UNIVERSITY OF EDUCATION, WINNEBA

DEPARTMENT OF HEALTH, PHYSICAL EDUCATION

RECREATION AND SPORTS

THE INFLUENCE OF TEACHERS FEEDBACK ON STUDENTS SKILL ACQUISITION IN PHYSICAL EDUCATION AT KWAHU EAST AND SOUTH DISTRICT OF EASTERN REGION

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A THESIS IN THE DEPARTMENT OF HEALTH, PHYSICAL EDUCATION RECREATION AND SPORTS, FACULTY OF SCIENCE EDUCATION. SUBMITTED TO THE SCHOOL OF RESEARCH AND GRADUATE STUDIES, UNIVERSITY OF EDUCATION, WINNEBA, IN PARTIAL FULFILLMENT OF THE AWARD OF THE DEGREE OF MASTER OF EDUCATION

2013

DECLARATION

Candidate's Declaration

I hereby declare that this thesis is the result of my own original research and that no part of it has been presented for another degree in this university or elsewhere.

Candidate's Signature: ……

Date: …….

Name: Agnes Mintah

Supervisors' Declaration

We hereby declare that the preparation and presentation of the thesis were supervised in accordance with the guidelines on supervision of thesis laid down by the University of Education, Winneba.

Supervisor's signature: …….

Date:…….

Name: Dr. Akuffo Patrick

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DEDICATION

This work is dedicated to my dear husband Nana Addae Owusu and my beloved son Nana Owusu Afiriyie Micheal.

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ABSTRACT

The purpose of this study was to investigate the amount of teacher feedback and its influence on students skill acquisition with regards to Kwahu East and South Districts in the Eastern Region. Secondly, this was to provide an intervention on feedback to ascertain improvement in amount of feedback given by the teachers.

Purposive sampling was used to select four P.E. teachers. A simple random sampling was used to choose a sample for students population numbered 160, 40 from each school.

A self designed event recording tool and event recording technique for the coding of the various categories of teacher feedback was used for the study. The data were analyzed using descriptive statistics of frequency, percentages, graphs and tables.

The study revealed low amount of feedbacks given by teachers to students showing less than 50% mark in post test. It is recommended that Ghana Education Service should organize more practical in service training for physical education teachers to give more feedback.

CHAPTER ONE

INTRODUCTION

Background to the Study

Feedback from the instructor to the student is considered to be one of the key elements of instruction because it is generally assumed to facilitate learning (Pyke, 2010). The role of feedback in education and instruction has been studied for many years. As early as 1911, Thorndike suggested that feedback served to connect responses to their preceding stimuli, and in the early 1920's Pressey began to emphasize the role of feedback in error correction (Mory, 2003). These early works and subsequent significant advancements in technology set the stage for Skinner's "teaching machine" approach, and since the early 1960's both programmed instruction and feedback have become pertinent, developing areas for research and application (Mory, 2003).

However, despite the many years of research, previous studies on the effect of immediate feedback on learning reveal inconsistent findings. Whereas most field studies demonstrate the value of immediate feedback (Kulik & Kulik, 1988), most direct laboratory studies document a positive effect of delayed feedback (Schmidt & Bjork, 1992; Schmidt, Young, Swinnen & Shapiro, 1989). The positive effects involve the decision to practice, and the association of outcomes with their causes. That is, immediate feedback increases motivation (Skinner, 1958) and facilitates understanding of the relationship between actions and their results (Herrnstein, Loewenstein, Prelec & Vaughan, 1993). The cognitively interesting negative effect is captured by the guidance hypothesis (Schmidt et al.1989). Immediate feedback can lead to reliance on information that is not available during transfer. In certain settings this tendency implies counterproductive guessing behaviour. This suggests that the negative effects of immediate

feedback were predominantly demonstrated in studies in which at least one of (the boring) positive effects of immediate feedback had been "controlled out." In addition, it hypothesized that the boring positive effects of immediate feedback tend to be larger than the interesting negative effects. Thus, when the positive effects are not controlled, the total effect of immediate feedback is likely to be positive.

Basically, a system of education aims at making the individual a useful person to the society in which he/she lives as well as the nation as a whole. In 1974, the old middle school had to give way to the Junior Secondary School Concept with new content and structure of education. In order to widen access to Basic Education and make it more pertinent to the socio-economic conditions and development of the nation, Pre-university Education which comprises Basic and Secondary Education was reduced from 17years to 12years. This new reform structure never stayed for long due to the economic constraint that hit the nation in the late 1970's. Lack of political will and rampant military take-over of government causing political instability therefore dwindled the reform's efforts.

In 1983, the education programme became worse because of the 'Mass Exodus' of trained teachers to neighbouring countries like Nigeria and Libya as a result of the economic decline in the 1970's. In addition, school buildings, furniture and other equipment had deteriorated as a result of lack of any meaningful maintenance, replacement and adequate repair works. Schools were hardly inspected. This led to poor management resulting in poor academic output. There was a steep decline in enrolment levels which brought about quite a number of adult populations being illiterate. At the same time there was high dropout rate from the education sector.

The Provisional National Defence Council (PNDC) government came to rescue the situation by implementing the 1974 reform in October 1986. This was to be sustained through national

resources and not by depending on foreign aids. A committee was set up by the PND government.

Programmes involving physical activities as an important discipline with clearly defined goals were neglected notwithstanding the long history of education and reforms in Ghana. Due to that, little work has been done on research by physical education professionals. Works have been done on historical, games and their organization and administrative aspects. Information about how teachers give feedback and how they distributed feedback in physical education classes is virtually nonexistent in those types of research work.

Physical education has not been given its fair share in the school curriculum. Written work pertaining to physical education has only been that of history of some games. Research on how teachers behave during physical education classes is virtually not available to ensure the growth of how physical education is to be taught. It is necessary to study behaviours of teachers pertaining to physical education classes. to help acquire skills, fitness, knowledge and attitude that constitute the optimum Ziegler (as cited in Ogum, 2000), defined physical education as an educational process that uses physical activity as a means development and physical well – being. Physical education uses physical activity to enhance the development of the whole person. It includes:

- The acquisition and reinforcement of motor skills
- The development and maintenance of fitness for optimal health and well –being
- The attainment of knowledge about physical activities and exercises and
- Fostering of positive attitudes conducive to life-long and lifespan participation in physical activities.

Children learn and develop through dynamic interactions with their environment (Goodway & Savage, 2001; Garcia & Garcia 2006). School physical education serves as one valuable leading environment in which children experience appropriate task and have opportunity to grow and develop. Fundamental motor skills are important developmental skills that children must learn (Goodway & Savage, 2001; Garcia & Garcia, 2006; Payne & Isaac, 2007).

Therefore one of the primary goals of physical education is to assist students to acquire motor skills (Payne & Isaac, 2007). It is clear that physical education teachers play major role in motor learning of children, specifically, they provide extrinsic information that is essential to student learning (Bilodeau & Bilodeau, 1961; Brophy, 1979; Fishman &Tobey, 1978; Magill, 1993, 1994; Newell & Valvano, 1998; Stroot, 1990; Tan, 1996). This extrinsic information provided by teachers is normally called feedback. Feedback is a term that represents teacher's comments, suggestions and directions in response to student's specific actions or performance (Fishman & Tobey, 1978; Tan 1996). Feedback is frequently directed toward an individual rather than a group or the class as a whole (Fishman & Tobey, 1978).

For a skill feedback to be effective and accurate, that is when a teacher tells a student what he or she did correctly or incorrectly, the teacher must have accurately diagnosed the student's performance (Armstrong & Hoffman, 1977). Again, a teacher's ability to provide appropriate feedback depends mostly on the teacher's ability to observe the skill accurately and evaluate the developmental level of each student. Then, the teacher would be able to give appropriate feedback to the student (Stroot, 1990; Oslim, Stroot & Siedentop, 1997; Yeng, 1981; Tan 1996). Teacher's subject matter content knowledge and pedagogical content knowledge are also major contributory factors to effective teaching. According to Shulman (1986), subject matter content knowledge refers to concepts, principles and skills within a particular subject discipline. Again,

he defined pedagogical content knowledge (PCK) as the best form of representing the subject matter knowledge; examples are analogies, explanations and demonstrations of the material being taught. It is very important for teachers to have in-depth of both subject matter and pedagogical content knowledge (PCK) to enable them to detect errors and provide appropriate feedback (Armstrong & Hoffman, 1979; Stroot, 1990).

Therefore, it is not surprising that effective teachers provide more feedback than less effective teachers, and that teachers with limited background in the skill being thought may fail to recognize and correct students' errors (Oslin, Stroot & Siedentop, 1997; Yerg, 1981). There is no doubt that teachers with a good subject- matter content knowledge are more likely to identify the developmental level of a child's performance and provide appropriate feedback. Teachers can provide feedback in relation to student's social behaviour (conduct) or to aspect of the skill performance. Physical educators are more general in giving positive feedback and more specific in providing corrective feedback (Tobey, 1974).

General feedback statement or "global goods" do not identify a specific element of that performance, e.g. "nice," "good job," that's it". Specific feedback statement identifies a specific aspect of the performance as correct or incorrect or gives a precise prescription for improvement e.g. "good follow through" "bend your knees" (Dodds, 1986). However, feedback can be categorized according to its latency that is immediate or delayed; its timing either concurrent or terminal, or its relevance either congruent or incongruent to the task.

According to Rink (1993), skill performance is necessary for successful participation in games and sports play as well as for negotiating environment that require high refined movement e.g. the military, theatre acting, and construction. In addition being motorically skilled has the potential for providing children with physical, social and emotional benefits that may assist them

to lead more active, healthy lifestyles. Children believe that being skilled is important (Lee, Cater and Xiang (1995), and educators have suggested that children who develop motor skills grow in confidence, which may lead to further participation in physical activity (Bushner, 1994). Skill is a commonly used word that refers to a task that has a specific goal to achieve or an indicator of quality of performance. In physical education, skill refers to motor skill since it requires voluntary body or limb movement to achieve its goal (Magill, 2001). Skill development has been a major issue in research work. Many researchers have tried in several directions to come out with results in aiding skill development and performance.

Linda (as cited in Ogum, 2010), examined the relationship between students' task performance and teachers' feedback to successful practice of low and high skilled students but in conclusion her findings remain silent. She suggested the need for further research. Grant et al (1990), in their write up also recommended that research on detailed feedback and student activities is one area of concern. It is therefore essential to study the categories of feedback and how they influence students' skill acquisition in physical education.

1.1 Statement of the Problem

Feedback is an essential variable in the motor skill learning of children (Bilodeau & Bilodeau, 1996; Newell, 1991; Newell & Valvano, 1998; Magill, 1994). The Researcher in her mentorship during teaching practice observed some differences in teachers' feedback during their practical lesson. Many research works have been done on history of P.E, games and their organizations and administrative aspects by physical education professionals in Ghana, with little or no examination on the influence that feedback has on individual student learning. The works on feedback also focus on the amount, the type of feedback that teachers deliver and to different

skill levels (high skilled versus low skilled). To ensure the growth of physical education and how it is to be taught, it is necessary to study behaviours of teachers pertaining to physical education class. Providing feedback is a common practice in education.

1.2 Purpose of the Study

The purpose of this study was to investigate the amount of teacher feedback and its influence on student, skill acquisition with regards to Kwahu East and South Districts in the Eastern Region. Secondly, this was to provide an intervention on feedback to ascertain improvement in amount of feedback given by the teachers.

1.3 Research Questions

1. What types of feedback do teachers give?
2. What is the frequency of each feedback?
3. How do students respond to teachers feedback?

1.4 Significance of the Study

This study was to provide much needed data on the influence of teachers' feedback on students' skill acquisition in practical physical education setting. The result of this research may provided useful ideas to enhance classroom observation and how teachers differ in the use of feedback in physical education lessons. It may give new directions to physical education teachers and provided awareness about the complex nature of behaviour they exhibited in physical education lessons. Finally, the young children and unskilled performers may benefit from feedback related to gross aspects of performance.

1.5 Limitation

Limitation as used in this context of the study refers to the limiting conditions or restrictive weaknesses (Locke, Spirduso & Silverman, 1987).

There are times when all factors cannot be controlled as part of a study designed, on when the optimal number of observation simply cannot be made because of problems associated with climatic conditions and feasibility (Locke, Spirduso, Silverman, 1987). The limitations of this work include:

- The differences in teachers' experience in teaching the subject that may have effect on the number or type of feedback to be used.
- The amount of teachers feedback that could be provided to each participant during practice. The intent of the researcher was to examine the influence of teacher feedback in a natural setting, the teachers feedback was monitored to determine the type and amount of feedback, however, the amount of feedback cannot be controlled by the researcher.
- Participant's prior experience and knowledge about the skill. The skill might have been observed, practiced or learnt earlier somewhere by the student, therefore, the data is limited because their past experience could affect their performance beside teachers feedback.
- The class size and inadequate equipment may not have given much room for practice which may have affected the flow of teachers feedback.

1.6 Delimitations

Delimitation simply means the limit inherent in the use of a particular construct or population (Locke, Spirduso, & Silverman, 1987). This study was delimited to Kwahu East and South

Senior High Schools in the Eastern Region. It was also delimited to senior high schools which have only one male physical education teacher. Again, it was delimited to second year students and a particular class in the year group.

1.7 Definition of Terms

Kwatsec: kwahu Tafo Senior High School

Jotech: St. Joseph technical Institute

Abtech: Abetifi Technical Institute

Kristech: Kwahu Ridge Secondary Technical

Specific feedback: an information pertaining to the accuracy of particular response or behaviour

Negative feedback: feedback that points out that the individual is doing something incorrectly

Simple feedback: a word or two repeated during instruction.

Formative feedback: represents information communicated to the learner that is intended to modify the learner's thinking or behaviour for the purpose of improving learning.

Positive feedback: feedback that either praises the individual or reinforces a correct movement

Congruent feedback: it corresponds to the idea just presented to the children that, ideally, they are thinking about as they move.

CHAPTER TWO

RELATED LITERATURE REVIEW

The purpose of this study was to investigate the amount of the teacher feedback and its influence on the students skill acquisition with regard to Kwahu East and South Districts in the Eastern Region.

The literature was reviewed and carried out under the following sub- headings:

Definition and Nature of Feedback

Types of Feedback

Frequency of Corrective Feedback

The Importance of Feedback

Teacher Feedback

Teacher Behaviour

2.1 Definition and Nature of Feedback

Feedback used in educational contexts is generally regarded as crucial to improving knowledge and skill acquisition (Azevedo & Bernard, 1995; Bangert-Drowns, Kulik, Kulik, & Morgan, 1991; Corbett & Anderson, 1989; Epstein et al., 2002; Moreno, 2004; Pridemore & Klein, 1995). The basic meaning of feedback has remained the same in Webster's New World Dictionary from the 1984 edition to the current one (Mory, 2004) continues to define feedback as "a process in which the factors that produce a result are themselves modified, corrected, strengthened, etc. by that result" and "a response, as one that sets such a process in motion" (p. 520). Whereas this definition could fit a host of situations or systems, most educational researchers consider the

term “feedback” in the context of instruction. According to Cohen (1985), feedback “… is one of the more instructionally powerful and least understood features in instructional design” (p. 33).

In support of this claim, consider the hundreds of research studies published on the topic of feedback and its relation to learning and performance during the past 50 years (Bangert-Drowns et al., 1991; Kluger & DeNisi, 1996; Kulhavy & Stock, 1989; Kulhavy & Wager, 1993; Mory, 2004; and Narciss & Huth, 2004). Within this large body of feedback research, there are many conflicting findings and no consistent pattern of results. In fact, Wager and Wager (1985), refer to feedback in computer-based instruction as being *any* message or display that the computer presents to the learner after a response.

Most studies that have examined feedback used contrived experimental learning situations where feedback is given from an external source after a learner responds to a question during instruction. The main purpose of this feedback is to confirm or change a student’s knowledge as represented by answers to practice or test questions. However, some researchers (Chanock, 2000) have suggested that viewing feedback in such a unilateral context fails to take into account variances in behavior that might be the result of self-regulation and student engagement. Further, feedback can also be viewed in even less traditional settings, such as its role in program evaluation. When used in situations that are not necessarily instructional, the best definition of feedback is information presented that allows comparison between an actual outcome and a desired outcome. Tucker (1993), points out that feedback is particularly important when evaluating dynamic instructional programs because its presence or absences can “dramatically affect the accuracy required of human judgment and decision making” (p. 303).

New learning environments have erupted into a wide range of potential uses of feedback that were not utilized or considered before, as the ability to provide rapid information from and to learners is facilitated through a myriad of new technologies and simulations. There is quite a difference between Skinner's programmed instruction of the 1960s, which presented a linear series of steps, to that of interactive micro worlds, gaming environments, open learning environments, and rapid transfer of information through advanced technologies such as the World Wide Web. To illustrate some of the purposes of feedback, the next section presents the evolution of feedback research in instruction from its early beginnings through the present. The principal feedback variables that have interested researchers are then discussed.

Again, feedback is an integral feature of effective and efficient teaching and learning, and can be one of the most powerful ways to enhance and strengthen student learning. Feedback enables learning by providing information that can be used to improve and enhance performance. There is clear evidence (Black & Wiliam, 1998; Gibbs & Simpson, 2004) that changes to assessment practice that strengthen the formative use of feedback, such as peer assessment (Falchikov, 2001) and 'feed-forward' techniques (Hounsell, D., Xu, R. and Tai, C.M., 2007a), produce significant and substantial learning gains.

Providing the right kind of feedback to students can make a significant difference in their achievement. There are two key considerations. First, feedback that improves learning is responsive to specific aspects of student work, such as test or homework answers, and provides specific and related suggestions. There needs to be a strong link between the teacher comment and the student's answer, and it must be instructive. This kind of feedback extends the opportunity to teach by alleviating misunderstanding and reinforcing learning. Second, the

feedback must be timely. If students receive feedback no more than a day after a test or homework assignment has been turned in, it will increase the window of opportunity for learning. Feedback is a research-based strategy that teachers, and students, can practice to improve their success.

Traditional and current practices of providing feedback are no longer effective (Bloxham & Boyd, 2007; Hounsell, 2008; Rowe & Wood, 2007; Rust, C., O'Donovan, B. and Price, M2005). Students do not exploit assessment to improve their learning (Maclellan, 2001), and current pressures in the Higher Education (HE) sector. Department of Fire and Emergency Services (DfES, 2003) resulting in modularisation and semesterisation have seen the 'bunching' of assessment tasks limiting the scope for assessment practices that feed-forward (Price & O'Donovan, 2008), and the writing of feedback under tight time constraints (Chanock, 2000). This also has the effect of reducing opportunities for students to carry forward and build-on what they have learned from feedback from previous to future tasks (Higgins, R., Hartley, P. and Skelton, A., 2002), and that assessment does not take place at the beginning of the module or when students themselves feel ready (Maclellan, 2001). The result has been a negative impact on the student experience of feedback. This has been further supported by responses to the National Student Survey by Higher Education Funding Council for England (HEFCE, 2007) in which students have expressed dissatisfaction with the adequacy of the feedback they receive both in terms of timing and usefulness (Mutch, 2003), echoed further by recent large scale studies (Hounsell & Entwistle, 2007b) and small scale studies (Crook et al, 2006) studies into the student experience of assessment and feedback. There is evidence that students view late feedback as 'disrespectful' (Rowe & Wood, 2007), and the use of 'implicit criteria' means that students do not view feedback on their learning as helpful (Maclellan, 2001).

Staff complain that feedback does not work (Weaver, 2006) and that students do not act on feedback (Mutch, 2003), only being concerned with their marks (Wojtas, 1998) or seeing feedback as a means to justify the grade (Price & O'Donovan, 2008). Some authors have claimed that student disengagement with feedback is based on skeptical or 'anecdotal evidence' from tutors (Carless, 2006; Higgins et al, 2002; Weaver, 2006). Higgins et al (2002), in their research into the impact of feedback, questioned whether students are driven by the 'extrinsic motivation' of their mark and only engage with feedback if it is 'perceived to provide correct answers'. Rust et al., (2005), have reported on two studies (Hounsell, 1987; Lea & Street, 1998) in that students may not read their feedback as a result of not understanding it. This is echoed by Winter & Dye (2005), who researched the reasons for uncollected student work and Chanock (2000), who claimed students often misunderstand their tutors' comments or are too agitated to take in exactly what the tutor is saying ('emotional static').

Carless (2006), and Higgins et al., (2002), also found that problems with understanding academic language can inhibit students' engagement with feedback. Handwritten feedback comments are problematic as they are time-consuming to write and can be a daunting process for staff, in particular for large class sizes, and it can be difficult for students to decipher (Bloxham & Boyd, 2007; Higgins et al, 2002).

Despite arguments that feedback is currently ineffective, Price & O'Donovan (2008) claimed that there is still a strong belief among staff that feedback supports student learning, and they found that students respond to their feedback in different ways and at different times, yet there is no attempt to measure the extent of student engagement. Furthermore, Higgins et al (2002), Rowe &

Wood (2007), and Weaver (2006), declared that students' perceptions of the value of feedback in higher education are under-researched, and there are other calls to research further exactly how students receive and respond to feedback (Higgins et al, 2002; Mutch, 2003).

Research on feedback had indicated that when feedback is corrective in nature, that is, it explains where and why students have made errors--significant increases in student learning occur (Walberg, 1999; Tennenbaum & Goldring, 1989 as cited in Graham, 2008). Again, Feedback has been shown to be one of the most significant activities a teacher can engage in to improve student achievement (Hattie, 1992 as cited in Graham, 2008). Asking students to continue working on a task until it is completed and accurate (until the standard is met) enhances student achievement (Marzano, Pickering, & Pollock, 2001). Effective feedback is timely. Delay in providing students feedback diminishes its value for learning (Banger-Drowns, Kulik, Kulik, & Morgan, 1991). Administer tests to optimize learning. Giving tests a day after a learning experience is better than testing immediately after a learning experience (Bangert-Downs, Kulik, Kulik, & Morgan, 1991). Rubrics provide students with helpful criteria for success, making desired learning outcomes clearer to them. Criterion-referenced feedback provides the right kind of guidance for improving student understanding (Crooks, 1988; Wilburn & Felps, 1983). Effective learning results from students providing their own feedback, monitoring their work against established criteria (Trammel, Schloss, & Alper, 1994; Wiggins, 1993). However, Burnett (2002), research studies have emphasised the influence of significant adults (teachers and parents) on students' personal development (Porlier *et al.*, 1999) and the importance of significant others' verbal statements when directed at children Burnett, (1996a). The relationships between negative and positive statements made by teachers, parents, peers and siblings and children's self-talk have been investigated and positive statements (praise) have

been found to be more beneficial than verbal criticism (Burnett, 1999a). The quality of life in the classroom in recent times has been considered of great importance to students (Thorp *et al.*, 1994) and this is recognised by Baker (1999) who reported a relationship between students' satisfaction with the learning environment, and differential teacher feedback and praise.

2.2 Types of Feedback

2.2.1 Specific to General feedback

Feedback is specific when it contains information that allows children to know exactly what they need to practice or how they are moving (Graham, 2008). Feedback is general when it might refer to any of several factors, such as children's movement, behaviour, or dress (Graham, 2008).

Probably the most commonly used expression of general feedback in education today is "Good". Unfortunately, this really does not provide the child with the necessary information to improve – was it the outcome, result, or process (performance) that was good? Or was it simply a good try? Expressions such as 'good', 'great', 'terrific,' "wow", and "all right" are helpful for promoting a positive and warm learning environment, especially with young children who desire teacher approval and have yet to achieve the skill level that allows them to obtain intrinsic satisfaction from being able to move in accomplished ways (Graham, 2008). Teachers often use general feedback to encourage children to continue to move and continue to try (Graham, 2008).

As children mature, they benefit from the information the teacher provides that they cannot know themselves. They know, for example, that the ball is not going where they want it to – they just do not know what they need to do differently. This is when specific feedback is valuable because

it tells them exactly what they need to focus on, for instance to get the ball into the air or to make it go straight.

2.2.2 Congruent and Incongruent Feedback

Congruent feedback i.e., it corresponds to the idea just presented to the children that, ideally, they are thinking about as they move (Graham, 2008). The lesson is focused on learning to strike with a paddle the task students have been working on is striking the ball back and forth with a partner. The teacher stops the class and demonstrates the concept of "quick feet" (moving quickly to be in a position to hit the ball). He then asks them to continue striking with their partners and thinking about "quick feet"; he begins to circulate and provide feedback. If he provides congruent feedback, we will hear him tell the children how they are or are not using "quick feet" to move to the ball.

If he provides incongruent feedback, we might hear him tell the children about how to hold the paddle, to watch the ball, to follow through, to extend the elbow, and other important components related to striking with paddles. These examples of incongruent feedback are often used by teachers. They are not wrong – just incongruent because they are inconsistent with what the children have been asked to think about and pay attention to as they practice.

When teachers provide congruent feedback, they attempt to limit their feedback to the information most recently provided as they explained the cues – often. This does not mean that some children do not need feedback, however lets children know how their practice of the cue is going; they receive feedback about what they are thinking and practicing. This is often reinforced through pinpointing, in which certain children are asked to demonstrate the cue to the entire class.

2.2.3 Simple Feedback

Simple feedback can often consist of a word or two; reminder words used to describe the cue during instruction are repeated as feedback. When a teacher provides the specific, congruent, and simple feedback, it is easy to tell what is being emphasized. In fact, those teachers who say "pads" hundreds of times during their eight or more classes are sick of the word by the time the day is over. But they have the satisfaction of knowing that when the 200 to 300 children they teach in a day go home, they can answer the question, "What did you learn in PE today?" Well, realistically, many of the children will be able to answer the question.

2.2.4 Neutral and Negative Feedback

Overall, the best feedback is positive feedback (Schmidt & Wrisberg, 2004; Silverman, Tyson & Krampitz, 1992). It is encouraging to youngsters and it creates a warm, pleasant atmosphere as compared to a nagging, harsh environment where youngsters are made to feel that they are continually doing something wrong. Review the previous examples and you will notice that the examples of feedback are either positive ("nice, good") or neutral ("pads"). Negative feedback is not used by many teachers (Silverman, Tyson & Krampitz, 1992). Overall, it is effective for teachers to vary the effective message of the feedback; sometimes positive, sometimes neutral, occasionally negative (Graham, 2008). It is also helpful when the teacher provides feedback both verbally and visually by demonstrating a skill and, when appropriate, physically guiding the student through a movement (Graham, 2008). This way teacher ensures that youngsters truly grasp concepts being emphasized. Feedback can influence performance of a skill and might also affect perceived competence (Graham, 2008). Feedback from teacher, parents, and coaches can

influence how children feel about their ability to perform a task or assume a role in a game or group work. This is another reason for teachers (and coaches) to be sensitive to the type, and tone, of the feedback they give to children.

When a skill is performed correctly given a successful outcome the player then knows what to repeat for the next time that they do that particular action. This can get them aroused and the player is then more motivated. This type of feedback is essential for beginners. An example of this would be if a basketball player performs a good jump shot and the coach tells them that it had good technique.

2.2.5 Corrective Feedback

Mory (1992), highlights that feedback has been historically noted as serving appropriately corrective feedback. While corrective feedback can take various corrective forms. Therefore, a major category of feedback for this study is forms (Dempsey, Driscoll, & Swindell, 1993; Kulhavy & Stock, 1989), this type of feedback strives to give information to the learner about the learner's performance and aims to increase learning through error correction. Thus, the focus of corrective feedback is about specific content of the task performance.

In a 1993 study, Dempsey, Driscoll, and Swindell categorized corrective feedback into five types, based on complexity, or the amount of information and what kind of information is contained in the feedback (Mory, 1996). These five types include no feedback given, simple verification or knowledge of results (KR), knowledge of correct response (KCR), elaborated feedback, and try-again feedback. Among the types of corrective feedback, elaborated feedback is more substantial than the others, as it goes beyond verification to include more information to guide error correction (Kulhavy & Stock, 1989).

Elaborated feedback may be task specific and drawn from the initial task demand or initial question, or instruction-based by containing material from the past lesson/instruction, or extra-instructional by giving additional information not provided in the initial lesson (Kulhavy & Stock, 1989).

2.2.6 Formative Feedback

Formative feedback represents information communicated to the learner that is intended to modify the learner's thinking or behaviour for the purpose of improving learning. And while the teacher may also receive formative feedback and use it as the basis for altering instruction, the researcher focuses on the student (or more generally, the learner) as the primary recipient of formative feedback in this review.

Information within the feedback may address the accuracy of a response to a problem or task and may additionally touch on particular errors and misconceptions (Azevedo & Bernard, 1995; Birenbaum & Tatsuoka, 1987; Cheng, Lin, Chen, & Heh, 2005; Cohen, 1985; Kulhavy, 1977; Sales, 1993; Sleeman, Kelly, Martinak, Ward, & Moore, 1989), the latter representing more specific or elaborated types of feedback. To be effective, formative feedback should permit the comparison of actual performance with some established standard of performance (Johnson & Johnson, 1993). The definition of formative feedback may be further refined as multidimensional, nonevaluative, supportive, learner-controlled, timely, specific, credible, infrequent, contingent, and genuine (Brophy, 1981; Schwartz & White, 2000).

In technology-assisted instruction, similar to classroom settings, formative feedback comprises information—a message, display, and so on—presented to the learner following the learner's input (or upon request, if applicable), with the purpose of shaping the perception, cognition, or action of the learner (Moreno, 2004; Schimmel, 1983; Wager & Wager, 1985). The main goal of

formative feedback—whether delivered by a teacher or computer, in the classroom or elsewhere—is to enhance learning and/or performance, engendering the formation of accurate, targeted conceptualizations and skills. Such feedback may be used in conjunction with low- or medium-stakes assessments, include diagnostic components, and even be personalized for the learner (Albertson, 1986; Azevedo & Bernard, 1995; Narciss & Huth, 2004; VanLehn, 1982).

The premise underlying most of the research conducted in this area is that good feedback can significantly improve learning processes and outcomes, if delivered correctly. Those last three words—if delivered correctly—comprise the crux of this review. This paper reviews the literature on feedback, with the goal of cataloging and categorizing key facets (i.e., types and timing), in addition to other variables with which they are known to interact (e.g., learner states and traits and task complexity).

In an excellent historical review on feedback, Kulhavy and Stock (1989), reported that effective feedback provides the learner with two types of information: verification and elaboration. Verification is defined as the simple judgment of whether an answer is correct, and elaboration is the informational aspect of the message that provides relevant cues to guide the learner toward a correct answer. Researchers appear to be converging toward the view that effective feedback should include elements of both verification and elaboration (Bangert-Drowns et al., 1991; Mason & Bruning, 2001). These features are now described in more detail.

2.3 Frequency of Corrective Feedback

In the higher grades, corrections can become more numerous or more nuanced, although the frequency of corrections varies from teacher to teacher. Such corrections may be random in an effort to communicate to the student the range of errors made. Alternatively, corrections may be

focused on a set of selected error types. For instance, teachers sometimes focus on correcting basic errors first in the hope of helping students overcome them promptly in order to address more complicated errors in subsequent practices. Teachers may correct one, several, or even all instances of a particular error.

Some debate exists as to the number of total corrections that teachers should make on a given piece of work. Teachers who make voluminous corrections give a "true" sense of the extent to which students require remediation, but such feedback can be overwhelming. If students take such feedback to heart, they may see their performance as a failure, thus injuring their self-image and confidence.

Students might then negate such feedback and dismiss it as overly critical, or they might fear that the teacher is biased against them personally. In contrast, teachers who make sparse corrections may better enable their students to focus on improving in one or a few key areas, but the omission of other helpful corrections may be detrimental to their students' progress in the long run. Specifically, students who make certain errors might be led to perceive that they are not making errors at all, or that those errors aren't significant enough to warrant the effort required to re-learn the concepts involved and avoid similar errors in the future.

2.4 The Importance of Feedback

Feedback is considered an important teaching function in physical education pedagogy (Lee et al, 1993, Rink, 2003) because it provides the students with information about their performance as well as supports their effort and bulid a positive learning climate (Magill, 2004; Siedentop & Tannehill, 2000, Tan, 1996). In general, teachers provide feedback in the form of positive, nonspecific evaluative verbal statements (Rink, 2003; Stroot, 1990; Tan, 1996). For example, when a student practices an overhand throw during a lesson, teachers often use common, general

positive feedback such as “well done” or “good job,” which is supportive but does not inform the student about the way he or she performed the skill (Garcia & Garcia, 2006; Lee et al., 1993; Rink, 2003). In both the theoretical and applied literature, feedback that offered more than simple, general feedback, (aligned developmental feedback , as it is called in this study) was found to be a powerful and relavent information variable for skill acquisition (Bilodeau & Bilodeau, 1961, Newell, 1991; Newell & Valvano, 1998, Magill, 1994).

Literature in the area of motor learning and the classroom suggests that feedback is an essential element in learning new skills under certain conditions (Lee et al., 1993; Silverman, et al., 1992; Rink, 2003). According to Bilodeau and Bilodeau (1961), Brophy (1979), and Stroot (1990), one of the most effective teaching strategies is the ability of the teacher to provide specific feedback that is aligned to the movement when the student does not correctly perform the critical features of the skill. Magill (1994), suggested that the critical concern regarding feedback must be to determine two things: (a) what information to give the student (general feedback vs. ADFB), and (b) how to deliver the feedback (to individuals vs. to a group). According to Gangstead and Beveridge (1984), in order for teachers to offer students useful feedback that will help them improve their performances, teachers must have good observation skills and they must help their students understand how to evaluate their own performances and improve using the feedback they are provided.

2.4.1 Feedback as Reinforcement

Programmed instruction emphasized an operant approach to learning—one that had the concept of reinforcement at its heart. Programs were designed to shape a student's responses using a small lock-step approach with a high level of redundancy. Operant psychologists of the time argued that learning tasks should be analyzed and broken down into small enough steps that the probability of a successful response was ensured (Cohen, 1985).

By telling a student that an answer is correct, the student is "reinforced" to answer correctly again on a later test (Kulhavy, 1977). Around 1970, most researchers began to doubt the feedbacks- reinforcement view. In fact, 10 years of research under this paradigm showed no systematic effects for feedback (Kulhavy & Wager, 1993). Studies provided little evidence that feedback following positive responses acts in a reinforcing manner (Graham, 2008). Researchers then had to look at the basic functions of feedback to discover what was actually occurring. A series of studies by Anderson and his colleagues found that students will not use feedback as the researcher intends unless this use is controlled (Graham, 2008). For instance, students will simply copy answers from feedback if allowed to do so, with little or no processing or learning of information.

Kulhavy (1977), coined the term presearch availability to describe the ease with which learners can find a correct answer without reading the lesson material. If research availability is high, then students will usually copy the answer itself, bypassing the instruction and yielding little learning (Graham, 2008). In programmed material, feedback significantly facilitates learning only if students must respond before seeing the feedback.

2.4.2 Feedback as Information

The data collected by Kulhavy and his colleagues (Graham, 2008) not only provided insight into the importance of the learner's processing of the lesson material before his or her response to a

question, but also, and perhaps more importantly, provided indication that feedback functions primarily to correct errors, not merely to "reinforce" correct answers. Numerous studies during this time supported feedback's ability to correct inaccurate information (Anderson et al., 1971, 1972; Kulhavy, 1977; Kulhavy & Anderson, 1972). Concurrent shifts toward cognitive psychology led researchers to focus on how feedback influenced primary cognitive and metacognitive processes within a learner (Kulhavy, 1977).

Examining feedback from an information-processing perspective, the learner participates in the system to correct his or her errors. Kulhavy and Stock (1989), used the concept of servocontrol theory, contrasting the two feedback systems (feedback as reinforcement vs. feedback as information) as open-loop versus closed-loop. Feedback acting as reinforcement is an example of an open-loop system, in which errors are ignored because the system is not affected by input information. The operant approach does not provide error-correcting mechanisms. In contrast, the feedback-as-information position acts as a closed-loop system. Because this type of system has ways of correcting errors, errors are of primary importance. Studies indeed emerged that made the correction and analysis of errors a major goal (Graham, 2008), with a predominant focus on all the metacognitive processes involved in this type of error correction.

It is from the information processing perspective that most research of the past 20 years has been conducted. In a later section of this chapter, the prevailing concerns of researchers from that period to the present are discussed in detail. But first, it is helpful to present two current models of feedback as a framework for what follows.

2.5 Teachers Feedback

Teacher feedback provides information to learners about their performance that they cannot receive from other sources. In contrast to the academic classroom, where relatively little of the teacher's feedback is given concurrent to performance, in physical education feedback must be provided when the student is actually doing the task or immediately after. Such "in-process" feedback requires acute skills of observation and the capacity to instantaneously sort important from unimportant in what has been displayed.

The ability to provide relevant feedback generally is regarded as a key aspect of effective teaching. The actual effect that feedback has on learning is influenced by many factors, such as the skill and knowledge base of the students to whom feedback is directed, the type of skill being performed, the type of feedback the teacher provides, and the motive behind the teacher's feedback (Magill, 1994). In some situations the task itself can provide sufficient intrinsic feedback, thereby minimizing the need for augmented feedback from the teacher. The lower the skill level of a child, the more benefits he or she receives from feedback. If a skill is new to a child, prescriptive information that enables the learner to determine what needs to be done for performance improvement is important to facilitate learning. Augmented feedback becomes more essential when the learner lacks prior knowledge about the relationship between the intent and the movements required to achieve that purpose.

The type of feedback an effective teacher uses has different purposes based on the motive behind its use. Typically, when teachers provide feedback, they are informing the student that the action exhibited is either acceptable or needs modifying. The idea is for the learner to make the changes in the practice trials that follow. Quality of the feedback is more important than quantity. Although younger children welcome a teacher's attention, it is imperative that the teacher design the instructional environment so that students will not become dependent on augmented

feedback. Effective teachers use a variety of means to provide feedback other than just teacher to student (e.g., video replays, peer evaluation, and self-assessment).

2.5.1 Studies Related to Teachers Feedback

We know from a vast range of studies that the teacher is the major in-school influence on student achievement (Hattie, 2003; Rowe, 2003). However improving teacher effectiveness and lifting student achievement can seem daunting. How can we up-scale the incidence of highly effective teachers and schools (Elmore, 1996)?

Many international research studies of student achievement have been subject to meta-analyses with revealing findings. In almost every list of effect sizes for 'treatments' influencing student achievement, feedback is at or near the top of those treatments which have greatest effect on student learning. Large effect sizes (such as 0.7-1.0 or even higher) are commonly calculated for the effect of teacher feedback on student performance (Hattie, 2003; 2007). 'Effect size (ES) is a name given to a family of indices that measure the magnitude of a treatment effect. Unlike Significance tests, these indices are independent of sample size. Effect size measures are the common currency of meta-analysis studies that summarise the findings from a specific area of research.

What then is feedback? In the context of teaching and learning, feedback can be defined as any form of response by a teacher to a student's performance, attitude or behaviour, at least where attitude or behaviour impinges upon performance. It is important to realise that feedback in not only an outcome of student performance but an essential part of the learning process. It is also important not to confuse feedback on performance with 'positive reinforcement', self-esteem 'boosting' (Scott & Dinham, 2005), praise, or punishment.

Feedback can be written or spoken and may even be gestural, indicating approval, encouragement or criticism. There is also scope for peer feedback (student-student feedback) and for students to provide feedback to a teacher on that teacher's performance (student-teacher feedback). Teachers can also receive feedback on their performance from peers (teacher-teacher feedback) or supervisors (supervisor-teacher feedback). More rarely, supervisors receive feedback from their staff (staff-supervisor feedback). In this discussion, feedback is largely confined to teacher-student feedback. However, research into highly effective departments and schools has shown that successful leaders provide high quality feedback to their staff, an important influence on the quality of teaching in their schools (Dinham, 2007a; 2007b). When we consider learning or mastery in fields as diverse as sports, the arts, languages, the sciences or recreational activities, it is easy to see how important feedback is to learning and accomplishment. An expert teacher, mentor or coach can readily explain, demonstrate and detect flaws in performance. He or she can also identify talent and potential and build on these. In contrast, trial and error learning or poor teaching are less effective and take longer. If performance flaws are not detected and corrected, these can become ingrained and will be much harder to eradicate later. Learners who don't receive instruction, encouragement and correction can become disillusioned and quit due to lack of progress.

Feedback is equally vital in schooling and performs a variety of functions including recognizing, correcting, encouraging, challenging and improving student performance. Feedback also keeps students 'on track' and is an aid to classroom management. Students know which teachers never check homework, mark books or monitor and assess their work in other ways. They also know those teachers who use empty praise to win favour and compliance.

It should be noted that there is the potential for feedback to be negative, in that it can discourage student effort and achievement (Hattie & Timperley, 2007). In some cases bad feedback can be worse than no feedback. If feedback is to be effective it needs to be frequent, constructive and instructive. Sensitivity is important as is the relationship between the teacher and learner. The right balance needs to be struck between not wanting to hurt someone's feelings and destroying their confidence. While some people can be pushed to perform at a higher level, others need more encouragement and sympathetic handling. In reviewing the findings from a range of meta-analyses, Hattie and Timperley noted (2007, p. 84):

> *Those studies showing the highest effect sizes [for feedback] involved students receiving information feedback about a task and how to do it more effectively. Lower effect sizes [for feedback] were related to praise, rewards and punishment.*

Comments and suggestions contained within feedback need to be focused, practical and based on a professional assessment of what the student can do and is capable of achieving. Statements such as 'concentrate more', 'get help with your spelling' [i.e., 'passing the buck'], 'improving', 'poor punctuation', 'some good ideas', 'did you write this?' and 'satisfactory' provide little reassurance or guidance. Ticking boxes on marking sheets is ineffective and impersonal without accompanying comment.

The criteria used for assessing student work need to be clear, understood by the student and used to frame personalised feedback. There is nothing wrong with feedback from a computer if it contains the essential features of effective feedback.

A study of highly successful senior secondary teachers in NSW public schools demonstrated the importance of feedback in influencing student achievement (Ayres, Dinham & Sawyer, 2000; 2004). Drawn from various disciplines, these teachers gave timely, frequent, high-quality, focused, constructive feedback to their students. When written work was submitted for assessment teachers provided comprehensive feedback. More informally they gave feedback to students individually and collectively through observing and commenting on students' class work and responses to questioning. In these ways, teachers were able to monitor and maintain student performance and progress.

In some cases the feedback given by teachers might be considered excessive. One English teacher was observed to have a regime whereby after each lesson students were required to write 250 words on two key matters arising from the lesson. This was placed on the teacher's desk at the commencement of the following lesson and during that lesson while students were working the teacher read and wrote comments upon these notes. This feedback was then given back to the students later in the lesson.

Other teachers in the study were seen to insist on student note-making rather than note-taking or copying. They frequently consulted with students and provided written and verbal feedback on these notes, often during class time. While classes were working individually or in groups, teachers were observed to be moving through the class, quickly monitoring, assessing, suggesting, explaining, questioning, listening and commending.

Teachers in the successful senior secondary teaching study communicated the purposes of assessment and feedback to their students. In doing so, they often provided models or examples of student responses and explained to their students why work had been graded as it was, e.g.,

this is a 12/20 paper; this is an 18/20 paper; this is why each paper received the mark awarded, this is how each paper could be improved. One of the most powerful forms of feedback used by effective teachers was the one-to-one interview with a student. In some cases this took place during class time while the rest of the class was working; in other cases, a special time was scheduled. It is interesting to reflect that often the only time a student gets to speak with a teacher one-to-one is when he or she is in trouble.

Involvement with the successful senior teaching study and a number of other studies into effective teaching and learning (see Dinham, 2002; 2007a; 2007b) has revealed that learners consistently want answers to four questions about their work, loosely stated as:

- What can I do?
- What can't I do?
- How does my work compare with that of others?
- How can I do better?

Effective teachers provide answers to all four questions on a regular basis. The question of 'How can I do better?' is of particular importance, as this is the key to remediation and improving performance. Every student wants to do better. There is no doubt that teachers are busy people and subject to the pressures of the job. However failure to regularly assess student performance – in the broader sense – and provide feedback makes it very difficult for students to progress. A bare mark of 6/10 with a comment along the lines of 'good' is next to useless in providing guidance for improvement and in answering the four key questions raised earlier. Too great a focus on 'What can't I do?' at the expense of 'What can I do?' can also be problematic, with the latter having twice the effect size of the former (Kluger & DeNisi, 1996).

There is something of an ideological issue which needs to be raised at this point. Some people have dichotomised explicit teaching or direct instruction with discovery learning/ constructivism. Those who subscribe to the latter sometimes see themselves as facilitators and guiders of learning and may shy away from giving 'hard' assessment, 'failure', and feedback which might upset or discourage the learner. This can be compounded by notions of 'free expression' and 'multiple realities'. However, once again the research evidence is clear. In terms of measured effect sizes, feedback, remediation, and direct/ explicit instruction are more effective in promoting student achievement than problem-based learning, inductive teaching, inquiry based teaching and the like (Hattie, 2007; Mayer, 2004; Dinham & Rowe, 2007).

2.5.2 Improving Student Engagement with Feedback

Price & O'Donovan (2008), argued that feedback should be incorporated into the learning and teaching process to both improve student engagement with feedback and to enable the effectiveness to be measured. Maclellan (2001), argued that students should be monitoring their own performance in order to make effective use of feedback to generate improvement in learning, and this has been supported by Carless (2006), who suggested that students should be provided with the 'means to distinguish accurately their achievements in different assignments'. Several authors have indicated that disengaging the mark from feedback promotes student learning (Carless, 2006). Research by Potts (1992), claimed that withholding grades encourages students to engage with feedback, as they are 'obliged to find for themselves value in what they did'. This is further echoed through the work of Black & Wiliam (1998), who argued that the 'effects of feedback were reduced if students had access to the answers before the feedback was conveyed' and Butler (1998), who found that students performed better on tasks when they

received comments rather than grades. This practice has been endorsed by Race (no date) and Rust et al (2005), as well as the Re-Engineering Assessment Practices in Scottish Education (REAP) project (Nichol, 2007), who suggested giving 'feedback before marks to encourage students to concentrate on the feedback first', and Boud & Falchikov (2006), in that marks should be 'subordinated' to qualitative feedback to promote long-term learning. Further research (Winter & Dye, 2004), has found that students do not collect marked work when they know the mark in advance. In an internal review of feedback in the Faculty of Development and Society at Sheffield Hallam University (Garner, 2006), it has been suggested that there are benefits from uncoupling the processes of providing grades, comments and return of scripts in speeding up response and quality of feedback.

Such practice resolves an issue raised by an action research project at University of Sunderland (Ecclestone & Swann, 1999), of how to encourage students to read feedback and use it to improve their subsequent work. This practice reflects the widely held view that feedback can only support learning if it involves both the production of evidence and a response to that evidence by using it in some way to improve learning. Higgins et al (2002), believed in a more reflective approach and the development of reflective skills to encourage student engagement with feedback, and there have been suggestions that such reflective activity is built into personal development planning (Bloxham & Boyd, 2007; Mutch, 2003; Race, no date; Rust et al, 2005). Feedback grids tailored to the assignment can speed up the provision of feedback (Bloxham & Boyd, 2007), though McDowell, et al. (2005), have highlighted that students may find it difficult to interpret 'checkbox' feedback. Race (no date), suggested linking feedback directly to the

achievement of learning outcomes to help students make 'better use of the learning outcomes as targets'.

2.5.3 Findings Related to Feedback

Feedback is a critical factor in the acquisition of motor skills. There is an extensive body of empirical work to guide the appropriate provision of feedback. However, much of this work has been conducted with adult participants, in laboratory settings (Erbaugh, 1985; James, 1971; Masser, 1987; Salter &Graham, 1985; Thomas, Mitchell, & Solomon, 1979), and using novel tasks (Behets, 1989; James, 1971; Salter & Graham, 1985; Shapiro, 1977), that have little relevance to real world contexts (Cohen & Goodway, 2006). Based on the findings of the literature in the area feedback Cohen & Goodway (2006), found that much of these data are based on adult learners, mostly college, and it is not clear of the generalisability of the findings for children and specifically children in K-12. A comprehensive literature review on feedback yielded of 278 motor learning studies related to feedback. However, only 27 dealt with children in naturalistic settings and with limited implications for teachers (Cohen & Goodway, 2006).

Many studies in the field of physical education pedagogy have examined teacher feedback in conjunction to the amount and type of feedback episodes during instruction (Behets, 1989; Pellet & Harrison, 1995; Rikard, 1991; Rikard, 1992; Silverman, Tyson, & Krampitz, 1992; Silverman, Tyson, & Krampitz, 1993; Stroot, 1990). However, most of the findings focused on the teacher and did not include information about the influence the feedback had on student learning (Cohen & Goodway, 2006). The findings discussed in this section of the literature review include only

studies in which student achievement was identified as a result of the teacher feedback both in motor learning laboratory settings and in physical education lessons in naturalistic settings. These findings were categorized by the following criteria: type and amount of feedback, age-related factors, gender differences, teacher content knowledge, and student skill level.

2.5.4 Feedback in Pedagogy Research

Feedback is also considered an important teaching instrument from the pedagogy perspective; however, since most of the motor learning research, in contrast to pedagogy research, was conducted in controlled laboratories with few students and more individual control of the feedback, it is hard to generalize the findings from motor learning research to a natural setting where a teacher in the gymnasium teaches sometimes more than 30 students for 45-minute lessons (Lee et al, 1993; Siedentop, 1991). Siedentop and Tannehill (2000), identified feedback as an important element in the teaching-learning process. From a pedagogical perspective, it is common that teachers provide students with feedback during the lesson that focuses on the skill or the critical elements of the skill they are learning; and delivering frequent feedback is part of the assessment system that teachers use as a teaching strategy (Siedentop & Tannehill, 2000; Stroot, 1990; Rink, 2003). The teacher directs feedback to the students' performance, and it serves as an error reduction and/or a means of enhancing correct motor responses from the student (Fishman & Tobey, 1978; Siedentop & Tannehill, 2000; Tan, 1996).

The category under which the pedagogy literature lists feedback has similarities to motor learning definitions, but the pedagogy literature uses different definitions for the same feedback functions. As a result of the natural physical education setting, where one teacher is responsible

for a whole classroom, the teacher may to provide group feedback in addition to individual feedback, which is both considered feedback, under different categories.

2.5.5 Research on Physical Educational and Teachers1 Feedback

Historically, physical education teachers have been taught that teacher feedback is an important technique to help students learn motor skills. No doubt this is true. But some suggest that feedback might be overrated in terms of its value as a teaching skill (Lee, Keh,& Magill, 1993; Nicaise, Cogerino, Bois, & Amorose, 2006; Silverman, Tyson, & Krampitz, 1992)

Essentially, the value of feedback has been documented in laboraties by motor learning researchers (Lee, Keh & Magill, 1993; Schmidt & Wrisberg, 2008; Silverman, Tyson, & Krampitz, 1992). In these labs they are able to create settings where a subject receives absolutely no feedback whatsoever. The subject presses a button, for example, and has no idea if she pressed it too soon or too late. The researcher can then provide the subject with any type of feedback that is being tested. In studies of this type, feedback is superior to no feedback.

In contrast, when students are learning a motor skill on the play ground, they always receive some type of internal feedback , they know, for example, where the ball went, how far it went, or how high. If they were rolling or jumping, they have some sense of how it felt and where they ended up. Although different from feedback provided by a teacher or researcher, the students' knowledge of results lets them know how they are moving.

Some of the feedback studies done in gyms and on playgrounds have also suggested that feedback is valuable (Silverman, Tyson, & Krampitz, 1992; Stroot & Oslin, 1993). Unfortunately, it is often difficult to control for the amount of practice the students receive.

Typically, when teachers are providing feedback, students are practicing. Thus students who received higher amounts of feedback sometimes learned more or better. They also practice more, however, making it difficult for the researcher to know whether their improvement was a result of teacher feedback or simply more practice opportunities. As more researchers begin to control the amount of practice so it is equal for students under varying practice conditions (Graham, 2008) and to set their studies in the real world of physical education, we will gain an increased understanding of teacher feedback and its contribution to student learning.

Today we think that teacher feedback is important, especially when it is specific, congruent, simple and mostly positive and neutral. We know that a lot of practice at high rates of success contributes to student learning and obvious feelings of satisfaction and enjoyment. Keeping this in mind, the effective teacher first makes sure that all students are practicing appropriately. Only then does he begin to provide individual feedback. When a teacher spends time with individuals and many of the class drift off task, the provision of individual feedback is probably counter-productive.

2.6 Teachers Behaviour

Behaviour is a description of observable outcome of teacher and student performance in different activities of institutions. Behaviour may be positive or negative and effective or ineffective. Effective behaviour produces the requisite results. Behaviour is an action, which is different at different time. There are three types of behaviour, thinking, feeling and doing. Mostly behaviour is also known as cognitive, affective and psychomotor. Cognitive behaviour involves the learner in thinking process, remembering, evaluating and problem solving. Affective behaviour values

the learner's feelings and attitudes. Psychomotor behaviours are those involving the learner, in some kind of muscular activity.

The way in which the teacher allocates time to spend on academic content affects student achievement. Good classroom management is a skill that can lead to high student achievement. It involves planning effectively, establishing rules that are reasonable and not excessive in number, and arranging the classroom so that instruction goes smoothly. Skills that are necessary for maintaining a well-managed classroom include group alerting, wittiness, overlapping, using the principle of least intervention, and creating smooth transitions.

A good teacher is expected to be committed to his work, would have the ability to take the initiative. Teacher's personality in the attitudinal sense is a significant factor in teacher's behaviour and it has great impact on student's achievement. The teachers as a professional must know the art of communication, understanding others and ability to learn from the experiences. They should be able to facilitate learning effectively. The main purpose of this study was to investigate the impact of teacher's behaviour on the academic achievement of university students.

Education is now universally recognized to be prime key of moral, cultural, political and socio-economic development of a nation. The nations, which have been taken major initiatives, made revolutionary advances and performed miracles in the last two decades. No doubt, this great achievement is based on their effective educational system (Ahmad, 2001). It is stated "educational system of any country can provide the guarantee of success and prosperity for their

nations". The achievement of a comprehensive and effective educational system is necessary for the survival of nation (Saeed, 2001).

Govt. of Punjab (1998), research study concluded that the educational system particularly, teachers bring the qualitative change and raise the standards of education which ensures the welfare, progress and prosperity of the nation. For this purpose, teachers are prepared professionally and develop these competencies in teacher training institutions.

No system of education is better than his personnel and no system of education above the standard of its teacher. It means, the quality of any system depends upon the standard of its personnel. If the personnel are well qualified, well trained and have effective behavior, the organization will achieve its objectives successfully. Particularly the leader of the institution can improve the quality of their teachers and students with his effective behavior (Anwar, 1998).

Hayon (1989), says that the teachers who possess professional and interpersonal skills are more effective in their classrooms in terms of students behavior, attitude and achievement. Every individual has a variety of attitudes, which might be positive or negative and can vary according to their favorability and unfavorability for various attitudinal objects. Luthans (1993), says that professional attitude serves in many valuable ways and knowing these attitudes can also serve a lot. Behaviour is a response which an individual shows to his environment at different times. Various authors have defined it in different words:

Taneja (1989), stated that "the meaning of behaviour is conduct or carry oneself or behaviour is what we do, especially in response to outside stimuli". UNESCO (1986) documented that "anything that an organism does that involves action and response to stimulation". Joyce (1980),

also defined that “behaviour is lawful and subject to variables in the environment”. He further defined that “behaviour is an observable, identifiable phenomenon”.

The pedagogical cycle describes the interaction between the teacher and students. The four steps of the cycle are (a) structure, (b) question, (c) respond (d) react. The structure must give students a clear understanding of what they are expected to learn. Both higher- order and lower -order questions should be asked by the teacher. Teachers need to remember to wait 3 to 5 second after asking a question (wait time 1) and before reacting to a student answer (wait time 2). Teachers also need to be thoughtful in the way in which they react to student comments. Generally teachers react by using either praise, acceptance, remediation, or criticism in responding to the student (Derk, 1974).

Four models of instruction that can lead to high student achievement include; (i) direct teaching (ii) cooperative learning (iii) mastery learning, and (iv) project based instruction. The principles of direct teaching include daily review, presentation of new material in a clear manner, guided practice, teacher feedback, independent practice, and weekly and monthly review. In a cooperative learning classroom, students work in small groups and rewards are based on the entire group’s performance. Mastery learning programmes involve a specific objective that must be met, as indicated by assessment. Typically students work at their own pace, going on to new material only when mastery previous work has been demonstrated. Teachers often play a central role in content and skill mastery. Project based instruction stimulates students to explore

authentic issues. Individually and in small groups, student cross-traditional subject boundaries as they investigate real-life problems and demonstrate what they have learned.

Teaching involves two distinct sets of skills. The first is speaking ability. The second is interpersonal skills. Such skills allow one to create the sort of warm, close relationships with one's students that motivate them to work independently. To become an excellent instructor, one must be outstanding in one of these sets of skills and at least competent in the other.

2.6.1 Studies on Teacher Behaviour and Students Achievements

Although studies on teacher behaviours and teacher effects have been reported since 1940, the modern era of this research began in 1957 with the work of investigators such as Flanders, Medley, and Mitzel. Even since then, the number of studies has been small. Fewer than 25 studies have been conducted on any specific variable such as teacher praise or teacher questions, and these studies are spread across all grade levels, subject areas, and student backgrounds.

The number of investigators in this field is also small. There are no more than 12 researchers or groups of re-searchers currently studying the relationship between classroom instruction and student achievement. These 12 are spread out across the different instructional contexts and variables being studied. The number of researchers actively collecting data in any given year is much smaller than 12. Furthermore, these researchers have met only twice, as a group, to discuss common findings, inconsistencies, and problems.

Although the recent studies, summarized in this issue, represent methodological and conceptual expansion of previous work, research on observed teaching behavior is new, sparse, and not

always consistent in results. What we have learned to date is offered more as hypotheses for future study than as validated variables for the training and evaluation of teachers. Although practitioners can easily amass a large number of questions on teaching methods for which they would like clear answers, at the rate we are going it will be years before many of these questions are even studied.

In 1975, a number of these researchers met in San Diego and again in Austin to present and discuss their recent research, and a number of these papers are summarized below. Unfortunately, these papers do not fit into one piece. Each investigator worked on a problem individually, and there has been little communication be-tween them. Hopefully, now that people have been brought together to share ideas, there can be more coordination and cooperation.

Iqbal (1996), stated that teaching is an arrangement and manipulation of situation in which there are gaps or obstructions and individual tries to overcome the problem from where he learns. Teaching is an intimate contact between a more mature personality and a less mature one. The more mature one is a teacher and less mature is a student and it is designed to further the education of the latter. He further stated that the teaching might be characterized as an activity aimed at the achievement of bearing and practiced in such names as to respect the student's intellectual integrity and capacity for independent judgment. He described the roles and behaviours of a teacher who is mainly responsible for instruction. The teacher is engaged more and more today in the implementation of new educational procedures taking advantage of all the resources of modern educational devices and methods. He is an educator and a counselor who tries to develop his pupils' abilities and interests.

- The teacher should find more time for involving the pupil's instructional activities as well as his extra - curricular activities.
- Teachers should be aware of the important role they are called upon to play in the local community as professionals and citizens, as agents of development and changes, and should be given the opportunity of practicing that role.
- Teacher is an initiator, a designer of curriculum, a creator of the learning context, engaged in a sustained and deliberate effort to modify the tastes of his students.

UNESCO (1975), recommended the role of teacher as well as supervisor: Teachers and administrators of all categories and levels should be aware of the roles played by them in the present context of education. They should understand that their roles and behaviours are not fixed but are revolving under the influence of changes taking place in a society and in the educational system itself.

2.6.2 Behaviour

Behaviour is a response, which an individual shows to his environment at different times. Various authors have defined it in different words: Taneja (1989), stated that "the meaning of behaviour is conduct or carry oneself or behaviour is what we do, especially in response to outside stimuli". UNESCO (1986) documented that “anything that an organism does that

involves action and response to stimulation.” Joyce (1980), also defined that “behaviour is lawful and subject to variables in the environment”. She further defined that “behaviour is an observable, identifiable phenomenon”.

2.6.3 Categories of Behaviour

Das (1993), has suggested seven categories of behaviour, which are as follows:

1. Response behaviour
2. Association behaviour
3. Multiple-discrimination
4. Behaviour chains
5. Class concepts behaviour
6. Principles
7. Strategies

He further highlighted the school characteristics that positively affect the students, behaviour and their academic achievements. Both good standards set by the institution and good behaviour models provided by the teachers had positive effects.

2.7 Approaches for Effective Behaviour

Sybouts (1994), stated that there are three approaches, which are used for effective behaviour or effective institution.

a. **Goal Attainment Approach:** The goal attainment approach bases the effectiveness of institution, on its achievement of goals and purposes. Learning objectives, subject content, standardized tests, and national norms are all considered being important.

Another concern with using the goal attainment approach is the question of goal ownership and one final consideration is goal expectations.

b. **Process Approach:** The process approach emphasizes the processes and means that administrations and teachers use to heighten student out-comes. Principal focus on process seems to be instructional leaders. They take an active part in classroom instructional programmes and curriculum development and have a clear view of goals to be achieved. Too much important can be placed on process.

c. **Environment Response Approach:** This approach is linked with perception. Principals work to illustrate to members of the school board, parents, and numerous other interest groups that their colleges are successful. This approach is a type of environmental selling programme.

2.7.1 Criteria for Effective Behaviour

Sybouts (1994), gave criteria for an effective behaviour of the teachers after reviewing of more than seventy-four research studies, which are:

i. Demonstrating a commitment to academic goals.
ii. Creating a climate of high expectation.
iii. Functioning as an instructional leader.
iv. Being a forceful and dynamic leader.
v. Consulting effectively with others.
vi. Creating order and discipline.
vii. Marshalling resources.

viii. Using time well.

ix. Evaluating results.

Smith (1977), has claimed that teacher's personality in the attitudinal sense is significant factor in teacher behavior and it has great impact on students achievement. Throughout the history of social psychology: attitude is usually defined as a disposition to respond favourably or unfavourably to an object, person, institution or event. Allport (1960), states that attitude is a mental and neural state of readiness, organized through experience, exerting a directive influence upon the individual's response to all objects and situation with which it is related. Attitude towards study has great contribution in academic achievement and good study pattern'.

2.7.2 Five Key Behaviours Contribution to Effective Teaching

Approximately 10 teachers show promising relationship to desirable student performance, primarily as measured by classroom assessments and standardized tests. Five of these behaviors have been consistently supported by research studies over the past two decades (Brophy, 1989). Another five have had some support and appear logically related to effective teaching. The first five we will call key behaviors, because they are considered essential for effective teaching. The second five we will call helping behaviors that can be used in combinations to implement the key behaviours.

The key behaviors are the following.

1. Lesson clarity
2. Instructional variety
3. Teacher task orientation
4. Engagement in the learning process
5. Student success rate

According to Mouly (1988), the totality of teachers role and functions can be categorized in three parts; Academic Functions, Professional Functions, Social Functions. According to Ogwezi and Wolomsky (1985), the teacher improves conditions for effective learning when he helps the students to become aware of his or her problem areas in the learning process. Helps him or her to establish the self-confidence necessary for the student. Explores new interests and special aptitudes of the students. Increases the understanding of his students. Uses concrete material from localities to support or illustrate what he teaches.

Gupta (1996), describes that the task of teachers is central to education. Teachers must transmit to new generation the cultural heritage of society the knowledge, skills, customs, and attitudes acquired over the years. They must also try to develop in their students the ability to adjust to a rapidly changing world. The effective teacher is capable of creating a desire to learn. He must be able to sense the interests of students, recognize their needs, and make learning purposeful

not only in relation to course objectives but in the minds of his students (Conant, 1993).

Wright (1987), describes that the primary function of teacher's management role is to motivate the learners who are de-motivated and to nature those who are already well motivated to the task of learning. There are several ways in which teachers can achieve this. Adopting a positive attitude towards the learners. Giving pupils' meaningful, relevant and interesting task to do.

Being motivated and interested themselves. involving the learners more actively in the classroom process in activities.

CHAPTER THREE

METHODOLOGY

The purpose of this research was to investigate the amount of teacher feedback and its influence on students skill acquisition. Secondly, this was to provide an intervention on feedback to ascertain improvement in amount of feedback given by the teachers. This chapter covered research design, population, sample and sampling techniques data collection instrument, data collection procedure and data analysis.

3.1 Research Design

Research design refers to the way in which a research idea is transformed into a research project or plan that can be carried out by the researcher or research team (Given, 2008). She further indicated that, research design is more than just the selection of methods or technique used in collecting data for a particular study. Rather, the term refers to and encompasses decision about how the research itself is conceptualized, the subsequent conduct of a specific research project and ultimately the type of contribution the research is intended to make to the development of knowledge in a particular area.

The descriptive method was used for this study. Researcher collected and analyzed numerical information statistically. As indicated by Locke Spirduso and Silver man (1987), quantitative method depends on numbers, statistics and graphic pictures of what teachers and students do for instance, rates of feedbacks, percentages on comments to low skilled students, amounts to time in the management and the like.

3.2 Population

Population as a concept in research refers to every individual who fits the criteria that the researcher has laid down for research participants. It also refers to the complete set of subjects, or event or objects having common observable characteristics in which the researcher was interested in studying (Agyedu, Donkor & Obeng, 2007).

The target population for the study consisted of all first degree physical education teachers in Senior High School (SHS) and all SHS students in Kwahu East and South Districts in Eastern Region. The accessible population covered the physical education teachers who were teaching in second cycle institution for the first time and have five years to seven years teaching experience as well as the students they teach.

3.3 Sample and Sampling Technique

Sampling involves selecting a sub- section of a population to represent the entire population in order to obtain information regarding the work understudy. The geographical area covered may be too wide spread (Sharp et al, 2002). A sample therefore becomes a subset of value from a target population.

A purposive sample also commonly called judgmental sample was used to select P.E.

teachers. This type of sampling was chosen based on the knowledge of the population and purpose of the study. The respondents were selected because they share the same characteristics. Purposive sample can be useful for situations where one needs to reach a targeted sample quickly and where sampling for proportionality is not the main concern. The researcher also used a simple random sampling to have a sample size from the student population. This gave each student equal opportunity of being selected.

3.4 Data Collection Instrument

Videotape recorder was used as the main instrument for the study. Videotape recorder provides a permanent account of observation for future examination. The recorded episode could be viewed over and over which would help in case of uncertainties. Based on the definition of categories of feedback, coding instrument was developed in order to capture the nature of the teacher feedback.

The researcher designed Event recording tool and event recording technique was used for the coding of the various categories of teachers feedback. This tool provided the user with data on the frequency of occurrences of discrete events. It tallies the number of times that event took place. Event recording provides more accurate information than interval recording (Cooper, Haron, and Heward, 2007).

According to Hazlewood and West (1974), the most valid approach to event recording data was one of the least susceptible to source of bias to assess patterns of events. Event recording approach was used by DON's early studies (Rummel, 1963), and it was confirmed that event recording is the best possible guarantee against bias.

3.5 Training of coders;

For reliability of coding the event, two teachers were trained to produce the same data from the same sources. Both observers participated in a three steps training process similar to the one used for Academic Learning Time (ATL/ PE) (Siedentop et al, 1982). First, they studied the definitions of the selected feedback; then they identified each feedback and placed each in a description assessment and finally after they had reached scores of 90% or better on that assessment, they correctly identified the categories of feedback from a recorded lesson by a

physical education expert. The recorded lessons were first analyzed by an expert to identify various feedbacks used by teachers as well as the categories, based on type and direction of feedback. Observers watched the training video and identified each category of feedback. The observers had to identify the categories of feedback and recorded at their appropriate columns. Only after the observers identified all feedbacks under their correct categories and reached 90% agreement with the expert on the training tape was inter-observer agreement confirmed. Both observers were trained on categories of feedback to a criterion of 90% accuracy. Reliability and validity increases sharply as coders develop a feel for their sources and an understanding of the rules and definitions applied (Taylor & Hudson, 1972; Azar, 1970). Again, Gunder (1957), test – retest reliability coefficient was 0.85 and 0.94.

3.6 Inter- observer agreements (IOA)

Inter- observer agreement (IOA) was checked throughout the study by the researcher. The reliability check compared the results of the two independent observers. Thirty-three percent of the trials from the pretest and posttest were compared to ensure there was a 90% agreement on the observations.

3.7 Data Collection Procedure

A letter was obtained from the Head of Department (HPERS) to the heads of institutions selected to seek permission to undertake the study in their schools. Upon approval, the researcher then visited the physical education teachers concerned one after the other and discussed the research with them and copied the various time tables and accessed where the lessons would be taught.

The researcher again met the physical education teachers at a common centre and gave them detailed orientation regarding what was expected of them.

Teacher's consent form was given to each of the participant to complete and sign. The researcher tried as much as possible to videotape classes in their natural settings, following their normal scheduled period on the time table for PE. There was no special situation to influence the natural flow of lessons. Every teacher had at least two chances of teaching a skill. Each episode was viewed after the lesson and coded same day.

3.8 Behaviorial intervention

This is an intervention used to help teachers who have challenges in giving frequent feedback. Feedback is one of the most influential factors in learning as the quality and quantity of instruction (Hattie, 1999). Moreno (2004), also regarded feedback as crucial to improving knowledge and skill acquisition. To this extent the researcher came out with behaviourial intervention to curtail the challenges the various physical education teachers in the Kristeh, Abtech, Kwatsec and Jotech were facing on giving feedback. This intervention will enhance learning. This behavioral intervention was used by teachers in interaction with their students in daily teaching practice and how often. In the present study, the focus was on the feedback teachers provide during day to day work activity. To use the behavioral intervention, one week workshop was held after observing teachers encounter with the student.

On the first day, the researcher briefed the participants on specific set of rules, procedures and routines to manage their class during practical lessons. The researcher told the participant that these rules, procedures and routines should be taught to students a day before the class begins the next day. Some of the rules were to show respect for the equipment used on the field, govern

relationships with the students, time space and expected norms of general behaviour. Classroom procedures were making tasks routine; what you want student to do as teacher ways; of getting class activities done.

On the second day, the researcher continued to brief participants on concept of feedback which involves description, explanation and discussion of feedback.

On the third day, the researcher demonstrated to the participants on when to execute the various types of feedback and involve the participants' to practice among themselves.

On the fourth day, the various physical education teachers had peer teaching among themselves by focusing on types of feedback and the amount of feedback they give. On the fifth day the researcher went round to evaluate the same lesson.

3.9 Rationale

1. To inculcate in teachers ability to give accurate feedback in practical lesson
2. Teachers emotional response my inhibit students performance.
3. Teachers may have the knowledge but lack the practice.

3.10 Data Analysis Procedure.

The researcher videotaped 4 teachers in senior high schools as they delivered their regular lesson which has same duration of 80min, but varied on time. During a portion of these lessons, teachers interacted with their students either in group or individually. In the analysis, descriptive statistics such as means and percentages of feedbacks were calculated. The results were represented in tables and graphs.

CHAPTER FOUR

RESULTS, FINDINGS AND DISCUSSIONS

The study investigated teacher feedback and its influence on students skill acquisition with regards to Kwahu East and South Districts in the Eastern Region. Secondly, this was to provide an intervention on feedback to ascertain improvement in amount of feedback given by the teachers.

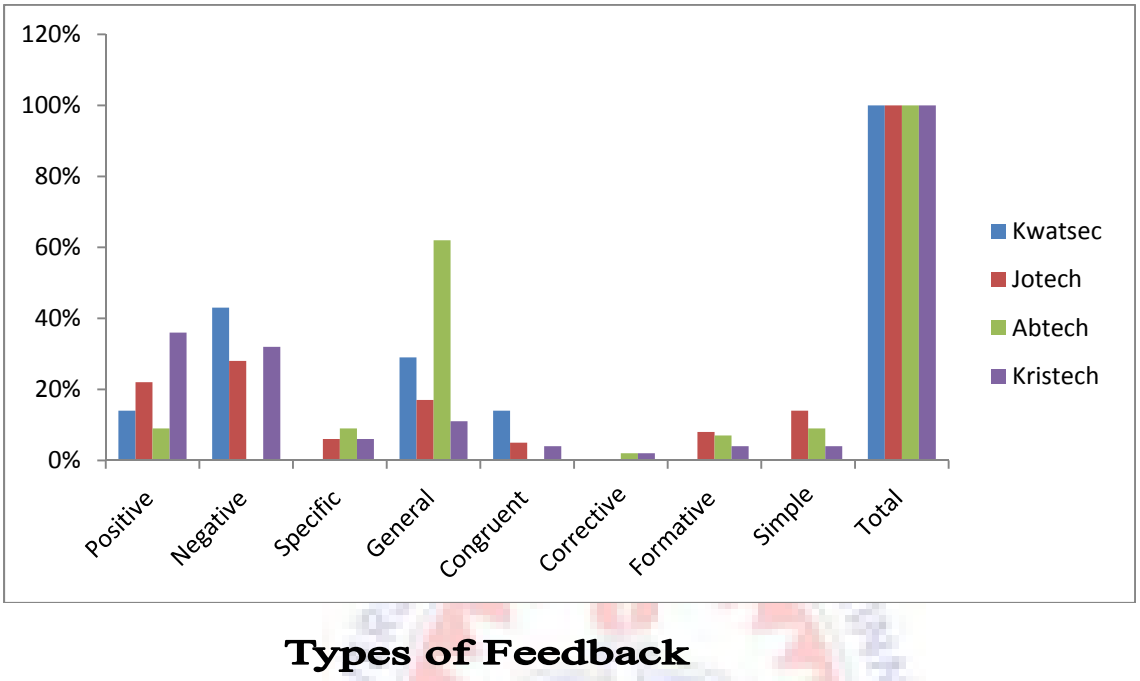
This chapter presents results, findings and discussions.

Research Question 1: what types of feedback do teachers give?

Table 1: Teachers feedback before intervention.

Feedback	Kwatsec		Jotech		Abtech		Kristech		Mean
Positive	1	14%	8	22%	5	9%	17	36%	**7.75**
Negative	3	43%	10	28%	0	0%	15	32%	**1**
Specific	0	0%	2	6%	5	9%	3	6%	**2.5**
General	2	29%	6	17%	34	62%	5	11%	**11.75**
Congruent	1	14%	2	5%	0	0%	2	4%	**1.25**
Corrective	0	0%	0	0%	2	2%	1	2%	**0.75**
Formative	0	0%	3	8%	4	7%	2	4%	**2.25**
Simple	0	0%	5	14%	5	9%	2	4%	**3**
Total	7	100%	36	100%	55	100%	47	100%	
Mean	**0.875**		**4.5**		**6.875**		**5.875**		

Fig.1: Graph showing teacher feedback before intervention.



In the pre- test assessment, it was revealed that positive feedback given at Kwatsec was (14%, n =1), Jotech (22%, n = 8), Abtech (9%, n = 5), and Kristech (36%, n = 17) which was the highest. With negative feedback, majority was seen in Kristech (32%, n=15), Jotech (28%, n= 10), Kwatsec (43%, n= 3) and Abtech (0%, n= 0). Another feedback that was given was specific feedback. The highest here was Abtech (9%, n = 5) and least Kwatsec (0%, n = 0), General feedback Jotech (17%, n = 6) the highest and Kwatsec (29%, n = 2) the least. For congruent feedback the result revealed Jotech (5%, n = 2) and Kristech (4%, n = 2) the rest of the schools were zero. Corrective feedback was seen in Abtech (2%, n = 2) and Kristech (2%, n = 1). Formative feedback was observed at Abtech (7%, n = 4), Jotech (8%, n = 3) and Kristech (4%, n = 2) with Kwatsec no formative feedback. Again, simple feedback was observed in Jotech and

Abtech (14%, n = 5) (9%, n = 5) , Kristech (4%, n = 2) and Kwatsec (0) throughout the 80minutes lesson.

Table 2. Teachers feedback after intervention.

Feedback	Kwatsec		Jotech		Abtech		Kristech		Mean
Positive	15	28%	16	28%	8	16%	18	21%	**14.25**
Negative	1	2%	5	9%	0	0%	9	10.50%	**3.75**
Specific	4	8%	8	14%	13	27%	12	14%	**9.25**
General	3	7%	9	16%	5	10%	3	3.50%	**5**
Congruent	2	4%	7	12%	3	6%	10	12%	**4**
Corrective	18	34%	4	7%	4	8%	20	24%	**11.5**
Formative	0	0%	2	3.50%	2	4%	1	1%	**1.25**
Simple	10	19%	6	11%	14	29%	12	14%	**10.5**
Total	**53**	**100%**	**57**	**100%**	**49**	**100%**	**85**	**100%**	
Mean	**6.625**		**7.125**		**6.125**		**10.625**		

Fig. 2: Graph showing teacher feedback after intervention

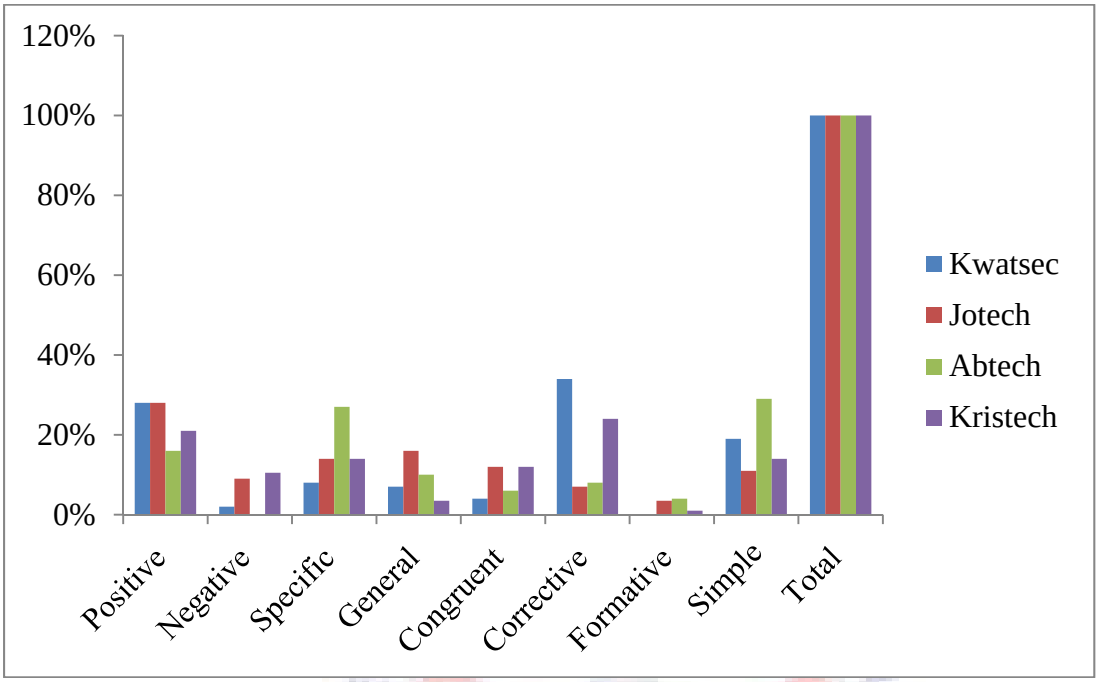


Table 2 revealed a very much increment in positive feedback that was given by the teachers and reduction in negative feedback. These were shown with positive (21%, n= 18) at Kristech, Jotech (8%, n= 16), Kwatsec (28 %, n= 15) and Abtech (16 %, n= 8). Meanwhile, negative feedback reduced as shown in Table 2, there was also an increment in specific, general, congruent, corrective and positive feedback as shown in Table 2.

Research Question 2: what is the frequency of each feedback?

Table 3: Graphical representation of feedback on skill acquisition.

Feedback	Frequency	Percentage
Positive	31	22
Negative	28	19
Specific	10	7
General	47	33
Congruent	5	3
Corrective	3	2
Formative	9	6
Simple	12	8
Total	**145**	**100**

From Table 3 it was observed that the highest feedback given by the various teachers was general feedback. This is where Graham (2008) said teachers often use general feedback to encourage children to continue to move and continue to try. The next was positive feedback showing 31 amount of feedback given. The least among was corrective feedback and congruent feedback showing 3 and 5 respectively.

Fig. 3: Frequency of each feedback on skill acquisition

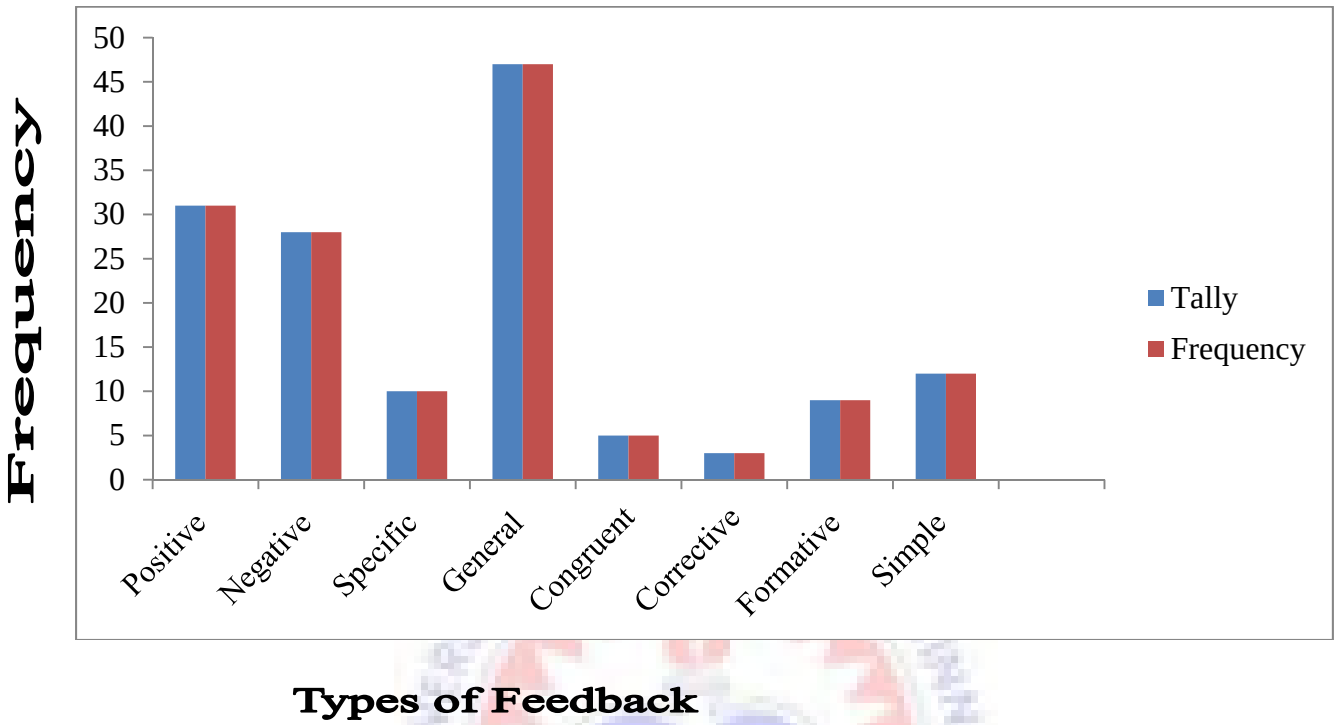
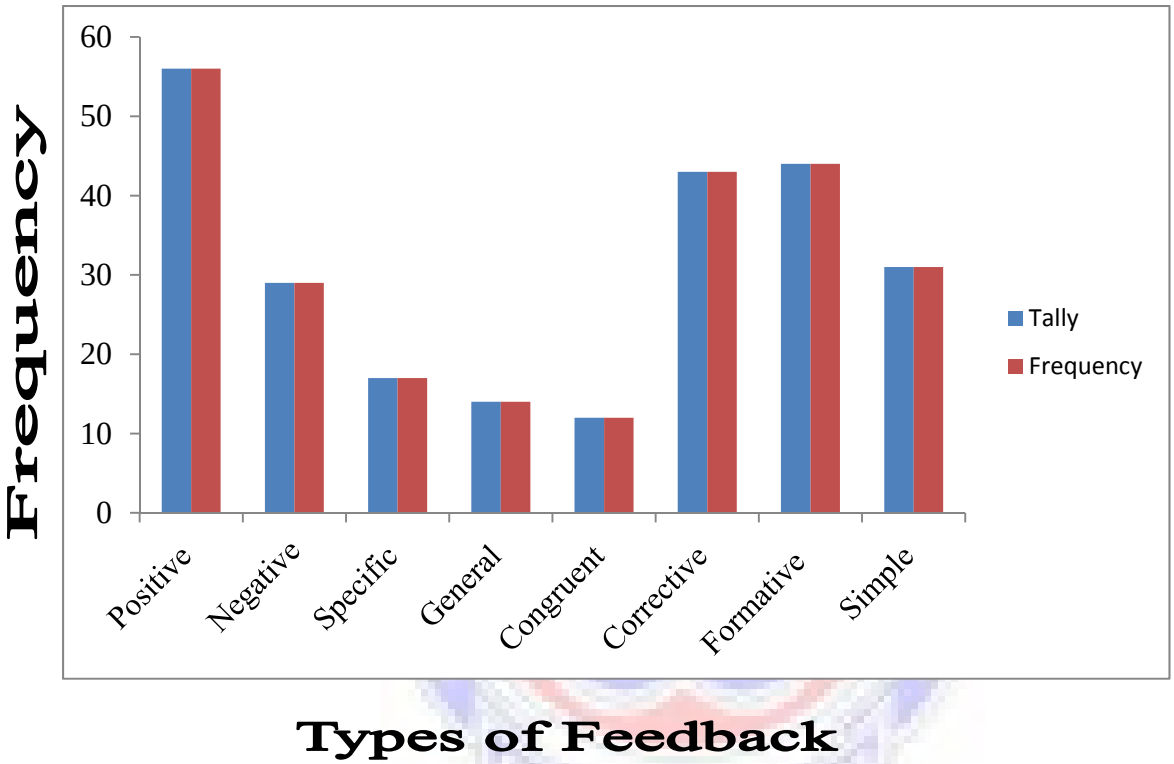


Table 4: Graphical representative of feedback on skill acquisition.

Feedback	Frequency	Percentage
Positive	56	23
Negative	29	11
Specific	17	7
General	14	6
Congruent	12	5
Corrective	43	17
Formative	44	18
Simple	31	13
Total	246	100

Table 4 revealed that there have been an increment in the Positive feedback, corrective feedback formative feedback etc. whiles the general has reduced.

Fig. 4 : Graphical representation of frequency feedback after intervention.



Research question 3: how do students respond to teacher feedback?

Table 5: Students response to feedback on skill acquisition before intervention.

Feedbacks	Kwatsec	Jotech	Abtech	Kristech
Positive	√	√	√	√√
Specific	0	√	√√	√
General	√	√	√√	√
Congruent	√	√	0	√
Corrective	0	0	√	√
Simple	0	√	√	√

√√ - excellent √ - good 0 – no feedback / no respond

From Table 5, the result revealed excellent positive feedback at Kristech and Good positive feedback at Kwatsec, Jotech and Abtech. It again revealed excellent specific feedback at Abtech but in Kwatsec there was no specific feedback given, with general feedback; majority was tallied at Abtech. To talk about congruent feedback apart from Abtech teacher who did not give any feedback to his students, the rest of the teachers from Kwatsec, Jotech and Kristech did and it had a good impact on the skill acquisition. With corrective feedback, none was given by teachers from Kwatsec and Jotech and again no simple feedback was given by Kwatsec teacher had good impact on the student.

Table 6: Students' response to feedback on skill acquisition after intervention.

Feedbacks	Kwatsec	Jotech	Abtech	Kristech
Positive	√√	√√	√	√√
Specific	√	√	√√	√√
General	√	√	√	√
Congruent	√	√	√	√
Corrective	√√	√	√	√√
Simple	√	√	√√	√

√√ - excellent √ - good

4.1 Discussions

Results from Table 1 which showed the pre-test data revealed different types of feedback given by the various teachers in different schools. It was seen that Abtech had the highest with 55 feedbacks as total and Kwatsec had the least showing 7 feedbacks. Among all the types of feedbacks given by the teachers in the various schools, the pre-test revealed the highest scores in positive and corrective feedback, showing 57 and 46 respectively. This was corroborated by Nicaise, Cogerino, Bois, and Amorose (2006), who indicated that the most important feedback for students are positive feedback and corrective feedback. Studies on the topic (Behets, 1989; Pellet & Harrison, 1995; Rikard, 1991; Rikard, 1992; Silverman, Tyson, & Krampitz, 1992; Silverman, Tyson, & Krampitz, 1993; Stroot, 1990), have revealed that the most common kinds of feedback provided by teachers are negative, congruent, corrective, nonspecific, and positive

feedback. Table 4 revealed positive feedback as the highest frequency (Ogum, 2010), and congruent feedback as the least and students responds was excellent and good.

Pellett and Harrison (1995), examined 68 female seventh and eighth grade students and their teachers. The teachers were trained to deliver specific, congruent, and corrective feedback when the students performed different volleyball skills. Both teachers feedback and students motor-skill responses were coded. The study revealed that all the students significantly improved on their level of skill acquisition from pre-test to post-test in all skills. Both beginning players and advanced players improved their practice success after teachers feedback in all task presentations (pre-test and post-test). The students in this study, according to Pellett and Harrison, improved their performance immediately following teachers feedback. (Graham, 2008), also corroborated the study results by indicating that feedback can influence performance of a skill and might also affect perceived competence. The authors indicated that feedback from teachers, parents, and coaches can influence how children feel about their ability to perform a task or assume a role in a game or group work. They reiterated that this is another reason for teachers (and coaches) to be sensitive to the type and tone of the feedback they give to children.

The findings were significantly meaningful for the low-skilled students, who were more influenced by correct practice due to the teachers specific feedback.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

This study investigated into the amount of teachers feedback and its influence on students skill acquisition with regards to Kwahu East and South Districts in the Eastern Region.

Secondly, this was to provide an intervention on feedback to ascertain improvement in amount of feedback given by the teachers.

The first chapter briefly talked about the role of feedback in an error correction and effect of immediate and delayed feedback on skill acquisition.

Chapter two dealt with the definition and nature of feedback, its importance with regards to physical education pedagogy.

Chapter three revealed the various methods and procedures used in the organization of information and materials for the study.

Chapter four described how systematic observation instrument were used and analyzed the outcome of the observations. Event recording instrument were used and results presented in tables and in graphs.

Presentation of this chapter is under the following sub-headings:

Summary of findings

Conclusion

Recommendations

5.1 Summary of findings

According to the analysis of the data the following findings were made:

The study revealed that:

1. positive, corrective and formative feedbacks enhanced student's skill acquisition.

2. general feedback as the highest frequency of feedbacks used by teachers in the Kwahu East and South Districts.

3. students' responses to feedbacks were excellent and good after the intervention.

5.2 Conclusion

Based on the findings, it is concluded that feedbacks given by teachers in physical education to students is very important because it facilitates motor learning and help students to improve on their skill acquisition. Teachers with better content knowledge in the subject they teach stand in the better position to give feedbacks which are developmentally appropriate to students. Again, given more room to students to practice, enable teachers to give more feedbacks in other to improve student skill acquisition. Teachers ability to observe a skill and analyze, contribute to the amount and type of feedback given to students.

5.3 Recommendations

From the conclusion of the research it was recommended that:

1. Teachers should be encouraged to use more of simple feedback, corrective, specific and formative feedbacks than the general and negative feedbacks.
2. Ghana Education Service should sponsor the various regions and districts to organise seminars and workshops for physical education teachers to improve upon their teaching skills.
3. Physical education teachers should be encouraged to give more room for practice during practical lessons to enable them accessed student's performance as well as give them more feedback.

REFERENCES

Agyedu, G.O, Donkor, F & Obeng, S. (2007). Research methods. The falmer press, Published in Kumasi, Ghana.

Ahmad, M. (2001). To investigate the Causes of Dropout at Higher Level. (Unpublished M. Phil. Education thesis), AIOU, Islamabad, Pakistan. P. 174, 185.

Allport, G. W. (1960). Personality and Social Encounter. Beacon Press. Boston. USA. P.63, 102.

Anderson, R. C., Kulhavy, R. W., & Andre, T. (1971*). Feedback procedures in programmed Dynamic feedback model instruction. Journal of Educational Psychology, 62, 148-156.*

Anderson, R. C., Kulhavy, R. W., & Andre, T. (1972). Conditions under which feedback facilitates learning from programmed lessons. *Journal of Educational Psychology, 63,*186-188.

Anderson W.G. & Barrette G. (Eds.). What's going on in the gym: Descriptive studies of physical education classes. *Motor skills: Theory into practice*

Anwar, M. (1998). Study Guide for Teacher Education in Pakistan. Code 829. AIOU Press. Islamabad, Pakistan, P. 189.

Armstrong, C., & Hoffman, S. (1979). *Effects of teaching experience, knowledge of performer competence, and knowledge of performance outcome on performance error identification*. *Research Quarterly, 50*, 3, 318–327.

Albertson, L. M. (1986). *Personalized feedback and cognitive achievement in computer assisted instruction. Journal of Instructional Psychology, 13(2), 55–57.*

Armstrong, C., & Hoffman, S. (1979). *Effects of teaching experience, knowledge of performer competence, and knowledge of performance outcome on performance error identification. Research Quarterly, 50, 3, 318–327.*

Ayres, P., Dinham, S. & Sawyer, W. (2000). 'Successful Senior Secondary Teaching', *Quality Teaching Series,* No 1, Australian College of Education, pp. 1-20

Ayres, P., Dinham, S. & Sawyer, W. (2004). 'Effective Teaching in the Context of a Grade 12 High Stakes External Examination in New South Wales, Australia', *British Educational Research Journal,* 30 (1), pp. 141-165.

Azevedo, R., & Bernard, R. M. (1995). A meta-analysis of the effects of feedback in computer-based instruction. *Journal of Educational Computing Research, 13*(2), 111–127.

Baker, J.A. (1999). Teacher-student interaction in urban at-risk classrooms: Differential behaviour, relationship quality, and student satisfaction with school. *Elementary School Journal, 100,* 57–70.

Bangert-Drowns, R. L., Kulik, C. C., Kulik, J. A., & Morgan, M. T. (1991). The instructional effect of feedback in test-like events. *Review of Educational Research, 61*(2), 213–238.

Behets, D. (1989). Feedback and effective teaching in physical education: An ETU study. *Physical Education Review, 12,* 2, 93–98.

Bilodeau, E. A. & Bilodeau, I. M. (1961). Motor –skills learning. *Annual Reviews Psychology, 12,243-280*

Birenbaum, M., & Tatsuoka, K. K. (1987). Effects of "on-line" test feedback on the seriousness of subsequent errors. *Journal of Educational Measurement, 24*(2), 145–155.

Black, P. & Wiliam, D. (1998). 'Assessment and classroom learning'. *Assessment in Education, 5 (1), 7-74.*

Bloxham, S. & Boyd, P. (2007). Developing Effective Assessment in Higher Education. Berkshire: Open University Press.

Boud, D. and Falchikov, N. (2006). 'Aligning assessment with long-term learning'. Assessment & Evaluation in Higher Education, 31 (1), 399-413.

Brophy, J. E. (1979). Teacher behaviour and student learning. *Educational Leadership, 37, 1, 33-38*

Brophy, J. E. (1981). Teacher praise: A functional analysis. *Review of Educational Research, 51*(1), 5–32.

Burnett, P.C. (2001). Elementary students' preferences for teacher praise. Journal of Classroom Interaction.

Buschner, C. A. (1994). *Teaching children movement concepts and skills: Becoming a master teacher*. Champaign, IL: Human Kinetic.

Butler, R. (1988). 'Enhancing and undermining intrinsic motivation: The effects of task involving and ego-involving evaluation of interest and performance'. British Journal of Educational Psychology

Burnett, P.C. (2001). Elementary students' preferences for teacher praise. *Journal of Classroom Interaction*.

Carless, D. (2006). *Differing perceptions in the feedback process*. Studies in Higher Education, 21 (2), 219-233.

Chanock, K. (2000). 'Comments on Essays: Do students understand what tutors write?' Teaching in Higher Education, 5 (1), 95-105.

Cheng, S. Y., Lin, C. S., Chen, H. S., & Heh, J. S. (2005). Learning and diagnosis of individual and class conceptual perspectives: An intelligent systems approach using clustering techniques. *Computers & Education, 44*(3), 257–283.

Cohen, V. B. (1985). A reexamination of feedback in computer-based instruction: Implications for instructional design. *Educational Technology, 25*(1), 33–37.

Cohen, R., & Goodway, J.D. (2006). The role of feedback in children's motor skill learning. NASPSPA Conference. (Published Abstract)

Conant, J. B. 1993. The Education of American Teachers. McGraw Hill. New York. U.S.A. P. 11.

Cooper, J.O., Heron, T.E., & Heward, W.L. (1987). *Applied behavior analysis.* Columbus, OH: Merrill

Corbett, A. T., & Anderson, J. R. (1989). Feedback timing and student control in the LISP intelligent tutoring system. In D. Bierman, J. Brueker, & J. Sandberg (Eds.), *Proceedings of the fourth international conference on Artificial Intelligence and Education* (pp. 64–72). Springfield, VA: IOS.

Crooks, T.J. (1988). The impact of classroom evaluation practices on students. Review of Educational Research, 58(4), 438-481.

Crook, C., Gross, H. & Dymott, R. (2006). 'Assessment relationships in higher education: the tension of process and practice'. *British Educational Research Journal, 32 (1), 95-114.*

Das, R. S. 1993. Educational Technology, Sterling Publishers. New Delhi. India. pp. 141-144.

Dempsey, J., Driscoll, M., & Swindell, L. (1993). Text-based feedback. In J. Dempsey & G. Sales (Eds.), *Interactive instruction and feedback* (pp. 21–54). Englewood Cliffs: Educational Technology Publications.

Derk, R. 1974. Educational Technology in Curriculum Development. Harper and Row Publication. New York. U.S.A. P. 19.

Dinham, S. (2007a). *Leadership for Exceptional Educational Outcomes*. Teneriffe, Qld.: Post Pressed.

Dinham, S. (2007b). 'The Secondary Head of Department and the Achievement of Exceptional Student Outcomes', *Journal of Educational Administration*, 45 (1), pp. 62-79.

Dinham, S. (2002). 'NSW Quality Teaching Awards – Research, Rigour and Transparency', Unicorn, 28(1), pp. 5-9.

Elmore, R.F. (1996). 'Getting to Scale with Successful Educational Practices', in Fuhrman, S.H.; O'Day, J.A. (Eds), Rewards and Reforms: Creating Educational Incentives that Work. San Francisco: Jossey-Bass.

Epstein, M. L., Lazarus, A. D., Calvano, T. B., Matthews, K. A., Hendel, R. A., Epstein, B. B., et al. (2002).Immediate feedback assessment technique promotes learning and corrects In accurate first responses. *The Psychological Record, 52,* 187–201.

Erbaugh, J.S. (1985). Role of visual feedback in observational motor learning of primary grade children. *Perceptual and Motor Skills, 6,* 755–762.

Falchikov, N. (2001). Learning Together: Peer Tutoring in Higher Education. London: Routledge Falmer.

Fishman, S., & Tobey, C. (1978). Augmented feedback. In Anderson, W.G. & Barrette, G.(Eds). What's going on in the gym: Descriptive studies of physical education classes. *Motor skills: theory into practice, 1, 51-62.*

Garcia, C., & Garcia, L. (2006). A motor – development and motor –learning perspective. *Journal of Physical Education , Recreation and Dance. October, 31-33*

Garner, I. (2006). 'Review of feedback within the Faculty of Development and Society'. Sheffield Hallam University [Unpublished]

Gibbs, G. & Simpson, C. (2004a). 'Conditions under which assessment supports students' learning'. Learning and Teaching in Higher Education 1, 3-31.

Goodway, J. D. & Savage, H. (2001). Environmental engineering in elementary physical education: Developmental lessons. *Teaching elementary Physical Education 12, 2, 12-14*

Graham , G. (2008). *Teaching children physical education. Becoming a master teacher*.3rd edition. Human kinetics. Printed in USA

Grant, L., McAvoy, R., & Keenan, J. B. (1982). Prompting and feedback variables in concept programming. *Teaching of Psychology, 9.*

Gupta, S. M. (1996). Teacher Education in the Changing Scenario. Parkash Brothers, Ludhiana, India. P.48.

Hattie, J., & Timperley, H. (2007). The power of feedback. Review of Educational Research, 77(1), 81e112.

Hayon, L. K. (1989). The International Encyclopedia of Teacher Education. Paragon Press. London. U.K. P. 83.

HEFCE (2007). Teaching Quality Information Data. Bristol: Higher Education Funding

Council for England. Retrieved from http://www.hefce.ac.uk/learning/nss/data/2007/

Hattie, J. (2003). *Teachers make a difference: What is the research evidence?* Proceedings from the Australian Council for Educational Research Annual Conference on Building Teacher Quality, Queensland, Australia, 1 – 17.

Hattie, J., & Timperley, H. (2007). The power of feedback. *Review of Educational Research, 77*(1), 81 – 112.

Hazlewood, Leo A. and Gerald T. West (1974). "Bivariate associations, factor structures, and substantive impact." International Studies Quarterly, Vol. 18, 317-337.

Herrnstein, R. J., Loewenstein, G. F., Prelec, D., & Vaughan, W., Jr. (1993). Utility maximization and melioration: internalities in individual choice. *Journal of Behavioral Decision Making, 6, 149–185.*

Higgins, R., Hartley, P. & Skelton, A. (2002). 'The conscientious consumer; reconsidering the role of assessment feedback in student learning'. Studies in Higher Education, 27 (1), 53-64.

Hounsell, D. (2008). 'The Trouble with Feedback'. Retrieved from http://www.tla.ed.ac.uk/interchange/

Hounsell, D. & Entwistle, N. (2007b). Learning and Teaching at University: The Influence of Subjects and Settings. (Teaching and Learning Research Briefings, no. 31). London: ESRC Teaching and Learning Research Programme. Retrieved 4 January, 2012 from http://www.tlrp.org/pub/index.html

Hounsell, D., Xu, R. & Tai, C.M. (2007a). 'Monitoring Students' Experiences of Assessment'. (Scottish Enhancement Themes: Guides to Integrative Assessment, no.1). Gloucester:

Quality Assurance Agency for Higher Education. Retrieved 20 May, 2013 http://www.enhancementthemes.ac.uk/publications/

Iqbal, Z. (1996). Teacher's Training. Institute of Policy Studies and International Institute of Islamic Thought. Islamabad, Pakistan. P. 19.

Johnson, D., & Johnson, R. (1993). Cooperative learning and feedback in technology-based instruction. In J. Dempsey & G. Sales (Eds.), *Interactive instruction and feedback* (pp. 133– 157). Englewood Cliffs, NJ: Educational Technology Publications.

Joyce, B. (1980). Models of Teaching. Printice Hall Co., Englewood Cliffs. U.S.A. pp. 307-308.

Kluger, A. N., & DeNisi, A. (1996). The effects of feedback interventions on performance: A historical review, a meta-analysis, and a preliminary feedback intervention theory. *Psychological Bulletin, 119*(2), 254–284.

Kulhavy, R. W. (1977). Feedback in written instruction. *Review of Educational Research, 47*, 211–232.

Kulhavy, R. W., & Anderson, R. C. (1972). Delay-retention effect with multiple-choice tests. *Journal of Educational Psychology, 63*(5), 505–512.

Kulhavy, R. W., & Stock, W. (1989). Feedback in written instruction: The place of response certitude. *Educational Psychology Review, 1*(4), 279–308.

Kulhavy, R. W., & Wager, W. (1993). Feedback in programmed instruction: Historical context and implications for practice. In J. Dempsey & G. Ales (Eds.), *Interactive instruction and feedback* (pp. 3–20). Englewood Cliffs, NJ: Educational Technology Publications.

Kulik, J.A. & Kulik, C.C. (1988). Timing of feedback and verbal learning. *Review of Educational Research, 58(1), 79-97.*

Lee, M.A., Keh, C.N., & Magill, A.R. (1993). Instructional effects of teacher feedback in physical education. *Journal of Teaching in Physical Education,* 12, 228–243.

Lee , A. M. & Solomon, M. A. (1992). Cognitive conception of teaching and learning motor skills. *Quest* ***44,*** 57-71

Given M. L (2008). The SAGE Encyclopedia of quantitative reached method volume 1& 2 .SAGE Publication Inc.

Locke, F.L., Spirduso, W.W., & Silverman, S.J. (1987). *Proposals that work. A guide for planning dissertations and grant proposals* (pp. 28). Newbury Park, CA: Sage Publications. Maclellan, E. (2001). 'Assessment for learning: the differing perceptions of tutors and students'. Assessment & Evaluation in Higher Education, 26 (4), 307-318.

Luthans, F. 1993. Organizational Behaviour. 6th Ed. McGraw-Hill. New York. USA. P. 59.

Magill, A. R. (1993). Modeling and verbal feedback influences on skill learning. *International Journal of sport Psychology, 24, 358-369.*

Magill, A.R. (1994). The influence of augmented feedback on skill learning depends on characteristics of the skill and the learner. *Quest, 46*, 314–327.

Magill, A.R. (2004). *Motor learning and control: Concepts and applications* (7th ed.). New York, NY: McGraw-Hill.

Marzano, R.J., Pickering, D.J., & Pollock, J.E. (2001). Classroom instruction that works: Research-based strategies for increasing student achievement. Alexandria, VA: Association for Supervision and Curriculum Development.

Masser, S.L. (1987). The effect of refinement on student achievement in a fundamental motor skill. *Journal of Teaching in Physical Education, 6*

Mason, B. J., & Bruning, R. (2001). *Providing feedback in computer-based instruction: What the research tells us.* Retrieved February, 15, 2007, from http://dwb4.unl.edu/dwb/Research/MB/MasonBruning.html

Mitchell, S. A. (1996). Relationships between perceived learning environment and intrinsic motivation in middle school physical education. *Journal of Teaching in Physical Education*

Moreno, R. (2004). Decreasing cognitive load for novice students: Effects of explanatory versus corrective feedback in discovery-based multimedia. *Instructional Science, 32*, 99–113.

Mory, E.H. (2003). Feedback Research Revisited. In D.H. Jonassen (ed.), Handbook of research for educational communications and technology, 2nd Edition (pp. 745-783).

Mory, E. H. (2004). Feedback research review. In D. Jonassen (Ed.), *Handbook of research on educational communications and technology* (pp. 745–783). Mahwah, NJ: Erlbaum Associates.

Mouly, G. J. 1988. Psychology for Effective Teaching. Holt, Rinchart and Winston. New York, U.S.A. P. 231.

Mutch, A. (2003). 'Exploring the Practice of Feedback to Students'. Active Learning in Higher Education, 4 (24), 24-38.

Narciss, S., & Huth, K. (2004). How to design informative tutoring feedback for multimedia learning. In H. M. Niegemann, D. Leutner, & R. Brunken (Ed.), *Instructional design for multimedia learning* (pp. 181–195). Munster, New York: Waxmann.

Newell, M.K. (1991). Motor skill acquisition. *Annual Reviews Psychology*

Newell , M. K,, & Valvano, J. (1998). Therapeutic intervention as a constraint in learning and relearning movement skills. *Scandinavian Journal of Occupational Therapy, 5, 51-57*

Nichol, D. (2007).Improving assessment after the task. Re-Engineering Assessment Practices in Scottish Education (REAP) Online Resources [Online]. Retrieved from http://www.reap.ac.uk/nss/nssAfter02.html

Nicaise, V., Cogérino, G., Bois, J., & Amorose, A. (2006). Students' perceptions of teacher feedback and physical competence in physical education classes: Gender effects. Journal of Teaching in Physical Education, 25, 36–57.

Ogum, R.(2000). The structure and measurement of physical education. McGraw-Hill Companies Inc

Ogum, Y. (2010). *Knowledge on positive feedback in physical education*. Published in Nigeraia. Y&X LTD. Legos. Payne, V.G., & Isaac, L. D. (2007). Humana motor development: A lifespan approach. . Boston; McGraw-Hill.

Ogwezi, B. C. and W. D. Wolomsky. (1985). Preparing to Teaching. Pitman Publishing Ltd. London, pp. 34-36.

Oslin, J.L., Stroot, S., & Siedentop, D. (1997). Use of component-Specific Instruction to promote development of the over arm throw. *Journal of Teaching in Physical Education*, *16*, 340–356.

Payne, V.G., & Isaacs, L.D. (2007). *Human motor development: A lifespan approach.* Boston: McGraw-Hill.

Pellett, L.T., & Harrison, M.J. (1995). The influence of a teacher's specific, congruent, and corrective feedback on female junior high school students' immediate

volleyball practice success. *Journal of Teaching in Physical Education*, *15*

Porlier, P., Saint-Laurent, L., & Page, P. (1999). Social contexts of secondary classrooms and their effect on social competence and social adjustment of students with learning disabilities. *EDRS Availability*, pp. 1–11.

Potts, D. (1992). 'Case study: You can't teach those things to rats. A case for neither grading nor failing students'. Educational and Training Technology International, 29 (4), 296-309.

Pridemore, D. R., & Klein, J. D. (1995). Control of practice and level of feedback in computer-based instruction. *Contemporary Educational Psychology*, *20*, 444–450.

Price, M. & O'Donovan, B. (2008). 'Feedback – All that effort, but what is the effect?'. Paper presented at EARLI/Northumbria Assessment Conference, 27-29 August, Seminaris Seehotel, Potsdam, Germany.

Pyke, J. K.. (2010). A Closer Look at Instructor-Student Feedback: A Case Study Analysis of the Types and Frequency. Retrieved 20 May, 2012 from http://jolt.merlot.org/vol6no1/pyke_0310.htm

Race, P. (no date). 'Making Feedback Work', A compendium of extracts from 'Making Learning Happen' (2005), '500 Tips for Tutors' (with Sally Brown, 2005), 'The Lecturer's Toolkit: 3rd edition' (2006) and 'Making Teaching Work' (with Ruth Pickford, 2007).

Rink, E.J. (2003). Effective instruction in physical education. In S. Silverman & C. Ennis (Eds.), *Student learning in physical education: Applying research to enhance instruction* (pp. 165–186). Champaign, IL: Human Kinetics

Rowe, A. D. & Wood, L. N. (2007). 'What feedback do students want?' Paper presented at AARE 2007 International Educational Research Conference, 25-29 November, Fremantle, Australia.

Rikard, G.L. (1991). The short term relationship of teacher feedback and student practice. *Journal of Teaching in Physical Education*, *10*, 275–285.

Rikard, G.L. (1992). The relationship of teachers' task refinement and feedback to students' practice success. *Journal of Teaching in Physical Education*, *11*, 349– 357.

Rummel, R.J. (1963). "Dimensions of conflict behavior within and between nations." *General Systems Yearbook of the Society for General Systems Research*, Vol. 8, 1-50.

Rust, C., O., 'Donovan, B. & Price, M. (2005). 'A social constructivist assessment process model: how the research literature shows us this could be best practice'. Assessment & Evaluation in Higher Education, 30 (3), 231-240.

Saeed, M. (2001). A Study of Principal as Instructional Supervisor. Taleemi Zaviyay; Pakistan Education Foundation. Lahore, Pakistan. P. 73.

Sales, G. C. (1993). Adapted and adaptive feedback in technology-based instruction. In J. V. Dempsey & G. C. Sales (Eds.), *Interpretive instruction and feedback.* Englewood Cliffs, NJ: Educational Technology Publications.

Salter, B.W. & Graham, G. (1985). The effect of three disparate instructional approaches on skill attempts and student learning in an experimental teaching unit. *Journal of Teaching in Physical Education*,

Schimmel, B. J. (1983). *A meta-analysis of feedback to learners in computerized and programmed instruction.* Paper presented at the annual meeting of the American Educational Research Association, Montréal, Canada

Schmidt, R.A. & Bjork, R.A. (1992). New Conceptualizations of practice: Common principles in three paradigms suggest new concepts for training. *Psychological Science, 3(4), 207-217.*

Schmidt, A.R., & Wrisberg, A.C., (2004). *Motor Learning and Performance*. *A problem based learning approach.* (3rd ed). Champaign, IL: Human Kinetics.

Schmidt, R.A., Young, D.E., Swinnen, S. & Shapiro, D.C. (1989). Summary knowledge of results for skill acquisition: Support for the guidance hypothesis. *Journal of Experimental Psychology: Learning, Memory, and Cognition, 15(2), 352-359.*

Schwartz, F., & White, K. (2000). Making sense of it all: Giving and getting online course feedback. In K. W. White & B. H. Weight (Eds.), *The online teaching guide: A handbook of attitudes, strategies, and techniques for the virtual classroom* (pp. 57–72). Boston: Allyn and Bacon.

Scott, C. & Dinham, S. (2005). 'Parenting, teaching and self-esteem', *The Australian Educational Leader*, 27 (1), pp. 28-30.

Shulman, L. (1986). 'Those who understand, knowledge growth in teaching'. *Educational Researcher, 15*(2), *4–14.*

Siedentop, D. (1991). *Developing teaching skills in physical education* (3rd ed). Mountain View, CA: Mayfield.

Siedentop, D., & Tannehill, D. (2000). *Developing teaching skills in physical education* (4th ed). Mountain View, CA: Mayfield

Silverman, S., Tyson, A.L., & Krampitz, J. (1992). Teacher feedback and achievement in physical education: Interaction with student practice. *Teaching & Teacher Education, 8,* 333–344.

Skinner, B.F. (1958). Teaching Machines. *Science, 128 (3330), 969-977.*

Sleeman, D. H., Kelly, A. E., Martinak, R., Ward, R. D., & Moore, J. L. (1989). Studies of diagnosis and remediation with high school algebra students, Cognitive Science, 13,551–568.

Smith, P. B. 1977. Small Groups and Personal Change. London, Methuen. P.482.

Solomon, M. A. (1996). Impact of motivational climate on students' behaviours and perceptions in a physical education setting. Journal of Educational Psychology

Stroot, S. (1990). Focus on feedback –Is it enough? *International Council for Health, Physical Education, Recreation, Sport and Dance, 13, 20-23*

Sybouts, W. and F, C. Wendel. 1994. The Training and Development of School Principals. Green Wood Press. New York, U.S.A. P. 210, 219, 235.

Tan, K. S. (1996). Differences between experienced and inexperienced physical education teachers augmented feedback and interactive teaching decisions. *Journal of Teaching in Physical Education , 15, 151-170*

Taneja, R. P. 1989. Anmol's Dictionary of Education. Anmol Publications New-Delhi, India. P. 5, 22, 122.

Tenenbaum, G. & Goldring, E. (Spring, 1989). A Meta-Analysis of the Effect of Enhanced Instruction: Cues, Participation, Reinforcement and Feedback, and Correctives on Motor Skill Learning." Journal of Research and Development in Education,

Thorp, H.S., Burden, R.L., & Fraser, B.J. (1994). Assessing and improving classroom environment. School Science Review, 75, 107–113.

Trammel, D.J., Schloss, P.J., & Alper, S. (1994). Using self-recording and graphing to increase completion of homework assignments. Journal of Learning Disabilities, 27(2), 75-81.

Thomas, R.J., Mitchell, B., & Solomon, A.M. (1979). Precision knowledge of results and motor performance: Relationship to age. *Research Quarterly, 50,* 687–698.

Tucker, L. R. (1964). A suggested alternative formulation in the development of Hursch, Hammond and Hursch and by Hammond, Hursch and Todd. Psychological Review.

UNESCO. (1986). Glossary of Educational Technology Terms. UNESCO. Pairs. P.18, 59.

VanLehn, K. (1982). Bugs are not enough: Empirical studies of bugs, impasses and repairs in procedural skills. *The Journal of Mathematical Behavior, 3*(2), 3–71.

Wager, W., & Wager, S. (1985). Presenting questions, processing responses, and providing feedback in CAI. *Journal of Instructional Development, 8*(4), 2–8.

Walberg, H. (1999). Productive teaching. In H. C. Waxman & H. J. Walberg (Eds.), New directions for teaching practice and research, 75-104. Berkeley, CA: McCutchen Publishing Corporation

Weaver, M. R. (2006). 'Do students value feedback? Student perceptions of tutors' written responses'. Assessment & Evaluation in Higher Education, 31 (3), 379- 394.

Walberg, H. J. (1999). Productive teaching. In H. C. Waxman & H. J. Walberg (Eds.), New directions for teaching practice and research, 75-104. Berkeley, CA: McCutchen Publishing Corporation.

Winter, C. & Dye, V. L. (2004). 'An investigation into the reasons why students do not collect marked assignments and the accompanying feedback'. Retrieved from

http://wlv.openrepository.com/wlv/bitstream/2436/3780/1/An%20investigation%20pgs%20133-141.pdf

Wiggins, G. (1993). Assessing student performances: Exploring the purpose and limits of testing. San Francisco, CA: Jossey-Bass.

Wilburn, K.T., & Felps, B.C. (1983). Do pupil grading methods affect middle school students' achievement? A comparison of criterion-referenced versus norm-referenced evaluation. Jacksonville, FL: Wofson Senior High School. (ERIC Document Reproduction Service No. ED 229-451)

Wojtas, O. (1998). 'Feedback? No, just give us the answers'. Times Higher Education Supplement, 25 September, 7.

Wright, T. 1987). Roles Teachers and Learners. Oxford University Press. New York. U.S.A. P. 52.

Yerg, J.B. (1981). The impact of selected presage and prose behaviors on the refinement of a motor skill. *Journal of Teaching in Physical Education, 6,* 38–46.

APPENDIX 'A'

INTRODUCTORY LETTER

APPENDIX 'B'

TEACHERS CONSENT FORM

Title The influence of Teacher Feedback on Student Skill Aqusition Researcher Agnes Mintah

I consent to participate in research being conducted by Agnes Mintah of University of Education, Winneba during her Master in physical Education Programme. The researcher explained the purpose of the study, the procedure that will be taken and the amount of time it involved.

I agreed to participate freely and therefore can withdraw without any penalty.

Please thick either YES or NO to each of the following statements.

I agreed to participate in the study. Yes or No

I agreed to videotape me during the lesson. Yes No

I agreed that the researcher keeps the videotape after the study is completed. Yes No

I agreed that the researcher keeps the videotape and use for presentation to other researchers or teachers. Yes No

I was given enough opportunity to ask questions for clarification.

I have read this form or I have had it read to me. I signed freely and voluntarily.

A copy has been given to me.

Date:……..

Signed:……..

Participant:……

APPENDIX 'C'

SYSTEMATIC OBSERVATION INSTRUMENT

EVENT RECORDING TOOL ON THE USE OF FEEDBACK

School: Time:

Date: Duration:

Discipline: Class/form:

Event /skill: No. on roll:

Teacher:

TYPES OF FEEDBACK	TALLY	TOTAL
Simple		
Congruent		
Formative		
Positive		
Specific		
Negative		
General		
Corrective		