

SOURCES OF INJURIES IN PHYSICAL EDUCATION CLASSES IN  
NAIROBI SECONDARY SCHOOLS: IMPLICATIONS FOR LEGAL  
LIABILITY

BY

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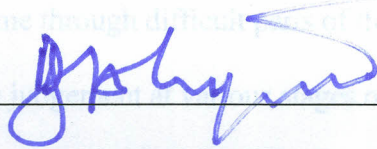
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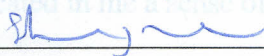


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Title Page ..... a crucial period of his growing up. His ability to

Declaration ..... cope with the circumstances taught me

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## ABSTRACT

This study sought to determine sources of injuries during the teaching of Physical Education in selected secondary schools in Nairobi Province. A triangulation design was used in this study with a sample of 309 respondents. Of these 283 were students and 26 were teachers. In addition, an observation check-list was employed to augment the information obtained from the questionnaire. The data collected was analysed using Factor Analysis in order to test for multidimensionality of factors that cause injuries.

The result show that there are three major dimensions of teaching/learning process that influence the occurrence of injuries. These are Instruction (eigenvalue of 6.44) which accounted for 22.2% of total variance, Supervision (eigenvalue of 5.37) accounting for 18.6% of the total variance and Facilities (eigenvalue of 4.14) and accounted for 14.1% of the total variance. Factors extracted for this study from the principal component analysis are those with a eigenvalue of 0.998 or more. The results also showed that these three factors are interrelated which was evident from the loading of variables on more than one factor.

The following recommendations were made from these findings; one, that a professional course on legal and ethical issues be introduced in teacher training syllabi, two, that the duties of teachers and school administrators be spelt out in the Education Act regarding their duty of care to their students and lastly, that parents and pupils be sensitized about their legal rights in case of injuries in the conduct of Physical Education

Programmes. INTRODUCTION

## 1.1 BACKGROUND TO THE PROBLEM

All over the World, law suits are on the increase. Doctors for negligent treatment of their patients, teachers for injuries sustained by their pupils, and one another for a breach of business contract. This kind of thing has also taken place in the world of sports. Taylor (1981 : 57) puts it more explicitly:

In the world today, there is a growing interest in receiving compensation for injuries, put another way if coaches in the past got 'Cashed' by the injured player today, they may be faced with their own 'I'll sue'.

In the realm of education, physical education is no exception. A large number of lawsuits related to injuries that occur in physical education (Blucker & Pell, 1986; Bucher & Kroetz, 1991) have been filed. Injuries that accrue from participation in physical activities, there exist in those activities. Physical Education, more than any other activity possible, body contact as a result of which a person is injured. Physical activities require the use of potentially dangerous equipment such as ropes and rings which if not used with caution will result in injury.

## CHAPTER ONE

### 1.0 INTRODUCTION

### 1.1 BACKGROUND TO THE PROBLEM

All over the World, law suits are on the increase; doctors are being sued for improper treatment of their patients, teachers for injuries sustained by their students and partners sue one another for a breach of business contract. This kind of practice is also common place in the world of sports. Taylor (1981 : 57) puts it more explicitly when he says;

In the world today, there is a growing interest in recovering damages for injuries, put another way if coaches in the past got 'thanks' for helping the injured player today, they may be faced with these two new words - 'I'll sue'.

In the realm of education, physical education and coaching has attracted the largest number of lawsuits related to injuries than any other school activity (Jensen, 1983; Blucker & Pell, 1986; Bucher & Krotee, 1993). This is because, alongside the benefits that accrue from participation in physical activities, there exist some inherent dangers in those activities. Physical Education, more than any other subject involves actual or possible body contact as a result of which a person can get injured. Most sports activities require the use of potentially dangerous equipment like hockey sticks, vaults, ropes and rings which if not used with caution could lead to accidents (Voltmer &

Esslinger, 1967 and Dougherty, 1983).

Also the wrong performance of an activity either due to inadequate or wrong instructions could lead to untold injuries in physical education as was the case in *Diborto v. Metropolitan School District of Washington Township (1962)* where a student injured her mouth performing a preliminary run as part of jump and reach test. The injury in this case was due to erroneous instruction as the student ought to have started from a stationary position. According to Bucher and Krotee (1993) injuries in physical activities could also be as a result of failure to supervise as well as conduction of activities in unsafe environment as swimming, gymnastics or outdoor pursuits.

In spite of the fact that physical education is inherently risky, some injuries can be forestalled and in fact the number and the rate of accidents considerably reduced if the teachers would act as prudent persons under any given circumstances. For example, in *Mckay V. Board of Govan School (1967)*, the teacher should have foreseen the danger of allowing a student to perform a gymnastic manoeuvre without a spotter. Lack of prudence can also be manifested in inadequate instruction by the teacher as in *Moddejonge et al V. Huron County Board of Education (1970)*, where two students died of drowning as one was attempting to rescue the other. The teacher had failed to give adequate instructions concerning safety in the swimming pool.

Also in situations where an activity is carried out in hazardous environment or whereby equipment used is potentially dangerous, it is expected that the teacher provides more profound supervision to protect the student from any risk of harm. As revealed in *Myers Peel V. County Board of Education (1981)*, such profound supervision was not provided and Greg Myers sustained neck injuries when he fell from the rings. Failure to act as a prudent person would or doing something that a prudent person would not do under any given circumstances for whatever reason is negligence. Should any injuries occur under such circumstances the teacher would be held liable for negligence.

Jensen (1983) defines negligence as, not exercising the care or following the procedures a person of ordinary prudence would under similar circumstances. This definition has three important components; **Misfeasance** (an act that may be legal but was done in an improper manner), **nonfeasance** (failing to perform an act that should have been done) and **malfeasance** (an act that is illegal and should not have been performed). Acts of Misfeasance and Malfeasance are otherwise referred to as **commission** while those of nonfeasance are called **omission**. A person can be sued for both omission and commission, but in order for a negligence case to go through, the plaintiff must prove that the defendant owed him a duty of care. He must also show that the defendant breached that duty of care and that the breach was the proximate cause of the injury (Jensen 1983, Bucher & Krotee, 1993). He must also show that injury did occur.

It is generally acknowledged that the teacher owes the student a duty of care (Henderson, 1985). This duty of care situation arises due to the fact that students are encouraged by law to attend schools where they are under the authority of the teachers who owe them a duty to protect them from any risk of harm. In other words, they are expected to act in *Loco Parentis* (as parents) toward the students (Voltmer and Eslinger, 1967). The principle of acting in *Loco Parentis* is better illustrated in *Richards V. State of Victoria* (1969) when Winnecke, C. J. explained that:

The reason underlying the imposition of duty would appear to be the need of a child of immature age for protection against the conduct of others or indeed of himself which may cause him injury coupled with the fact that during the school hours the child is beyond the control and protection of his parent and is placed under the control of the school master (Alexander, 1979:723).

This duty of care situation is compounded by the fact that teachers are professionals and, thus, not only have a moral obligation towards the students, but also have a legal one to act as a reasonably prudent, careful and trained teacher would under these circumstances ( Voltmer & Eslinger, 1967 and Blucker& Pell, 1986).

Furthermore Section 26 (i) (e) of the Kenya Teachers Service Commission code of regulation states that "a teacher shall be required at all times to perform his duties and to conduct himself in a manner that befits a responsible and professional teacher both at his work and in his relationship with fellow teachers, his pupils and members of the public".

It is therefore evident that during physical education classes, the duty of care situation exists and that the teachers owe students a duty to protect them from unreasonable risk of harm. This is further buttressed by Awosika, Ojo and Akpata (1995) when they assert that teachers are *prima facie* liable for injuries that occur in physical education classes.

## 1.2 STATEMENT OF THE PROBLEM

The benefits that accrue from participation in physical activities exceed the risk expectancy involved. It is therefore expedient for the government to demand that physical education be taught in the institutions of learning. However, since it is inevitable that a certain degree of injuries will be encountered during such activities, it is advisable that teachers should act prudently to avoid exposing their students to any risks of injuries. If a teacher's conduct is seen to fall below the standards expected of him as a prudent person, then he will be taken to have acted in a negligent manner and thus liable for any harm that may occur to his students.

In Kenya, the Presidential directive of 1980 made physical education a compulsory subject in all educational institutions. This received a boost in 1984 when the country adopted the 8-4-4 system of education and made physical education a compulsory subject at primary and secondary schools (Kenya, 1984). As desirable as this move is, it has brought with it problems which borders on the duty of care already discussed. For

example, in some schools, physical education is taught by untrained teachers (due to lack of enough trained teachers in this field) who are likely to overlook the safety precautions as required in physical education and thus make students susceptible to injuries. In some schools teachers are assigned very big classes where adequate supervision is not practically possible. Furthermore most of the schools lack standard equipment and facilities and thus depend on improvised ones which raises the possibilities of injuries as highlighted by Hall (1973) and Nteere (1983). Therefore, the likelihood that injuries occur during the conduct of physical education classes in Kenya is not remote. Since there is no documented evidence regarding sources of injuries and negligence in physical education activities in schools in Kenya, this research was carried out in order to determine the sources of injuries during the teaching of physical education and whether they are as a result of teacher's negligence.

The study sought answers to the following questions:

1. Are sources of injuries in Physical Education classes significantly related to instructional variables?
2. Is there a relationship between lack of supervision and occurrence of injuries in Physical Education?
3. Is the safety of teaching/learning facilities significantly related to incidents of injuries in Physical Education classes?
4. Is there an interpretable underlying structure of factors which can be found in the

relationship among these variables?

5. Is there any significant difference in the factor scores of teachers and pupils regarding sources of injuries in Physical Education classes?

### 1.3 HYPOTHESIS

The major Hypothesis of the study is that the teaching/learning process of Physical Education classes is not significantly related to sources of injuries in Physical Education Programmes. The following sub-hypothesis were specifically tested:

1. Sources of injuries in Physical Education classes are not significantly related to instructional variables.
2. There is no significant relationship between lack of supervision and sources of injuries in Physical Education classes.
3. There is no significant relationship between sources of injuries in Physical Education Classes and safety of facilities.
4. There is no interpretable underlying structure of factors which can be found among these variables.
5. There is no significant difference in the factor scores of teachers and students regarding sources of injuries in Physical Education classes.

## **1.4 THEORETICAL FRAMEWORK**

In order to achieve the objective of this study, a number of theories were applied. They include the ethical theory and theory of negligence as an independent tort.

### **1.4.1. THE ETHICAL THEORY**

Ethical theorists propose that every society, religion, professional group or distinguishable community has its set of rules or principles, which are taken to specify the kinds of conduct that are regarded desirable (Melden, 1967). It also holds that it is possible for individuals to make good judgement by the virtue of his training and resulting character, since they enable one to know what is good or bad. Consequently, failure to observe the principles or standards expected of ones profession amounts to professional misconduct which is punishable by law.

Teachers as professionals are expected to follow the code of conduct for teachers in order to uphold their professional ethics and make sound judgements when teaching or dealing with students generally. In regard to occurrence of injuries, teachers are expected to ensure that the learning environment is safe and adequate for learning purposes. In physical education, teachers are specifically trained to ensure that they do not expose students to unreasonable risk of harm. Consequently, doing something which falls below

the level expected of a teacher or failure to do something that he is reasonably expected to do is tantamount to negligence and the teacher is held liable should any injuries occur.

#### **1.4.2. THEORY OF NEGLIGENCE AS AN INDEPENDENT TORT**

Negligence is a tort, which is the breach of duty to take care imposed by law or statute law, resulting in damage to the complainant (Charlesworth, 1962). However, according to the theory of negligence, in order to ascertain that one is liable for negligence, there are four conditions which must be met. Firstly, a duty of care must exist between the plaintiff and the defendant. Secondly, the defendant must have breached the said duty of care. Thirdly, the breach of duty of care must be proximate or legal cause of the injuries suffered. And finally, there should be an injury. Since it is already established that the teacher owes the pupil a duty of care then it follows that any injury to the student during a Physical Education class implies that the teacher in one way or another breached the duty of care to protect the student from the injury.

Alongside those conditions, the theory of reasonableness was used to set boundaries for negligent acts. This was done by the use of 'reasonable man test'. According to Alexander (1979), the reasonable man is one of average prudence, a man of ordinary sense, using ordinary care and skill. His characteristics are perceived to include the physical attributes of the defendant himself, normal intelligence, normal perception and

memory within a minimum level of information and experience common to community and such superior skill and knowledge as the defendant has or holds himself out as having. In this study, this test was used in the light of the teachers professional preparation to assess whether the teacher's conduct falls below that which is expected of a reasonable man (teacher).

The 'reasonable man' test was also used in the light of the teacher's duty of care to students, which predisposes him to the capacity of acting in *Loco Parentis*. + The teacher is expected to take proper care of his students as a parent would of his sons. In *Williams V. Eady (1893)* the teacher had left a bottle containing a stick of phosphorus in a conservatory to which the boys had access. One day, they took it and while playing with it, the phosphorus exploded and injured boy Williams. Lord Esher held that the teacher ought to have locked up the chemical in a safe place as a parent would have done. However, in view of the number of pupils and the potential hazards, the circumstances in which a teacher is called upon to exercise the duty of care in Physical Education classes is markedly different from that in which an average parent finds himself. This condition implies that the teacher needs to be more careful than an average parent when dealing with his students as such the teacher is expected to ensure that the learning site is safe for the students.

The concept of foreseeability as expressed by Lord Atkin was also applied

(Charlesworthy, 1962 : 160). Lord Atkin in *Donoghue V. Stevenson (1932)* said;

The rule that you are to love your neighbor becomes in law, you must not injure your neighbor ... You must take reasonable care to avoid any acts or omissions which you can reasonably foresee would be likely to injure your neighbor ...

The teacher is thus expected to use his competence to forestall any risks of harm that he can reasonably foresee are likely to lead to injuries. In this study, the concept of foreseeability was used because it was expected that a teacher should forestall any circumstances that may lead to an injury.

## 1.5 OBJECTIVES OF THE STUDY

The study aimed at establishing the source of injuries during the conduct of physical education programmes in secondary schools and to determine whether or not they are as a result of teachers negligence. This was guided by the following specific objective:

To establish whether teachers provide/uphold the duty of care they owe to the students to protect them from harm by:

- (a) Adequately supervising the student's activities.
- (b) giving correct and adequate instructions.
- (c) Inspecting equipments and facilities to ensure they are safe for use.

(d) Putting in place safety precaution measures.

## 1.6 SIGNIFICANCE OF THE STUDY

The significance of the study is fourfold:

- (i) The study is theoretically useful in terms of prediction and explanation of sources of injuries in Physical Education.
- (ii) The study is useful in terms of prevention and control of harm/injuries to children/pupils during Physical Education lesson. The findings may be used as a basis of drawing up safety provision and injury prevention checklist.
- (iii) The findings may be used as guidelines by teachers and schools for protecting themselves from legal liability.
- (iv) The findings of this study will provide baseline data for future research/studies in this area.

## 1.7 DELIMITATIONS OF THE STUDY

The study was delimited to:

1. A sample of 309 respondents comprising of 283 students and 26 P.E teachers from Nairobi Secondary Schools.
2. Variables of instruction, supervision and facilities which relate directly to

2. Injunctive: effectual teaching/learning process of P.E programmes.
3. Descriptive: The use of direct contact questionnaires and observational check-list as tools of data collection.
4. Analytical: Use of Factor Analysis to test the multidimensionality of various variables and to reduce them into principal factors.
5. Statistical: An acceptance level of factors at 0.998 eigenvalue or above.

## 1.8 LIMITATIONS

The following limitations were encountered:

1. Lack of related literature from the Kenyan scene occasioning the use of foreign illustrative material which was applied to the Kenyan situation.
2. The findings of this study may not be generalizable to all secondary schools in Kenya as sample used comprised only public secondary schools from Nairobi Province.

## 1.9 DEFINITION OF TERMS

**1. Foreseeability:** The individual responsible for the negligent act could have and reasonably should have foreseen the danger that existed in a given situation (Jensen,1983).

2. **Injury** : A physical hurt or wound suffered during participation in physical education classes and which necessitates the person to be out of class for a certain period of time.
3. **Liability**: Being responsible for a negligent act or having a legal responsibility which was not fulfilled and resulted to an injury.
4. **Negligence**: Not exercising the care or following the procedures a person of ordinary prudence would under similar circumstances (Jensen, 1983).
5. **Physical education programmes**: Refers to the physical education classes/lessons only and not all the physical activities that students engage in while at school.
6. **Prima facie**: In the first instance
7. **Proximate cause**: A situation or factor that was the cause or contributing cause of an injury or accident.
8. **Prudent Person**: One who acts in a careful and judicious manner in view of the particular circumstances.
9. **Tort**: A civil wrong or injustice independent of a contract which produces an injury or damage to another person or property.
10. **Physical Education teacher** : Refers to any teacher assigned to teach the subject whether a diploma or degree holder.
11. **Public schools** : Refers to all the secondary schools which are not privately owned.

## CHAPTER TWO

### 2.0 LITERATURE REVIEW

There is a paucity of literature on sports Law in Kenya, because not much work has been done on the area of legal liability of physical education teachers in Kenya. Thus, foreign relevant materials were relied upon for this study. However, cases in Kenya that relate to the area of study were also reviewed.

The literature was thus organized under the following subheadings.

1. Tort liability
2. Negligence
3. Defences against negligence
4. Nature of litigious liability in Physical Education.
5. Implications of negligence in the teaching of Physical Education

### 2.1 TORT LIABILITY

#### 2.1.1 MEANING

The word tort comes from Latin word 'tortus' which means twisted and the Norman

French word 'tort' which means injury or wrong (Proser, Wade and Schwartz, 1988). Therefore tort is a civil wrong resulting to direct or indirect injury to another person or to property. This however excludes the breach of contract for which the law provides a remedy (Alexander, 1979; Bucher & Koenig, 1983 and Jensen, 1983). The law grants to each individual certain personal rights with regard to the conduct, which others must respect. When such rights are breached or infringed, then a tort has been committed against the offended party and is thus entitled to compensation for damage(s). Torts may be committed through acts of omission (failure to perform a legal duty) or commission (performance of unlawful acts).

Torts embraces all civil wrongs like malicious or intentional damage to persons or property and disregard of the rights of others as in defamation, trespass and nuisance. The duty of care owed to others as created by the law of torts are imposed upon the parties by the operation of the rules of law. The teacher owes a duty of care to the students. This duty is imposed upon the teacher by the virtue of the fact that teaching is a profession and thus a teacher is bound to show the average prudence/competence normally possessed by teachers (Kodilinye, 1982). This duty is also due to the fact that in some countries students are required by law to attend schools meaning that they do not have a choice about it (Vltmer & Eslinger, 1979). This implies that the duty of care expected of teachers arises out of the rule of law and not on contractual grounds.

Alexander (1979) and Bucher and Koenig (1983) identified the following as acts which may constitute torts. Firstly, an act which without lawful justification or excuse is intended by a person to cause harm and does cause the harm complained of. In the realm of physical education, this is not a common occurrence but it is prevalent in competitive sport. Secondly, an act in itself contrary to the law or an omission of specific legal duty, which causes harm not intended by the person so acting or omitting. In the context of physical education, this could include failure to supervise students activities or to give adequate instructions on the assumption that the students can manage on their own. Finally tort may also constitute an act of omission causing harm which the person so acting or omitting did not intend to cause but which might and should with due diligence have been foreseen and prevented e.g. *Albers V. Independent School District (1971)*. Albers suffered a fracture of the cervical bone when the teacher allowed him and other boys to play basketball on their own on the basis of the fact that they were more experienced players. The teacher ought to have anticipated the likelihood of an injury when the boys are left on their own due to their mischievous nature. If an injury occurs out of any of the above acts, the plaintiff or victim is entitled to compensation for the damages suffered.

### **2.1.2 HISTORY OF TORT**

Since tort is a civil wrong, a civil action for it is initiated and maintained by the injured

party for the purpose of obtaining compensation for the injury suffered. Social justice demanded the birth of the action in tort because the criminal law never compensated nor was it ever intended to compensate an injured individual.

### 2.1.3 CLASSIFICATION OF TORTS

In the early days, the Anglo-Saxons did not distinguish between criminal wrong and civil wrongs. According to Padfield (1987) it was in the middle ages when ideals sprung up that certain wrongs of antisocial kind like treason, murder, theft, arson, etc. were offenses against the king or the state. The king's order of peace extended to every corner of the land and all the crimes were breaches of peace. Certain other wrongs done by one person to another were disregarded by the king and the state. Instead, they were left to be enforced by the persons claiming to be wronged. The aggrieved person decided for himself whether to take action or not. The claim of the plaintiff, if any, was for damages or reparation for injury inflicted upon him by the defendant.

### 2. Property Interest

In the realms of physical activities, sports and the law have had a long association. As early as sports can be recalled, rules were passed and strictly enforced during competitions. Erring competitors were punished by judges. Over the years, sports have been associated with a risk of injury but under the ancient Greek system an athlete who killed another was to pay money to the deceased's family as a form of placation. The system of placation was emphasized as a means of helping to reduce the bitterness associated with the athletes' death. This was the humble beginning of Law of tort in

sports where people had to pay compensation for harm done to others (Schubbert, Smith and Trentadue, 1986).

### 2.1.3 CLASSIFICATION OF TORTS

There are varied types of torts, which may be classified according to the interests they safeguard in society. These interests are personal, property, economic, family, reputation, judicial process and miscellaneous interest (Akpata 1994, Kodilinye, 1982; Mara-Brown 1987).

#### 1. Personal Interest

This tort deals with protection from physical harm and any restriction of freedom of movement as in assault, battery, false imprisonment and negligence (Mara\_Brown 1987)

#### 2. Property Interest

This involves the protection of the plaintiff against interference with his property.

Such interference may arise as a result of intentional or negligent conduct.

Examples of such interference are trespass, nuisance and negligence.

#### 3. Reputation

The interest protected by this tort is the reputation of plaintiff from libel and slander.

#### 4. **Judicial process**

This regards protection from malicious prosecution and abuse of the judicial process.

#### 5. **Economical Interests**

The interests included here are, tort of conspiracy, interference with contract, deceit, injurious falsehood and passing on.

#### 6. **Family Interest**

This tort protects the interest of parents with regard to their spouses and their children.

#### 7. **Miscellaneous Interest**

This tort regards the interference with a person's right to vote, to be accommodated in a hotel or any other societal interest not covered by the identified interests.

### 2.2.0 NEGLIGENCE

#### 2.2.1 MEANING

Negligence is an independent tort which is the breach of duty to take care imposed by common law or statute law, resulting in damage to the complainant (Charlesworth, 1962). Lord Wright in *Grant V. Australian Knitting Mills (1936)* had expressed the same

sentiments when he said that 'negligence, meaning a breach of duty, is a specific tort in itself and not simply ... an element in some more complex relationship or in some specialized breach of duty.

Basically negligence involves any acts or omissions which are likely to lead to injurious situations as was indicated in *Blyth V. Birmingham Water (1956)* when Judge Alderson said that "negligence is the omission to do something which a reasonable man guided upon those considerations which ordinarily regulate the conduct of human affairs would do; or doing something which a prudent and reasonable man would not do". The question which arises at this point is, how do we determine what is reasonable behaviour of a prudent person?

There seem to be no definite rules as to what constitutes reasonable behaviour. However, the courts, in an attempt to set boundaries for negligent acts committed in different situations, developed the reasonableness theory (Alexander, 1979). In this theory, a test personified in terms of 'reasonable man' is used. A reasonable man is taken to be one who is prudent i.e. one of average prudence, a man of ordinary sense using ordinary care and skill. The characteristics of such a person are perceived to include the physical attributes of the defendant, normal intelligence, normal perception, experience common to the community and the skill and knowledge as the defendant has or holds himself out as having.

In addition, social norms provide the basis for legal precedent in the determination of that which is considered unacceptable or unreasonable conduct (Alexander, 1979 and Proser, Wade & Schwartz, 1988). The social norms of any given society serve as guidelines or standard measures to determine the right form of behaviour expected of one person in regard to another. Failure to adhere to the standards either by omission or commission is negligence and one is liable for any consequences.

According to Milman (1986), the society expects adults to provide good role models for children as well as striving to protect the children from any risks of harm which may arise due to their ignorance or misinformation. In this regard, the courts must always assess the conduct of the teachers against those expected of an average prudent teacher in order to determine whether a teacher was negligent or not. If the conduct of a teacher is found to be below the expected standard, then he is held liable for negligence in case of an occurrence of an accident.

However, in order for a negligent action to go through in a court of law, the following elements must exist;

- (1) The defendant must owe a duty of care to the plaintiff,
- (2) The defendant must have breached that duty of care by an act of omission or

commission, must observe the highway code, train

- (3) The plaintiff must have been harmed by the wrong committed by the defendant,
  - (4) Breach of the duty must be the proximate or legal cause of the damage
- (Charlesworth, 1962, Jensen, 1983 and Bucher & Krotee 1993).

*W/O Elijah V Komo Co-operative v ...*

## 1 Duty of Care ability

For negligence to be determined the twin conditions that must first be satisfied the defendant owed the plaintiff a duty of care, and if it was foreseeable that the plaintiff would be harmed by the defendant's acts. Foreseeability which is the reasonable anticipation that harm or injury is a likely result of acts or omissions is therefore an important factor when considering the duty of care. Negligence must therefore be based on actions recognisable as involving unreasonable risk or danger and not merely acts of carelessness (Akpata 1994).

*since the employers were supposed to ...*

Padfield (1984) summarised this principle succinctly when he said that a "man may be as negligent as he pleased towards the whole world, if he owes no duty to them". Yet we may need to elaborate on some of the "duty situations" that are recognized in law.

*of the defendant by its officers. The company ...*

### 1. Highway *in Evelyn Ojila V. Akpan v ...*

All users of the highway (railways, shipping at sea and canal navigation) be they motor car drivers, cyclists or pedestrians owe a duty of care to all other road

users. They must observe the highway code, traffic rules, avoid speeding and be on the look out so as not to cause injury to persons using the highway. In *Mweu V Kabai and another (1972)*, Mweu got injured as a result of the defendants' negligence which resulted into a collision. This was also the case in *Gathoni W/O Elijah V Kenya Co-operative Creameries etal (1981)*

## 2. **Employers Liability**

Employers are bound by law to ensure and assure the safety of their employees. They are expected to provide a reasonably safe system of work, reasonably safe machinery and competent fellow employees. The employer must therefore insure his employees against liability for any bodily injury or disease (Mara-Brown, 1987) sustained by his employees in the course of their employment. In *Mworia V. Corrugated Sheets Ltd. (1975)*, the defendant lost his fingers while working and he was awarded compensation on basis of poor working conditions since the employers were supposed to ensure that their employees are competent enough, they would be held liable of *vicarious liabilities* if their employees did not abide by their work ethics. In *A B Sindano V Ankole District Administration (1969)* the company was held to be vicariously liable for the false imprisonment of the defendant by its officers. The company was highly fined. This was also the case in *Everlyn Opika V. Akamba Public Road Services and Ndambuki Ndunda (1976)* where the employer was held vicariously liable for the actions of the employee.

### 3. Professional Persons

Doctors, Surgeons, Dentists, Solicitors and similar professional persons owe a duty of care in the discharge of their duties to their patients, clients or other persons with whom they are in professional relationship (Padfield 1984) yet it is not required that these professionals show the utmost skill but rather a fair, reasonable and competent degree of skill. In *Njarkata V. D O Medical Services (1950)*, the doctors were held liable for negligence for amputating the plaintiffs' leg without his consent. This was in spite of the fact that they helped save his life.

### 4. Parents and Schoolmates

By virtue of their being vulnerable helpless, in need of guidance and young, children are owed a duty of care. Schoolmasters and parents are therefore bound to take care of children. Teachers are supposed to take such care as a careful parent would take of his children. This is acting in **Loco-parentis**".

## BREACH OF DUTY

After it has been established that a duty of care is owed, the next step is to show that the "defendant violated his duty of the victim with respect to the risk of injury, (Esslinger, McCue and Tillman quoted in Akpata 1994)

The act of deciding whether a person has violated, by way of omission or commission, the duty she owes the victim, is guided by the following factors;

1. **The reasonable man-** which refers to the determination of whether the defendant meets “the standard of the reasonable man”.
2. **Application of the standard of care.** This includes such details as the likelihood of the occurrence of injury, the degree of injury which may be suffered, cost and practicability of measures necessary to overcome the risk and the purpose of the defendant’s acts.

### **DAMAGE CAUSED BY THE BREACH**

The third requirements for success in negligence after the duty of care and breach of duty could be discussed under the damage caused by the breach. This is to show that an injury was suffered as the result of the defendant’s conduct or at least in part. This is also called the causal relation issue (Vltmer and Eslinger, 1979) or the proximate cause of the injury.

There are two aspects of the causal relation issue and these are:- causation in fact and causation in law.

Causation in fact refers to whether the defendant’s negligent act did in fact cause the harm to the plaintiff. In determining this issue, the question usually asked is whether the

damage would have occurred but for the defendant's negligence.

*Sewson (1932) when he said:*

Causation in law refers to the determination of how far in law the defendant is liable for the consequences of his negligent. One can only be liable for consequences that are not too remote.

*The rule that you are to love your neighbour becomes in law a duty to take care of your neighbour which you can reasonably foresee would be injured by your negligence. It is not enough that you are so closely connected with him that you may reasonably be expected to have him in contemplation or directing my mind to the acts or omissions which may cause him injury. (Charlesworth 1962: 160).*

### **THE DAMAGE ISSUE**

*In the above context, the student can be regarded as a neighbour.*

Lastly, the plaintiff must show the damages he suffered. This is referred to as "the damage issue". Damage is a "loss, injury or deterioration caused by negligence, design or accident of one person to another (Votmer and Esslinger 1979). The mere showing of physical hurt may be sufficient basis for evaluating the damages.

### **INDEPENDENT TORT**

The above elements imply that there is no legal liability falling upon the teacher simply because a pupil who is taken to be under his care is injured. For a teacher to be held liable, the pupil should show that the teachers' negligence was the cause of the injury that he suffered ((Milman, 1986 and Nice, 1986).

*appearance of which*

of negligence was in the liability of those who professed

Finally, since it is established that the teacher owes the student a duty of care, the teacher should avoid any acts or omissions especially when it is foreseeable that such acts or omissions are likely to lead to injuries to the students. This view is in line with the

concept of neighbour principle which was expressed by Lord Atkin in *Donoghue V. Stevenson* (1932) when he said;

The rule that you are to love your neighbour becomes in law, you must not injure your neighbour, you must take reasonable care to avoid acts or omissions which you can reasonably foresee would be likely to injure your neighbour ... Persons who are so closely and directly affected by my acts that I ought reasonably to have them in contemplation as being so affected when I am directing my mind to the acts or omissions which are called in question (Charlesworth 1962: 160).

In the above context, the student can be regarded as a neighbour to the teacher. Thereby, the teacher should ensure that he protects the students from any foreseeable risks of harm.

## **2.2.2 HISTORICAL DEVELOPMENT OF NEGLIGENCE AS AN INDEPENDENT TORT**

Negligence was scarcely recognised as a separate tort before the earlier part of the nineteenth century (Proser, Wade and Schwartz, 1988). Before this time, the term negligence was only used in the general sense to refer to the breach of any legal obligation (Charlesworth, 1962). The first appearance of what is now known as the tort of negligence was in the liability of those who professed to be competent in certain public calling. They included the carriers, surgeons, innkeepers, blacksmiths etc. They were regarded as holding themselves out to the public as people in whom confidence might be reposed and hence as assuming an obligation to give proper service for breach

of which by any negligent conduct they might be liable (Bingham, 1964 and Proser, Wade & Schwartz, 1988). Kodilinye (1982: 47) expressed the same concept when he said that,

Any person who holds himself out as having a certain skill either in relation to the public or in relation to a person for whom he is performing a service is expected to show the average amount of competence normally possessed by persons doing that kind of work and he will be liable in negligence if he falls short of such standards.

Emergence of negligence as an independent tort also coincided with industrial revolution in England and the advent of machinery, railways and motor vehicles (Charlesworth, 1962 and Kodilinye, 1982). A lot of injuries could result from the use of such machinery and people were usually compensated for damages suffered. To this, day action for negligence conduct has retained its function as the principal means of compensating the victims of accidents.

### 2.3.0 DEFENCES AGAINST NEGLIGENCE

There are some common defenses that can be used to counteract the actions of negligence. An important component of the defense is unproven elements of negligence.

That is, the basic ingredients of negligence have to be proven either singly or corporately for cases of negligence to be successful.

Other defences are:

- 1 Governmental immunity
- 2 Assumption of risk,
- 3 Contributory negligence,
- 4 Comparative negligence, and
- 5 Certain legal aspects.

### **Elements of Negligence Not Proven**

The best defence against negligence, as it were, is that in which one or more of the negligent elements cannot be proved. The plaintiff must prove the four conditions that:

- 1 The defendant owes a duty of care to the plaintiff,
- 2 The defendant has breached that duty of care by an act of omission or commission
- 3 The plaintiff has been harmed by the wrong committed by the defendant,
- 4 Breach of duty must be proximate or legal cause of the damage (Charlesworth, 1962, Jansen, 1983 and Bucher & Krotte, 1993).

### **Governmental Immunity**

In the absence of a legislative statute expressly imposing liability, the servants, agents and government officers cannot be held liable for negligence while they are on official

duties. However, in 1956, the Kenya legislative council taking suit after England enacted the crown proceeding ordinance (*Now Government Proceedings Act*). As a result of this enactment the Kenyan Government too lost its immunity in tort, Oduok (1984). A government servant would therefore be sued for liability of he acted negligently in the discharge of his duties as was the case in *Attorney General of Kenya V Hayter (1984)*

### **Assumption of Risk**

The assumption of risk defence is based on the legal theory of *Volenti non fit injuria*, that no harm is done to one who consents (Votmer, Esslinger, McCue and Tillman, 1979).

Two issues need to be substantiated; one that there must be consent to the risk and not mere knowledge of the existence of the risk. Secondly, that the assumption of risk does not cover defective facility or equipment. Most organizers, coaches and trainers invoke this defence by arguing that since the nature of sports is inherently risky, any participant assents directly or by implication to the risks thereof.

## Contributory Negligence

This refers to situations where the plaintiff in some way contributed to his own harm or injury. At common Law (before 1945) if the defendant proved that the plaintiff was guilty of contributory negligence, this offered complete defence. However, this has been modified with the resultant effect that contributory negligence simply reduces the damages to the extent to which the plaintiff has been contributorily negligent (Street, 1983, Quoted in Akpata 1994).

In order to establish the defence of contributory negligence, the defendant must plead and prove:

1. That the injury of which the plaintiff complains results from that particular risk to which his own negligence exposed him.
2. That the negligence of the plaintiff contributed to his injury.
3. That there was fault of negligence on the part of the plaintiff.

In *Wanza v George Okoth* (1973). The plaintiff was also held to be negligent even though she had been hit by the vehicle being driven by the defendant. She was walking on the road and was hit as the driver swerved to avoid a head on collision with another vehicle.

## 2.4.0 NATURE OF LITIGIOUS LIABILITY IN PHYSICAL EDUCATION

### 2.4.1 SUPERVISION

Physical education and sports have been acknowledged as being inherently risky or prone to accidents (Wekesa, 1994). A number of factors may be attributed to this aspect of sport. However, the basic benefits that accrue from participation in sport overrides the fact that there are possibilities of injuries. Indeed as Mclatchie (1994) points out, most of the injuries that occur during physical activities can be prevented or considerably reduced with the exercise of due care on the parts of organisers, officials, participants and spectators.

Physical Education teachers owe students a duty to supervise their activities and they

The fact that injuries in sports are common occurrence (Wekesa, 1994), and that they are potentially present in any organised form of sport (Wekesa and Onsongo, 1992) implies that physical education teachers need to be aware of the various conditions frequently found in teaching situations that if, left unattended could injure a student and cause them to be guilty of negligence (Jensen, 1983). These conditions have been identified by Blucker & Pell (1986), Bucher & Krotee (1993), Henderson (1985) and Gray (1985) as supervision, instruction, facilities and equipment and maintenance of safety. Failure to attend to these conditions makes the Physical Education teacher very susceptible to tort liability suits. Appenzeller (1978) contends that the largest percentage of lawsuits in any school related activity are those involving physical education and or coaching.

and therefore his absence is the proximate cause of the injury.

#### 2.4.1 SUPERVISION

Supervision simply means overseeing the activities of a participant. However, in its transcendent definition supervision places the teacher in a position of 'guarding' the students' physical and emotional health. The teacher is expected to foresee the consequences of anticipated action of the students and be able to extrapolate logically what could happen in any given circumstance.

Physical Education teachers owe students a duty to supervise their activities and they therefore invite negligence suits upon themselves when they absent themselves from appointed duties (Henderson, 1985). In *Albers V. Independent School District (1971)*, Morris Albers suffered a fracture in the cervical area of his spine when he injured his head while playing Basketball without a teachers supervision and the school was found liable for providing inadequate supervision.

Adequate supervision is necessary from the beginning to the end of the lesson. Students should not be allowed to begin any activity prior to the arrival or after the departure of the supervising teacher (Gray, 1985). Any time an injury occurs during a teachers' absence it is often assumed that the teachers presence might have prevented the injury and therefore his absence is the proximate cause of the injury. In *Guard V. Duncan*

*School Trustees (1946)*, Guard suffered an injury to his eye during a game of grass hockey without a teacher's supervision. Two rules were broken prior to the injury. One by a player passing between the ball and the player who had control of it, the other by the same player turning to hit the ball by raising his stick above the shoulder. The judge ruled that a supervisor would have called the first infraction and have thereby prevented the second one which caused the injury.

Potentially dangerous activities like gymnastics, swimming and games where dangerous equipment is used require very close attention by teachers (Gray, 1985). When an injury occurs during a teacher's presence the question often raised is whether there was adequate supervision and whether the injury would have been prevented with more appropriate supervision. This was the case in *Stanley V. Board of Chicago (1973)* when David Stanley was hit with a bat in the head. The bat had slipped out of another player's hand. If the teacher had provided adequate supervision he would have known that the player's bat had a defective handle. Adequate supervision also implies that a teacher should not leave the class under the supervision of an incompetent person. This constitutes negligence, and hence, liability on the side of the teacher should an injury occur. In *Butterworth V. Collegiate Institute Board of Ottawa (1975)*, Butterworth, a boy of 14 years fractured his elbow while attempting to vault a horse. When the injury occurred, the teacher was pre-occupied with other duties and had left the class under the care of two senior boys. The teacher was held liable of negligence.

From the foregoing, it is apparent that Physical Education teachers should always provide reasonable supervision. They should take into account the activities engaged in, the age of the child and the needs of each individual. The degree of supervision required at any given time, varies depending on the underlying circumstances. For instance, young children and known troublemakers require more stringent attention than do "well behaved" older students. Also, if students are involved in a dangerous activity then the degree of supervision should also be more (Henderson, 1985, Bucher Krotee, 1993).

#### 2.4.2 INSTRUCTION

A legal complaint often initiated against Physical Education teachers in negligence suits is whether the student's injury was due to inadequate or improper instruction (Henderson, 1985). The duty to instruct binds the teacher to teach and demonstrate an activity as precisely as possible. Teachers should also ensure that all the students are competent enough in any given task before allowing them to practice on their own (Henderson, 1985 and Gray, 1985).

According to Blucker & Pell (1986) the duty to instruct goes beyond the rules, strategies, plays and movement skills. It should include the imparting of knowledge about potentially hazardous conditions surrounding each activity. Also, although instructions

given orally may be adequate it is advisable to write them down because a combination of both, greatly enhances the chances of surviving a tort liability (Gary, 1985 and Jensen, 1993).

Proper instructions are essential both in contact and non-contact sports. Where there is evidence that a teacher duly instructed and gave warnings to his students concerning the existence of dangerous situations, he will ordinarily not be held liable when the student is hurt because he failed to follow the instructions. This was the case in *Partin V. Vernon Parish School Board*, (1977), where the teacher was absolved from negligence because he had duly instructed Partin on what to do.

Since erroneous instructions would most likely lead to injuries, teachers should always give correct instructions or leave out any activities they are not competent in. *Dibortolo V. Metropolitan School District of Washington Township* (1982) a student injured her mouth while performing a preliminary run as part of Jump and Reach Test. The teacher should have instructed her to start from a stationary position as it is supposed to be. Also in *Little V. Bay View Area Red Cats* (1981), a 15 year old boy sustained an injury during football because he had not been instructed about how to play without a cast. Furthermore in *Van Oppen V. Trustees of the Bedford Charity* (1989), Oppen was injured due to the fact that he was inadequately trained to play rugby.

### 2.4.3 FACILITIES AND EQUIPMENTS

The teacher owes the student a duty to provide and maintain equipment and facilities in safe conditions (Blucker & Pell, 1986). Thus, the teacher is expected to carry out regular inspection of the equipment and facilities to ensure that the worn out ones are repaired or replaced while the unsafe ones are rendered inoperative (Henderson, 1985).

A teacher can be sued for negligence for allowing students to use defective equipment. In *William V. Bucky Wallen (1978)*, a hockey coach was held to be a person of substantial experience and that ordering a mask which had gaps large enough to allow a puck to penetrate was sufficient evidence for an action for negligence.

Teachers can also be held liable for improper placement of school apparatus/equipment. In *Grant V. Oswego school District (1974)* a twelve year old girl sustained neck injury when she jumped on a spring board which had been placed in a doorway. In another case *Scott V. State (1956)*, James Scott got injured when he ran into a metal flag pole while attempting to catch a fly ball. He received serious injuries. Scott based his lawsuit against the college on the fact that the school officials should have foreseen the possibility that a player during the game could forget about the flag pole's location and run into it. The court held that this was a hazard which a reasonably prudent person would have removed.

Under the doctrine of *sports product liability*, a teacher can be named as the co-defendant with the manufacturing company for an injury arising from dangerous equipment (Arnold, 1978). To be on the safe side, the teacher should always make sure that he/she purchases only that equipment that are safe to use.

On the other hand, Physical Education teachers should ensure that the playing area is reasonably safe. In some cases the playing area has been held to be unsuitable for particular activities. In *Bersani V. School of Philadelphia (1982)* a nine year old boy was struck in the head by a baseball bat while playing catcher in an informal baseball game. The area was held to be unsafe because there was no room to allow a game of baseball. The teacher ought to have realised the inherent danger in such a situation. When obstacles and dangerous conditions cannot be eliminated, verbal warnings should be issued. Appropriate prescriptions should be posted and if possible the area should be sealed off from students.

#### 2.4.4 SAFETY

In Physical Education, safety is of paramount importance. Providing safety measures goes a long way to preventing or forestalling occurrence of injuries. In this regard, teachers should make safety instructions a natural part of the physical education lessons

(Gary, 1986). Teachers should enlighten the students about possible accidents inherent to a given physical activity, as well as encourage them to use their common sense depending on the situation. All possible safety precautions should be carefully planned, explained and enforced throughout each physical activity.

The degree of safety to be provided varies from a given activity to another. Potentially dangerous activities like swimming and gymnastics require very close supervision. All activities require ample practice with extreme caution and progression (Jensen 1983 and Bucher & Krotee 1993). Simple tasks should be taught before complex ones. This can help lay a foundation for the teaching of more complex ones as well as help in injury prevention.

Teachers should listen carefully and respond appropriately to students request to be excused from a given task. This is necessary because if a student should get injured when they have expressed their inability to perform a given activity, then the teacher will be *prima facie* liable for the injury. In *Tillotson V. Harrow B. C. (1969)*, a girl got injured in the gym when she fell and broke her leg whilst attempting a hurdle which she had been forced to attempt. The teacher was held liable for the injury. In another case, *Cherney V. Board of Education City of White Plains (1969)*, a girl with weak wrists was forced to do an exercise called 'Jumping the buck' in the process she sustained serious injuries.

## 2.5.0 THE STATUS OF PHYSICAL EDUCATION IN KENYA

Some knowledge about how to provide necessary care in case of an injury is necessary. The teacher is not expected to be sufficiently competent in injury treatment but must ensure that they have a thorough preparation in first aid. Not providing a student with care following an injury (omission) or providing care incorrectly (commission) could result in the teacher being held liable. *Price V. Mount Diabolo Unified School District (1960)* is an example of commission. Price had suffered a fractured leg but the injury was aggravated when he was moved to a sitting position. A nerve was severed which permanently crippled his foot. The teacher must be careful not to exceed his level of training or competency. Teachers should be able to distinguish serious injuries from minor ones and thus obtain further qualified assistance for those injuries beyond his ability of care. In *Mogabgab V. Orleans Parish School Board (1970)*, the coach should have distinguished between fainting and heart exhaustion.

in which teachers taught what was within their competence.

The Physical Education teachers should always insist that students undergo medical examination as regularly as possible as this would reveal conditions like congenital heart diseases, diabetes, otitis medi, asthma, epilepsy and congenital skeletal deformities which would contra indicate or limit participation in strenuous physical activities (Wekesa, 1994).

Physical Education compulsory in secondary schools.

physical education in the curriculum. To appreciate the

## **2.5.0 THE STATUS OF PHYSICAL EDUCATION TEACHING IN KENYA AND ITS IMPACT ON NEGLIGENCE**

Since the introduction of formal schooling, Physical Education has suffered low status and esteem. The subject has been regarded as free time for jumping or playing ( Hall 1973 and Nteere & Hardman, 1988). This attitude which has been prevalent among the teachers and the students, has persistently led to the subject being accorded low status.

As a result of this status, Physical Education received a raw deal from Kenya Institute of Education, the central body responsible for curricular matters in the country. Since its inception, in 1963, there was no Physical Education specialist in the Kenya Institute of Education until 1979. As a result, teaching of Physical Education, was left to interested but not specially trained teachers (Nteere, 1988). Such status definitely led to a situation in which teachers taught what was within their interests without necessarily being cautious about the students' interests and abilities. There was no formal instruction given which, other than providing the necessary teaching points, would also have cautioned students about prevalence of injuries in given sports.

The predicament changed slightly in 1980 with the Presidential directive which made Physical Education compulsory in secondary schools with the consequent inclusion of physical education in the curriculum. To implement this requirement, the government

was obliged to start physical education in diploma colleges to supplement the number of the trained teachers. However, in spite of this move, the situation has not been resolved as most schools are yet to get enough Physical Education teachers (Wekesa, 1994).

Also, desirable as this move was, the physical education syllabus which was designed had some shortcomings in that it does not distinguish the work to be covered by each year group. As a result it lacks systematic progression which is necessary for prevention of injuries. This is however due to the fact that physical education is not examinable at this level and hence has not been given the same status as other subjects for which students are examined. In most schools, physical education lessons are either free lessons for pupils to revise other subjects or time used to learn or teach other subjects (Hall, 1973). In some cases, students are left on their own without supervision as the teacher responsible attends to other academic matters.

#### Physical Education classes.

A study done by Wekesa (1994) on the management of injuries in Kenya secondary schools revealed that the number of Physical education teachers is still not enough and as such the subject is still being taught by untrained teachers. It also revealed that some teachers assigned to teach physical education do not have any certification in first aid. This, coupled with the fact that only a third of the schools studied required medical examination of the students implies that the levels of safety is definitely low and thus there is more than a remote possibility that injuries occur. However, efforts by the

researcher to review local cases of injuries during Physical Education classes yields very few cases. This is because there were few documented cases available to the researcher. It is the opinion of the researcher that most of the cases go unreported due to the fatalistic nature of the Africans and also because unlike the West, Kenya is not yet a liability conscious society.

This chapter presents the methods and procedures that

While the studies reviewed above are useful to the extent in which they highlight the state of understaffing of P.E teachers, lack of appropriate training for those who conduct these classes and lack of a systematic programme for Physical Education in secondary schools, these studies do not link this situation with the possibility of injuries inherent therein. Additionally, the studies do not address the issue of legal liability in the event of injuries arising from negligence. Therefore, the researcher intends to establish whether injuries are due to negligence and also the sources of these injuries to the conduct of Physical Education classes.

8. Administration of instrument and data collection

9. Data analysis techniques.

### 3.1 THE RESEARCH DESIGN

This study set out to investigate whether the variables of

facilities are sources of injuries in the conduct of Physical Education

hypothesised by the researcher.

## **CHAPTER THREE**

### **METHODOLOGY**

#### **3.0 INTRODUCTION**

The aim of this study is to investigate the sources of injuries in physical Education classes in Nairobi and state their implications for legal liability.

This chapter presents the methods and procedures that were used in the study. It is organised under the following sub-headings:

1. Research design,
2. Target population,
3. Sampling procedure,
4. the sample size,
5. Instrumentation,
6. Rehabilitation and validity of the instruments,
7. Pilot study,
8. Administration of Instrument and data collection procedure,
9. Data analysis techniques.

#### **3.1 THE RESEARCH DESIGN**

This study set out to investigate whether the variables of supervision, instruction and facilities are sources of injuries in the conduct of Physical Education programmes, as hypothesised by the researcher.

The research design which was found appropriate for the study is triangulation which allows use of data collected in one way to cross-check the accuracy of data collected in another way (Le Compte and Preissle, 1993). Sommer and Sommer (1991) concur and point out that triangulation also allows the researcher to pinpoint aspects of a phenomenon more accurately by approaching it from different vantage points.

This research design prevented the researcher from accepting too readily the validity of teachers responses. It also helped in correcting the biases that may have occurred from teacher's responses bearing in mind that the study touched on a sensitive area of their work.

### **3.2 TARGET POPULATION**

Teachers and students from Nairobi Secondary Schools formed the target population for this study. Nairobi secondary schools are 47 in number comprising 15 boys only, 13 girls only and 19 mixed only.

### **3.3 SAMPLING PROCEDURE**

The 47 Public Secondary Schools in Nairobi were categorized into boys only, girls only and mixed schools. This categorization ensured equal representation of samples from each stratum. When schools in Nairobi Province were thus categorized, there

were 15 boys only schools, 13 girls only schools and 19 mixed schools. Proportional stratified random sampling was used to select schools from each of the above strata to reflect the same percentage as the number of schools in each.

### 3.4 THE SAMPLE SIZE

Thus, 32% of the schools in the sample was got from boys schools, 28% from girls schools and 40% from mixed schools. Following the above procedure there were 5 schools from boys only category 4 from girls schools and 6 from mixed schools. These formed 32% of the total number of schools and is considered a sufficient sample as recommended by (Borg and Gall 1983) also, Gay (1976) holds that a sample of 10% of the population is considered minimum. He further says that for smaller populations, 20% of the population is required.

female. Of the 26 teachers who participated in the study

To get the exact number of schools from each stratum, simple random sampling was used. The Fish Bowl technique (Borg and Gall 1983) was used. The names of the schools were written down in separate pieces of paper which were then folded. The folded papers were then put in a bowl and were mixed up. Each time a piece was picked while the remaining ones were mixed up again. This was repeated until the required number was realised. The process was done for each of the categories.

questionnaires and observational checklist.

All the Physical Education teachers in the sampled schools formed the sample for this study 283 Form II students formed the student sample. Form Two students were purposefully used in this study because they had undergone the system for one year and thus could comprehensively rate their teachers. Form III & IVs were not used

because most schools leave out P.E lessons from the Time Table since it is not examinable in order to give more emphasis to examinable subjects.

### **3.4 THE SAMPLE SIZE**

How reliable the factors are, which emerges from the Factor Analysis, depends on the size of the sample. The larger the sample (i.e 100 or more individuals) the more confidence one can have that the same factor will emerge in the second sample from the same population, (Bryman and Cramer 1994). Consequently, this study used a total of 309 respondents comprising 283 students and 26 P.E. teachers in Nairobi Secondary Schools; 148 (52.3%) of the students were male and 135 (47.7%) were female. Of the 26 teachers who participated in the study, 73.1% reported 0-10 years teaching experience while the remaining 26.9% have been teaching for the last 10-20 years.

### **3.5 INSTRUMENTATION**

Two main instruments for data collection were used in this study. They were the questionnaires and observational checklist.

### 3.5.1 QUESTIONNAIRE

Direct contact questionnaire (see appendix B) was the main tool for data collection. The questionnaires were administered to the students and teachers of sampled schools. Direct contact questionnaire was deemed necessary as it facilitated a rapport, clarified, pointed and encouraged the respondents to answer all the questions (Chark and Clark 1984). Items in the questionnaire were close ended type designed in line with Likert scale technique with numbers allotted for ease of analysis. Initially about 50 items were generated to tap the sources of injury in Physical Education classes. The questionnaire asked the respondents how often injuries had occurred due to a given variable. Responses ranged from: Always (4); Often (3); Rarely (2); Never (1). After pilot study, however, 21 items were discarded for reasons of redundancy ambiguity and lack of specificity.

### 3.7 PILOT STUDY

#### 3.5.2 OBSERVATION CHECKLIST

Three schools were used for the pilot study.

Since the study was legalistic in nature, observational checklist was also used. This helped to identify some aspects of sources of injuries which could not be captured by use of questionnaire alone e.g. the state of facilities and equipment. It was also used to buttress the responses got from the questionnaire. This was formulated from available literature especially pertaining to the main areas of the study i.e. instruction, supervision and facilities.

### **3.6 VALIDITY AND RELIABILITY OF THE INSTRUMENTS**

To ensure content validity of the instruments the researcher drew them from available literature. The items were then given to the supervisors/lecturers who were specialist in this area of study. They approved the instruments for use for this study. The instruments were then piloted and adjustments were made accordingly.

Instrument reliability was realised using Cronbach Alpha procedure. The resulting coefficient of 0.85 was considered excellent and sufficient to analyse with confidence individual scores as well as group scores. The instrument for both teachers and pupils were designed to measure the same concepts but the wordings were different. Field observation was used to supplement collected data.

### **3.7 PILOT STUDY**

Three schools were used for the pilot study. The researcher administered the questionnaire to the students and teachers in those schools. By so doing the researcher assessed the suitability of the tools. Pilot schools were drawn from Nairobi Province and did not feature in the main study. After the pilot study some items in the questionnaire were dropped for lack of specificity or due to repetition.

### **3.8 ADMINISTRATION OF INSTRUMENT AND DATA COLLECTION PROCEDURE**

Clearance was sought from the office of the President before data collection. The researcher then made initial visits to the sampled schools. During these visits, the researcher explained the purpose of the study and then agreed with the Physical Education teachers about specific dates when to visit the school. During the second visit the researcher observed the P.E lessons and inspected the facilities. The respondents were then given time to answer the questionnaires after which they were collected. The exercise yielded 309 usable questionnaires, 26 from the teachers and 283 from the students. The return rate was 94%.

### **3.9 DATA ANALYSIS TECHNIQUE**

This study sought to analyse a set of independent variables (items) in order to review the structure of their inter-relationship and identify the factors or dimensions which comprise them. Factor Analysis was used for this study due to its ability to separate correlations among independent variables into a number of manageable factors having different weights called 'factor loadings'. The weight is called 'loadings' because it indicates how much the variable is 'loaded' or saturated with a certain factor.

Data obtained from the field were coded for analysis by computer using statistical package for social sciences (SPSS) which has Factor Analysis as one of the components. Since it is possible to obtain as many factors as there are variables, thereby making it difficult to interpret each factor or give it a name, it is necessary to

transform the original factors into different factors which show a different pattern of loadings which are easier to interpret.

#### 4.1 INTRODUCTION

For the purpose of this study varimax rotation was used to help search for some simple structure i.e. items loaded on one and only one factor. Items that did not exhibit simple structure at 0.4 level or higher were not (slated) included under a factor. Factors with eigenvalue greater than or equal to 0.998 were slated for 'acceptance for this study.

#### 4.2 DATA ANALYSIS

The initial step in Factor Analysis is to compute the correlation matrix. This is done to make up a research instrument. If there are no significant correlations between the items, then this means that they are uncorrelated and therefore do not form one or more factors. In such a case it would not be worth doing a Factor Analysis. Consequently, a correlation matrix was computed for the study. The results summarized in table 1 show that most of the items had correlations less than 0.5 level, either positively or negatively. This suggests that the items may constitute one or more factors which would be useful in identifying and characterizing sources of injuries in Physical Education.

## **CHAPTER FOUR**

### **DATA ANALYSIS, INTERPRETATION AND DISCUSSION**

#### **4.1 INTRODUCTION**

This chapter presents the data analysis, interpretation of the results and discussion of the findings. SPSS was used to compute a correlation matrix of the coded data. Correlation matrix was necessary in order to tell whether there was any relationship among the items. Since most of the items were interrelated at 0.5 level or more, the results were then subjected to principal component analysis in order to give the principal factors. After the initial factors were identified the items were then subjected to factor matrix in order to tell how they loaded on each factor. Finally rotated factor matrix was computed to enhance the interpretability of factors depending on how much each of the items loaded on them.

#### **4.2 DATA ANALYSIS**

The initial step in Factor Analysis is to compute a correlation matrix of the items which make up a research instrument. If there are no significant correlations between those items, then this means that they are unrelated and therefore would not be expected to form one or more factors. In such a case it would not be worthwhile to conduct a Factor Analysis. Consequently, a correlation matrix was computed on the 29 items used in this study. The results summarized in table 1 show that most of the items are interrelated at less than 0.5 level, either positively or negatively with one another. This suggests that they may constitute one or more factors which are more basic and more economical in characterizing sources of injuries in Physical Education.



The results of correlation matrix were then subjected to principal component analysis using the SPSS. The SPSS output showing the initial factors reduced by principal component analysis is shown in Table 2.

**TABLE 2: INITIAL PRINCIPAL COMPONENTS AND THEIR VARIANCES (SPSS OUTPUT)**

| VARIABLE |                                       | COMMUNALITY | FACTOR | EIGENVALUE | ACT OF VAR | CUM PCT |
|----------|---------------------------------------|-------------|--------|------------|------------|---------|
| I1       | Lack of appropriate marching          | 1.0000 *    | 1      | 6.4400     | 22.2       | 22.2    |
| I2       | Lack of progression                   | 1.0000 *    | 2      | 5.37634    | 18.6       | 40.8    |
| I3       | Lack of safety tips                   | 1.0000 *    | 3      | 4.14724    | 14.1       | 54.9    |
| I4       | Lack of individualization             | 1.0000 *    | 4      | 0.89405    | 3.0        | 57.9    |
| I5       | Non-correction of errors              | 1.0000 *    | 5      | 0.88013    | 3.0        | 60.9    |
| I6.      | Non-provision of assistance           | 1.0000 *    | 6      | 0.87232    | 3.0        | 63.9    |
| I7       | Vague directives                      | 1.0000 *    | 7      | 0.86617    | 3.0        | 66.9    |
| I8       | Inadequate warm up                    | 1.0000 *    | 8      | 0.79843    | 2.8        | 69.7    |
| I9       | Over exertion                         | 1.0000 *    | 9      | 0.74861    | 2.5        | 72.6    |
| I10      | Lack of clarification                 | 1.0000 *    | 10     | 0.72277    | 2.4        | 72.6    |
| S1       | Teacher's absence                     | 1.0000 *    | 11     | 0.70895    | 2.4        | 77.0    |
| S2       | Supervision by non-specialists        | 1.0000 *    | 12     | 0.67439    | 2.3        | 79.3    |
| S3       | Leaving students to their own devices | 1.0000 *    | 13     | 0.62598    | 2.1        | 81.4    |
| S4       | Putting class prefect incharge        | 1.0000 *    | 14     | 0.61088    | 2.1        | 83.5    |
| S5       | Risk taking                           | 1.0000 *    | 15     | 0.60297    | 2.0        | 85.5    |
| S6       | Infraction of Rules                   | 1.0000 *    | 16     | 0.60119    | 2.0        | 87.5    |
| S7       | Medical problems                      | 1.0000 *    | 17     | 0.51084    | 1.7        | 89.2    |
| S8       | Rough play                            | 1.0000 *    | 18     | 0.50084    | 1.7        | 90.9    |
| S9       | Fatigue                               | 1.0000 *    | 19     | 0.48942    | 1.6        | 92.5    |
| S10      | Inappropriate dressing                | 1.0000 *    | 20     | 0.44229    | 1.5        | 94.0    |
| F1       | Defective equipment                   | 1.0000 *    | 21     | 0.41932    | 1.4        | 95.4    |
| F2       | Congested playground                  | 1.0000 *    | 22     | 0.34086    | 1.7        | 96.5    |
| F3       | Deteriorating facilities              | 1.0000 *    | 23     | 0.22086    | 0.7        | 97.2    |
| F4       | Presence of dangerous objects         | 1.0000 *    | 24     | 0.22058    | 0.7        | 97.9    |
| F5       | Misuse of equipment                   | 1.0000 *    | 25     | 0.20356    | 0.6        | 98.5    |
| F6       | Unsuitable facilities                 | 1.0000 *    | 26     | 0.20274    | 0.6        | 99.1    |
| F7       | Lack of danger signs                  | 1.0000 *    | 27     | 0.10740    | 0.3        | 99.4    |
| F8       | Lack of safety equipments             | 1.0000 *    | 28     | 0.10422    | 0.3        | 99.7    |
| F9       | Presence of attractive nuisance       | 1.0000 *    | 29     | 0.10348    | 0.3        | 100.0   |

I = Instruction, S = Supervision, F = Facilities

Since the object of the factor analysis was to reduce the number of variables that were to be handled, this would not have been achieved if all the factors were used. Therefore, the next step was to decide how many factors could be kept. The criterion used for this study was to extract those factors with Eigenvalue of 0.998 or above. Eigenvalue refers to the amount of variance accounted for by principal components. Under the principal component analysis, all the variance was analysed by SPSS based on the assumption that the test used to assess the variable is perfectly reliable and without error. In SPSS the total variance was usually set at one (1) and is known as communality.

Only three factors were extracted for this study. The three had eigenvalues of 0.998 and above. They accounted for 54.9% of the total variance for the 29 variables.

Table 3 presents the unrotated factor matrix of the 29 variables in terms of how they correlate with the three factors. However, what they represent might not be easy to interpret since an item could fall on a factor without being highly correlated with it.

| Variable                           | Factor 1 | Factor 2 | Factor 3 |
|------------------------------------|----------|----------|----------|
| F1 Defective equipment             | 0.81179  | 0.13539  | 0.13539  |
| F2 Congested playground            | 0.71211  | 0.13539  | 0.13539  |
| F3 Date foraging facilities        | 0.21062  | -0.11211 | 0.13539  |
| F4 Presence of dangerous objects   | 0.31211  | -0.11211 | 0.13539  |
| F5 Abuse of equipment              | 0.31179  | 0.13539  | 0.13539  |
| F6 Unsuitable facilities           | 0.63661  | 0.84411  | 0.13539  |
| F7 Lack of danger signs            | 0.33983  | 0.54011  | 0.13539  |
| F8 Lack of safety equipments       | 0.42216  | 0.24411  | 0.13539  |
| F9 Presence of attractive nuisance | 0.11721  | 0.33936  | 0.13539  |

I = Instruction, S = Supervision, F = Facilities

In order to increase their interpretability, factors were rotated to maximise the loadings of some of the items. These items

**TABLE 3: UNROTATED FACTOR MATRIX (SPSS OUTPUT)**

| VARIABLES |                                       | FACTOR 1 | FACTOR 2 | FACTOR 3 |
|-----------|---------------------------------------|----------|----------|----------|
| I1        | Lack of appropriate marching          | 0.43287  | 0.51880  | 0.29603  |
| I2        | Lack of progression                   | 0.48826  | 0.23048  | 0.25814  |
| I3        | Lack of safety tips                   | 0.60675  | 0.48221  | 0.58130  |
| I4        | Lack of individualization             | 0.41520  | 0.45347  | 0.33574  |
| I5        | Non-correction of errors              | 0.44611  | 0.48375  | 0.40114  |
| I6.       | Non-provision of assistance           | 0.60393  | 0.56290  | 0.48185  |
| I7        | Vague directives                      | 0.53993  | 0.27779  | 0.23303  |
| I8        | Inadequate warm up                    | 0.51293  | 0.27779  | 0.24097  |
| I9        | Over exertion                         | 0.52296  | 0.53898  | -0.22005 |
| I10       | Lack of clarification                 | 0.38288  | 0.47232  | 0.22639  |
| S1        | Teacher's absence                     | 0.43855  | 0.44590  | -0.40669 |
| S2        | Supervision by non-specialists        | 0.40215  | 0.11986  | 0.44211  |
| S3        | Leaving students to their own devices | 0.41235  | 0.45710  | 0.18384  |
| S4        | Putting class prefect incharge        | 0.40637  | 0.30980  | 0.35163  |
| S5        | Risk taking                           | 0.32492  | 0.48093  | 0.47759  |
| S6        | Infraction of Rules                   | 0.52465  | 0.23425  | 0.22973  |
| S7        | Medical problems                      | 0.35189  | 0.39665  | 0.24874  |
| S8        | Rough play                            | 0.41558  | -0.39577 | 0.43432  |
| S9        | Fatigue                               | 0.45347  | 0.18300  | 0.10208  |
| S10       | Inappropriate dressing                | 0.48375  | 0.54364  | 0.25242  |
| F1        | Defective equipment                   | 0.33509  | 0.62476  | 0.52784  |
| F2        | Congested playground                  | 0.21350  | 0.26825  | 0.52242  |
| F3        | Deteriorating facilities              | 0.24002  | -0.14531 | -0.24902 |
| F4        | Presence of dangerous objects         | 0.32320  | -0.18577 | 0.32734  |
| F5        | Misuse of equipment                   | 0.53179  | 0.34009  | 0.40932  |
| F6        | Unsuitable facilities                 | 0.63664  | 0.44413  | 0.51688  |
| F7        | Lack of danger signs                  | 0.35993  | 0.54011  | -0.45421 |
| F8        | Lack of safety equipments             | 0.42216  | 0.23438  | 0.18217  |
| F9        | Presence of attractive nuisance       | 0.11721  | 0.39536  | 0.34043  |

I = Instruction, S = Supervision, F = Facilities

In order to increase their interpretability, factors were rotated using varimax rotation to maximise the loadings of some of the items. Those items were then be used to identify

the meaning of a factor. The rotation of the three principal components factors is shown in Table 4.

**TABLE 4: ROTATED FACTOR MATRIX (VARIMAX ROTATION BY SPSS)**

| VARIABLES          |                                       | FACTOR LOADINGS |               |               |
|--------------------|---------------------------------------|-----------------|---------------|---------------|
|                    |                                       | FACTOR 1        | FACTOR 2      | FACTOR 3      |
| I1                 | Lack of appropriate marching          | <b>0.5892</b>   | 0.2747        | 0.0440        |
| I2                 | Lack of progression                   | <b>0.4229</b>   | 0.1480        | 0.2930        |
| I3                 | Lack of safety tips                   | <b>0.6894</b>   | -0.0877       | <b>0.6384</b> |
| I4                 | Lack of individualization             | <b>0.6224</b>   | 0.0035        | 0.2478        |
| I5                 | Non-correction of errors              | <b>0.5213</b>   | <b>0.6700</b> | 0.0029        |
| I6                 | Non-provision of assistance           | <b>0.5392</b>   | 0.1317        | 0.2935        |
| I7                 | Vague directives                      | <b>0.7593</b>   | 0.0907        | 0.0381        |
| I8                 | Inadequate warm up                    | <b>0.4328</b>   | 0.0030        | 0.0461        |
| I9                 | Over exertion                         | <b>0.4210</b>   | 0.1591        | 0.2333        |
| I10                | Lack of clarification                 | <b>0.5279</b>   | 0.0852        | 0.0241        |
| S1                 | Teacher's absence                     | <b>0.4133</b>   | <b>0.6070</b> | -0.0160       |
| S2                 | Supervision by non-specialists        | 0.3697          | <b>0.6667</b> | -0.0507       |
| S3                 | Leaving students to their own devices | 0.0271          | <b>0.7647</b> | 0.2659        |
| S4                 | Putting class prefect incharge        | 0.1719          | <b>0.6474</b> | 0.1341        |
| S5                 | Risk taking                           | 0.3261          | <b>0.5464</b> | <b>0.6413</b> |
| S6                 | Infraction of Rules                   | 0.0541          | <b>0.7016</b> | 0.0231        |
| S7                 | Medical problems                      | -0.0053         | <b>0.6930</b> | 0.2133        |
| S8                 | Rough play                            | -0.0381         | <b>0.5410</b> | 0.0183        |
| S9                 | Fatigue                               | <b>0.5799</b>   | <b>0.4384</b> | 0.1544        |
| S10                | Inappropriate dressing                | 0.0746          | <b>0.7468</b> | <b>0.4553</b> |
| F1                 | Defective equipment                   | 0.2479          | 0.1239        | <b>0.6059</b> |
| F2                 | Congested playground                  | 0.2285          | 0.2922        | <b>0.5779</b> |
| F3                 | Deteriorating facilities              | 0.0527          | 0.1384        | <b>0.6700</b> |
| F4                 | Presence of dangerous objects         | 0.2084          | 0.1414        | <b>0.8030</b> |
| F5                 | Misuse of equipment                   | 0.0116          | <b>0.4327</b> | <b>0.5740</b> |
| F6                 | Unsuitable facilities                 | 0.2014          | 0.0120        | <b>0.7468</b> |
| F7                 | Lack of danger signs                  | 0.0560          | 0.0345        | <b>0.7373</b> |
| F8                 | Lack of safety equipments             | 0.0296          | 0.2000        | <b>0.4127</b> |
| F9                 | Presence of attractive nuisance       | 0.0243          | 0.0597        | <b>0.7359</b> |
| VARIANCE EXPLAINED |                                       | 22.2%           | 18.6%         | 14.1%         |

- The items that define a factor at 0.4 level or higher are highlighted (bold).

In general the meaning of a factor is determined by the item which load highly on it. In this study items or variables which loaded less than 0.4000 on the factor were omitted from consideration since they accounted for less than 16% of the variance. Thus all loadings in excess of 0.4 were emphasized regardless of whether certain variables were implicated in more than one factor. In terms of the varimax rotated solutions obtained in this study, twelve and not 10 (ten) items loaded on each factor.

#### **4.3.0 SUB-HYPOTHESIS ONE**

Sources of injuries in Physical Education classes are not significantly related to instructional variables.

Table 2 shows that factor I (labeled instruction) had an eigenvalue of 6.44. This is more than 0.998 acceptance level which was set for this study. Table 4 indicates that all the items under instruction i.e I1 to I10 had loadings of more than 0.4 on factor one. This indicates that the mode of instruction is highly related to sources of injuries in Physical Education Programmes. Consequently, the null hypothesis that sources of injuries in P.E classes are not significantly related to instructional variables is rejected. It is therefore asserted that sources of injuries in P.E classes are significantly related to instructional variables.

#### **4.3.1 DISCUSSION**

Factor 1, instruction, included items such as inappropriate modeling and demonstration, lack of progression, lack of safety tips, lack of individualization, non-correction of errors, non-provision of sporting, vague directives, inadequate warm-up, over exertion and lack

of clarification. This factor accounted for 22.2% of the variance with an eigenvalue of 6.44.

This factor involves various aspects of safe and effective teaching/learning such as recapitulation, explanation, individualization, evaluation progression and safety tips. As such it encompasses a wide range of components that are central to proper teaching strategy. The statements in the items under this factor, attempt to stress the link between inadequate instruction and occurrence of injuries. Thus, respondents who implicated instruction in sources of injury seemed to be emphasizing the need to avoid accidents. This was a valid concern since students take their cues from their teachers. This discovery corroborates Dougherty's et al (1994) assertion that the information given regarding a certain technique is not adequate unless warnings regarding potentially hazardous elements of the activity are highlighted. The same view is supported by Blucker and Pell (1986).

In addition, the whole process of teaching or learning can be fraught with danger if the teacher fails to exercise professional competence in terms of proper planning, delivery and modeling (Gary 1985 and Jensen 1993). From the observations of P.E class activities in the schools visited, it was discovered that only 20% of teachers gave feedback to the students about their level of success or errors in performing selected skills. For instance, the simple act of telling a student how to perform a physical skill does not guarantee success, and therefore the teacher needs to buttress his instructions by feedback, and remediation to the students.

The legal implications that could be drawn from the results discussed above is that any teacher who takes for granted instruction is likely to face a negligence lawsuit in case of an injury. The legal complaint is usually whether the student's injury was due to inadequate or improper instruction. Also, the question of whether students are competent enough to engage in various tasks arises as a result, (Henderson, 1985 and Gray, 1985).

Various cases come in handy to support the proposition that a teacher can be faced with a negligence lawsuit as a result of poor or inadequate instructions. *Dibortolo v. Metropolitan School District of Washington Township (1982)*, *Littler v. Bay View Area Red Cats (1989)* and *Moddejonge et. Al v. Huron County Board of Education (1970)* are examples of cases where teachers were found negligent as a result of poor instruction.

#### 4.3.2 SUB-HYPOTHESIS TWO

There is no significant relationship between lack of supervision and sources of injuries in Physical Education classes.

From table 2, Factor II which is labelled Supervision in table 3 and 4 had an eigenvalue of 5.37. It was therefore accepted since it had a eigenvalue of more than 0.998 which was the level of acceptance for principal factors. Table 4 shows that all the items on supervision i.e. S1 to S10 loaded highly on factor II i.e had loading of more than 0.4. This implies that the level of supervision provided during the teaching/learning of Physical Education classes is highly related to sources of injuries. Consequently the null hypothesis is rejected. There is a significant relationship between lack of supervision and

sources of injuries in Physical Education classes as shown by the eigenvalue of 5.376 thus accounting for 18.6% of the variance.

### 4.3.3 DISCUSSION

The variables included in this factor of supervision are teachers absence, leaving students to their own devices, putting class captains incharge, risk-taking skills, infraction of rules, medical problems, rough play, fatigue and inappropriate clothing. These statistics emphasize how the dimension of supervision or lack of it can make a difference between prevention and occurrence of an injury. Due to the extensive nature of activities involved in supervision, it is easy to see why it accounts for a sizeable percentage of the variance. For example, the fact that supervision embraces general and specific supervision, quality and quantity supervision, nature of activity engaged in and age of the student, the degree of supervision required varies.

Given the normal sizes of classes in the schools visited (on average about 45 students) such aspects like specific supervision to one student could lead to the neglect of the remaining 44 students. In such circumstances it is easy for injuries to occur in which case a teacher would be liable for negligence for failure to give general supervision (Dougherty et al, 1994). This happened in *Butterworth v. Collegiate Institute Board of Ottawa (1975)*, where a boy got injured while attempting to vault a horse during the time of the injury the teacher's attention was elsewhere.

Other significant aspects of supervision also shed light on why there was considerable loading of items on this factor. Subtle elements like the quality of supervision done by a teacher throughout the lesson is significant because, from our observations, it was found that students started engaging in activities well before the teacher called the class to attention and went on to practice some skills after the class was over. This is potentially risky because in both cases no supervision was taking place yet the students were involved in physical contact which raises the risk of an injury occurring. This observation is supported by Gray (1985) when he asserts that students should not be allowed to begin any activity prior to the arrival or after the departure of the supervising teacher. In fact, it was revealed that some of the highest loadings values were posted on particular items such as leaving students to their own devices (0.7647), other specific items of the questionnaire that showed high loading values are infraction of rules (0.7016) and inappropriate dressing (0.7468) all which are under supervision.

These findings strongly suggest that supervision was isolated as a source of injuries. For the teachers, this is a crucial observation because in case of an injury, and if it can be ascertained that the teacher offered inadequate or ineffective supervision she is liable for negligence. These findings are further supported by *Myers Peel v. County Board of Education* (1981), *Albers v. Independent School District* (1971) and *Guard v. Duncan School Trustees* (1946) whereby teachers were found liable for negligence for failure to provide adequate supervision.

#### 4.3.4 SUB-HYPOTHESIS THREE

There is no significant relationship between sources of injuries in Physical Education classes and safety of facilities.

Table 2 shows that factor III (labeled Facilities) in table 4 had a eigenvalue of 4.14. This is more than 0.998 acceptance level which was set for this study. On the other hand, Table 4 shows that all the items on Facilities loaded highly on factor III, i.e they had loadings of more than 0.4. This indicates that sources of injuries is highly related to safety of facilities. Consequently the null hypothesis is rejected. Therefore it is asserted that there is a significant relationship between sources of injuries in Physical Education classes and the safety of facilities.

#### 4.3.5 DISCUSSION

Factor 3, facilities, associated injury in Physical Education classes with unsafe facilities, because when facilities are not constructed, inspected or used safety they become death traps. The results of the study showed that the state and use of facilities was the third in importance as a source of injury behind instruction and supervision. It had a eigenvalue of 4.147 and accounted for 14.1% of the variance. The items in our questionnaire which covered this factor sought answers relating to the state of equipment, congestion of playgrounds, deteriorating facilities, improper placement of equipment and improvising of facilities.

The particular items that revealed the highest value in their loading were on this factor. The item which sought information relating to the presence of dangerous objects on the

playground posted a loading of (0.8030) on this factor. This is a valid observation because most teachers are not very keen on clearing the playground of any obstructive items or outright dangerous objects. The assumption usually is that the students will note these obstacles and avoid them as need arises. However, this a potentially hazardous assumption because students tend to get carried away by physical activities forgetting such things as objects on the playground. The case of *Scott v. State* (1956), where Scott got injured by a metal flag pole which was in the middle of a pitch, succinctly illustrates this.

Unsuitable facilities had a loading of 0.7468 implying that this is another area under facilities that has a strong relationship with sources of injuries. Unsuitable facilities has three main concerns that is; defective equipment, unsafe facilities bought and improper substitutes (improvisations). Defective equipment could be the worn out ones which need repair or replacement. It would appear from the results above that these equipment continue to be used even when they should be rendered inoperational or discarded. Where schools are cash-strapped and tend to go for cheap but unsafe facilities, the task of the teacher in this case would be to advice the school on the safety of equipment needed and decline to use unsafe ones that might expose students to injuries. It is evident, however, from loading of this factor that teachers fail in their duty of care to ensure no unsafe facilities are in use. Some of the unsafe facilities and equipment found in the schools visited include javelins, worn out protective equipment like shin guard and head guard for hockey, crossbars for high jump, unsafe landings and goal posts. Lastly and significantly is the aspect of improvisation, while it makes economic sense to improvise some of the

required equipment, this should not be an excuse for subjecting students to improper/unsafe equipment.

During the observational aspect of the study, the researcher came across a school where sawdust had been substituted for landing mattress. In itself, this is not dangerous but the saw dust had big pieces of wood in it which posed potential risk of an injury. The P.E teacher should have inspected the sawdust to ascertain its safety before allowing the students engage in any activity in the pitch. This observation is supported by Henderson (1985) and Dougherty (1994).

Other significant items, dealt with lack of danger signs (0.7373) and the presence of attractive nuisance (0.7359). These values indicate high correlation between these variables and occurrence of injuries. In any discussion of injuries the single most important issue to consider is prevention. As such, erection of danger signs should always be done where dangerous situations were foreseen. Yet, findings point to the fact that these danger signs are not put in place around the playgrounds. Clearly worded and posted safety rules help prevent accidents and shift the legal responsibility to the participant and not the teacher. Unfortunately, these danger signs and safety rules were conspicuously missing in all the school visited.

Finally regarding the presence of attractive nuisance, students in secondary schools are exploratory in nature and would be easily tempted by anything that attracts their attention. A swimming pool that is usually locked during the day would draw the

attention of the students if left open. They could attempt to swim which could lead to drowning. The loading of 0.7359 indicates that such attractive nuisances are common in conduct of P.E and contribute to occurrence of injuries.

#### **4.3.6 DISCUSSION OF DOUBLE LOADINGS OF SOME VARIABLES ON FACTORS 1, 2 AND 3**

Some of the items loaded on more than one factors namely, I3 (lack of safety tips), I5 (non-correction of errors), S1 (teachers absence), S5 (risk taking) S9 (fatigue) S10 (inappropriate dressing) and F5 (misuse of equipment).

These double loadings will be discussed specifically for what they underscore about the teaching of Physical Education. Failure to give safety tips by the teachers loaded both on instruction and facilities. Consequently, this means that if safety tips are withheld from the students injuries could result from the equipment they use in the field or from the way they carry out a given skill. In other words, if a teacher fails to give safety tips on potentially dangerous manoeuvres and equipment, we can trace the source of an injury resulting from her failure either from ineffective instruction or unsafe use of facilities.

Likewise, the double-loading of the item 15 implies that non-correction of errors is central to the overall quality of the instruction and supervision given. Indifference of teachers towards the errors made means that the teacher is negligent in the way she instructs and supervises and should an injury result, she would be held liable for negligence on both counts. Teachers absence from class S1 loaded on both supervision

and instruction, this points to the fact that a teacher's absence from class implies no instruction and no supervision whatsoever takes place. This strongly implicates the teachers as being negligent because it is reasonable to assume that in case of a teachers absence, the class could get unruly and engage in risky maneuvers. The possibility of an accident here is very real. Still on teachers absence, the reason why this item does not load on equipment is that should an injury occur a negligence suit would be based on both instruction and supervision not on unsafe equipment.

The variable of risk taking (S5) which lays emphasis on taking part on risky activities by students loads highly on both supervision and facilities. The reason why this is so is, when a teacher fails to supervise students' activities they are likely to engage in whatever form of activity regardless of how risky it might be. On the other hand, it also means that when the teacher fails to inspect the equipment/facilities there is a possibility that a potentially dangerous equipment would be left within student's reach and are likely to use it thus raising the risk of an injury. If adequate supervision would be provided then the teacher would stop the student from taking part in any risky activity. Likewise adequate inspection would ensure that all facilities/equipment are safe for use and also locked up to avoid misuse by students.

Fatigue is another item that loaded on instruction and supervision. This implies that when a teacher fails to provide adequate instructions and supervision students are likely to suffer from fatigue. What this means is that if they (adequate instruction and supervision ) would be provided then the teachers would be in a position to tell when the

students are fatigued and thus call off the class. Both use of defective equipment and misuse of equipment had double loadings on supervision and facilities. This is so because if adequate supervision is provided the teacher would ensure that only safe equipment are used by the students. Likewise, inspection of facilities/equipment would ensure that the defective ones are repaired or locked up to prevent students from using them.

Of the seven items that double loaded, three double loaded on instruction and supervision, three on supervision and facilities and one on instruction and facilities. It would appear, therefore that supervision is very strongly related to both instruction and facilities while the quality of instruction is not directly related to the condition of the facilities. This is valid because for instruction to be effective, the teacher must supervise the execution of the skill, for facilities to be safe the teacher must inspect them to ensure they are safe and supervise the class to ensure they use the equipment properly.

#### **4.3.7 SUB-HYPOTHESIS FOUR**

There is no interpretable underlying structure of factors which can be found among the 29 variables.

The results of the initial principal components presented in table two indicate that factors 1, 2 and 3 i.e instruction, supervision and facilities respectively, accounted for almost 55% of the total variance while the rest 26 accounted for the remaining 45%. In this case while factors 1, 2, and 3 had 22.2%, 18.6% and 14.1% respectively, the remaining factors

had between 3% to 0.3%. Consequently the null hypothesis is rejected. This implies that there is an interpretable underlying structure of factors among the variables.

#### 4.3.8 DISCUSSION

This implies that sources of injuries are related to these three factors which are central to the teaching and learning process of Physical Education. Although some of the items in the instrument defined factors other than those expected at the 0.4 level, the overall rate of agreement with expected loadings was about 80%.

The fact that some of the items loaded on more than one factor (Table 4) indicates that there is interdependence among these factors. This implies that in order for a teaching/learning process to be successful and free from any risks of harm all the three dimensions of instruction, supervision and facilities must be employed in totality. If for instance one of these dimensions is left out in a Physical Education class it means that the risks of an injury are raised. Good instructions and adequate supervision coupled with defective or inappropriate facilities could easily lead to an injury. Likewise, adequate supervision and safe and appropriate facilities without instructions are not in themselves complete since there is a likelihood of an injury arising from failure to give instructions.

#### 4.3.9 COMPARISON OF FACTOR SCORES OF TEACHERS AND PUPILS

Often when a researcher has a further analysis that follows the result of factor analysis, Factor Scores are used, such scores are simply a combination of variables that loaded on

a given factor. In this study part of the research questions, was to determine if any difference existed between teachers' and students' perception of the sources of injuries in Physical Education classes. In this case the computer was instructed to use the variables loadings in the two groups as the basis for weighting their contribution to the overall scores. Such combination of factor scores are presented in Table 5:

#### 4.3.10 SUB-HYPOTHESIS FIVE

There is no significant difference in factor scores of teachers and students regarding sources of injuries in Physical Education classes.

**TABLE 5: MEAN FACTOR SCORES FOR TEACHERS AND STUDENTS (SPSS OUTPUT)**

| FACTOR      | TEACHER n = 29 |       | PUPIL n = 283 |       |
|-------------|----------------|-------|---------------|-------|
|             | Mean           | S.D.  | Mean          | S.D   |
| Instruction | 0.935          | 0.733 | 0.985         | 0.749 |
| Supervision | 0.503          | 0.744 | 0.944         | 0.612 |
| Facilities  | 0.706          | 0.647 | 0.732         | 0.659 |

From Table 5 Comparison of the means indicated that lack of supervision was more implicated as a source of injury by students than by the teachers. However, differences in factor scores of instruction and facilities were apparently non significant. Therefore the null hypothesis is accepted regarding the variables of Instruction and Facilities, that is there is no significant difference between perception of teachers and students as regards to the mode of instruction and safety of facilities and sources of injuries in Physical

Education. However, as regards the variable of supervision null hypothesis is rejected as there is a significant difference between the perception of teachers and students and sources of injuries in Physical Education.

#### 4.3.11 DISCUSSION

The factor scores for the dimensions of instruction and facilities did not show any meaningful difference. For instruction, the mean for teachers and students were 0.935 and 0.985 respectively, while those of facilities were 0.706 for teachers and 0.732 for students.

However, the factor scores for the dimension of supervision were different for teachers and students (Teacher 0.503 and students 0.944). This is probably because the students partly regarded sources of injuries as due to teachers negligence on exercising their duty of care on supervision, while the teachers viewed laxity on supervision as less suitable explanation because it pointed an accusing finger at them. In addition due to their experience, training and certification most teachers might have felt it was a given fact that they offered a quality supervision. However it should be borne in mind that the level of training and experience cannot mitigate for a teacher should an injury happen due to her failure to supervise. These findings are corroborated by Dougherty et al (1994) when they asserted that the instructor could be found guilty of negligence regardless of his credentials.

## CHAPTER FIVE

### 5.0 SUMMARY CONCLUSIONS AND RECOMMENDATIONS

#### 5.1 SUMMARY

The purpose of this study was to establish and account for the sources of injuries in the conduct of Physical Education programmes in selected secondary schools in Nairobi Province. A triangulation design was used in this study in order to validate data collected in one way by cross-checking it with data collected in a second way. In this case data collected from P.E teachers was cross-checked with that collected from their students. The study used questionnaires to elicit the required information from the respondents. In addition an observational check list was used by the researcher in order to augment the information obtained from the questionnaires. A total of 283 students and 26 teachers from 15 public schools in Nairobi Province formed the sample.

The data collected was analysed using the (SPSS) Specifically, Factor Analysis was used for testing the multidimensionality of the factors that cause injuries. This instrument was the right one to reduce the raw data into manageable principal factors to allow further analysis of these factors.

Analysis of the data and discussion of the findings revealed that there were three principal dimensions that are central in the conduct of P.E programmes. These are instruction, supervision and facilities. They form the core of the teaching/learning

process. The findings also reveal that the three principal dimensions are interrelated in their causation of injuries in Physical Education classes.

## 5.2 CONCLUSION AND RECOMMENDATIONS

### Conclusions

Several conclusions emerge from this study:

1. Sources of injuries are significantly related to instructional variables such as vague directions, inadequate warm up and lack of safety tips.
2. Lack of adequate supervision in the conduct of Physical Education programmes has a strong relationship with sources of injuries.
3. Sources of injuries in Physical Education have significant relationship with the safety of facilities.
4. There is an interpretable underlying structure of factors which was found among the twenty nine (29) variables, these factors were isolated as instruction, supervision and facilities in that order of centrality to sources of injuries in Physical Education.

5. There is a significant difference in factor scores of teachers and students regarding supervision as a source of injuries in P.E class. However, there is no significant difference of these scores with regard to instruction and facilities.
6. Since the stated hypothesis has been rejected, the findings of this study compel the researcher to conclude that teachers have been implicated as liable for negligence in the area of instruction, supervision, inspection and provision of facilities.

### **Recommendations:**

- (a) A professional course covering legal and ethical issues of sports and games should be included in the teacher training syllabuses in both teacher training colleges and universities that train Physical Education teachers.
- (b) The Kenyan Education Act should recognize that the conduct of Physical Education involves inherent risks due to its very nature. As such the duties and responsibilities of the P.E teacher and those of the school should be made explicit in the light of the duty of care they owe to the students.

(c) The Education Act should include a clause requiring the parents and pupils to be sensitized about their legal rights regarding injuries sustained in the conduct of Physical Education Programmes.

(d) An attempt should be made to make teachers, parents and pupils liability conscious. This would help change their attitudes towards accidents. Most view accidents as the work of fate. Hence, this would ensure that all accident cases are reported and would go a long way in curbing the sources of injuries and therefore help in reducing the number of accidents/injuries in Physical Education classes.

### **5.3 SUGGESTIONS FOR FURTHER RESEARCH**

Form a research perspective it seems desirable for future scholars to conduct external validity of factor and cluster analysis presented in this thesis. This is necessary not only to generalize the findings beyond the geographical and time parameters of the present study, but also to redefine or refine the present instrumentation.

The findings of this study rest on 29 variables, the obvious questions are whether these are the right variables and which, if any important variable have been omitted. If by using different instrumentation, and comparable study population similar factors/solutions are obtained; then it can reasonably be ascertained that the findings presented here indicate sources of injuries in Physical Education.

A similar study can be replicated to include other areas of Physical activities. The findings of this study rest on data collected during Physical Education classes only. A similar study covering other aspects of sports like school games, intra and extra murals can be conducted to establish whether the findings of this study are applicable to these other areas.

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## APPENDIX A

### LETTER OF INTRODUCTION

Kenyatta University  
P.E. Department  
P O Box 43844  
**NAIROBI.**

Dear Sir/Madam,

I am a postgraduate student taking a degree of Master of Education in Physical Education. I'm undertaking a study on the conduct of Physical Education in Secondary Schools.

The purpose of this letter is to request you to complete the attached questionnaire which will help me accomplish my task. The proposed study is purely academic and therefore your responses will be treated with strict confidence.

Answering all the questions will be greatly appreciated. Thanking you in advance for your cooperation.

Yours faithfully,

**WAHOME PENINAH.**

## APPENDIX B

### Teachers Questionnaire

Section A:

Sex: Male ----- Female-----

School -----

Teaching experience ----- (Years)

Designation: P.E Teacher -----  
:P.E/Games Teacher -----

Section B: Instructions

Accidents occur during physical activities for a variety of reasons. Below are some of the causes of accidents in Physical Education classes. Please read through the statements carefully and tick how often students have been injured in your school due to each of these factors:

|   | Always | Often | Rarely | Never |
|---|--------|-------|--------|-------|
| 1. Situations where the teacher doesn't give Individual attention to all students |        |       |        |       |
| 2. Teacher's absence from class   |        |       |        |       |
| 3. Assigning the class to any other person other Person than the P.E. teacher     |        |       |        |       |
| 4. Failure to give adequate instruction   |        |       |        |       |
| 5. Failure to warn students of risks of a given sport                             |        |       |        |       |
| 6. Failure to write down danger signs   |        |       |        |       |
| 7. Failure to consider students age   |        |       |        |       |
| 8. Teacher's failure to consider individual differences in ability                |        |       |        |       |
| 9. Leaving students on their own  |        |       |        |       |
| 10. Students taking charge of others during teacher's absence                     |        |       |        |       |
| 11. Allowing students to freely choose the Activities to engage in                |        |       |        |       |



**Student's Questionnaire Section A:**

Sex Male----- Female-----

Class -----

School -----

**Section B: Instructions**

Here are some statements about what teachers and students do during Physical Education lessons. Think about how P.E is conducted in your school and tick one answer for each line.

|   | Always | Often | Rarely | Never |
|---|--------|-------|--------|-------|
| 1. We are given individual attention by the teacher to perform activity           |        |       |        |       |
| 2. We are warned of possible Dangers/injury when doing a skill                    |        |       |        |       |
| 3. The teacher does not manually Assist the students when necessary               |        |       |        |       |
| 4. The P.E. teacher is absent   |        |       |        |       |
| 5. There are danger signs in the play Ground                                      |        |       |        |       |
| 6. The teacher corrects errors or faults In student performance                   |        |       |        |       |
| 7. The teacher explains the steps to follow in performing an activity             |        |       |        |       |
| 8. Students misuse sports equipment   |        |       |        |       |
| 9. Students are required to wear Appropriate P.E. uniform                         |        |       |        |       |
| 10. Students are free to ask the teacher for assistance when a skill is difficult |        |       |        |       |
| 11. The playground tend to be congested During P.E                                |        |       |        |       |

**Always      Often      Rarely      Never**

12. The playground is not properly Maintained

|  |  |  |  |
|--|--|--|--|
|  |  |  |  |
|--|--|--|--|

13. Students who complain of being Sick are asked to take part in P.E lessons

|  |  |  |  |
|--|--|--|--|
|  |  |  |  |
|--|--|--|--|

14. A lot of students engage in rough Play during P.E. lessons

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|--|--|--|--|
|  |  |  |  |
|--|--|--|--|

15. We use defective equipment for P.E. lessons

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|--|--|--|--|
|  |  |  |  |
|--|--|--|--|

16. We learn skills by moving from the Simple to difficult ones

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|--|--|--|--|

17. The teacher gives us warm up Exercises at the beginning of every Lesson

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|--|--|--|--|
|  |  |  |  |
|--|--|--|--|

18. The teacher insists we continue with Activities even when we are really tired

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|--|--|--|--|
|  |  |  |  |
|--|--|--|--|

19. Students misuse equipment during P.E lessons

|  |  |  |  |
|--|--|--|--|
|  |  |  |  |
|--|--|--|--|

20. We are supplied with safety equipment When an activity requires it

|  |  |  |  |
|--|--|--|--|
|  |  |  |  |
|--|--|--|--|

21. We use sport equipment properly

|  |  |  |  |
|--|--|--|--|
|  |  |  |  |
|--|--|--|--|

22. We follow safety instructions during P.E classes

|  |  |  |  |
|--|--|--|--|
|  |  |  |  |
|--|--|--|--|

23. Students engage in dangerous Activities when their friends tell them to

|  |  |  |  |
|--|--|--|--|
|  |  |  |  |
|--|--|--|--|

- 24. Students who are unwell take part in P.E
- 25. The teacher inspects the play ground Before P.E. lessons
- 26. During P.E. classes we are free to Choose the activity to engage in
- 27. The class prefect takes charge of the P.E class when the teacher is absent
- 28. We are left on our own during P.E Class
- 29. We perform physical activities meant for older students

|  | Always | Often | Rarely | Never |
|--|--------|-------|--------|-------|
| 24. Students who are unwell take part in P.E                                   |        |       |        |       |
| 25. The teacher inspects the play ground Before P.E. lessons                   |        |       |        |       |
| 26. During P.E. classes we are free to Choose the activity to engage in        |        |       |        |       |
| 27. The class prefect takes charge of the P.E class when the teacher is absent |        |       |        |       |
| 28. We are left on our own during P.E Class                                    |        |       |        |       |
| 29. We perform physical activities meant for older students                    |        |       |        |       |

APPENDIX C

OBSERVATION CHECKLIST

NAME OF SCHOOL \_\_\_\_\_

CLASS \_\_\_\_\_

1. Are the students in the appropriate P.E. uniform \_\_\_\_\_
2. Does the teacher come to class \_\_\_\_\_
3. If yes in (2) what time does she come to class (on time or late) \_\_\_\_\_
4. Is there systematic progression of the lesson \_\_\_\_\_
5. Does the teacher give (a) clear instructions \_\_\_\_\_  
(b) Adequate instruction \_\_\_\_\_
6. Does the teacher demonstrate the activities before students engage in them \_\_\_\_\_  
\_\_\_\_\_
7. Does the teacher leave the class on progress \_\_\_\_\_
8. What is the state of the facilities/equipment \_\_\_\_\_
9. Are the equipment being used appropriately \_\_\_\_\_
10. Are there dangerous objects in the field \_\_\_\_\_
11. Are there clearly written, bold lettered warning signs \_\_\_\_\_

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