CHAPTER I

INTRODUCTION

"In field hockey when we see games break down, it's because the fundamentals have failed"

- Charlene Morett, head coach at Penn State University

Hockey is one of the many sports derived from pre-historic man’s delight in stick and ball games which gave the world such varied pursuits as the English Cricket, American Baseball and Persian polo. Its birth place was Asia and authorities credit Persia with having devised it about 2000 B.C. it said the Greeks and the Romans played hockey but nothing is known about the nature of the game that they played.

Chris Moore has defined hockey, a sport which emerged in the 19th century, has seen huge changes in the latter part of the 20th century. As we move towards the start of the 21st century even more changes can be expected. "It will be, through more evolution than revolution, and that is how it should be."

Hockey is a dynamic team game played by both sex requiring high level of skills, excellent conditioning and well co-ordinate team effort. Modern hockey demands that all the players should be adapted to all the situations either defending or attacking.

Hockey is a game which calls for strenuous, continuous, thrilling action and therefore attracts the youth all over the world. The skills involved are simple, natural and yet are highly inspiring and pleasing to any child. These skills are dribbling, pushing, flicking, scooping, tackling and dodging the opponent. Hockey is rated as one of the most popular team games in the world. With the involvement of Dhyan Chand, and Dung

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4 Ibid P.5.
Dung from India, this sport is getting a dimensional popularity in India, Asian countries and in other European countries as well.\(^5\)

Field hockey is a demanding vigorous sport that is growing in popularity. It combines intense physical activity and highly coordinates team play and has the potential for great spectator appeal. It has been somewhat slow to become popular at the school college level because of the expensive special equipment.\(^6\)

Field hockey is a complex game. A wider variety of skills is required for field hockey than for most other sports such as football or basketball, where the ball is bigger, the game is slower and fewer moves available. Accordingly, those who wish to learn and teach field hockey must master the complexity of the game. The way to come to grips with this complexity is to break down the game into these components parts and to tackle them one by one. This is a simple truth.

-Ric Charlesworth\(^7\)

In observation in field hockey of a top-level game it will reveal diversity of style and a wide range of stick work, usually built up through years of practice and experimentation. In hockey we concerned not only with skilled actions but also the way in which these skills are applied. Skill involves, therefore, not only technical expertise, but also are adapt one’s responses and asses beforehand the needs of the situation.\(^8\)

The game of hockey is largely depends upon skills, physiological make up of the body, psychological built up and motor qualities of the player. The performance of hockey is based on the proficiency of techniques such as dribbling, hitting, stopping, flicking, scooping and passing. A complete review of the game and findings enable to

\(^5\) Ibid P.5.
\(^8\) Winning Field Hockey For Girls, op. cit. P. 11
make structural changes within the framework of training and can establish improvement at all levels to achieve better performance in international competitions.°

Skill is functional in that it is designed and produced to achieve a known objective, and the success of that skilled action is determined by how nearly the original intention is achieved. It is important to understand the interpretation given to the word "skill". Skill involves the peculiar abilities of each player, linked with good timing and the appropriate application techniques to the game. Techniques, on the other hand, are specific skill actions. Techniques can be executed in isolation or they can be a part of a sequence of action depends upon what had gone before.°

As the sport is played on a synthetic surface, this places different strains on the body compared to grass. While the principle of specificity would dictate that a hockey training program should mirror the game as closely as possible, in this case there may be good cause to argue against training exclusively an artificial turf.°

The game of hockey is very complicated in terms of skills and team work. In this game, everyone should mastery over fundamental skills like dribbling, hitting, pushing, stopping etc. When one has mastered the fundamental skills of the games, he gets a feeling of well being. High level of performance otherwise known as playing ability in hockey depends upon proficiency over the fundamental skills.°

High level of performance of a hockey player depends upon fundamental skills. It is recognised that among the fundamentals, ability to dribble the ball, ability to hit, ability to push, ability to trap the ball, are of primary importance for high level of performance. A skill of the game plays a very vital role in the success of modern hockey.°

Each skill is having its own importance and application to different situation. A hockey player must master over skills to prove his proficiency. Now a day, hockey

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8 Palani, S. op. Cit. P. 9
13 Ibid.
matches are won by those teams who are more skilled. The perfection of these skills will have a direct impact on the total performance in the game.\textsuperscript{14}

Skill is the combination of brain and body. It is the movement of body, stick and ball carried out by players within the constraints of the game of hockey to overcome the problems is vast, but includes such things as 'controlling the ball', scoring goals in the 5 vs. 4 situation and team defense, i.e. The problem solving has to be done at individual, group and team levels. In addition to the obvious skill on the ball, it is important to recognize and develop the skill of the ball, i.e. the movement and positioning of players, which is of paramount importance when defending and provides the support play to the man in possession in attack.\textsuperscript{15}

The fundamental skills of field hockey—dribbling, pushing, rolling, hitting, passing, receiving, shooting and tackling— are extremely important to every player at every position. Concentrate on perfecting your field hockey skills first and in time your comfort level in performing those skills will raise. There are no shortcuts to developing proper technique. It takes practice, patience and determination and it can also achieve through the correct coaching and training.\textsuperscript{16}

Field hockey is a sport with a long history that has undergone quite rapid and radical change within the past decade. The advent of the synthetic playing surface has changed the technical, tactical and physiological requirements of the game at all levels but in particular elite level. In order to adapt to the technical evolution within the game, the players have to develop different skills to compete in different competition.\textsuperscript{17}

The last twenty five years, field hockey has been subjected to scientific analysis in a number of different ways including physiology, blood chemical analysis, psychologically, motor components and talent identification. In addition a numbers of paper have reported techniques to assess the physical performance capacities of field hockey players. All of these techniques related to physical fitness and ability of athletes

\textsuperscript{14} Ibid. P. 13
\textsuperscript{15} Ibid. P. 13
\textsuperscript{16} Ibid. P. 13
to play the game at near maximum performance levels and with a good understanding of the game and with a good skill too. 18

When one has mastered the fundamental skills of the game, he gains a feeling of well being, thus high level of performance in hockey depends upon the mastery over the fundamental skills. The players are skilful in the game when they can make the best decision about where and when to play the ball and then to perform the skills accurately. In any sports discipline the mastery over the fundamental skills is essential to the eventual success. The individual style of execution arises from the manner in which the task is executed in a unique way. A player will have a feeling of confidence when he masters over the skill. 19

Hockey is one of the fastest field sports being played on a 91.40/55 meters rectangular play field. The game had a rapid growth and development and switched onto artificial field nowadays. To play on such artificial field requires greater amount of speed, agility, power, endurance and neuromuscular coordination besides perfection of techniques or fundamental skills. There are a number of fundamental skills in hockey namely hitting, dribbling, pushing, scooping, stopping, flicking, tackling, dodging and passing. The good performance of a hockey player depends upon the perfection and proficiency of fundamental skills. 20

Among many performance variables in hockey the following variables have been selected for the investigation. They are dribbling, hitting and pushing and rolling. The execution of the performance variables may differ from one play field to another play field (i.e.) one field to other field.

Dribbling chosen for the study is one of the most important skills in the game of hockey. It is an art which will draw the attention of spectators. During the game when the defenders are in dangerous zone, completely covered by the opponents the defenders in

19 Muthuraman, op. cit., p. 14
20 Palani, op. cit., p. 19
position to clear the ball from the dangerous zone, dribbling is so useful and successful. Dribbling helps the forwards at the time of scoring when there is no chance to give pass or to take straight hit into the goal, to control the ball or to make possession of the ball dribbling is so useful. So every player, including the goalkeeper must be perfect in dribbling in all the playfields. Dribbling is one of the most enjoyable skills and considered as very important performance variables. Dribbling the ball in the artificial ground, gravel and grass field are more or less same but there may be slight difference in the body position while dribbling the ball in different playfields. The body position while dribbling the ball in the artificial field will differ from the body position while dribbling the ball in the grounds like grass and gravel. The ball moves faster in the artificial fields than the other two playfields.21

Hitting is another fundamental skill in the game of hockey. It is the most significantly skill involved in hockey. Hitting is used for long passes and clearing the ball from the dangerous zone by the defenders and mid-field players. To score goal during the penalty corner mostly hitting technique is used. To speed up the game, to give cross passes, and to give diagonal passes, hitting technique is used. When the ball crosses the side line “Hit in” is to be taken. For this the player must be proficient in executing hitting technique. The technique of hitting is very important to take 16 yards free hit, and also to take long corner hit. Hence every hockey player must be perfect in executing the hitting technique at any time.22

The ball hit will travel fast in the artificial turf field compared to grass field and gravel ground, whereas the ball hit will move slowly in the grass field. So the magnitude of force applied to hit the ball may vary depending on the nature of the field. The players who are experienced in playing at different field may hit the ball with the force what is needed at that situation and thus hitting plays a vital role in the performance of hockey.

21 Ibid P. 20
22 Ibid
The body position may also differ while executing the hitting technique from player to player, level of participation, experience and also from one field to another ground.\(^{23}\)

In team game like football, basketball, handball and hockey, the ability of the players to link together and to maintain possession of the ball is largely depend upon effective passing which ultimately leads to a team success. It is the ability of player to play the ball between teammates, either through hit, push, flick, or scoop. The importance of pass is to keep the possession of the ball, and to gain the ground to initiate an effective attack.\(^{24}\)

For an effective pass, a player must have an idea to use the right stroke at the time to get maximum advantage of the execution. The pass should aim either to eliminate an opponent, to force the opposition’s defense to reorganize or to retain possession of the ball.\(^{25}\)

Pushing is one of the good skills many players use in the game. Players use this skill when they want to pass the ball to his own team or to score a goal and it is easy for the receiver to collect the ball and get possession of the ball whenever his teammate uses the push and the ball travels along the ground.\(^{26}\)

1. Push is good for clearance, in dangerous zone.
2. For forwards push is beneficial for placements.
3. Push is easier to stop than hit.
4. It is good for short passing game.
5. Push is more accurate than hit.
6. Push stroke is more advantage in penalty corner and penalty stroke.
7. Push is used for clearance.

\(^{23}\) Ibid P. 21
\(^{24}\) Muthuraman, op. cit., P. 25
\(^{25}\) Ibid
\(^{26}\) Ibid
Rolling refers to the skilled ball movements that accompany footwork, change of direction and body swerve and balance. Most important, in rolling is the ability to keep the ball close to the stick. Losing control of the ball adversely affects the execution of your next move. Your next move may be passing, dribble or shot on goal depending upon the situation and on your ability. It allows you to keep possession of the ball by moving into open areas of the field and away from opponents, it creates space for teammates to use, and lead to goal scoring opportunities.

The purpose of the rolling is to maintain possession by using side steps to go around an opponent. Getting the ball position in the shortest amount of time requires a consistent relationship with the ball, your feet and the stick. For good rolling, the ball must be next to your stick head, which is on the ground in a push position. This position will enable you to easily scan the field to pass or dribble or to elude an advancing opponent.

Training is a learning process that involves the acquisition of knowledge, sharpening of skills, concepts, rules or changing of attitudes and behaviours to enhance the performance for the individuals. Through training an individual can develop his fitness and required movements.27

As per the requirement to play the game physical development, physiological development, development of all motor components can be developed by the various training means and method but for the development of skill and tactical knowledge coaching is very necessary. Coaching brings together many different types of people with a range of experiences that can all benefits the development of our players. Some may have a high level of playing experiences, some may have children involved and some may be returning to the game after an absence. Some may be looking to make a career out of coaching and some just want to be involved for the enjoyment of helping.

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Field hockey coaches are constantly on lookout for the drills and skills that going to make their player bettered. Further, being able to put these drills together with a practice plan to reinforce those skills makes it all the more effective.

In field hockey a competitive athletic team, a coach’s major concern is matching appropriate players to available team positions. This process is crucial for the quality of the social psychological relationship, physical and psychological relationship as well as for their level of skill.

In coaching the fundamentals of hockey every emphasis should be played upon the development of a high skills and control. These basic skill act as a framework upon which to build the complicated and advanced aspects of the game. Skills can be introduced by demonstrating allow the player to practice make any change to major errors and reward for good effort.28

The art of teaching and coaching lies in knowing for what activity (a technical move, tactical behaviour or a complex competition) the player is prepared for at a particular stage of physical and mental development as well as for technical development. Unfortunately, it is the force of habit that constitutes the greatest obstacle to progress in youth hockey. Traditional methods are often followed blindly without going sufficient thought of the consequences, both in training as well as in the structuring of youth competition.29 This shows the coaches have to face major problems for effective method of conveying information to learners and players. Traditionally, the use of instruction to augment demonstrations and practice opportunities has been at the forefront of the most sports coaching programs. However, a growing amount of experimental evidence investigating the role of explicit and implicit learning process suggests that the use of

instructions may be necessary, and in some instances, lead to performance degradation rather than enhancement.  

According to many authors knowledge can be explicit or implicit (Berry & Broadbent, 1984, 1987, 1988; Hayes & Broadbent, 1988; Reber, 1967, 1976, 1989; Reber & Allen, 1978). Explicit knowledge is made up of facts and rules of which we are specifically aware and therefore, able to articulate. Implicit knowledge is made up of that which we 'know' yet are not aware of and thus, cannot articulate. Reber (1989, p.219) claims that the term ‘implicit learning’ was originally employed to describe the development of “intuitive knowledge about the underlying structure of a complex stimulus environment”.  

Some researchers have proposed that perspective information about a movement (Hodges & Franks, 2002; Hodges & Lee, 1999) should be withheld, resulting in the movement being learned in an implicit, non verbal manner (called no instruction or unguided instruction) and learning conditions may induce exploratory problem solving process (Hodges & Le, 1999; Williams et al, 2002) and so the same learning condition may result in learning the movement in an explicit verbal manner (guided instruction).

Implicit learning refers to the acquisition of information without awareness of what is being learned or sometimes even the intention to learn (Perrig, 1996; Throndike & Rock, 1934). Implicit learning is non episodic learning of complex information in an incidental manner, without awareness of what has been learned. Implicit learning method typically contain no formal instruction about how to perform the skill yet result in a
learner being able to perform the skill despite being unable to verbally describe how they do it.\textsuperscript{33}

There is evidence to suggest that people can learn implicitly, yet are unable to verbalize how they perform movements that allow the achievement of goals such as optimizing force generation (Master, 1992) \textsuperscript{34}

To create a truly implicit learning condition, researchers have sought means of drawing attention away from performance of the task at hand. This has typically involved the use of secondary task paradigm where learners attend to a secondary task while performing the primary task. The basic premise is that attention to the secondary task precludes the opportunity for learners to react on the learning of the primary task and hence accumulate explicit knowledge about how it is performed. However, when examining the acquisition of motor skills in natural settings, the dual-task method can be difficult to administer (Maxwell et al. 2000).\textsuperscript{35}

In particular, the secondary task is typically a mentally strenuous imposition (particularly for novices), lacks contextual specificity and typically causes suppressed practice performance (relative to that of explicit learners) that remain even after extensive practice. Collectively, these factors can lead to a reduction in the participant’s confidence in their ability to learn the skill (Liao & Masters, 2001).\textsuperscript{36}

Explicit learning can be related to traditional coaching approaches where verbal instruction is used to coach a learner about how to perform a skill. This process typically results in the learners being able to verbalize how to perform the skill, although it does not guarantee the learners can physically execute the skill. Explicit knowledge can be deliberately accessed and verbally communicated to other individuals.\textsuperscript{37}

\textsuperscript{33} Ibid
\textsuperscript{35} Ibid
\textsuperscript{36} Ibid P. 473
\textsuperscript{37} Farrow, op. cit.
Explicit teaching involves directing student attention towards specific learning in a highly structured environment. It is teaching that is focused on producing specific learning outcomes. Topics and contents are broken down into small parts and taught individually. It involves explanation, demonstration and practice. Children are provided with guidance and structured frameworks. Topics are taught in a logical order and directed by the teacher. Another important characteristic of explicit teaching involves modelling skills and behaviours and modelling thinking. This involves the teacher thinking out loud when working through problems and demonstrating processes for students. The attention of students is important and listening and observation is the key success.38

Explicit instruction being with setting the stage for learning, followed by a clear explanation of what to do (telling), followed by modelling of the process (showing), followed by multiple opportunities for practice (guiding) until independence is attained. Explicit instruction moves systematically from extensive teacher input and little student responsibility initially – to total student responsibility and minimal teacher involvement at the conclusion of the learning.39

It is called explicit because it is unambiguous and direct approach to teaching that includes both instructional design and delivery procedures. Explicit instruction is characterized by a series of support or scaffolds, whereby students are guided through the learning process with clear statements about the purpose and rationale for learning the new skill, clear explanations and demonstration of the instructional target and supported practice with feedback until independent mastery has been achieved. Rosen shine (1987) described this form of instruction as “a systematically method of teaching with emphasis on proceeding in small steps, checking for students understanding and achieving active and successful participation by all students”.40

Reber (1989) has argued that implicit learning involves the acquisition of deep information about event sequence structure not typically conveyed by verbal instruction and it is this deeper encoding that enhances retention of the information. In comparison, there is uncertainty about the use of traditional explicit approaches such as coach-directed cueing to key information of sources or the provision of detailed instruction about how to perform a motor skill. There is some evidence to suggest that explicit learning makes participants aware that there is a rule to be discovered and can disrupt implicit learning process that are otherwise effective in allowing participants to make use of sequence dependencies present in the display.\(^4\)

Despite the intuitive attractiveness of implicit learning, the limited research conducted on the topic within the motor learning has left a number of pertinent issues unresolved. A particular methodological concern has been the use of the 'verbal rule formation protocol as an indicator of the presence or absence of implicit learning (e.g. Master, 1992).\(^2\)

Explicit learning involves the use of specific instruction about how to develop a particular skill and concomitantly results in the acquisition of a large verbalizable knowledge base about how to perform the skill being acquired. In contrast, implicit motor learning is acquisition of a motor skill without the concurrent acquisition of explicit knowledge about the performance of that skill (Maxwell et al. 2000, p.111). Although the definitions of the two modes of learning are relatively unambiguous, their contribution to the skill acquisition process is not. Debate exists about the impact of explicit instruction (and subsequent explicit rule formation) on the motor system’s natural tendency towards implicit learning processes (Beek, 2000). Masters (2000) advocates minimization of explicit rule formation through the use of implicit learning approaches,

\(^2\) Archer, A. L., & Hughes, C. A. op. cit., P. 2
while Beck (2000) argues that verbalizable knowledge develop because explicit learning is limited and may not necessarily be damaging to motor performance in all contexts. 43

Coaches need effective method of instruction and demonstration for the skill as well for the tactical knowledge. Hence, the implicit instruction and explicit instruction strategies may provide the alternative approaches of instruction and demonstration of skill for the learners which can help them to improve the coaching and teaching skills.

The secondary aim is to assess two fundamentally different instructional methods for conveying the expert information sources to the learners. Specially, explicit and implicit instructional methods of learning were examined within the different instructional technique of training (implicit and explicit) with the intention of determining (a) whether an implicit mode of instruction promotes skill acquisition of performance in similar way to explicit modes of instruction and (b) whether the both implicit and explicit instructions will promotes skill acquisition of performance together.

DEFINITION AND EXPLANATION OF TERMS

Dribbling: Horst Wein has defined that dribbling was to proceed further having full control over the ball in a required speed towards the desired directions preferably towards the opponent’s goal. Skilful fast run with the ball kept close to the hook of the stick.

Hitting: It can be defined as striking the ball using a swinging movement of the stick towards the ball. Used to move the ball long distances such as when shooting at goal, taking free hits or passing cross-field.

43 Farrow, D., & Abernethy, B. op. cit., P. 472
Rolling: It refers to the skill in which the ball movement that accompanies footwork, change of direction and body swerve and balance. Most important, in rolling is the ability to keep the ball closest to the stick.

Pushing: It is an action to move the ball along the ground using a pushing movement of the stick after the stick has been placed close to the ball. When push is made, both the ball and the head of the stick are in contact with the ground. It is used to move the ball speedily over shorter distances. With no back lift, the stick stays in contact with the ball as the stick is followed through.

Implicit: It refers to the acquisition of information without awareness of what is being learned or sometimes even the intention to learn. Implicit learning is non episodic learning of complex information in an incidental manner, without awareness of what has been learned. Implicit learning method typically contain no formal instruction about how to perform the skill yet result in a learner being able to perform the skill despite being unable to verbally describe how they do it.

Explicit: It can be related to traditional coaching approaches where verbal instruction is used to coach a learner about how to perform a skill. Explicit teaching involves directing student attention towards specific learning in a highly structured environment. It is teaching that is focused on producing specific learning.

STATEMENT OF THE PROBLEM

The purpose of the study is to explore the effect of implicit and explicit instructional techniques in learning different skills of hockey on novice players.

OBJECTIVE OF THE STUDY

The objective of the study is to expose the effective instructional techniques in skill learning.
RESEARCH QUESTION

➢ Apart from the traditional skill demonstration and instructional approach is there any effective alternative approach?
➢ Will the instruction techniques help to the coaches and teacher to enhance their coaching and teaching skills?
➢ Is the implicit or explicit mode of instructional technique similar to promote the acquisition of performance for novice player?

LIMITATION

The uncontrollable factors like climatic condition, dietary habits and emotional conditions etc. At the time of testing might influenced the results of this study.

DELIMITATION

1. The study was delimited to the students of Lakshmibai National Institute of Physical Education.
2. The age group of the students was range between 19-24 years.
3. The duration of the study was delimited to eight weeks (thrice in a week).
4. The study was further delimited to the implicit and explicit instructional techniques.
5. The study was delimited following fundamental skills of hockey training i.e. hit, push, dribble and rolling.

HYOTHESIS

➢ There will be a significant difference in the pre and post data on selected variables due to different instructional trainings.
➢ There will be a significant difference between the effect of implicit and explicit instructional techniques on learning different skills of hockey on novice player.
SIGNIFICANCE OF THE STUDY

- The findings of the study can be helpful for the coaches and physical educationist to know about implementation of new instructional techniques.
- The study will help the coaches for training the novice players.
- The findings will reveal the effect of implicit and explicit instruction techniques on skill learning.
- The study will be helpful in the planning for the coaches of hockey skills.
- The study will act as a guideline for hockey coaches to adopt instructional techniques in training.
- It will give the bases of training to improve the hockey skill of novice players.