrast to being passive and inactive.

For example, instead of asking a question to one student (where the others may or may not be engaged), the teacher can involve the entire class by having each student discuss the question with a learning partner. Increasing participation enhances learning. This is born out by what we know regarding left–right brain hemispheres, multiple intelligences, learning modalities, the connection between emotions and learning and personality styles.
Peter Drucker, perhaps the best known American management gurus said that people should give up the traditional methods (where the teacher was the center of learning) since they have stopped working. He pointed out that young people today come to school with different orientation than did past generations. This is as a result of technology, mass media and promotion of young people’s rights.

Young people today are not afraid of punishment and therefore, punishment has lost its efficacy. Punishment is based on the belief that it is necessary to cause suffering to teach, to hurt in order to instruct. However, we learn better when we feel better not when we feel worse. Marvin says, “If punishment were effective in reducing discipline problems, inappropriate behavior would be a footnote in history.” Punishment does not motivate. The way to influence people towards internal rather than external motivation is through positive, non-coercive interaction.

Interaction between teacher and students sends the message that the teacher cares and believes the students are capable, responsible and valuable.
Interaction amongst students makes the students develop a sense of belonging. Without it, the students may feel anonymous and isolated and at this point, little matters to many of them including learning. To reduce anonymity, a teacher should engage students in activities where they can relate and get to know each other.

Interaction enhances collaboration. Workloads can be reduced while simultaneously increasing the quality of student performance. For instance, if a teacher used a simple approach of “three before me,” whereby before a teacher corrects a paper it has been seen by three other students, the leaner would learn more and the teachers work load would be less.

If schools are meant to be learning communities, the better means of implementation is to have classrooms become communities of learners!
2.9 Literature Review Related To Methodology

The type of study one carries out dictates the kind of methods one uses to get his information. An example is when one wants to find out peoples’ opinions and attitude. He has no choice than to use an attitude scale.

The method used in this research is borrowed from Flandres International Analysis Categories (FIAC) developed at the university of Minnesota (1955-60). He came up with a ten-category system. Seven categories are used when the teacher is talking while two are used when the learner is talking. The last category is used when there is silence or confusion.

The break down is as follows:
1. **Accepts feelings.** Accepts and clarifies an attitude or the feeling tone of a pupil in a non-threatening manner.

2. **Praises and encourages.** Praises or encourages pupil action or behaviours, Jokes that release tension but not at the expense of another individual; nodding head or saying "un hm?" or "go on" are included.

3. **Accepts or uses ideas of the pupils.** Clarifying, building or developing ideas suggested by a

### Flanders International Analysis Categories (FIAC)

<table>
<thead>
<tr>
<th>Teacher talk</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Feelings may be positive or negative. Predicting and recalling feelings are also included.</td>
</tr>
</tbody>
</table>
5. Lecturing. Giving facts or opinions about content or procedures; expressing his own ideas; giving his own explanations or citing an authority other than the student.

6. Giving directions. Directions, commands or order which a learner is expected to comply.

7. Criticizing or justifying authority.

Statements intended to change pupil’s behaviors from non-acceptable to acceptable pattern; bawling someone out; stating why the teacher is doing what he is doing; extreme self-reference.
8. **Pupil-talk: - Response.** Talk by the pupils in response to the teacher.

Teacher initiates the contact or solicits pupil statement or structures the situation. Freedom to express own ideas is limited.

9. **Pupils—talk: Initiative.** Talk by learners, which they initiate. Expressing own ideas; initiating a new topic; free to develop opinions and a line of thought, like asking thoughtful questions; going beyond the existing structure.

10. **Silence or confusion.** Pauses, short periods of confusion in which communication cannot be understood by the observer.

This system can be used to analyse verbal behaviour of teachers and students. It gives an observer a true picture of the percentage of interactions.
falling in each category and also the general sequence of responses. It helps the teachers improve in their instruction in the classrooms. Student teachers who were taught interaction analysis (according to Flanders) were found to be more indirect in their over-all interaction patterns as compared to student teachers who were trained in learning theory.

He concluded that when student teachers are trained in interaction analysis, they become more indirect, accept students' ideas and criticize less than student teachers not so trained. A modification of this method was developed by the researcher for the purpose of this research. Details of this are provided in the next chapter under methodology.
3.1 Introduction

For the collection of data to be possible, a sample had to be selected.

Appropriate tools for data collection had to be constructed as well as those for data analysis.

3.2 Sample

The research was conducted in Mathira Division, which is in Nyeri District. The school involved is called Bishop Gatimu Ngandu Girls High School. The sample included four classes each with an average of forty-two students. The classes included one for form one, two form two classes, one form three and one form four. The total number of students involved were one hundred and sixty-eight. The teachers were only five.

The classes picked were randomly sampled, at least one per form. The selection of the teachers was both random and purposive. Purposive in the sense that they had to be either language or science teachers. This was because of the nature of subjects, (one would expect more participation of learners in these areas).
Since there were many teachers credible for this research per form, they were then randomly sampled and one teacher per form was picked. (However, in form two, two teachers were picked.)

3.3 Research Instruments

The selected sample was to be observed when the teachers were teaching in forty-minutes lessons. As mentioned earlier, an observation schedule based on Flanders FIAC had to be constructed. It involved the following categories:

(a) non-verbal. This area included such things like a smile, a pat, nodding of the teacher’s head and eye contact.

(b) occasional one-word reinforcements: Aha, yes, wonderful, good, excellent, yeah e.g. It also included short phrases like “a good try”, “well done”, “I like that”, amongst others.

(c) delayed. This is a situation whereby a teacher does not reinforce a student immediately or acknowledge the right answer. He/she waits until a number of students supply their observations and then she tells them who amongst them is right.
(d) in the form of acceptance by the teachers. The teacher does not only say, for example, "yes", but notes the answer given (or suggestion) by the students on the blackboard. He/she may ask the students to dictate her answer for the others to note it down since it is important.

(e) elaborative. Here, the teacher accepts the answers given by the pupils, clarifies them, builds or develops the ideas suggested by the pupils.

The response expected from the pupils as a result of the teachers' reinforcement, was either: –

(a) initiation or

(b) response

A sample of an observation schedule has been appendicized as appendix I.

3.4 Collection of Data

The five teachers were observed teaching in forty-minute lessons. The kind and number of reinforcements used by the teachers (five) were noted and recorded. Prior to the collection of data, the researcher had visited the classes to be observed severally. This was done to reduce the guinea-pig effect on the learners. Gall (1971) and Bong Said:
Unless he was concealed, an observer is likely to have an impact on the observed. For example, an observer entering the classroom for the first time probably will arouse curiosity of the students and possibly the teacher's resulting in attentiveness of the students to the teacher. This may not reflect his usual behaviour and this may provide data that is not representative. To prevent this situation, the observer should not record any observation for the first time he is in the classroom.

3.5 Presentation of Data

The data collected is presented in this paper in the form of tables, bar graphs and charts. There is also a description of the observations made.

The presentation, analysis and interpretation of the data are provided in the following chapter.
CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AND INTERPRETATION

4.1 Introduction

After the data is collected, analysis should be done so that the data can be put into proper use. This chapter shows the analysis of the data that was collected. It reflects the teacher's usage of reinforcement in different classes. Reflected too, are the responses that were evoked by the usage of reinforcements.

4.2 Presentation of Data

The data was collected from five teachers who were observed teaching for forty minutes each. The findings are presented in the following tables, graphs and charts.
Table IV.I shows the frequency of the reinforcements given by the teachers.

<table>
<thead>
<tr>
<th>Teachers</th>
<th>Non-verbal</th>
<th>One-word</th>
<th>Elaborative</th>
<th>Delayed</th>
<th>Acceptance by teacher</th>
<th>Total</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher I</td>
<td>7</td>
<td>4</td>
<td>9</td>
<td>1</td>
<td>2</td>
<td>23</td>
<td>22.5</td>
</tr>
<tr>
<td>Teacher II</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>0</td>
<td>3</td>
<td>21</td>
<td>20.6</td>
</tr>
<tr>
<td>Teacher III</td>
<td>3</td>
<td>2</td>
<td>6</td>
<td>2</td>
<td>5</td>
<td>18</td>
<td>17.6</td>
</tr>
<tr>
<td>Teacher IV</td>
<td>3</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>13</td>
<td>20</td>
<td>19.6</td>
</tr>
<tr>
<td>Teacher V</td>
<td>3</td>
<td>4</td>
<td>9</td>
<td>1</td>
<td>3</td>
<td>20</td>
<td>19.6</td>
</tr>
<tr>
<td>Total</td>
<td>22</td>
<td>20</td>
<td>30</td>
<td>4</td>
<td>26</td>
<td>102</td>
<td>100</td>
</tr>
<tr>
<td>Percentage</td>
<td>21.6</td>
<td>19.6</td>
<td>29.4</td>
<td>3.9</td>
<td>25.5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

All teachers except teacher IV used elaborative mode of reinforcement more than any other mode. Teacher four made the greatest use of the “acceptance-by-the-teacher” mode of reinforcement and ignored “elaborative” and “delayed.” There was minimal usage of “delayed” mode of reinforcing learners. Infact, two teachers (teacher II and IV) did not use it at all.

Teacher III was the most balanced person since he made use of all the modes of reinforcement almost in a balanced way.
Fig. IV 1. shows the percentage of the total number of reinforcements used by each teacher.

- Teacher I: 22.5%
- Teacher II: 20.6%
- Teacher III: 17.6%
- Teacher IV: 19.6%
- Teacher V: 19.6%
The teacher who used the highest amount of reinforcement was teacher I.

He used "elaborative" mode of reinforcement most but "delayed" was hardly used. Teacher II was the second. Teacher IV and V followed with the same amounts.

The teacher who used the least amount was teacher III.
Fig IV 2. shows the percentage of different reinforcement used by the teacher.
The mode of reinforcement that was used most by the teachers was “elaborative”. It was followed by “acceptance-by-the-teacher mode”.

“Delayed” reinforcement seemed not to be popular amongst the teachers. It was the least used by far. Perhaps it is good to look at the effects of reinforcements used in the classroom interaction. The students’ reactions had been categorized into two: - response and initiation.

Table IV.2 Shows the different reactions by the students when different reinforcements were used.

<table>
<thead>
<tr>
<th>Teachers</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Responses/Reinforcement</td>
<td>R</td>
<td>I</td>
<td>R</td>
<td>I</td>
<td>R</td>
<td>R</td>
</tr>
<tr>
<td>Non-Verbal</td>
<td>11</td>
<td>3</td>
<td>8</td>
<td>1</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>One-word</td>
<td>3</td>
<td>1</td>
<td>9</td>
<td>0</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Elaborative</td>
<td>7</td>
<td>6</td>
<td>4</td>
<td>5</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>Delayed</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Acceptance</td>
<td>0</td>
<td>2</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>Total</td>
<td>22</td>
<td>13</td>
<td>25</td>
<td>6</td>
<td>3</td>
<td>19</td>
</tr>
<tr>
<td>%Per response</td>
<td>17.1</td>
<td>10.1</td>
<td>19.4</td>
<td>4.7</td>
<td>2.3</td>
<td>14.7</td>
</tr>
</tbody>
</table>

Total % per

<table>
<thead>
<tr>
<th>Teacher</th>
<th>T1</th>
<th>T2</th>
<th>T3</th>
<th>T4</th>
<th>T5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>27.1</td>
<td>24</td>
<td>17.1</td>
<td>16.3</td>
<td>15.5</td>
</tr>
</tbody>
</table>

Key: R - Reinforcement
I - Initiation
It had been noted earlier on that "elaborative" mode of reinforcement was used by most teachers. As could be expected, the highest number of responses was observed under this category (42 responses). The next level that followed was under "non-verbal" (31 responses). It should be noted that though the "acceptance by the teacher" mode of reinforcement ranked second under the amount of reinforcement given, it was pushed to third in the level of responses it evoked. "Delayed" produced the least number of responses (only five). This could be explained by the fact that it was the least used mode of reinforcement.
Fig. IV 3 is a graphic representation of the percentage of the total responses observed under the various categories of reinforcements.

- 32.5% Elaborative
- 3.9% Delayed
- 22.5% Acceptance by the teacher
- 17.1% One-word
- 24% Non-verbal

Number 1.21.41

Teacher 1.21.41
Fig IV.4 shows the percentage of responses that each teacher evoked from the students as a result of using the various reinforcements.

Teacher I 27.1%
Teacher II 24%
Teacher III 17.1%
Teacher IV 16.3%
Teacher V 15.5%
Teacher I led with 27.1 per cent followed by teacher 11 with 24 per cent. Teacher 111 was third he got 17.1 (this time not the last as would have been expected considering the amount of reinforcement he used). He was followed closely by teachers IV and V who had 16.3 and 15.5 per cent respectively.

4.3 Interpretation of the data

It’s clear that reinforcement enhanced responses (communication) in the classrooms. From Tables I and II, the more one reinforces, the higher the number of responses one gets. This is especially so when one considers teachers I and II. They offered the highest amount of reinforcements and the same is reflected in the amount of responses they got/ achieved. They were leading in both cases. Teacher four and five (IV & V) offered the same amount of reinforcement and the reactions they got from the students are almost similar. The difference, as can be observed from table IV.2, is minimal. Teacher three doesn’t seem to obey this rule and the reason will be given later.
The researcher was interested in finding out whether reinforcement could enhance interaction in the classrooms. It is clear that it does, when we consider the tabulated results. It should be noted however that, the kind of interaction preferred by the researcher is one where most of the talking is done by the learner and not the teacher.

Considering non-verbal mode of reinforcement, most of the learner's reaction is in the form of response (responding to teachers initiation). This means that much as the responses are high, the learners are limited in talking. If one looks at table IV.2, it can be noted that teacher I used this mode greatly and got only three reactions in the form of students' initiative. Eleven of the reactions were just responses. Teacher II got eight responses and one initiative; teacher III got one response and one initiative; teacher IV got three responses and one initiative whereas teacher V, an exceptional case indeed, got no responses but three initiatives.

The use of one-word was a replica of what happened under non-verbal. Almost all reactions were in the form of responses (refer to table IV.2). The question is "Why is there very little initiative from the learners when these two methods of reinforcement are used?" The answer is not very difficult.
Some of these areas considered as non-verbal and one-word reinforcements at times are found to be teachers' mannerisms. Some teachers use the term "yes" to ask questions and not to reinforce. Others use these two modes in an insincere manner. The problem is that students are keen and are able to observe all this. They, therefore, do not get reinforced even when the teachers smile (could be the teachers' nature and not necessarily meant to reinforce) or utter certain words like good, yah etc. They are just part of the teachers manner of speech or behaviour. The reinforcement strength in them is, therefore, low.

Elaborative mode of reinforcement presented different results. It evoked the greatest amount of students' initiation. Teacher I got seven responses and six initiatives; teacher II got four responses and five initiatives while teacher IV achieved seven responses and two initiatives. An explanation for these varied results can be given. Whenever a teacher is elaborating a student's response, he slows in his pace of delivery. This grants the learners an opportunity to pause and think. While the learner who had given the answer feels greatly recognized and hence greatly rewarded, the others are able to explore other possible explanations to the same problem and supply
the teacher with more information on the same. They can as well ask questions based on the same idea aired. This way, many learners participate and the teacher does little talking.

This mode, therefore, qualifies to be one of the best modes of reinforcing learners. It can enhance a high level of interaction in the classroom. This explains why teacher number III much as he offered the least amount of reinforcement was ranked third in evoking students’ reactions. He was also the best in enhancing students’ initiation.

Delayed reinforcement was hardly used by the teachers. However, the few times that it was used, it enhanced good interaction in that most of the student’s reactions were in the form of initiation. The reason for this outcome is the fact that when reinforcement was delayed, the students were not informed at once on who was right in a certain area or question. This kept many of them offering suggestions and expressing their points of view. They were also alert as they anxiously waited to know who was right in whichever area.
Acceptance-by-the-teacher evoked both the responses and initiation from the learners. Nevertheless, overuse of this mode was found to be counter-effective. This can be explained by the case of the teacher IV who reinforced the learners using this mode thirteen times. The result was that he got thirteen responses and only two initiatives from the learners. Balance is the key word. Teacher IV should also have made use of "elaborative" and "delayed" modes of reinforcement. It would reduce monotony since when overused, it reduces its impact on the learners. The learners even question the credibility of the teacher who accepts almost everything suggested as being perfect.

Reinforcement is directly related to student's interaction in class. Generally, it can be said that the more one reinforces, the more the learners react or respond in the class. This could be observed in the figure below.
Fig. IV. 5 shows the relationship between the percentage of the teacher reinforcement behaviour and the percentage of the learners' reactions (initiation and responses).

Different Teachers

Teacher V

Teacher IV

Teacher III

Teacher II

Teacher I

KEY

- Learners' reaction (response and initiation)
- Reinforcement given

% Increase of both reinforcement and students' responses
From the table, it could be observed that reinforcement greatly influences classroom interaction. From the cases of teacher I and II it can almost be concluded that the higher the reinforcement, the higher is the classroom interaction. It is good to note that most of the pupils’ reactions were in the form of responses and not initiation meaning that individual students were not given ample time to express themselves. This has been explained previously.

Teacher III presents different results. The reinforcement is almost the same as the learner’s reactions. Though this teacher managed the highest level of learners initiation, the total percentage of students reactions were low since he used little of non-verbal and one-word reinforcements which would have roused students reaction in the form of responses. This teacher should also have used a little more of these methods just as he effectively used others like “elaborative”, which call for the learner’s initiative.

Teacher IV and V do not have a very good show. They reinforced more but got low levels of learners’ reactions. Teacher IV overused “acceptance mode” which lost its sting (its strength) and hence could not motivate the learners well enough.
His Counterpart, teacher V, much as he used elaborative, he dwelt so much on learners answers until it turned out to be a lecture. This discouraged the learners from participating. Lectures do not motivate learners to participate. They make them passive and hence kill the learners’ interest to learn.

4.4 Summary Findings

All teachers reinforced students in one-way or another. In any educational setting, motivation as Peters and Miller (1982) argued is essential for the efficiency of the learning process. Teachers should incorporate systematic reinforcement by praising the students, accepting their ideas and feelings if they expect them to participate in the learning process. From the study, it is very clear that majority of the teachers were informed as far as reinforcing learners is concerned. They used most of the categories of reinforcement that had been identified by the researcher. However, it was so striking that most of them avoided the delayed form of reinforcement possibly because it was not popular amongst them. Delayed reinforcement is also an effective mode of reinforcement as can be observed in the outcome of reinforcement presented in table IV.2. A major shortcoming observed was in the balancing
of these modes of reinforcements. There was an over use of some, and avoidance of others (Table IV.2). There should be a balance in the modes of reinforcement to enhance maximum initiation or participation of the learners.

Reinforcement enables the learners to avoid the responses that are not rewarded and to think along the responses that are rewarded. Learning consists of the changes in behavior that result from interaction with environment. Reinforcement is the basic event that makes learning possible. A great deal of our learning results from the extent to which others reinforce our responses. We can, of course, become our own reinforcers, and this what happens when we work on a task purely for the enjoyment we get from it. This kind of learning figures largely in satisfying needs for self-actualization and achievement. However, the students we have at secondary schools are still young and there are many things hindering them from learning. Their attention can be caught by unnumbered barriers that may seem more appealing than learning. This is why we need to reinforce them so as to attract them towards what they ought to learn.
It is also true that most of the behavior that characterizes us as individuals in the society— that makes us the persons we are — is the product of social learning. This social learning is the result of the amount and the kind of reinforcement our behavior has received from the significant persons around us. As for the case of students, teachers are part of the most significant persons around them.

In the following chapter, certain recommendations have been supplied which will help the readers, teachers, counsellors and any other person who might have to deal with learning and teaching in secondary schools.
CHAPTER FIVE

CONCLUSION AND RECOMMENDATIONS.

5.1 Introduction

In this chapter, concluding remarks are made based on the research questions and objectives of the study. Included too, are the recommendations based on the outcome of the research. It is hoped that they will prove invaluable to the teachers in the field, tutors in teachers training colleges and universities, as well as anybody who may undertake future research based on the same area.

5.2 Concluding Remarks

The purpose of this research was to establish the relationship between the teacher’s reinforcing behavior in the classroom and the students’ interaction. From the literature review, it had been established that reinforcement could be a vital tool in shaping behaviour. This was based on the theories advanced by the theorists like Skinner, Hull and Pavlov amongst others
(One can refer to chapter two). The study, therefore, assumed that there is a positive relationship between reinforcement and learners interaction in the classroom.

The researcher had the following objectives for the study:-

(a) to find out the usage of reinforcement by the teachers. The researcher was able to establish that a hundred percent of all the teachers observed reinforced the learners. It was generally assumed, therefore, that majority of teachers in secondary schools reinforce the learners.

(b) to investigate the types of reinforcements used by the teachers. The researcher had formulated five categories of possible reinforcements:

- non-verbal,
- one-word,
- elaborative,
- delayed and acceptance-

by-the-teacher. It was noted that different teachers used different categories. There were those who used non-verbal and one word more than the other categories. Elaborative mode was the most popular amongst the teachers observed.
Others avoided some categories completely and overused others. Delayed mode of reinforcement was the most unpopular mode of reinforcement amongst the teachers.

(c) to examine the different effects of reinforcements used by the teachers on classroom interaction. The researcher had established two possible reactions by the learners: response and initiation. It was established that different modes of reinforcement evoked varied reactions from the learners. Non-verbal and one-word prompted the learners to “respond” while elaborative, delayed and acceptance by the teacher generally provoked the learners to be “initiative”. The researcher was in favour of initiation more than response since initiation requires a learner to think before airing his views. This could enhance critical thinking in the learner (an aspect which should be developed especially when one is an adolescent). “Response” limits the student-talk. However, some questions or situations in class call for response and not initiation.
The researcher suggested that there should be a balance between the two and the teacher has the responsibility of ensuring this.

(d) to examine the different effects of reinforcement on classroom interaction from one form to another. There was no difference observed based on different forms. What mattered was what type of reinforcement a teacher used and how he used it.

The researcher felt that though there could be other intervening variables, reinforcement is very vital in promoting classroom interaction. Interaction in turn enhances learning. The teachers are called upon to note that it is not how much pumping of information into the learners that matters, but how the presentation of the materials is done. Learners need space to think and express themselves. The teacher can step in to assist but not to do everything for the learners.

The researcher draws an analogy between a teacher and a director of a play. He notes that without a play director, there can be no play.
We may have wonderful and experienced actors and actresses but without a director, a performance is likely to be simply, a jumbled up piece (a mockery of what it should have been).

A director is a knowledgeable person but not necessarily the best actor. He guides the artist on how to articulate their lines, the mood to create, facial expressions to wear, body movements and even the costumes to wear. Nevertheless, the actual performance is done by the actors and actresses. At times, the director has to sit or stand at one end and watch the performance. He will only step in to correct or add something. In fact, during the main shows, the audiences do not see him; they only see the actors and applaud them showering them with compliments for the entertaining piece. Should the director insist on being the heart of the play, the performance becomes impossible. All the performers are important in the enhancement of the production’s success.

This is the same in class. The teacher is very important, but like the director in a play, he should not be the central person.
In class during a lesson, which is like the staging of a play, we should hear more of the learners and not the teacher.

The teacher should take the role of a facilitator and allow the students to participate. Among the students are potential lawyers, presidents, directors, doctors etc (actors and actresses). They need space for them to develop confidence and self-discovery. If the teacher takes the central position, learning process cannot be successful. The teacher should listen to the learners argue out points and air views of their own concerning the topic of discussion. He can then build on the points or correct only misconceptions.

A good teacher should ensure that the input of brain and body energy of the class, as well as the teacher’s, is commensurate with the output of the class in terms of educational gain. For this reason, learners should be involved in the learning process. Students’ talk does not simply mean chattering in class. The talk should be purposive. Purposeless chattering in class has almost no educational value.

Participation saves the pupils from the boredom caused by passiveness when they just sit and listen.
It makes whatever they are learning have a strong impact on their minds, since their involvement arouses interest in the material of the lesson. Participation should be aimed at helping the learners think critically and broadly.

There are two types of reactions by the students discussed in this study: response and initiation. The usual answering of the teacher’s questions falls under “response”. Though it is one of the recommended methods, in terms of pupil participation, it is inadequate if used alone. Some pupils in class tend to answer more than one question. There is also the tendency of the teachers asking questions to the same students especially those who are likely to know the answers. This makes the number of those who actually participate in class very small.

Discussion method encourages the learners to be initiative. They are encouraged to think and talk. One thing that should be emphasized on at this juncture is that, no matter how well we plan our teaching, we shall not be educating our pupils unless we teach them to think. A great weakness of pupils preparing for exams today, is their strong tendency to learn by committing facts to memory.
Unfortunately, it is sometimes possible to pass elementary examinations this way. However, when such a pupil, either in school or later in his job, is asked a question requiring the capacity to think, he fails because he has not learnt to think about the facts he has memorized. Finally, the researcher records that reinforcement is a better stimulus to continue good work and behaviour than punishment. James Dees in his book, “The psychology of learning” (1952) PP 110-125 shows that punishment is not a very good way of shaping behaviour. Punishment stimulates students (subjects) to work for a short time but not for long periods. It tends to stop bad behaviour for a moment (while the cane hurts) but not permanently. Indiscipline, therefore, is not cured but only controlled. It may even create angry feelings against the teacher unless the pupils are sure he is “on our side”. Punishment disturbs the class by breaking into the rhythm of learning. It is like a whip behind a donkey rather than a carrot in front of its nose.
5.3 Recommendations

Following the successful completion of the research and the analysis of the data, the following recommendations are made:

(a) students who are being trained in the teachers training colleges to be teachers should take courses in students’ reinforcement. The courses should emphasize the following areas:

(i) the meaning of the term reinforcement. Unless they are able to understand the term, they cannot appreciate its relevance.

(ii) why reinforce? Students-teachers should be made to understand need to see vividly the relevance of reinforcement in teaching –learning process.

(iii) who should reinforce? Student-teachers should be made to understand they, as teachers, would be paid to enhance or facilitate learning. It is, therefore, their responsibility to reinforce the learners.
the teacher as an open-minded person. Some teachers fear and hate challenges from students. They, therefore, block any initiation from the learners. Student-teachers should be taught that a challenge from a student does not mean that the teacher is foolish. Interactions with the learner, in fact, make the learner respect and appreciate the teacher.

respect for the students. The teachers should respect the learners as normal human beings who can also reason and contribute towards the success of the lesson.

different ways of reinforcing learners. This will help the student teachers to avoid monotony, which may bore the learners. They should be taught the effects of different modes of reinforcement and how to integrate them.

effects of teachers dominating lessons. They should be made to understand the danger of having a passive audience as far as learning is concerned.
(b) Teachers in the field should also be given in-service courses on the relevance of reinforcement. This research was carried out amongst teachers in the field. It reveals that there is overuse of some modes of reinforcement while others are abandoned. This shows that some teachers were not well informed on reinforcement. They also seemed not to understand the implication of whichever type of reinforcement. The researcher felt that the same areas covered by the student—teachers are also relevant to the practicing teachers in the field.

In addition to the areas covered under student teachers, some emphasis is placed on the following:

(i) participation should be planned well in advance by the teacher. This will enable the teacher to tailor the discussion in the way that will benefit the learners.

(ii) teachers should maintain the necessary discipline (favourable classroom environment) and control so as to achieve his goal.
iii) *never* to reject a thoughtful answer even if it is a wrong answer. The class should be allowed to consider it carefully and discover where the fault is.

(iv) Teachers should make use of questions that require thought, in addition to questions that require knowledge of facts.

(c) Recommendation for further study.

It should be noted here that this study was carried out in a secondary school. It would be better if another researcher carried it out in primary, colleges or universities so as to offer a better ground for comparison. The sample that was covered was not large. Only five teachers were covered.

The researcher proposes that another researcher involving a larger sample be carried out. The area of participation in class is not covered fully.

The researcher concentrated on verbal (response and initiation).

It implies that this area on participation is viable for further research.

Other areas which can be studied to find out how they can enhance learning are listed below.
(i) Taking and making notes.

(ii) Role-playing.

(iii) Debates or seminars (symposiums).

(iv) Asking learners to do something on the board, or to point out something in a map or a chart e.t.c.
BIBLIOGRAPHY


Blosser, P. *Handbook of Effective Questioning Technique* (Washington, Ohio, Education Associations 1973)


ARTICLES


### APPENDIX I
### OBSERVATION SCHEDULE

<table>
<thead>
<tr>
<th>CATEGORY OF REINFORCEMENT</th>
<th>REACTION TO REINFORCEMENT</th>
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<td>Non-verbal</td>
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