

BAHRIA UNIVERSITY, ISLAMABAD

APPROVAL SHEET

SUBMISSION OF HIGHER RESEARCH DEGREE THESIS

Candidate's Name: Nimrah Ahmed

Discipline: Clinical Psychology (M. Phil)

Faculty/Department: Institute of Professional Psychology (IPP)

I hereby certify that the above candidate's work including the thesis, has been completed to my satisfaction and that the thesis is in a format of an educational standard recognized by the faculty/department as appropriate for examination.

Signature:

Supervisor: Imtiaz- ul- Fozil

Date: _____

The undersigned signifies that:

1. The candidate presented at a pre-completion seminar, an overview and synthesis of major findings of the thesis, and that the research is of a standard and extent appropriate for submission as a thesis.
2. I have checked the candidate's thesis and its scope, format, and editorial standards are recognized by the faculty/department as appropriate.

Signature:

Dean/Head of Faculty/Department: Imtiaz- ul- Fozil

Date: 8- Jun- 2017

DECLARATION OF AUTHENTICATION

I certify that the research work presented in this thesis, to the best of my knowledge, is my own.

All sources used and any help received in the preparation of this thesis have been acknowledged.

I hereby declare that I have not submitted this material, whether in whole or in part, for any other degree at this or any other institution.

Signature: _____

[Signature]

ACKNOWLEDGEMENT

I start with the name of Allah and acknowledge that this would not have been possible without Him.

I would like to acknowledge the support of the following people.

My family (including Chitty), for helping me pull through different phases and for providing unparalleled support. My work would not have materialized if it wasn't for everyone's combined efforts.

My supervisor, Dr. Zainab F Zadeh, whose determined and focused aura pushed me to put in my hard work and effort into the thesis. Without the scare of meeting her for updates, I would not have been able to complete the work in due time.

Ms. Erum Kausar (Montessori Directress/Masters of Montessori Education (MME), for helping me formulate the mathematical worksheets.

WonderTree Games, for allowing me to use their game/software with no strings attached. Your trust and broadminded alignment with my vision allowed for this thesis to be produced. A big shout out to Muhammad Waqas (co-founder), Ahmed Bukhari (co-founder), Muhammad Usman (co-founder) and Fatima Hussain.

A big hearty thank you to Komal Waseem, CEO and founder of the Growing Tree School and Dr. Waseem Hashim- Chairman GTS, for trusting me and allowing me to be a part of the school to complete my work. You and your team made the data collection process memorable and fun.

Lastly, a quick acknowledgment for Fatima Tariq Masood and Nabiya Nadir Siddiqui. No big milestone is complete without a mention of you two.

With all my heart I tip my hat and I thank each and every individual involved in producing this thesis.

DEDICATION

Without a second thought I dedicate this thesis to my parents and my husband. Firstly, my parents without whom nothing would have been possible, and not only am I referring to this thesis but to everything I am and everything I stand for. Thank you for providing all the support and bending over backwards before me even asking for help. Allah has blessed me with the best folks, and nothing can ever be a close second to the meaning you two have in my life. I pray your healthy, happy and loving presence surrounds us forever and always.

Secondly Safi. Thank you for being my real life animated character. Thank you for making me laugh and being my personal (unpaid) therapist. You've made me bold and independent yet you have carried my challenges on your shoulders and resolved them purely with the intention of adding ease to my life. Thank you for being 'the husband' and putting in an effort of coming at par with my parents with everything you've done. Together, I pray we age with health, happiness and success.

TABLE OF CONTENTS

COPYRIGHT.....	i
APPROVAL SHEET.....	ii
AUTHENTICATION.....	iii
ACKNOWLEDGMENT.....	iv
DEDICATION.....	v
TABLE OF CONTENTS.....	vi
LIST OF TABLES.....	x
LIST OF FIGURES.....	xi
ABSTRACT.....	1
CHAPTERS	
1. INTRODUCTION	2
1.1 Background of the Research.....	3
1.2 Problem Statement.....	5
1.3 Research Objectives.....	6
1.4 Research Questions.....	6
1.5 Significance of Study.....	6
1.6 Structure of Thesis.....	8
1.7 Definition of Key Terms.....	8
1.8 Summary.....	9
2. LITERATURE REVIEW	11
2.1 Executive Functions.....	12

LIST OF TABLES

Table 1 Trial Run for Day/Night Task.....	35
Table 2 Verbal and Physical Prompts used during the Trial and the Actual Intervention Phase for Bucket Ball Game.....	38
Table 3 Demographic Variable of Preschoolers.....	41
Table 4 Random Assignment to Groups.....	42
Table 5 Descriptive Statistics for Inhibitory Control, Mathematical Performance and Social Competence in Preschoolers.....	44
Table 6 Paired Samples T-Test Result for Inhibitory Control, Mathematical Performance and Social Competence for EG and C.....	45
Table 7 Independent Samples T-Test Result for Inhibitory Control, Mathematical Performance and Social Competence.....	46

LIST OF FIGURES

Figure 1 Interaction of Variables Based On the Theoretical Framework.....	29
Figure 2 Bar Graph Displaying Age Distribution alongside Gender of the Sample.....	43

ABSTRACT

The study aimed to identify the effectiveness of building inhibitory control on mathematical performance and social competence in preschoolers. Based on Adele Diamond's (2016) model of Executive Functions, the concept of inhibitory control was worked upon. An interactive game developed by WonderTree (Waqas, Bukhari, & Usman, 2016) was used as the intervention to build inhibitory control. Four hypotheses were generated, three addressing the difference in pre and post test scores of inhibitory control, mathematical performance and social competence and one testing the workability of the game used as the intervention. Preschoolers, aged 3-3.7, were selected for the study from The Growing Tree School. Day/night task, mathematics worksheets and Social Skills Scale (SSS) (Anme et al, 2013) were used to measure inhibitory control, mathematical abilities and social competence respectively before and after the intervention phase. Results indicate a marginally significant acceptance of the Bucket Ball game as an intervention ($p = 0.054$), and also support for the second hypothesis indicating that training resulted in an increase in the levels of inhibitory control for the experimental group. The third hypothesis was rejected ($p = 0.115$), indicating that mathematical performance did not increase post training whereas the fourth hypothesis for an increase in social competence after training was statistically significant ($p = 0.011$).

The discussion focuses on the implications of the study for schools and parental training. Limitation and future research on the topic stressed on the need for a greater sample to yield better results.