IMPACT OF SPORTS ON THE COGNITIVE DEVELOPMENT OF CHILDREN

A Thesis Submitted to the Master's Program in Sports Science
Faculty of Humanities and Social Sciences, Tribhuvan University
In partial fulfilment of the requirements for the Degree of the
Master of Arts in Sports Science

Submitted By :
Dilip Prasad Adhikari
Symbol no: - 284702/2021
T.U. Regd. 5-1-37-550-98

Master's Program in Sports Science
Faculty of Humanities and Social Sciences
Tribhuvan University
Kirtipur, Kathmandu

May 2023

DECLARATION

I hereby, Declared that this thesis **"Impact of Sports on Cognitive Development of Children".** Is my original work. No part of it was earlier submitted to any university, college, or educational institution. The sources used and quoted in the research are indicated and acknowledged as references.

Date: - 2079/12/16
2023/03/30

…….
Dilip Prasad Adhikar
T.U. Regd. No: - 5-1-37-550-98

त्रिभुवन विश्वविद्यालय
Tribhuvan University
मानविकी तथा सामाजिकशास्त्र संकाय
Faculty of Humanities and Social Sciences
खेलकुद विज्ञान स्नातकोत्तर कार्यक्रम
Master's Programme in Sports Science

Ref. No./ पत्र संख्या:

Date/ मिति:

RECOMMENDATION LETTER

This thesis entitled **Impact of Sports on Cognitive Development of Children** is an independent work of Mr Dilip Prasad Adhikari, Completed under my guidance and supervision. I hereby forward this thesis for final evaluation.

Date: - 2080/01/08
2023/04/21

.....
Prof. Dr Ram Krishna Maharjan
Supervisor
Master's Program in Sports Science

कीर्तिपुर, काठमाण्डौ, नेपाल Kirtipur, Kathmandu, Nepal

त्रिभुवन विश्वविद्यालय
Tribhuvan University
मानविकी तथा सामाजिकशास्त्र संकाय
Faculty of Humanities and Social Sciences
खेलकुद विज्ञान स्नातकोत्तर कार्यक्रम
Master's Programme in Sports Science

Ref. No./ पत्र संख्या: Date/ मिति:

APPROVAL SHEET

The thesis entitled **Impact of Sports on Cognitive Development of Children** prepared by Mr Dilip Prasad Adhikari, for the partial fulfilment of the requirement of a master's degree in sports science, has been approved.

The Evaluation Committee	**Signature**
Mr. Ganga Bahadur Thapa Magar Coordinator, Master's Program in Sports Science University Campus T.U. Kirtipur	…… Coordinator
Prof. Dr Ram Krishna Maharjan Master's Program in Sports Science University Campus T.U. Kirtipur	…….. Supervisor
Bidhan Acharya Senior Researcher Social and Academic Innovations (SAIPL)	…… External Examiner

Viva Date: 2080/02/10
(2023/05/24)

कीर्तिपुर, काठमाण्डौ, नेपाल Kirtipur, Kathmandu, Nepal

ACKNOWLEDGEMENTS

Foremost, I would like to express my special thanks and gratitude to my supervisor, and mentor Prof. Dr. Ram Krishna Maharjan for his continued support and encouragement to complete my research work successfully in time.

Besides my supervisor, I would like to extend my gratitude to Mr. Ganga Bahadur Thapa Magar, Coordinator of the Master Program in Sports Science, and Other Faculty members for their cooperation provided to complete this thesis.

My research work could not have been accomplished without the support of different public schools, Students of Kathmandu Metropolitan City. I am thankful to them.

Dilip Prasad Adhikari

ABSTRACT

Cognitive Development is how children think, explore and figure out things/problems/challenges. It is the development of knowledge, skills, problem-solving qualities, and handling situations. Which helps children to think and understand the society around them.

There are a lot of factors that can affect cognitive development like genetics, sex, nutrition, sports, education, social influences, etc. Sports involvement during growing ages is very important for children's healthy development. Sports help to build strong physical, mental, and cognitive development in children. Sporting activities are as important as academic activities for students' cognitive development.

Thus, the Government of Nepal integrated sports into the academic curriculum although the implementation part is very weak in public schools of Kathmandu metropolitan city.

The title of this study is "Impact of Sports on Cognitive Development of Children." This research was based on a descriptive research design. The main objective of the study was to identify the current status of the cognitive development of children. Respondents to the study were selected using a stratified random sampling method. The sample size was 356 students of class Eight from the public schools of Kathmandu metropolitan city. The questionnaire was used as the main tool to collect data.

This study found that the cognitive development of sporting students was comparatively higher than non-sporting students. About 90% of sports student's cognitive development was at an excellent level, on the other hand only 52% of non-sports student's cognitive level was at an excellent level.

This study revealed that all sports student's cognitive development crossed the average level, and no sports student's cognitive development measured below average, on the other hand, 2% of non-sports student's cognitive development measured below average.

This study found that sports involvement in public schools of Kathmandu metropolitan city is very low, female student’s involvement in sports were lower than male, which is very sad. Public schools are not accepting that sports and academic activities are equally important for children's overall growth and development. Most public Schools do not have sports facilities within their premises and few schools do not have open space in schools, and few public schools are using small open spaces as parking spaces. These all problems in public schools need to be addressed.

TABLE OF CONTENT

LIST OF TABLES

LIST OF FIGURES

CHAPTER – I

INTRODUCTION

1.1Background of the study

The modern lifestyle and living patterns are not healthier for humans especially, for children. It can affect the physical as well as cognitive development of children. Similarly, the digital lifestyle is leading children to neglect physical activity at their growing age. Physical activity is very important for children in growing age, not only for healthier growth and avoiding obesity but also for good physical and mental health. Lots of research shows that less active children have visible different problems like posture problems, somatic conditions, and being overweight.

Some researches show that those children who participate less in physical activity are more aggressive than those who actively participate in physical activity. The risk of illness is higher in inactive children than in active children(*WHO1990*). Children should spend more time in physical activity as much as possible, According to World Health Organization (WHO 1990), Children should spend at least 60 minutes of physical activity every day for physical and mental well-being. Whenever possible children should walk, if possible let them walk to school from home for 15 to 20 minutes every time. Teach them to use a staircase instead of a lift, and teach them to use bicycles instead of using bikes and cars. This small activity can be very useful for healthy physical as well as cognitive development. Physical activity or sports helps children to gain better physical and cognitive health, increase their immune system, and better motor skills. (*WHO Physical Activity Guideline 1998*)

There are different games with different rules in the sports world. Most of them involve physical activities that are done either by individuals or teams. Sport can play for leisure, and entertainment as well as to compete against other, sports is very broad. Many types of research already proved that sports are very beneficial for children. (*British Journal of Medicine 2013)*

Sports really can be one of the best tools to keep a person's life healthy. When we talk about child/children we all are more concerned about their physical and mental health,

so sports can be the best tool to keep them healthier in their growing ages. Sport is very essential for a child's overall personality development (*British Journal of Medicine 2013*). Sport is more than just a physical activity; it helps to improve children's concentration. Sports can play a great role in advancing education and enhancing the knowledge of children(*Sports and child development 2011*). Sports helps to regulate the oxygen supply to the brain, and helps to make strong joints, muscles, and bones (*Fletcher 2003*). Sports help children to build better personalities, better physic, and better psychological and social skills. To understand the impact of sports on children we need to understand the meaning of Child, play, games, and sports.

A child can be aged below 18 years, (United Nations High Commission for Human Rights 1989). Similarly, a child is generally anyone between birth to puberty. *(Oxford University Press 2010*). Likewise, a child is a human being who is not yet an Adult. (*Collin Dictionary*)

Sport is a form of game played by children and adults where the players train for physical skills. Sports become a universal medium through which people of different cultures, Countries, races, gender, and ages can communicate and set standards. Sports become a modern art.

Play is a learning process and the importance of play in children's development is indicated by the energy and time spent on the playing ground. *Bill Harper*, A sport philosopher stated that " Play is a voluntary, spontaneous, light and one of the traditional sources of pure pleasure for humans" (*Gilbert, 1975).* He believes that play is motivated by nature.

In this research, we will try to find out the impact of sports on the physical and cognitive development of children. This research will find out the difference between sporting and non-sporting children's physical and mental health.

This research will help to understand the eating, sleeping, playing, and other habits of the Nepalese children. In Nepal, most parents believe that those who involve in sports are not good at education/ study. This research will try to remove this wrong concept about sports from parents' minds.

1.2Statement of the problem

Sports nowadays play a huge role in people's lifestyles daily. which could be either for fun or for fitness reasons. Sports are a tool for educating children. Many studies have proven that sports are more often played for recreational purposes (*Carleton University Article 2014*). Thereby underestimating the educational value and benefits of sports in the lives of children. Therefore it is necessary to look in to impact of sports.

Sports are very important for growing children. It is very important for physical and psychological development. Sports build the tolerance capacity of children, sports teach them how to manage anger, and sports keep children away from frustration and anxiety (*Sports and child development 2011*). Sports build the leader within them. With the help of sports, children understand different cultures and societies *(The influence of the family in the development of talent in sport).* A child is the future of society, healthy children can create a healthy society.

Sports have a lot of good things within but in the Nepalese context it is different, most Nepalese think the sporting activity is a waste of time. They think those who are not good in study or can not study well shifted to sports. All these negative beliefs are found everywhere in the Nepalese society.

Very little research is found in Nepal on sports and their impact. Researchers have not found any research on sport's impact on children's physical and cognitive development. The national sports council has no records of researchable works on sports and their impact on school children. In this situation, this study will be one to help in the field of games and sport's impact on children's cognitive development. This study also helps to understand the parent's attitude towards children's involvement in sports.

So in this study, we will try to find out

- Why does society think that sports can spoil children's education?
- Do sports help you to live a healthy life?
- Will try to find out the better educational performances between sporting and nonsporting children.

- Will try to find out the level of confidence of children in between sporting and nonsporting backgrounds.

1.3 Objectives of the study

The main objective of this research is to find out the impact of sports on the cognitive development of children. It will also try to find out these objectives during the research.

- To identify the impact of sports on children's behavior
- To find the positive and negative impact of sports on children's education.
- To find the mental health of Nepalese children.

1.4 Formulation of the research questions

This research can help to understand the following things

- What is the impact of sports on school children?
- Impact of sports on cognitive development of the school children.
- What is the parent's attitude towards sports?
- Food patterns of the children.

1.5 Significance of the study

The study mainly focuses on the impact of sports on the cognitive development of school children. This study will explore the mental and socio-psychological impact of sports in the study area.

The following are the significance of this study

- This research will help to understand the relationship between Sports and Study
- This research will help to understand the importance of sports at the school levels
- This research will help parents to build a positive attitude toward sports
- This research will help schools to create a sporting environment integrated with the educational curriculum.

- This research will help to understand sports are not only for physical development but also for cognitive development

1.6 Delimitation of the study

The Delimitation of this study is as follows

- This study only focuses on the cognitive development of school children.
- Kathmandu metropolitan city's public-school Sports teachers and students of class Eight are the respondents of this study.
- Research data were collected from Kathmandu metropolitan city.

1.7 Definitions of the terms

1.7.1 Impact:- Having an effect, benefit, or contribution to economic, social, cultural, and other aspects of society.

1.7.2 Sports:- An activity involving physical exertion and skill in which an individual or team competes against another for entertainment.

1.7.3 Child: - A boy or girl from the time of birth until he or she is an adult. Or someone who has been influenced by a particular period or situation.

1.7.4 Sports Participation: - Purposeful active participation in sports-related physical activities performed during leisure time.

1.7.5 Social Influence: - Any change in an individual's thoughts, feelings, or behaviors caused by other people.

1.7.6 Motivation: - Motivation is an inner feeling which energizes a person to work more.

1.7.7 Genetics: - Genetics is the study of heredity and how qualities and characteristics are passed on from one generation to another through genes.

1.7.8 Physical Development:- Advancements and refinements of motor skills can be defined as physical development. Or we can say children's ability to use and control their bodies.

1.7.9 Cognitive Development:- It can be defined as how children think, explore and figure out things. It is the development of knowledge and skills which helps children to think about and understand the world around them. Brain development is a part of cognitive development.

1.8 Organization of the study

This study was organized as an Introduction with general background, statement of the problem, Objectives of the study, Significance of the Study/ Rationale of the study, Delimitations of the study, Definition of the key terms of the Research, and organization of the study.

Both Theoretical and Empirical literature reviews were described in Chapter II.

The methodology and research design are presented in Chapter III. This chapter described what was done, how it was done, what was needed, types of data gathered and instrument required for data collection and processing, Data evaluation, validity and reliability of data, it also this chapter outline how the source of data was selected and analyzed to get the conclusion.

-Results, finding, and a discussion of the qualitative data and quantitative data were presented in Chapter IV.

The summary, conclusion, and recommendation regarding the findings of the study were included in Chapter V.

CHAPTER – II

REVIEW OF THE RELATED LITERATURE

The literature review aimed to evaluate the different perspectives and opinions of different authors or scholars regarding the impact of sports on children's cognitive development based on my thesis topic. The review was focused on the impact of sports on children's lives.

Sporting activities are more often known as leisure activities. Sports participation and the development skills of children are interrelated. Sports is a form of physical activity or games through participation that aim to maintain or improve physical and cognitive ability and skills while providing enjoyment to participants or entertainment for spectators.

Sports as a whole is a very hot topic in modern society there are many publications on sports. Most of them are concerned/focused on the healthy development of children through sports.

For this, Different books, journals, previous research work, reports, articles, plans and policies, and other published and unpublished documents related to the subject were reviewed.

2.1 Review of the theoretical literature

The theoretical literature review is one of the important components of the thesis. A good theoretical literature review gives a strong scientific research base and support for the thesis. It provides scientific justification for an investigation. The theoretical literature review is the foundation from which all knowledge is constructed for the research. Without a theoretical review, the thesis is unclear or we can say blind. The theoretical review gives a clear structure vision and good structure for the thesis.

In this review researcher aim to dig out the "impact of sports on the physical and cognitive development of the children". Different aspects of the research topic are discussed accordingly.

Erikson's Psychosocial Development Theory (1902-1963)

According to Erikson's theory personality develops through eight stages of psychosocial development, from infancy to adulthood. In each stage, a person experiences a psychosocial crisis which could have positive or negative outcomes for personality development. Those stages describe growth, and change through, focusing on social interaction and conflict that arises during different stages of development.

Erikson believed that social interaction and experience play very important roles in psychological and behavioural development. According to him in each stage, children and adults face a development crisis that brings a turning point in their life.

Piaget's Cognitive Developmental Theory (1896-1980)

Cognitive theory describes the development of a person's thought process or we can say it deals with the thinking process of a human.

Jean Piaget explained how children's development of thought processes is influenced by their intelligence. Piaget's cognitive theory explains that intelligence grows and develops through a series of stages. Older children do not just think quicker than younger children. Jean Piaget proposed that humans progress through four developmental stages.

From birth to 2 years, child knowledge is limited to sensory perceptions.

Age of 2 to 6 years, the Child learns to use language. At this stage, he/ She does not understand the logic. Unable to manipulate information and unable to take a point of view of people.

From the age of 7 to 11 years, Children get a better understanding of mental operations. They start to think logically.

From the age of 12 to adulthood, they start to think abstract concepts, logical thoughts, systematic planning, and deductive reasoning.

Social Learning Theory (1977)

Social learning theory by Albert Bandura (1977) emphasized the importance of observing, modelling, and imitating the behaviors, attitudes, and emotional reactions of others. Social learning theory considers how both environmental and cognitive factors interact to influence human learning and behavior.

Bandura proposed four mediational processes for social learning

1. Attention: - to learn you need to pay attention.
2. Retention: - without attention you cannot remember, your attention will help you to perform later
3. Reproduction: - once you paid attention and retained the information then only you can perform the behavior you observed.
4. Motivation: - once you motivate by your observation then only you imitate that behavior. The reward and punishment that follow a behavior will be considered by the observer.

Summary of theories

Among different psychosocial theories researcher applied three psychosocial theories related to the research topic. Erikson's Psychosocial development theory, Piaget's Cognitive development theory, and Bandura's Social learning theory.

Erikson's psychosocial development theory (1902-1963) describes that personality develops in a predetermined order through different psychosocial development from infancy to adulthood. During each stage, a person experiences a psychological crisis which could have positive or negative outcomes for a person's psychological development. According to Erikson, we need to examine or study a person's psychological crisis while studying the physical and cognitive development of the person.

Piaget's cognitive development theory (1896 -1980) described the development of a person's thought process or we can say it deals with the thinking process of a human. Jean Piaget explained how the development of thought processes influences how we understand and interact with persons and the world. Piaget also described that from

the age of 12 to adulthood starts to think abstract concepts, logical thoughts, systematic planning, and deductive reasoning. According to Piaget, we have to see different aspects of cognition while we measure the cognitive development of an individual.

Social Learning Theory Bandura A. (1973) developed Social Learning Theory. According to the theory, individuals learn through imitation, and their behavior is influenced by the activities surrounding them. While assessing the impact of sports, it is necessary to see all the sports in which the individuals are involved.

2.1.1 Review of empirical literature

It is a systematic literature review and it examines past studies to answer a particular research question. A literature review is a summary of research that has been conducted in the past on a certain subject of interest.

Duncan (2002) surveyed “Experimental intervention studies” on 356 children of 10 to 14 years old and found that those who participated in organized sports were also more likely to participate in other prosocial activities such as organized non-sports activities, music, or volunteer work.

Likewise, Fletcher (2003) found that sports involvement in children’s spare time develops psychological maturity.

Similarly, McHale (2005) conducted a study entitled “What we know about the effect of sports on child development” on 423 children 12- to 13-year-old pointed out that, boys and girls who have been involved in sports had higher scores on social competence and lower levels of social withdrawal or shyness.

In parallel, Findlay and Coplan's (2008) survey 355 children of aged 8 to 11 years old, published in the Canadian Journal of Behavioral Science, found that sports play a vital role in shaping children’s social abilities and help to decrease children’s level of loneliness and helping them to feel more included among peers.

Uniformly, Christina Felfe, Michael Lechner, and Andreas Steinmayr (2011) Carried out the research entitled “Sports and child development.” among 5,632 children aged 3-10 years old. Methods used for this research were interviews and surveys. This

research found out that, early childhood sporting activity helps to shape children's both physical and cognitive skills.

They also found out that sports help children to have better health and general well-being.

They also found that children involved in sports have fewer negative behaviour problems than those out from sports.

Rochelle M Emile, Janet A Charity, and Warren R Pyane (2013) jointly conducted A research titled "A systematic review of the psychological and social benefits of participation in sport for children and adolescents: informing the development of a conceptual model of health through sport", reviewed 3668 publications related to this research and shortlisted most relevant 30 publications for this research. They found that sports commonly helped to improve self-esteem and social interaction, and reduced depressive symptoms. They also point out one impressive result that team sports help to improve health outcomes compared to individual sports or activities.

Josh Skrupskas and Carleton University (2014) published an article "Impact of sports on the development of children" dig out that sports help to make strong muscles, bones, and joints.

Improved fitness levels compared with non-sporting children and those children involved in sports are found stress-free, more active, better sleeping, and mentally sharper than others out from sports.

Likewise, they also found that sporting children have better communication and interaction skills.

Another Research titled "Participation in sports can improve children's Learning and skills development." (2019) conducted by UNICEF in over 100 countries globally, found that Sports improve children's educational attainment and skills development including empowerment, leadership, and self-esteem.

This research also found that involvement in sports helps to reduce child abuse and exploitation.

2.1.2 Factors that affect sporting involvement

Sporting involvement can affect by many factors like family status, social influences, religious views, education, peer group or friends circle, teacher's role, and gender.

Family as a factor:- Family play is very important for the children's involvement in sports. It is the family who decides what is good and what is not good for their children.

Societal factor:- Society influences family and family influences their children. So societal view plays a very strong role to allow child for sports.

Psychological factor:- Family and society psychology can affect children's sports involvement. Most Nepali parents believe that sporting activities may spoil children's studies. This psychology keeps children away from sports.

Religious view:- Some religions are not allowed to wear modern and sporting outfits except their traditional and religious outfits. This belief also stops children's involvement in sports.

Friends circle:- Friends circle can encourage and discourage a person from sports.

Teacher:- School teacher/ subject teacher can encourage their students.

2.1.3 Cognitive development influencing factors

The cognitive development of children can affect by many factors like nutrition, genetics, physical activity, etc.

Nutrition: - Nutrition plays a critical role in human development. Good nutrition helps to build good physical and cognitive development and poor or malnutrition leads to poor or weak physical and cognitive development.

Physical activities: - regular physical activities are very essential for healthy living, during childhood growing physical activity is as much as important as nutrition.

Genetics: - Genetics can be responsible for the cognitive development of children because genes carry fore fathers characteristics.

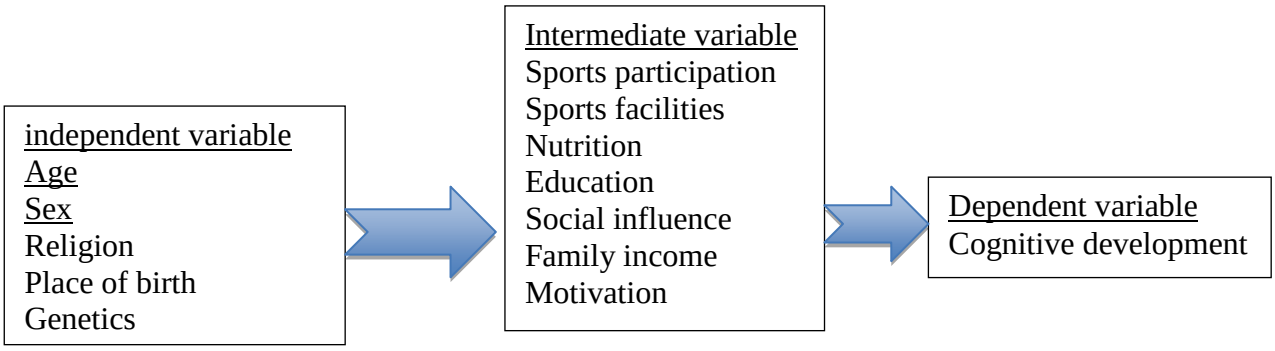
2.2 Identification of variables

The variables determining the impact of sports on the cognitive development of children are religion, place of birth, genetics, age, sex, sports participation, sports facilities, nutrition, education, etc. The relationship between these variables also would be studied or observed in this research.

2.3 Formulation of conceptual framework

The conceptual framework displays what a researcher wants to find out. This process defines and relates the different variables. The researcher tries to identify various variables like independent variables, intermediate variables, and dependent variables. After evaluating all those variables researcher can conclude the final result.

Conceptual framework



Conceptual framework for the study

CHAPTER – III

RESEARCH METHODOLOGY

3.1 Research design

This study was mainly focused on obtaining information about the current cognitive development status of school children. This research was designed as both qualitative and quantitative methods, similarly, this research applied descriptive methods. This study finds out the impact of sports on the Cognitive development of children of Kathmandu metropolitan city.

3.2 Population of the study

There were 640 private and 91 public schools in Kathmandu metropolitan city. Where 17,649 students were studying in class 8. We separated the number of class Eight students studying in public schools were 4,799 in 91 schools. All those 4,799 (2,375 girls and 2,424 boys) were considered as the population of this study. To collect data the researcher visited different schools with official letters from the department. The principals of respective schools were consulted to manage data collection from their schools.

3.3 Source of data

Different types of qualitative and quantitative data were collected and analyzed for this research, and primary and secondary data were used for this study. Primary data was gathered from the children of class 8 studying in the public school of Kathmandu metropolitan city.

Secondary data was collected from published or unpublished research papers, reports, and journal articles from individuals, experts, and organizations related to sports.

3.4 Sample design

This Research was executed in Kathmandu metropolitan city. The sample size was calculated by applying 5% margin errors and a 95% of confidence level for the

accuracy of the research result. A random sampling method was applied for this research. Students of class 8 and sports teachers were the respondents of this research. The researcher performed a cognitive ability test for students and prepared a questionnaire for the student of class 8 which was finalized after consulting the supervisor. All necessary copies of the questionnaire sheet were printed for the fieldwork.

3.5 Sampling procedure/sample size

For this research, the researcher applied the Stratified random sampling method as a sampling procedure. The population of this research was 4,799. The sample size was calculated with the help of the Raosoft Sample Size Calculator by applying a 5% margin error and 95% confidence level, there were 356 respondents.

3.6 instrumentation

The researcher applied the Likert scale and all the required tools for this research. It was qualitative research so the researcher applied qualitative tools to gather information/ data.

3.6.1 Qualitative tools

The main tool to collect information/ data for this study was the Cognitive ability test and questionnaire.

3.7 Standardization of the tool

The cognitive ability test/ cognitive aptitude test was the data collection tool for this research. Tools were pre-tested two times with some students from selected schools before the data collection. After getting feedback from the pre-tested result and necessary guidance and suggestion from the supervisor the tools were standardized.

3.8 Data gathering procedures

All the required preparation for data gathering took place. The researcher visited the selected schools with recommendation letters from the university. The researcher tried

to collect the required information as much as possible from the teachers and students of the selected schools.

The researcher applied the cognitive skill test method to measure the cognitive development of the students. The scale for the cognitive skill test was 100.

Below 50	below average
50-70	averages
70-80	above average
80-90	excellent development
90-100	extraordinary development

3.9 Analysis of data

All the collected data and information were categorized, re-checked, refined, arranged correctly, and interpreted to reduce errors. Those data were analyzed with the help of computer software.

Simple statistical tools like tables, and graphs, were used for data analysis.

Descriptive methods were applied for qualitative data.

3.10 Ethical consideration

The research was executed after receiving an acceptance letter from the department. The research was maintaining the personal privacy of the respondents. The research was not disclosing the identity of the respondents and was not forced respondents to answer any questions. The information/ data used in this research was based on truth, no false information/ data were used for this research work.

CHAPTER - IV

ANALYSIS AND INTERPRETATION OF THE RESULT

4.1 Introduction

In this chapter, an attempt to analyze and interpreted the collected data has been made. The data were collected through the medium of the questionnaire. This study was related to the "Impact of Sports on Cognitive Development of Children". The questionnaire was made by covering all the required aspects of the related fields. The analysis of the Impact of Sports on the Cognitive Development of Children has been made based on the following titles.

4.2 Demographic profile of the students

Female participation is less due to societal views as well as Nepalese parental views towards sports that sports spoil academics. Likewise, most female participants do not have time for sports because they need to help their parents with household work.

The number of participating students is shown in the given table below.

Table No 1: - Demographic profile of the students.

Sex	Frequency	Percentage
Female	163	45.79
Male	193	54.21
Total	356	100

(Source: Field Survey 2022)

The researcher observed that 356 students were taken as a sample, where 163 (45.79 %) were female and 193 (54.21 %) were male students.

Female students number is about 10% less than male students.

4.3 The age division of the students

Researchers limited the study to 13 to 16 years of class 8 students.

Piaget, Bandura, and Erikson all already proved that children from the age of 12 to adulthood start to think abstract concepts, logical thoughts, systematic planning, and deductive reasoning. Thus, the Researcher limited age between 13 to 16, There were a few students above 16 who were not included in this research.

Table No 2: - Students' division according to their age.

Age in years	Frequency	Percentage
13-14	216	60.67
15-16	140	39.33
Total	356	100

(Source: Field Survey 2022)

Table no 2 shows the high presence of age group 13-14 (60.67 %) students followed by age group 15-16 (39.33 %) Students. Most of the Students studying in class eight are the age of 13 and 14 years old.

4.4 Religious Composition of the Students.

Nepal is a country where all religions are equally respected and where the Hindu population is very high, thus, the Hindu student population is higher than other religions in school though there is peace, brotherhood, and harmony between all religions. The researcher observed that there are mainly 4 different religious groups of students in public schools of Kathmandu metropolitan city.

Table No 3: - Student's division by religion.

Religious groups	Frequency	Percentage
Hindu	306	86
Muslim	20	5.6
Buddhist	15	4.2
Christian	14	3.9
Other	1	0.3
Total	356	100

(Source: Field Survey 2022)

Table no 3 shows that there is a high presence of Hindu students (86%) followed by Muslims (5.6%), Buddhists (4.2%), Christians (3.9%), and others (0.3%). The majorities of the students studying in class eight of the public school of Kathmandu metropolitan city are from Hindu religious backgrounds, followed by Muslim, Buddhist, and Christian religious backgrounds respectively. Religious harmony, peace, and brotherhood can be seen in Nepal between all religious groups.

4.5 Division of students according to sport and non-sports involvements

The researcher divided students into two groups sports and non-sport groups, to examine the cognitive development difference between sports and non-sports students. Sports participation is less due to societal and parent views towards sports that those who are academically weak are involved in sports.

Table No 4: - Sports and non-sports students' division.

Category	Frequency	Percentage
Sports	59	16.6
Non-sports	297	83.4
Total	356	100

(Source: Field Survey 2022)

Table no 4 shows student's division based on sports and non-sports categories, Researcher observed that student's involvement in sports is very less about 59 (16.6 %) whereas non-sport student's number comparatively very high 297 (83.4 %), students' involvement in sports is not satisfactory in class eight of public schools.

4.6 Division of sports students according to their sports events

According to Social Learning Theory by Bandura, every individual learns from social interaction, and sports are the best tools for interaction between different groups and different backgrounds. Football has a mass influence in the entire world. Its global craze has huge potential to influence everyone's involvement in football, Researchers observed that involvement in Football is very high in public schools. Likewise, Cricket is in second position because it is included in the class eight course book,

Similarly, most female participants choose Badminton thus it is in third position. Researchers divided sports students into different groups according to their sports involvements.

Table No 5: - Division of students according to their sports.

Sports	Frequency	Percentage
Football	23	39
Cricket	22	37.3
Badminton	12	20.3
Martial arts	2	3.4
Total	59	100

(Source: Field Survey 2022)

Table no 5 shows that football involvement is on top, 39% of students play football, whereas 37.3% of students play cricket. Likewise, 20.3 % of students love to play badminton, whereas 3.4% of students play Martial arts. Most of the sports students were involved in football followed by Cricket, Badminton, and Martial arts respectively. Lack of sports infrastructure also increases students' involvement in football, most of the students are practicing football after school without proper guidance and coaching, football is more affordable than other sports thus it is in students' choice. Football's global influences were observed in the public school of Kathmandu metropolitan city. Cricket is included in the course book of class eight thus second largest student involvement can observe in public schools. Likewise, most female students practice Badminton thus Badminton is in third position.

4.7 Cognitive development test of sports students

Many researchers found out that sports have huge positive impacts on physical as well as mental development. one of the best ways to check sports' impact on children's cognitive skills is a cognitive development test. Fletcher (2003), McHale (2005), and Coplan (2008) found that in their survey Sports involvement develops psychological maturity and better cognitive development.

In this study, researchers are evident that Sports students have better cognitive development than non-sports students which we can see in the below table.

Table No 6: - Cognitive development test of sports students: -

No of Sports students	Score / Percentage (%)
0	100
1	96.66
15	93.33
14	90
10	86.66
9	83.33
4	80
1	76.66
1	66.33
2	63.33
1	60
1	53
Total Students 59	

(Source: Field Survey 2022)

Table no 6 shows that Sports students' cognitive development level is above average. There are 59 Sports students where 51% of Sports students obtained above 90% marks, which is an extraordinary cognitive development level according to the cognitive meter applied in this research, similarly 39% of students obtained above 80% which is excellent cognitive development, likewise 9% of Sports student score above 60%, where 1% of Sports students obtained above 50 % marks which is average cognitive development score. A high number of Sports students have extraordinary cognitive development. This research is evident that none of the sports students have below-average cognitive development. 90% of Sports students have excellent cognitive development, and only 10% of students have average cognitive development. This study clearly shows the importance of sports for better cognitive development.

4.8 Cognitive Development Test of sports students by Gender (Female)

The researcher divided sports students into two subgroups according to their gender, male, and female, here we discuss female sports students' cognitive development test scores. The research titled "Participation in sports can improve children's Learning and skills development." (2019) conducted by UNICEF, found that Sports have a tremendous positive impact on children's cognitive development, likewise, this study also evident positive impact of sports on female sports student's cognitive development which is far better than non-sports female students.

Table No 7: - Cognitive development test score of Female Sports students.

No of Sports students	Sex	Score /Percentage (%)
0		100
1	Female	93.33
3	Female	90
4	Female	86.66
3	Female	83.33
1	Female	80
1	Female	60
Total 13	Female	

(Source: Field Survey 2022)

The above table shows female Sports students' cognitive development test results. Where all of them scored above average. 31% of female Sports students obtained above 90% score, which is extraordinary cognitive development according to the cognitive meter/scale used in this research, similarly, 62% of female Sports students obtained above 80%, which is an excellent cognitive development indicator likewise 7% female Sports student obtained above 60% score which is average cognitive development indication according to cognitive development meter. In this study, 93% of female Sports students' cognitive development was observed excellent level, whereas only 7% of female Sports students' cognitive development was observed at an average level. None of the female Sports students scored below average. This is a clear indication of the positive impacts of Sports on children.

4.9 Cognitive Development Test of Sports Students by Gender (Male)

According to John Skrupskas and Carleton University research article published in 2014, Sports participation in schooling ages helps to keep them mentally sharpen than non-Sport students. Thus, here we evident cognitive development test scores of male Sports students. Where most male Sports students scored at an extraordinary level. male Sports students' cognitive development level is much higher than Male non-Sports students.

Table No 8: -Cognitive Development test scores of Male sports students.

No of Sports students	Sex	Score / Percentage (%)
0		100
1	Male	96.66
14	Male	93.33
11	Male	90
6	Male	86.66
6	Male	83.33
3	Male	80
1	Male	76.66
1	Male	66.33
2	Male	63.33
1	Male	53
Total 46	Male	

(Source: Field Survey 2022)

The above table number 8 shows the Cognitive Development test score of Male sports students. Where 57% of male sports students obtained an above 90% score, which is an extraordinary cognitive development level according to the cognitive meter applied in this research, similarly 33% of male sports students obtained above 80%, which is an excellent cognitive development score, likewise 9% of students obtained above 60% of the score and 1% of male students score above 50% mark which is average cognitive development level according to cognitive development scale used in this research. Researchers observed that about 90% of male sports students have excellent

cognitive development whereas only 10% of male sports students have average cognitive development. These results loudly say that sports are as important as academic activity for children's overall development.

4.10 Cognitive Development Test of non-Sports Students

UNICEF's 2019 study mentions that sports are very essential tools to improve children's skills. This research agrees with UNICEF's findings. The theory of play also agrees with this statement, according to the theory of play children learn life skills during play. This study clearly shows that non-sports students have unsatisfactory cognitive development. This shows the importance of sports in growing ages. Very few non-sports students score excellent cognitive development levels.

Table No 9: - Cognitive Development test scores non-Sports students.

No of non-sports Students	Score / Percentage (%)
0	100
1	96.66
10	93.33
21	90
44	86.66
46	83.33
31	80
35	76.66
17	73.33
21	70
21	66.66
21	63.33
8	60
8	56.66
3	53.33
5	50
5	46.66
Total 297	

(Source: Field Survey 2022)

The above table shows the cognitive development test result of non-Sports students. Where 11% of non-Sports students obtained above 90% score, which is an extraordinary level according to the cognitive development test meter/scale used in this research, similarly 41% of non-Sports students obtained above 80%, which is an excellent cognitive development level, likewise 25% of non-Sports students obtained above 70% which is above average level and 17% of non-Sports students obtained above 60%. where 5% of non-Sports students obtained above 50% which is an average level score on the other hand 2% of non-Sports obtained below 50% mark which is below average cognitive development according to the cognitive development test meter applied in this research.

In this study, the researcher is evident that non-Sports students' cognitive development scores are lower than Sports students. In this research, only 11% non-Sports students score extraordinary levels whereas 51% of Sports student score excellent cognitive development levels. This 40% gap is huge if we encourage children to involve in Sports, we can reduce this gap. None of the Sports student's scores below average cognitive development meter. But 2% non-Sports students' cognitive development was below average, so this result clearly says that lest run Sports and Academic activities together for the children's better cognitive development.

4.11 Cognitive Development Test of non-sports Students by Gender (Female)

This study evident the importance of sports on female children in their growing ages, non- sports female students' cognitive development score is not satisfactory, this result indicates that sports are very essential to sharpen their cognitive skills. this research shows that sports involvement regularly is very essential to sharpen children's cognitive skills as well as mental well-being.

Table No 10: - Cognitive Development test scores of Female non-Sports students.

No of non-sports students	Sex	Score / Percentage (%)
0		100
1	Female	96.66
10	Female	93.33
18	Female	90
30	Female	86.66
29	Female	83.33
19	Female	80
15	Female	76.66
2	Female	73.33
6	Female	70
5	Female	66.66
7	Female	63.33
2	Female	60
2	Female	56.66
1	Female	53.33
2	Female	50
1	Female	46.66
Total 150		

(Source: Field Survey 2022)

The above table shows the score obtained by female non-sports students. About 19% of female non-sports students obtained above 90%, which is at an extraordinary level according to the cognitive development test meter, Similarly, 52% of female non-sports students obtained above 80% score, which is an excellent level likewise 15% of female non-sports students obtained above 70% score, which is above average level and about 9% of female non-sports students obtained 60% and 3% of female non-sports students obtained above 50% mark, which is the average level, where about 2% of female non-sports students score below 50% mark which is below average cognitive development level.

This result score shows the huge gap between Sports and non-Sports female students' cognitive development levels. In this study, only 19% non-Sports female students scored at an extraordinary level whereas 31% of Sports female students obtained an extraordinary level. This 12% cannot be ignored. Likewise, none of the female Sports students scored below average whereas 2% non-Sports female students scored below average. This is a clear indication that sports can improve children's cognitive development. This research also brings up the fact that those children who are not involved in sports can have poor cognitive development.

4.12 Cognitive Development Test of non-sports Students by Gender (Male)

To examine sport's positive impact on schooling children one of the best tools is the cognitive development test, Researcher applied a cognitive development test on non-sports student's male, and which result is unsatisfactory compared with sports student's male. This indicates that children need to involve in sports to sharpen their cognitive skills as they grow ages.

Table No 11: - Cognitive Development test scores of non-Sports Students Male.

No of non-sports students	Sex	Score / Percentage (%)
0		100
3	Male	90
14	Male	86.66
17	Male	83.33
12	Male	80
20	Male	76.66
15	Male	73.33
15	Male	70
16	Male	66.66
14	Male	63.33
6	Male	60
6	Male	56.66
2	Male	53.33
3	Male	50
4	Male	46.66
Total 147		

(Source: Field Survey 2022)

Table 11 shows the cognitive development score of male non-sports students. Where 2% of male non-sports students obtained an above 90% score, which is an extraordinary level according to the cognitive development test meter applied in this research, likewise about 29% of male non-sports students obtained an above 80% score, which is an excellent level similarly 34% of students obtained above 70%, which is above average level, where 24% of male non-sports students scored above 60% score and about 8% of male non-sports students obtained above 50%, which is average level on the other hand about 3% of male non-sports students obtained below 50%, which is below average according to cognitive development test meter.

Researchers are evident that only 2% non-Sports male students scored extraordinary level which is a unpleasant score, whereas 57% of male Sports student's cognitive levels were extraordinary level. This 55% huge gap loudly says the importance of sports for better cognitive development in growing years of children. Likewise, this research also indicates that 3% non-Sports male students score below average whereas none of the male sports student score below average this result also clearly shows the importance of sports for better cognitive development.

4.13 Comparative study of cognitive development.

(Sports and non-sports students)

Christina Felfe, Michael Lechner, and Andreas Steinmayr published a research article in 2011, they found out that Sports help to shape children's physical and cognitive skills. The same findings we observed in this research that sports student’s cognitive development is remarkably better than non- sports students.

This study clearly shows that the cognitive development of sports children is far better than non- sports children.

Table No 12: - Comparison of Cognitive scores of Sports and non – Sports students.

Cognitive Development Meter	Sports students	Non-Sports Students
Extraordinary (Above 90%)	51%	11%
Excellent (Above 80)	39%	41%
Above Average (Above 60)	9%	25%
Average (Above 50)	1%	22%
Below Average (Below 50)	0	2%

(Source: Field Survey 2022)

Table 12 shows that Cognitive development is very high in sporting students. We can see 51% of sports student's cognitive development is extraordinarily developed on the other only 11% of non-sports student's cognitive development is extraordinary.

Similarly, about 80% of sports student's cognitive development is at an excellent level whereas only 52% of non-sports student's cognitive development is at an excellent level. There is no under average cognitive development is seen in sports students, on the other hand about 2% of non-sports student's cognitive development is below average. This research data loudly says that if we wish to sharpen children's cognitive skills, we need to involve them in sports, sports are only key to sharpening their cognitive skills. This research indicates Sports is very essential for children's overall development.

4.14 Comparative study of Cognitive Development.

(Female sports and non-sports students)

The research entitled "Sports and Child Development" published in 2011 found that regular sports participation helps to build better cognitive skills. This research strongly supports Sports and Child Development findings.

This research shows that those who regularly participate in sports have better cognitive development. Thus, this research proves that sports are important in children's overall development.

Table No 13: - Comparison of Cognitive Development Scores of female Sports and non-Sports students.

Cognitive meter	Female sports students	Female non-sports students
Extraordinary (above 90)	31%	19%
Excellent (above 80)	62%	52%
Above average (above 60)	7%	24%
Average (above 50)	0	3%
Below average (below 50)	0	2%

(Source: Field Survey 2022)

Table 13 shows the cognitive development status of female sports and non-sports students. Where 31% of female sports students scored extraordinary level and only 19% of female non-sports students scored extraordinary level. Similarly, 62% of female sports students score excellent level on the other hand only 52% of female non-sports students scored excellent level. Likewise, all female sports students scored above the average level whereas 2% of female non-sports students scored below average. These research data could be very useful to sharpen female sports students' cognitive skills. Sports could be the main tool to build better cognitive skills for schooling children.

4.15 Comparative study of Cognitive Development.

(Male sports and non-sports students)

Carleton University research article entitled "Impact of sports on the development of children" published in 2014 stated that sports participation is very important to sharpen children's cognitive skills. Similarly, this research" Impact of Sports on Cognitive Development of Children" also agrees with that statement.

This research shows that the cognitive development of male sports students is very much high than male non-sports students, this research strongly suggests participating in sports for better cognitive development and better physical well-being.

Table No 14: - Comparison of Cognitive Development scores of male Sports and non–Sports students.

Cognitive meter	Male sports students	Male non-sports students
Extraordinary (above 90)	57%	2%
Excellent (above 80)	33%	29%
Above average (above 60)	9%	58%
Average (above 50)	1%	8%
Below average (below 50)	0	3%

(Source: Field Survey 2022)

Table 14 shows the cognitive development status of male Sports and non-Sports students. It shows a great cognitive development difference between male Sports and non-Sports students. Where 57% of male Sports students scored extraordinary level and only 2% of male non-Sports students scored. Similarly, 33% of male Sports students scored excellent level and only 29% of male non-Sports students scored it. Likewise, no male Sports students scored below average but 3% of male non-Sports students scored below average. These results show that non-Sports students' cognitive skills are weaker than Sports students. Thus, we cannot ignore the fact that Sports could be the best key to sharpening children's cognitive skills.

4.16 What Teachers Think about Sports and non-Sports Students

10 teachers expressed their experiences with students, during an informal interview session, the researcher observed one thing most of the teacher's answer was the same, and the answers are as follows

- Sports Students are more confident than non -Sports students
- Sports students easily handle crowds, whereas others hardly want to face the crowd
- Non -Sports students hesitate to interact with teachers whereas Sports students love to interact with teachers
- Non -Sports Students are less expressive to compare with sports
- Sports students look more active than non-sports students
- Sports students communicate freely with strangers whereas non-sports students hesitate to face strangers.

CHAPTER - V

SUMMARY, FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

5.1 Summary

Sports is very essential for the overall development of a person; it is very important to build strong physical and mental health. Let's not separate Sports from the human lifestyle. Sports can play a magical role to build a happy, healthy, and balanced lifestyle.

When we talk about the Nepalese context, sports awareness and charm are increasing day by day, but it is really sad to see the lack of regular sports classes and activities in public schools in the capital city. If no regularity in the capital city, then we can imagine how horrible the condition could be outside Kathmandu Valley. In our public schools, we observed the lack of skilled sports teachers although there is health and physical education subject in the curriculum.

Researchers tried to explore the impact of sports on children during their growing ages, through the topic "Impact of Sports on Cognitive Development of Children." A case study of the public school of Kathmandu metropolitan city. The main objective of this study is to find out the impact of Sports on schooling students and also to examine do Sports help in cognitive development or not.

Public schools of Kathmandu metropolitan city's class 8 students were the population of the study. The data collection process was completed using a questionnaire, the questionnaire was designed according to research objectives. There were 356 respondents (class 8 students) in this research.

After data collection, collected data were tabulated, analyzed, and described as per the requirements of the objective of the study. Required tables were used to analyze and present the collected data.

5.2 Key Findings

There were found major findings which are described according to the objectives of this research.

5.2.1 Research revealed that the cognitive development of Sports students was very high with compare to non-sports students.

5.2.2 About 90% of Sports student's cognitive development was at an excellent level on the other hand only 52% of non-Sports students obtained an excellent level.

5.2.3 About 99% of Sports students' cognitive development levels were above average level, on the other hand only 77% of non-Sports students obtained above-average levels.

5.2.4 About 100% of Sports students' cognitive development crossed the average level, there were no below-average cognitive developments level were observed. On the other hand, 2% non-Sports students were observed below average.

5.2.5 Cognitive development of female non-Sports students is higher than male non-Sports students. This research revealed the reason behind this, most female students need to work before and after school, which proves that they are physically active before and after school daily like sports activities. This physical activeness could be the reason for the strong cognitive development of female non-Sports students, further researches need to be done on this.

About 19% of female non-sports students scored at an extraordinary level, on the other hand only 2% of male non-Sports students scored at an extraordinary level.

5.2.6 Research revealed that about 2% of female non-sports student's cognitive development was observed below average level, on the other hand, about 3% of male non-Sports student's cognitive development was observed below average level.

5.2.7 Sports participation in public schools was observed very low, only 16.6% of students engaged in Sports on the other hand, about 83.4% of students are still not involved in Sports.

5.2.8 Number of participating female students was 163, but only 13 students (8%) were involved in sports.

5.2.9 Male student involvement was not satisfactory, there were 193 male students but only 46 which is about 24% were engaged in Sports.

5.2.10 Both female and male students' involvement in Sports is not satisfactory, but male students' Sports involvement was observed better than female students. Male students' Sports involvements were 3 times greater than female students' Sports involvement. Female Sports involvement was 8% on the other hand male Sports involvement was 24%.

5.2.11 Research revealed that football is highly liked and played Sports in public schools, followed by cricket and badminton respectively. About 39% of students were engaged in football, likewise, about 37.3% of students were engaged in cricket and about 20.3% of students were engaged in badminton.

5.2.12 Female Sports students' favorite Sports were badminton.

5.2.13 Research revealed that most male students love to play football and cricket.

5.2.14 Researcher observed that most of the students from the Terai region choose cricket as their first choice of Sports.

5.3 Conclusion

This study was conducted in community schools of Kathmandu metropolitan city where students of class eight were involved. The research title was "Impact of Sports on Cognitive Development of Children." The study aimed to explore the current status of Sports and non-Sports students' cognitive development status. This research study was based on a descriptive research design. The researcher applied a stratified random sampling method as a sampling procedure, and a total of 356 students of class 8 from public schools of Kathmandu metropolitan city were selected.

It was found that the Sports participation of students was very poor. Similarly, the researcher observed that there was a lack of sports facilities, venue (ground). Most of the public schools don't have minimum Sports facilities. Also observed that few

schools don’t have Sports ground too. Most public schools are focusing on academic activities only by neglecting Sports activities, although there is health and physical education in the curriculum. This study also revealed that most public schools don’t have Sports teachers. And most public schools believe that Sports are not as important as academic activities.

Very few public schools are organizing annual Sports events, and most public schools still not organizing Sports events. But most public-school head teachers replied that they are planning to organize it regularly. Most public schools making excuses of covid 19, we were about to organize sports events but the sudden covid pandemic spoil our plan which means from about 3-4 years there are no sporting activities seen in most public schools.

Most of the students answered that they love to play but due to academic burden and lack of Sports facilities (ground), they are unable to play in school regularly.

Researchers observed that most schools have small grounds although those grounds are used as parking.

5.4 Recommendation

Depending on the findings and the conclusion of the research, the following recommendations are taken into consideration.

5.4.1 Recommendation for Sports Activities

a. Public schools in Kathmandu metropolitan city should run Sports classes regularly.

b. Public schools should construct the minimum required Sports infrastructure to create a sporting environment.

c. Sports participation in public schools is observed very poor, and serious action needs to be taken to increase sports participation.

d. Public schools need to understand sports and academic activities are inseparable, both are equally important for students in growing ages.

e. Family is the first school where children learn the first life skill of survival, so the family needs to understand the importance of sports participation and physical activities for children's overall development, so public schools and local government need to educate parents about sports importance in growing ages of children.

f. Public schools should apply the learning-by-doing and learning-by-playing approach for students' overall development.

5.4.2 Recommendation for National Policy

a. The government of Nepal, the Ministry of Education, and the Ministry of Sports need to conduct awareness programs regarding education and sports are equally important for children's physical and mental well-being.

b. The government of Nepal should provide the necessary help legal and financial to integrate sports with academics effectively.

c. Government should come forward to build sports infrastructure in public schools to increase sports participation in schools.

d. If a required government needs to revise public school education policies for the betterment of sports and education in schools.

e. Government should appoint sports teachers and coaches in every public school.

f. Effective and sports-friendly policies need to implement to increase students' participation in sports.

g. Government should strictly implement physical education in public schools and should not hesitate to revise the curriculum if necessary.

5.4.3 Recommendation for Further Study

a. Research should be carried out on the impact/Role of sports on the physical development of children.

b. Research should be carried out on the effectiveness of health and physical education in public schools.

c. Research should be carried out on the topic availability of sports facilities in public schools.

d. Research should be carried out on the organization and management of sports activities in public schools.

e. Research should be carried out on the role of sports during the growing ages of children.

f. A study on socio–economic status of parents studying on public schools.

g. A study needs to carry out on public school's teacher's attitudes toward sports.

h. A study needs to carry out on the attitude of parents toward sports.

REFERENCES

Catherine L Davis, (2011). *Fitness, Cognition and Academic Achievement Among Children.*

Eric De Meulenaere, (2020). *Extracurricular Participation and Academic Outcomes*

Herb Marsh, (2002). *Extracurricular School Activity – The Good, The Bad, and The Nonlinear*

Hong Suk Choi, Britton Johnson and Young K. Kim, (2014). *Children's Development Through Sports Competition.*

Sherchan, L. (2074). *Foundations of physical education*. Kirtipur, Kathmandu: Quest Publication, Pvt. Ltd.

Anderson and Deborah J., (1998). *If You Let Me Play the Effect of Participation in High School Athletics on Student's Behavior and Economic Success,* Cornell University, PhD. Dissertation.

Alfie. k, (1992). *No Contest: The Case Against Competition. Why did we lose in our race to win?*

Almond, Douglas, and Janet, (2011). *Human Capital Development Before 5.* In Handbook of Labour Economics Vol 4b

Sherchan, L. (2074). *Foundations of physical education. Kirtipur, Kathmandu:* Quest Publication, Pvt. Ltd.

Barron, John M., Ewing, Bradley T., Wadell and Glen R. (2000). *"The Effects of High School Athletic Participation on Education and Labor Market Outcomes," Review of Economics and Statistics 82: 409-421.*

Beckerand Gary S., (1965). *"A Theory of the Allocation of Time*," Economic Journal Vol 75, 493-517.

Bowen, D. H, Greene, and J.P, (2012). *Does Athletic Success Come at the Expense of Academic Success?* Journal of Research in Education Vol 22 (2)

Bryan R, Warnick, Sarah K. and Silverman, (2011). *A Framework for Professional Ethics Courses in Teacher Education*

Dapzury.V and Pallavi, (1996). *Southern University and South Cross Institute of Action Research*

Silverman, *(2011). Interpreting Qualitative Data: A Guide to the Principle of Qualitative Research*

Davis and Sarah, (2014*). "What Are the Benefits of Competitive Sports for Youth?" LIVESTRONG.COM.*

Dewey, (1916). *Education as growth.*

MoH (2017). *The Philosophy of John Dewey Early Childhood Australia (2017). Kidsmatter.edu.au/mental/health- matters/Social*

Fog, (1999*). Cultural selection. Springer Science & Business Media*

Freire, (1973). *Education for critical consciousness (Vol. 1).* Bloomsbury Publishing.

Friedman and Levey, (2013). *"The Impact of Competitive Youth Sports on Children.*

Erikson, (1968). *Identity: Youth and crisis*. New York: Norton.

Erikson, (1982). *The life cycle is completed*. New York: W.W. Norton & Company.

Erikson, (1959). *Psychological issues*. New York, NY: International University Press

Freud, (1923). *The ego and the id*.

Gross, R. D., and Humphreys, (1992). *Psychology: The science of mind and behaviour*.

McAdams and D. P. (2001). *Review of General Psychology*

Cote, J. (1999). *The influence of the family in the development of talent in sport.*

CôTé, J., Lidor, R., & Hackfort, D. (2009). *International Journal of Sport and Exercise Psychology.*

Dorsch, T. E., Smith, A. L., & Dotterer, A. M. (2016). *Psychology of Sport and Exercise*

Duda, J. L. (1997). *Journal of Applied Sport Psychology.*

APPENDICES

Tribhuvan University

Master program in Sports Science, Kirtipur

Impact of Sports on the Cognitive Development of Children

Respondents: - Class 8 students

Namaste! I am Dilip Prasad Adhikari student of Masters in Sports Science at Tribhuvan University. I am researching the ***Impact of sports on the cognitive development of children*** *for my thesis. I am pleased to inform you that you are selected as a sample respondent of the survey for this study. The information you provide will be used confidentially and only group data will be analyzed. Personal information will not be revealed. This is voluntary and we have no provision of remuneration for being participated in this survey. It will take about 30 minutes for interviewing. You have the right to answer the questions of your will and you can drop any question if you wish to do so. However, your responses will help to bring the issue to academic and policy levels in Nepal for the first time.*

Do you agree to participate in this interviewing? Note the time of start: Hr.……. / Minute …….

1. Yes *2. No*

General information

Q1.	Name				
Q2.	School Name				
Q3.	Age				
Q4.	Sex				
Q5	Religion	1.Hindu	2.Buddhist	3.Muslim	4.Other
Q6.	Address present				
Q7.	Address Permanent				

Cognitive skills test: -

Q8. Suppose A stands for +, B stands for −, C stands for ×**, and** D stands for ÷ then find the value of

7C 5A 21D 1B4 =? (A) 52 (B) 76 (C) 14 (D) 71

Q9. Circle the odd one.

1Z9	2Y8	3X7	4W6	5V6	6U4	7T3

Q10. If 14 X = 21, 25 X =32, 115 X = 122, 545 X = 552, then 1097 X =?

Q11. Find the missing numbers.

9824	9734	9644	9554	9464	?	9284	9194

Q12. Complete the alphanumeric series.

ABP9 DEQ8 GHR7 JKS6 ? PQU4

(A) LMT6 (B) MNT5 (C) KLM4 (D) PQR4

Q13. If 4 and 18 =2/9 similarly 21 and 39 = 7/13 likewise 36 and 52 = 9/13 then

65 and 75 = ?

Q14. Complete the alphanumeric series.

101P	202Q	303R	?	505T	?	707V	?

Q15. Which number should come next in the patterns

37 34 31 28 ?

Q16. If “Book” is to read as the fork is to …….

(A) Drawing (B) Writing (C) Striking (D) Eating

Q17. Circle the different words from the given words.

(A) Football (B) Volleyball (C) Chess (D) Cricket

Q18. Which is opposite of stupid?

(A) Dull (B) Foolish (C) Intelligent (D) Angry

Q19. If “Ship” means “Sea” and “Boat” means “River “Then “Camel” means?

(A) Forest (B) Desert (C) Land (D) Mountain

Q20. Which is smallest value?

(A) 1/2 (B) 1/3 (C) 2/4 (D) 1/4

Q21. find the next number in series

11 10 12 9 13 8 14 7 15 ?

(A) 5 (B) 10 (C) 6 (D) 8

Q22. Choose one odd from given animals.

(A) Tiger (B) Lion (C) Elephant (D) Panther

Q23. Find the missing letter in the given series.

A D C F E ?

(A) F (B) H (C) G (H) D

Q24. How many lines does the following figure has?

(A) 7 (B) 8 (C) 9 (D) 6

Q25. If “Butterfly” means “Swimming” and “Free kick” means “Football” then “Jump shots” means?

(A) Basketball (B) Baseball (C) Football (D) Volleyball

Q26. Which number will replace the question mark (?)

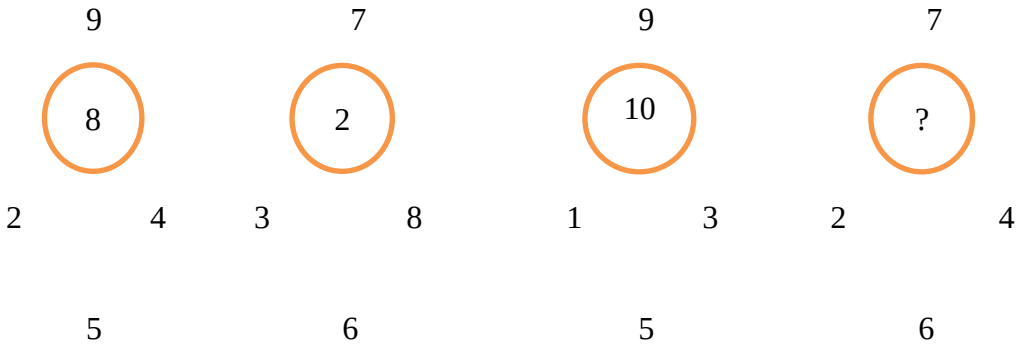
(A) 140 (B) 100
(C)120 (D) 130

Q27. Choose the correct alphabet.

ABA - AB - -

(A) BBB (B) ABB (C) BAA (D) BAB

Q28. Find the missing number on the circle.



(A) 12 (B) 10 (C) 6 (D) 7

Q29. Which number replaces the question mark?

(A) 52 (B) 36 (C) 42 (D) 56

Q30. Find the missing number.

1	9	18
2	8	24
3	7	?

(A) 28 (B) 24 (C) 21 (D) 30

Q31. How many digits are followed by Vowels?

1 A 2 E 3 U 4 5 8 7 D 9 Q 6 J I 7 K O

(A) 2 (B) 1 (C) 3 (D) 4

Q32. Find the next letter.

AZP9 BYQ7 CXR5 DWS3 ?

(A) FVU0 (B) EVT1 (C) GSQ8 (D) EWU2

Q33. Choose the correct alphanumeric to complete the series.

APB11 BQC21 CRD31 DSE41

(A) FTF41 (B) EUE61 (C) ETF51 (D) FVF62

Q34. Find the odd one.

(A) Father (B) Uncle (C) Brother (D) Daughter

Q35. Find the odd one.

AP70	BQ60	CR50	DS40	ET30	TU20

Q36. Age of Ram, Hari, and Gopal are in a ratio 7:5:8 if the sum of their ages is 60 years, find the age of Gopal.

(A) 31 (B) 25 (C) 24 (D) 32

Q37. Observe the following sequence and find how many times **A** is followed by **B.**

A B A A B A B B A A A B B A A B A B A A

(A) 7 (B) 6 (C) 2 (D) 5

Thank you for your kind cooperation.