

**RELATIONSHIP BETWEEN NEED FOR ACHIEVEMENT AND
DESIRABLE BEHAVIORS IN YOUTH: A META-ANALYSIS**



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**A Dissertation Submitted in Partial
Fulfillment of the Requirements for the Degree of
Doctor of Philosophy (Social Development Administration)
Graduate School of Social Development and Management Strategy
National Institute of Development Administration
2024**

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ABSTRACT

Title of Dissertation	RELATIONSHIP BETWEEN NEED FOR ACHIEVEMENT AND DESIRABLE BEHAVIORS IN YOUTH: A META-ANALYSIS
Author	Miss Woranuch Sipiyarak
Degree	Doctor of Philosophy (Social Development Administration)
Year	2024

The study has three main objectives: (1) To investigate the relationship between the need for achievement and adolescent behavior. (2) To investigate the relationship between the need for achievement trait and adolescent behavior. (3) To investigate the relationship between the need for achievement state and adolescent behavior. The research population is composed of articles and reports from various sources, e.g., theses, dissertations, research articles, research reports, and technical reports. The independent variable is the need for achievement in terms of trait and state. While the dependent variable group is adolescent behavior, it consists of study behaviors, other behaviors, and average grades. The data are from the studies published and disseminated during the year from 2007 to 2020 through electronic databases. Thirty-three research documents in Thailand yield 60 effect sizes, while twenty-four foreign research documents yield 29 effect sizes, together with a total of 89 effect sizes in the total sample comprised of

Of these total effect sizes, it consisted of 15 effect sizes (16.90%) relating to study behavior, 45 effect sizes (50.60%) relating to other behaviors, and 29 effect sizes (32.60%) relating to average grades. The important findings are as follows:

First, the overall group's effect size between general need for achievement and study behavior, other behaviors, or grade point average, which is considered a medium to a large effect (.708, .947, and .954, respectively). Second, the overall group's effect size between the need for achievement trait and study behavior, other behaviors, or grade point average, which considered a medium to a large effect (.943, 1.022, respectively). However, in the average grade group, there is only one data set, which is insufficient for analysis. Third, the overall group's effect size between the

need for achievement state and study behavior, other behaviors, or grade point average, which is considered a medium to a large effect (.735,.749,.960, respectively).

The analysis of all three hypotheses reveals a strong relationship between the need for achievement trait and youth behavior, with an effect size ranging from medium to very large. The study behavior groups, other behaviors, and the average grades, which serve as the dependent variable, clearly demonstrate this relationship.

This research's synthesis and analysis also examined two groups of moderating variables that affect the relationship between need for achievement and youth behavior. Group 1 consists of the moderating variables related to the research's basic information, including the publication location, the year of publication, the researchers' area of expertise, and the concepts and theories used. Group 2 includes the research's socio-demographic moderating variables, such as gender, education level, father's education, and mother's education.

ACKNOWLEDGEMENTS

This dissertation has been successfully accomplished due to the assistance of several individuals. The researcher wishes to acknowledge the following individuals with gratitude:

Firstly, the administration of Valaya Alongkorn Rajabhat University under royal patronage, along with the Faculty of Humanities and Social Sciences, approved the scholarship and granted permission for Ph.D. study.

Secondly, dissertation advisor Professors Dr. Duchduen Bhanthumnavin and Dr. Duangduen Bhanthumnavin and the dissertation committee.

Thirdly, colleagues in the fields of social science for development and political science include Assistant Professor Piya Sa-nguansin, Assistant Professor Wanlada Kanchom, Dr. Chatchapanu Yimaon, and Assistant Professor Dr. Narissara Jariyapan, the Jub Me Café Group Friend, along with Khun Kong, who support and are always ready to assist throughout my' study, ensuring a smooth process.

Finally, I wish to express my gratitude to my parents, my younger siblings, Ann, Nara, JR, and the Sipiyarak family for their affection, support, and encouragement. They serve as the foundation, the essential elements that have enabled my strong and stable growth in society.

Woranuch Sipiyarak

September 2024

TABLE OF CONTENTS

	Page
ABSTRACT.....	iii
ACKNOWLEDGEMENTS.....	v
TABLE OF CONTENTS.....	vi
CHAPTER 1.....	7
INTRODUCTION.....	7
1.1 Introduction.....	7
1.2 The Research Objectives.....	8
1.3 Usefulness of The Study.....	8
1.4 Literature Reviews.....	8
1.4.1 The Need for Achievement: origins, definition, and methods of measurement.....	9
1.4.2 The relationship between youth behavior and the need for achievement	15
1.4.3 Research Synthesis using Meta-Analysis.....	16
1.5 Variables in This Research.....	26
1.6 Operational Definition.....	26
1.7 Research Framework.....	29
CHAPTER 2.....	36
RESEARCH METHODOLOGY.....	36
2.1 Population and Sampling Method.....	36
2.1.1 Population.....	36
2.1.2 Sample.....	36
2.2 Research Instruments.....	40
2.3 Data Analysis.....	41
2.3.1 Evaluation of research characteristics.....	42

2.3.2 Conducting data analysis to evaluate the validity of the assumptions	42
2.3.3 Analysis to test variable assumptions.....	44
CHAPTER 3	45
RESEARCH RESULTS.....	45
3.1 Analysis results of the basic research information of the study	45
3.2 Data Analysis Results for Analysis of Hypothesis 1	49
3.3 Data Analysis Results for Analysis of Hypothesis 2	71
3.4 Data Analysis Results for Analysis of Hypothesis 3	89
CHAPTER 4	106
CONCLUSION AND DISCUSSION.....	106
4.1 Summary and Discussion for Hypotheses	106
4.1.1 Summary and Discussions for Hypothesis 1	106
4.1.2 Summary and Discussions for Hypothesis 2	107
4.1.3 Summary and Discussions for Hypothesis 3	108
4.2 Research Results Beyond the Hypothesis	109
4.3 Strengths and limitations of the research.....	110
4.3.1 Strengths of the Research	110
4.3.2 Limitations of the Research.....	110
4.4 Suggestions for Development.....	110
4.4.1 Recommendations for Development	110
4.4.2 Recommendations for Future Study	111
BIBLIOGRAPHY	118
APPENDIX A	120
APPENDIX B	124
APPENDIX C	131
BIOGRAPHY	134

LIST OF TABLES

	Page
Table 1.1 Shows the Steps for Analyzing the Meta-analysis by Harris Cooper in the years 1982, 2010, and 2019.	24
Table 1.2 Shows a Comparison of the Steps in the Meta-analysis Analysis between Scholars and Researchers.	25
Table 3.1 Basic Characteristics of Samples	46
Table 3.2 Basic Characteristics Relate to the Independent Variable of Need for Achievement.	47
Table 3.3 Research is Classified According to Basic Characteristics Related to Dependent Variable.	49
Table 3.4 Show the Effect Size of the Relationship Between the Need for Achievement and Study Behavior, Other Behavior, and GPA in the Total Group.	50
Table 3.5 Show the Magnitude of the Influence between Need for Achievement and Study Behavior according to Basic Research Information Moderating Variables of the Research.	52
Table 3.6 Show the Magnitude of the Influence between Need for Achievement and Other Behavior according to Basic Research Information Moderating Variables of the Research.	56
Table 3.7 Show the Magnitude of the Influence between Need for Achievement and GPA according to Basic Research Information Moderating Variables of the Research.	59
Table 3.8 Show the Magnitude of the Influence between Need for Achievement and Study Behavior according to Bio-Social Background Moderating Variables of the Research.	63

Table 3.9	Show the Magnitude of the Influence between Need for Achievement and Other Behavior according to Bio-Social Background Moderating Variables of the Research.	66
Table 3.10	Show the Magnitude of the Influence between Need for Achievement and GPA according to Bio-Social Background Moderating Variables of the Research.	69
Table 3.11	Show the Effect Size of the Relationship Between the Need for Achievement Trait and Study Behavior, Other Behavior, and GPA in the Total Group.	71
Table 3.12	Achievement Trait and Study Behavior according to Basic Research Information Moderating Variables of the Research.	73
Table 3.13	Show the Magnitude of the Influence between Need for Achievement Trait and Other Behavior according to Basic Research Information Moderating Variables of the Research.	76
Table 3.14	Show the Magnitude of the Influence between Need for Achievement Trait and GPA according to Basic Research Information Moderating Variables of the Research.	80
Table 3.15	Show the Magnitude of the Influence between Need for Achievement Trait and Study Behavior according to Bio-Social Background Moderating Variables of the Research.	82
Table 3.16	Show the Magnitude of the Influence between Need for Achievement Trait and Other Behavior according to Bio-Social Background Moderating Variables of the Research.	85
Table 3.17	Show the Magnitude of the Influence between Need for Achievement Trait and GPA according to Bio-Social Background Moderating Variables of the Research.	88
Table 3.18	Show the Effect Size of the Relationship Between the Need for Achievement State and Study Behavior, Other Behavior, and GPA in the Total Group.	90

Table 3.19	Show the Magnitude of the Influence between Need for Achievement State and Study Behavior according to Basic Research Information Moderating Variables of the Research.	92
Table 3.20	Show the Magnitude of the Influence between Need for Achievement State and Other Behavior according to Basic Research Information Moderating Variables of the Research.	95
Table 3.21	Show the Magnitude of the Influence between Need for Achievement State and GPA according to Basic Research Information Moderating Variables of the Research.	98
Table 3.22	Show the Magnitude of the Influence between Need for Achievement State and Study Behavior according to Bio-Social Background Moderating Variables of the Research.	101
Table 3.23	Show the Magnitude of the Influence between Need for Achievement State and Other Behavior according to Bio-Social Background Moderating Variables of the Research.	102
Table 3.24	Show the Magnitude of the Influence between Need for Achievement State and GPA according to Bio-Social Background Moderating Variables of the Research.	104

LIST OF FIGURES

	Page
Figure 1.1 Show the twelve principles of cognitive processes that relate to the need for achievement.	13
Figure 1.2 The academic criteria for creating stories focused on increasing achievement motivation	14
Figure 1.3 Show the relationship between meta-analysis and the synthesis of different research methodologies in an academic literature study.	17
Figure 1.4 Conceptual Framework	29
Figure 1.5 Hypothesis Model 1.1	29
Figure 1.6 Hypothesis model 1.2	30
Figure 1.7 Hypothesis Model 1.3	31
Figure 1.8 Hypothesis Model 2.1	31
Figure 1.9 Hypothesis Model 2.2	32
Figure 1.10 Hypothesis Model 2.3	33
Figure 1.11 Hypothesis Model 3.1	33
Figure 1.12 Hypothesis Model 3.2	35
Figure 1.13 Hypothesis Model 3.3	35
Figure 2.1 Shows the source of a sample of Thailand research on youth behavior based on the PRISMA diagram (PRISMA, 2020).	38
Figure 3.1 Show the Effect Size of the Relationship Between the Need for Achievement and Study Behavior, Other Behavior, and GPA in the Total Group.	50
Figure 3.2 Show the Magnitude of the Influence between Need for Achievement and Study Behavior according to Basic Research Information Moderating Variables of the Research.	52

Figure 3.3	Show the Magnitude of the Influence between Need for Achievement and Other Behavior according to Basic Research Information Moderating Variables of the Research.	56
Figure 3.4	Show the Magnitude of the Influence between Need for Achievement and GPA according to Basic Research Information Moderating Variables of the Research.	59
Figure 3.5	Show the Magnitude of the Influence between Need for Achievement and Study Behavior according to the Bio-Social Background Moderating Variables of the Research.	66
Figure 3.6	Show the Magnitude of the Influence between Need for Achievement and Other Behavior according to the Bio-Social Background Moderating Variables of the Research.	66
Figure 3.7	Show the Magnitude of the Influence between Need for Achievement and GPA according to the Bio-Social Background Moderating Variables of the Research.	70
Figure 3.8	Show the Effect Size of the Relationship Between the Need for Achievement Trait and Study Behavior, Other Behavior, and GPA in the Total Group.	71
Figure 3.9	Show the Magnitude of the Influence between Need for Achievement Trait and Study Behavior according to Basic Research Information Moderating Variables of the Research.	74
Figure 3.10	Show the Magnitude of the Influence between Need for Achievement Trait and Other Behavior according to Basic Research Information Moderating Variables of the Research.	77
Figure 3.11	Show the Magnitude of the Influence between Need for Achievement Trait and GPA according to Basic Research Information Moderating Variables of the Research.	81
Figure 3.12	Show the Magnitude of the Influence between Need for Achievement Trait and Study Behavior according to the Bio-Social Background Moderating Variables of the Research.	83

Figure 3.13	Show the Magnitude of the Influence between Need for Achievement Trait and Other Behavior according to the Bio-Social Background Moderating Variables of the Research.	86
Figure 3.14	Show the Magnitude of the Influence between Need for Achievement Trait and GPA according to the Bio-Social Background Moderating Variables of the Research.	89
Figure 3.15	Show the Effect Size of the Relationship Between the Need for Achievement State and Study Behavior, Other Behavior, and GPA in the Total Group.	90
Figure 3.16	Show the Magnitude of the Influence between Need for Achievement State and Study Behavior according to Basic Research Information Moderating Variables of the Research.	92
Figure 3.17	Show the Magnitude of the Influence between Need for Achievement State and Other Behavior according to Basic Research Information Moderating Variables of the Research.	95
Figure 3.18	Show the Magnitude of the Influence between Need for Achievement State and GPA according to Basic Research Information Moderating Variables of the Research.	98
Figure 3.19	Show the Magnitude of the Influence between Need for Achievement State and Study Behavior according to the Bio-Social Background Moderating Variables of the Research.	101
Figure 3.20	Show the Magnitude of the Influence between Need for Achievement State and Other Behavior according to the Bio-Social Background Moderating Variables of the Research.	102
Figure 3.21	Show the Magnitude of the Influence between Need for Achievement State and GPA according to the Bio-Social Background Moderating Variables of the Research.	105

CHAPTER 1

INTRODUCTION

1.1 Introduction

Despite the country's varied population, academic study in Thailand often focuses on individuals' behavior in relation to comparable or related problems. Furthermore, examinations conducted within the same experimental group can produce conflicting findings. This stimulates discourse on research results relating to such topics. Numerous scholars and researchers have endeavored to integrate statistical research findings with diverse scholarly works. As an illustration, Edward Lee Thorndike undertook synthesis research, which falls under the category of association study, with the objective of determining the average value of association factors in the subsequent year. The estimation of the effect size was introduced by Jacob Cohen in 1969, wherein he utilized the sample size and power estimate (Cohen, 1969, pp. 22). The term "meta-analysis" was initially used by Gene V. Glass in 1976, when he defined it as a synthesis of a single type of research.

Research synthesis is a method framework that uses a variety of research approaches to examine a topic. This approach entails collecting data from one or more research papers or pertinent sources, which the researcher then selects and combines to analyze gaps or similarities. (Cooper, 2010, p. 6) Meta-analysis is a systematic method for integrating research by comparing and examining the findings of different studies, including both differences and similarities. The goal is to identify the differences between various results by analyzing each component. In addition, a thorough investigation increases our understanding of the selected topic area in the study.

The researchers reinforced their findings by analyzing the occurrence of desirable conduct. The researchers discovered two primary study patterns in the data collection. The first is the synthesis of research to consider independent variables that influence variables, such as processing and synthesizing research on work in Thailand (Srigindarat, P. j. D. Y. a. U., 1999), variable studies related to health-promoting behavior (Thongkorn, A., 2007), healthy behavior factors (Thanakwang, K., 2009), good health and well-being synthesis (Sriutaisuk, S., 2017), applying the philosophy of sufficiency economics to manage learning (Sukkarasaranee, S., 2019) , The synthesis of teenagers' well-being. (Jaroentaku, N., 2019) and so on. The second model, for example, entails studying selected individual variables that are related to the independent variables. Synthesis of research between locus of control and behavior (Jitsereepab, S., 2006, T-Nate, P., 2011) The synthesis of good role model and desirable behaviors (Choktanaporn, N., 2011) and so on. Meta-analysis is being carried out extensively and continuously. For example, reading and working memory. (Peng et al., 2018, 48-76) Study anxiety and success in mathematics. (Barroso et al., 2021, pp.134-168) Learning about success and self-awareness. (Huang, 2016, pp.119-

137) and so on. While research studies on the desire for achievement and behavior have been conducted in Thailand, there has not been a thorough study of this topic widely or a comparison of research results in Thailand and other countries using the meta-analysis approach.

The researchers study gathering data and analyzing the factors of the need for achievement that impacted the conduct of young individuals from 2007 to 2019. The online system in Thailand revealed that the oldest information on this topic was from 2007. The researchers conducted a meta-analysis study to investigate the relationship between the need for achievement and youth behavior from 2007 to 2019. The youth's behavior encompasses their study habits and other behaviors, including their GPA (Grade Point Average). The researcher conducted additional research on the two distinct forms of need for achievement, specifically the need for achievement trait and state need for achievement and analyzed their relationship with adolescent's behavior. Which moderator variable influences the specific attributes of certain research results? How different is the research design? The researcher expects that this study will produce new knowledge about positive adolescent behavior, which can be utilized for subsequent research. and future developments.

1.2 The Research Objectives

1.2.1 To investigate the relationship between general need for achievement and youth behavior (study behaviors, other behaviors, and average grades).

1.2.2 To investigate the relationship between the need for achievement trait and youth behavior.

1.2.3 To investigate the relationship between the need for achievement state and youth behavior.

1.3 Usefulness of The Study

Usefulness in academic and administrative aspects

1.3.1 Conclusions from a study examining the relationship between the need for achievement and adolescent behavior.

1.3.2 Understand the trends in research on the underlying need for achievement and adolescent behavior. Identify the subgroups that will stimulate additional research.

1.3.3 Important discoveries can be beneficial for promoting pleasant behavior in adolescents. This led to the development of advantageous traits that support young people from diverse bio-social backgrounds and their need for achievement.

1.4 Literature Reviews

This research study presents topics for literature reviews, categorized into three primary groups:

1.4.1 The Need for Achievement: origins, definition, and methods of measurement

1.4.2 The relationship between the need for achievement and the behavior of adolescents

1.4.3 Empirical synthesis using meta-analysis

The research details for each topic include the following information:

1.4.1 The Need for Achievement: origins, definition, and methods of measurement

1.4.1.1 The origin of the need for motivation

John Watson initially introduced the theory of behaviorism. Watson first established behaviorism in his book "Psychology as the Behaviorist Views It," which he published in the same year. The year was 1913 (B.E. 2456) (Chuawanlee, W., 1995, pp.53-60). More than a century has passed since this idea sparked a revolution in the science of analytical education, redirecting attention from the examination of mental states to the systematic investigation of behavior and mental processes. Human needs analysis is a well-known approach in the study of individual behavior. In 1938, Henry Alexander Murray published a study on personality analysis in his book "Exploration in Personality" (Murray, 1938). Murray believed that individuals exhibit diverse behaviors because of their internal desires and perceptual abilities, which in turn provide expressions that address their unfulfilled needs or desires, be they primary or viscerogenic needs or secondary or psychological needs. A theory of the need for achievement has been applied in research to understand the basic forces that motivate individuals to follow behaviors with a goal of achieving their objectives or desires. Murray performed a comprehensive study on several human efforts, such as aggression, counteraction, deferrance, exhibition, affiliation, power, and achievement. Achievement motivation is a primary influential factor that prompts individuals to behave in either similar or distinct manners. Human wants have been the subject of extensive research and development. Abraham Harold Maslow introduced a renowned framework known as Maslow's Hierarchy of Needs in the year, which gained prominence and has since undergone extensive examination. In 1943, Abraham Harold Maslow published the book "A Theory of Human Motivation" (Maslow, 1943, pp.370-396). Maslow delineated human needs as a hierarchical structure, advancing from the most fundamental to the most sophisticated without omitting any levels. The hierarchy of human needs is as follows: physiological needs, safety needs, belonging and love requirements, safety needs, and self-actualization needs. A wide range of topics, including general needs and education inside organizations, have been the subject of considerable study since the introduction of Maslow's theory of requirements. McClelland, Atkinson, Clark, and Lowell published The Achievement Motive in 1953. McClelland released "The Achieving Society" later in 1975. McClelland introduced a motivation theory consisting of three distinct types: the first type, known as the Need for Achievement (nAch), the second type, known as

the Need for Affiliation (nAff), and the last type, known as the Power Requirement (nPower). During the same period, psychologists and scholars with a keen interest in the topics of desire and motivation introduced a multitude of notions and hypotheses. Among the theories provided were Herzberg's Two-Factor Theory, Clayton P. Alderfer's ERG Theory, and Atkinson's theory of achievement motivation, which evolved as a mathematical model. Since the initial stages of study by Murray and Maslow, the concept of "achievement motivation" has been studied in relation to human desire and drives, which give development to desires that impact human actions, expressions, or behaviors. Within Thailand, a study of achievement motivation based on McClelland's theory remains frequently utilized for studying the relationship between achievement motivation and desired behaviors among different age cohorts, namely during adolescence and the working age.

Furthermore, empirical investigations conducted by psychologists, behavioral psychologists, and other relevant academics have consistently advanced the field of achievement motivation. The year 1983 B.E. American psychologists Carol S. Dweck and Andrew J. Elliot published an article on achievement motivation in the *Handbook of Child Psychology: Socialization, Personality, and Development* (1983). Elliot went on to develop what is now known as Achievement Goal Theory through his subsequent research and studies focused on these goals of achievement (Senko, C., Hulleman, C. S., & Harackiewicz, J. M., 2011). Elliot remained to study this subject for nearly two decades, until 2001. In 2001, Elliot and co-researchers published "A 2 x 2 Achievement Goal Framework" as an essay on "Achievement Goals and the Hierarchical Model of Achievement Motivation" (Elliot & McGregor, 2001; Elliot and Thrash, 2001). Two situations—approach (seeking reward or growth) and avoidance (avoiding punishment or failure)—make up Elliot's goal-setting framework, which divides into two categories: mastery goals and performance goals. As a result, Elliot identified four different types of success goals:

First, The Mastery Approach aims to achieve success by promoting personal development and improving learning. Second, mastery avoidance refers to the desire to avoid tasks because one feels there is nothing left to learn, working only to fulfill obligations. Third, the performance approach desires to work well to gain acceptance from the group and receive other rewards. Fourth, performance avoidance is the desire to avoid tasks to not feel embarrassed by uncertainty in one's abilities and overall failure.

Before the year B.E. In 2000, researchers examined the demand for achievement from a holistic perspective, following McClelland's theory. However, after that year, their attention changed. Since 2000, research on this topic has focused on examining the sub-characteristics of the components that contribute to expression. Following the year 2000, researchers began their investigations. Researchers endeavored to understand, predict, and find ways to facilitate understanding of the motivations behind various behaviors.

1.4.1.2 The definition of need for achievement

"Motivation" comes from the word "move," which is a verb in Latin meaning "to move." Therefore, motivation is not static; it must involve a change from one thing to another or act as a catalyst for changes in individuals' actions and expressions.

McClelland (1974) identified that achievement motivation refers to an individual's commitment to achieving success, involving planning both a pathway to the desired destination and strategies to eliminate potential obstacles and problems. Three significant aspects of achievement motivation express themselves: First, it is about perceiving events or recognizing the things one encounters in a functional manner. Second, it entails thinking of different methods and having backup plans to ensure successful work. This reflects creative thinking or the application of different methods to achieve success. Third, it is about having a purpose to reach work goals, resulting in effective, stable, and sustainable outcomes.

Carol Midgley, Avi Kaplan, and Michael Middleton (Midgley, C., Kaplan, A., & Middleton, M., 2001, pp. 77-86), educators and psychologists, have defined the meaning of achievement goals as the perception or pursuit of one's desired competence. Mastery Goals focus on personal factors and tasks, emphasizing the development of specific competencies and a deep understanding. Performance goals, on the other hand, focus on evaluating individuals based on their unique abilities and performance in comparison to others.

Bhanthumnavin, D., (1995; 2004) states that achievement motivation is a psychological trait of individuals. Those with high achievement motivation are able to advance in their careers because they are determined to perform their duties diligently, overcoming obstacles by seeking ways and methods to work, as well as finding solutions to problems in order to achieve their set goals with their own abilities. Furthermore, the ethical tree theory considers achievement motivation as a psychological trait, comparing it to the trunk of a tree, which serves as a catalyst for good and capable behavior, or desirable behaviors. Furthermore, Vanindananda, N., (2014, p. 71) provided a comparable definition, proposing that need for achievement refers to the inclination of an individual to pursue success, therefore evading the possibility of failure. They exhibit tenacity and refuse to surrender in the face of challenges until they achieve the intended outcomes, while also being aware of the factors that contribute to success. They strategically anticipate, evade, and mitigate elements that provide hazards to attaining their objectives. Furthermore, it is worth mentioning that people who possess a strong need for achievement and those who lack such a need for achievement will display distinct traits in relation to their perception, acceptance of problems, problem-solving decision-making, and behaviors. This differentiation is based on six specific characteristics. Individuals who display a pronounced need for achievement exhibit the following six traits: 1) The individual demonstrates adept recognition of different stages in the task and exhibits sensitivity in evaluating objectives. Are there any advantageous elements, or is there anything

that is a hindrance? Examine the procedural stages and outcomes of the operational activities. 2) Acknowledge the issue and resolve it. They firmly believe that problem-solving is crucial for success and produces enduring results. 3) Explore innovative approaches to problem-solving. 4) They endeavor to establish an appropriate working atmosphere. 5) Execute tasks or resolve difficulties methodically, exercise patience, and engage in rapid and effective labor. Optimal work productivity 6) Experience contentment and joy when the task achieves success. However, they do not surrender in the event of failure. They can obtain input or assess outcomes to enhance the task even further (McClelland, D. C., & Winter, D.G., 1971, pp. 50-51; Vanindananda, N., 2014, p. 71).

McClelland proposed a set of 12 steps (McClelland, D. C., & Winter, D. G., 1969; Bhanthumnavin & Bhanthumnavin, 2015) for individuals with a need for achievement (Figure 1.1). Duangduen Bhanthumnavin, along with others, proposed academic criteria for the sequential development of the need for achievement, categorizing it into four stages (Figure 1.2). This analysis demonstrates the cognitive processes and strategies used by people with high and low needs for achievement, emphasizing their contrasting characteristics. Initially, the emphasis is on setting goals. Next, the focus shifts to strategizing to achieve these goals. Once the plan is implemented, those with a strong desire for success will actively pursue remedies to overcome any obstacles that may arise and prevent the plan from unfolding as intended. Ultimately, as they near or attain success, they will actively seek areas for enhancement, never relinquishing or becoming stationary.

Thus, based on the evidence, the researcher concludes that the need for achievement refers to a psychological characteristic that motivates individuals to pursue their goals by utilizing their own capabilities. They engage in cognitive processes, strategize, and actively pursue approaches. In the event of hindrances, they will exert themselves to surmount such difficulties, thereby attaining achievement.

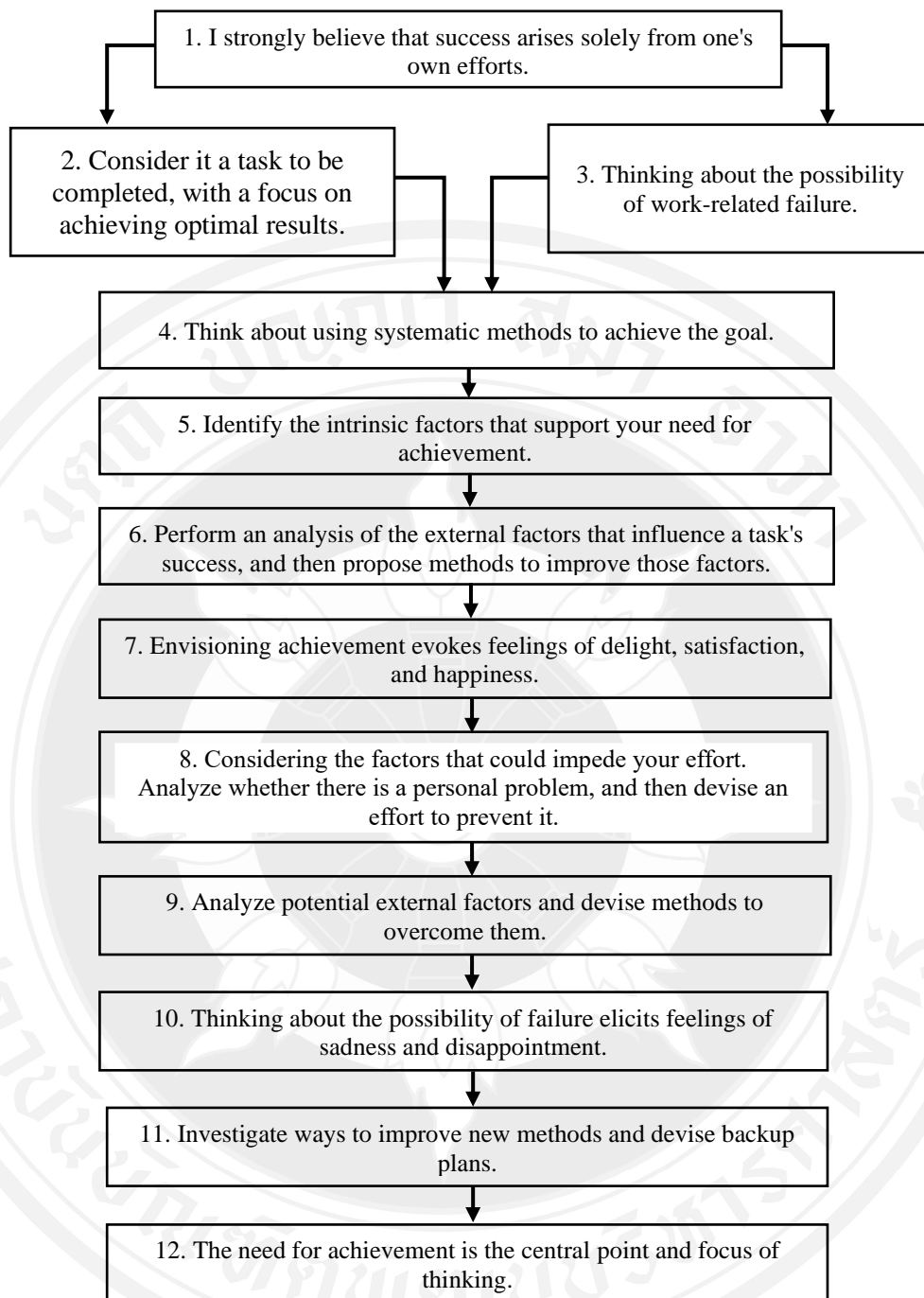


Figure 1.1 Show the twelve principles of cognitive processes that relate to the need for achievement.

Source: McClelland & Winter (1969); Duangduen Bhanthumnavin and Duchduen Bhanthumnavin, (2015).

The academic criteria for creating stories focused on increasing achievement motivation.	Stage to development
Consider enhancing the work plan and creating a backup plan. Determined until achieving success.	Stage 4
(1) Predict the factors that may lead to failure. (2) External impediments that require removal. (3) Develop a plan to eliminate, decrease, or prevent failures that may originate from intrinsic factors. (4) Thinking about failure and experiencing sadness while maintaining the desire for continued success.	Stage 3
(1) Predict the factors influencing success. (2) Describe the intrinsic motivations to achieve success. (3) Describe external motivations to achieve success. (4) It is a creative method that produces highly advantageous long-term outcomes. (5) Thinking of achievement, experiencing satisfaction, and feeling happiness.	Stage 2
(1) Identifying events/problems is a self-directed "task" that everyone must first complete. (2) Clear goals before initiating a task. (3) The goal is both suitably achievable and within the current capabilities and resources available.	Stage 1

Figure 1.2 The academic criteria for creating stories focused on increasing achievement motivation

Source: Bhanthumnavin, D.L., & Bhanthumnavin, D.E. (2015)

1.4.1.3 Methods for measuring need for achievement

The measurement of need for achievement determines when an individual possesses a high or low level of need for achievement. Morgan, C. D. M., H. A. (1935) and Murray, H. A. (1938) originally designed the Thematic Apperception Test (TAT) as a research instrument. The Thematic Assessment Test (TAT) is an assessment that utilizes a sequence of visuals, usually comprising of 4-5 images, portraying individuals in diverse scenarios. In the experiment, the researcher sequentially displays the photos to the experimental group or individuals, with each image lasting approximately 20 seconds. Next, each image prompts the participants to answer four questions outlined below (Kowatrakul, S., 2021).

Question 1: Who is the person the subject sees in the image? What do they see?

Question 2: Why is that person in that situation? What events occurred prior to that?

Question 3: What do you think the person in the picture is thinking? What do they want?

Question 4: The experimenter thinks about what will happen next after this.

The answer to the above question will reveal the participant's level of achievement need, whether it is low or high. This question reflects the participant's goal setting, effort, responsibility, and performance.

Tools for measuring individuals' need for achievement have become increasingly diverse, such as observation, interviews, self-reports, imagination exercises, written response tests, surveys, assessments, questionnaires, and standardized measurement scales, among others. Behavioral research commonly applies standardized measurement scales to distinguish the feelings, opinions, traits, and expressions of individuals or groups. Additionally, researchers employ these standardized scales to determine whether a sample group exhibits a low or high need for achievement.

The Likert Summated Rating Scale was first proposed by Rensis Likert in the year. The construction of a measurement scale to assess or classify individuals who have varying feelings towards something is defined as a measurement range with continuous values, considering the direction as either positive or negative and the intensity level as either high or low (Spector, 1992, p. 1; Shukla, N., & Sharma, D., 2017, p. 231). The researcher will create statements to inquire from the sample group, which will choose to respond based on how they feel or what they think about each statement, scoring according to their feelings. The initial Likert scale divides the measurement range into 5 levels; for example, 1 means strongly disagree, 2 means disagree, 3 means unsure, 4 means agree, and 5 means strongly agree. Elliot, A. J., & Murayama, K. (2008, p. 617) developed the Achievement Goals Questionnaire, or AGQ, which uses the Likert scale to measure the need for achievement. Chang, L. (1994, p. 205) changed the measurement intervals to either a 4-point or a 6-point Likert scale to prevent individuals from selecting the middle score, which does not reveal any individual differences. Researchers have continuously developed and applied the need for achievement measurement in studies, including research among students (Bhanthumnavin, D.L., & Vanindananda, N., 1993) and working adults (Bhanthumnavin, D.E., 2015), among others.

1.4.2 The relationship between youth behavior and the need for achievement

Numerous scholars and diverse organizations provide comparable explanations for the concept of "behavior." Behavior, as defined by the Royal Institute Dictionary (2011, online), encompasses the conduct or manifestations shown through

physical movements, cognitive processes, and emotional responses to external stimuli. Furthermore, behavior encompasses not only the explicit expressions or gestures of persons but also the act of refraining from acts, refraining from expressing oneself, or concealing motions (Attamana, ST., 2010, pp. 13-14). Behaviorism studies were developed in the United States during the 1950s. Behavioral research uses scientific methodologies to investigate human behavior. Numerous disciplines, such as political psychology, health, and education, have used this methodology to examine behavior among diverse age groups.

Researchers and academics have extensively examined the behavior of youth, focusing on topics such as study behavior, health behavior, responsibility behavior, risk-taking behavior, smart choice behavior, and discipline behavior. Researchers have been investigating the causal factors that influence a variety of desirable behaviors among youth. Researchers have discovered that the need for achievement, a psychological trait, influences behavior in various age groups, especially in young individuals. According to McClelland, D. C. (1974), individuals with a high need for achievement tend to exhibit significantly more desirable behaviors than those with a low need for achievement. Numerous research findings support this. For example, Researchers have conducted studies on the prevention of disease transmission in the daily lives of undergraduate students (Praneetvatakul, B., 2017), social responsibility behaviors in schools (Wisakhasart, R., 2017), commitment to learning behaviors among undergraduate students (Boualar, K., 2018), and adaptation behaviors in universities (Mekkhachorn, W., 2019), among other topics. The study of the need for achievement among youth has been conducted both in Thailand and abroad for some time. The results show that it is one of the most important psychological traits, but some research finds it insignificant.

Hence, the researcher aims to consolidate studies using a meta-analysis approach, selectively focusing on the independent variable, the need for achievement, and investigating its relationship with youth behavior. The aim of this study is to examine the relationship and size of effects between the need for achievement and youth behaviors, particularly study behavior, which is the primary focus of the youth group.

1.4.3 Research Synthesis using Meta-Analysis

The systematic collection of empirical research to generate generalizations is referred to as research synthesis. The approach places a primary emphasis on relevant concepts, study investigation, resolution of disagreements in studies related to the same topics, and identification of essential elements for future research.

Meta-analysis is one of the advanced methods for synthesizing quantitative research that has developed significantly in recent times. Like other types of research synthesis, meta-analysis summarizes each study's results by examining the relationships between variables and elucidating the data analysis results, which may vary depending on the research methodology (Figure 1.2). However, meta-analysis is different from general data synthesis in the way it looks at the data. This is because

the data analysis methods used in meta-analysis are an effort by statisticians to address the weaknesses of existing quantitative research synthesis methods, resulting in a systematic, modern, and highly reliable approach to analysis.

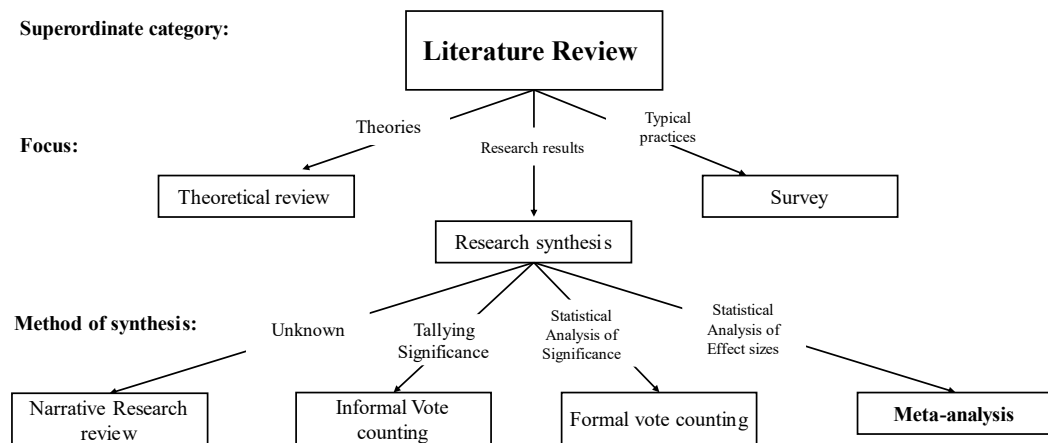


Figure 1.3 Show the relationship between meta-analysis and the synthesis of different research methodologies in an academic literature study.

Source: Noel A. Card (2012, p.6)

The presentation of the study synthesis using meta-analysis is segmented into five topics, each accompanied by specified details:

1.4.3.1 The Historical Evolution of Meta-Analysis

Various researchers and scholars analyzed the early dimensions before establishing terminology or identifying principles, attempting to integrate research findings with statistical values across multiple studies. For instance, Edward Lee Thorndike synthesized correlational research by calculating the average of correlation coefficients. Later in the year. In 1969, Jacob Cohen introduced the calculation of effect size to determine sample size and estimate power (Wiratchai, N., et al., 2009, p. 22). In the year. Gene V. Glass first coined the term "meta-analysis" in 1976. Glass, 1976, pp. Glass's meta-analysis utilized effect size and correlation coefficient as standard indices for synthesizing research (Wiratchai, N., et al., 2009, p. 22).

Smith and Glass (1977, as cited in Card, N.A., 2012, p. 8) published a research article titled "Meta-analysis of psychotherapy outcome studies" in the American Psychologist scholarly publication in 1977. The study analyzed more than 1,000 papers, encompassing psychology abstracts, thesis abstracts, and compilations of references for those documents. Out of the original 1,000 documents, a subset of 500 records was chosen, and only 375 were synthesized and analyzed. The results illustrated the advantages of psychological counseling and psychotherapy, establishing only minor variations in the impacts of different therapeutic modalities.

Smith and Glass's study unequivocally assessed one form of treatment as superior to another. Treatment professionals have referenced this finding and implemented it as a policy in training, a practice they consider unjust. The expertise of scholars and practitioners is constrained by the vast volume of information dispersed across journals, books, and reports that are not readily available. Extraction of knowledge from research on a particular topic is intricate, and there are notable methodological issues that require more focus. Therefore, Smith and Glass's research underscores the necessity of meta-analysis for reliable conclusions, given the potential for inconsistent or conflicting results from individual investigations. This finding has sparked significant debate among scholars.

Several books, including "Meta-analysis in Social Research" (Glass, G. V., McGraw, B., and Smith, M. L., 1981), presented techniques for meta-analysis later in the early 1980s. The book titled "Meta-analysis: Cumulating research findings across studies" (Hunter, J. E., Schmidt, F. L., and Jackson, G. B., 1982) The book "Meta-analytic procedures for social research" (Rosenthal, R., 1984) The book "Statistical methods for meta-analysis" (Hedges, L. V., and Olkin, I., 1985) et al., particularly the work of Hedges, L. V., & Olkin, I., 1985, is regarded as the foundation of traditional statistics, In Thailand, researchers commonly use the English loanword "การวิเคราะห์เมตต้า" to refer to studies employing the meta-analysis method. The term "การวิเคราะห์อภิมาน" was coined for the first time in the year 1985 by an assistant professor. Dr.Pricha Thamma, a lecturer in the field of research and curriculum development at Srinakharinwirot University (Siri Yupha Poonsuwan, 2012, p. 44), notes that scholars and researchers in Thailand have increasingly adopted the term "meta-analysis." Over the past four decades since the term's first coinage, Thailand has seen a surge in popularity for the synthesis of research through meta-analysis, and the country has conducted studies utilizing these methods for more than three decades. Meta-analysis's continuous development and refinement has enhanced its explanatory power and addressed shortcomings caused by confounding factors, leading to more appropriate data synthesis and analysis. Therefore, meta-analysis is a highly advanced and credible form of research synthesis.

1.4.3.2 Definition of meta-analysis

Scholars, researchers, and synthesizers consistently interpret the meaning of meta-analysis in the same direction, as demonstrated by Gene V. Glass (1976, pp. 3), who defines it as the process of analyzing other analyses. This process involves using statistical methods to collect extensive data from various studies addressing the same issue, and then synthesizing these findings to arrive at a collective conclusion. The goal of meta-analysis is clarity, which aligns with Paul Leedy and Jeanne Ormrod (2015, pp. 259–260), who indicate that meta-analysis is most beneficial when researchers extract or compile research findings from numerous studies on a specific topic or research problem in a rigorous manner using mathematical methods, relying more on statistics than on verbal communication. According to Noel A. Card (2012, p. 5), meta-analysis has two key

principles for defining meaning. First, meta-analysis uses study outcomes as a unit of analysis, particularly effect sizes. Second, meta-analysis involves analyzing results from multiple studies, where each individual study counts as a unit of analysis. Documents from two or more studies can be used (the number of documents used depends on their availability and relevance to the research in question). Additionally, meta-analysis highlights which study results contradict others and what methodological differences may lead to inconsistencies in those findings. (Paul Leedy and Jeanne Ormrod, 2015, p. 260)

Furthermore, meta-analysis is distinct from data synthesis in both primary and secondary analysis. Researchers have independently collected raw data from different research studies, a procedure known as primary analysis, which meta-analysis does not encompass. It also does not involve the synthesis of data from information collected by others that does not align with their criteria, a process known as secondary analysis. Both primary and secondary analyses entail the examination of a subset of persons inside the research, while meta-evaluations involve the analysis of data derived from a subset of studies, treating each document as an independent unit of analysis. (Card, 2012, p. 5)

In Thailand, Pricha Thamma states that the term "อภิ" means superior or greater, while "มาน" means to have. When combined, "อภิมาน" refers to an analysis that is superior to a general analysis or a grand analysis (Siriypa Poonswan, 2012: p. 44). Additionally, there are similar definitions from abroad, where "การวิเคราะห์อภิมาน" refers to a method of synthesizing quantitative research by combining multiple studies that address the same issue and synthesizing the data using statistical methods to arrive at conclusions (Wiratchai, N., et al., 2009, p. 23; Yoonisil, N. S. a. W., 2014, p. 44; Chankham, W., 2015, p. 309; Tangutairuang, T., 2016, p. 59). The key information for analyzing meta-analysis consists of research results measured in the form of standard indices, including effect size, correlation coefficient, and research characteristics. The principle for data analysis will involve comparing the differences in standard indices from research on each topic to identify any conflicts or differences arising from the characteristics of the research.

Therefore, meta-analysis is the process of integrating the findings of several quantitative studies that investigate the same study topic at a specific moment in time. Each study is regarded as a distinct unit for analysis and is thereafter examined using mathematical techniques or statistical measures. This paper provides a comprehensive summary and explanation of all the findings, irrespective of whether they reveal parallels or differences in the conclusions obtained from the synthesis and analysis of data pertaining to the subject matter. Such outcomes yield findings or knowledge that surpass the scope and depth of any individual inquiry, therefore enabling subsequent research, policy development, or development.

1.4.3.3: Meta-analysis Categories

Meta-analysis is a research study that involves experimental research or research that examines relationships. The standard index values used to indicate the effect size of independent variables on dependent variables fall into three categories: (1) Effect size, denoted by d , is the statistical value that shows how much the independent variable affects the dependent variable. (2) The correlation coefficient, denoted by r , shows how strong and in what direction the causal relationship is between the independent and dependent variables. (3) The P-value, a result of hypothesis testing to describe or summarize a population's traits based on statistical values obtained from sample data, determines whether the test is statistically significant or not. According to Wiratchai, N., et al. (2009, pp. 31-33), there are six methods for conducting meta-analysis and calculating standard index values.

Method 1: The Glass Method, widely accepted as the dominant technique. This method has two primary characteristics: 1) the presence of a formula for calculating the effect size using statistical analysis of different experimental designs, and 2) a formula for transforming other correlation coefficients into Pearson's correlation coefficient. Glass uses the analysis of variance of the standardized index and regression analysis to estimate the variance of the standardized index, utilizing characteristic variables as independent variables and the standardized index as the dependent variable.

Method 2, also known as the Rosenthal technique, uses statistical significance levels to analyze and estimate effect sizes in two distinct ways: 1) by calculating them based on the sample size and test statistics for hypothesis testing; and 2) by calculating them based on the sample size and the appropriate significance level.

Method 3, known as Hunter's Method, entails the adjustment for three distinct categories of errors: 1) measurement error, 2) sampling error, and 3) range constraints. After synthesizing the modified standard index values, the next step involves statistically testing the hypothesis to determine whether the standard index values exhibit variance or disparities. Upon detecting statistical variance in the standard index values, the next step involves identifying a moderator variable to categorize the research groups before proceeding with further synthesis.

Method 4, known as the Hedges and Olkin technique, utilizes the notion of calculating effect size by considering standard deviation. This approach focuses on the statistical characteristics of the standardized index, specifically effect size, and accounts for measurement bias. Furthermore, Hedges and Olkin present a mathematical equation for computing the weighted average and offer the Q statistic to assess the equality of impact sizes among various populations prior to integrating research results.

Method 5, Slavin's Approach (Slavin, 1989), facilitates a comprehensive assessment of high-caliber research exclusively for the purpose of synthesis. The meticulous analysis of study quality results in the selection of only the

most compelling evidence, which in effect leads to a limited sample size for meta-analysis. Furthermore, this method presents challenges due to the potential for selection bias. The limited amount of synthesized statistical data may limit the conclusions.

Method 6, Mullen's method, implements estimation based on Cohen's methodology and uses Fisher's Z scores to estimate the association between variables. When examining the meaning of standardized indices, a weighted average is employed. The creation of the Basic Meta-analysis computer program, which facilitates the analysis of effect size, is an important contribution.

This study examines the superlative by computing standard index values using six different approaches. The main approach is the Glass method, which will be thoroughly explained in relation to the standard index in the subsequent examination of the Superior.

1.4.3.4: Meta-analysis Analysis Standard Index

Standardized indices are important for meta-analysis due to the distinct properties of the selected documents in each research study. Thus, in order to synthesize Therefore, prior to combining the data using meta-analysis techniques, it is crucial to transform the indices of each research study. Quantitative research synthesis encompasses two types of values: probability values and statistical values. These values serve to show the link between variables or indices that quantify the significance of the effect (Hunter & Schmidt, 1990). The standardized indices frequently employed in meta-analysis consist of two categories: effect size and correlation coefficients. Glass, McGaw, and Smith (1981, cited in Wongwanich, N. W. a. S., 1999, pp. 18-22; Glass, McGaw & Smith, 1981, cited in Wiratchai, N., et al., 2009, pp. 25-31) outline two methods for estimating effect size and correlation coefficients in relationship meta-analysis research: 1) direct calculation based on statistics from four different sample groups, and 2) direct calculation based on statistics from five different significance tests. Applying correlational research is simple. The details are as follows:

- d = Effect size
- r = Pearson's correlation coefficient
- n = Sample size

Correlational research. Estimating effect sizes in this form involves estimating the effect size from the correlation coefficient using the following formula:

$$d = \sqrt{\frac{n-2}{n}} \left[\frac{2r}{\sqrt{1+r^2}} \right]$$

To acquire standardized indices for meta-analysis, researchers need to select suitable calculation formulae to evaluate the effect size and correlation coefficients for each respective study. As a result, it is critical to thoroughly scrutinize

the information included in each document to make appropriate and high-quality adjustments to the estimations. This will establish a benchmark for the synthesis and analysis of data in a sequential manner.

1.4.3.5 Steps for Analyzing Meta-Analysis

Meta-analysis is a systematic synthesis of data. When researchers define the research problem, which is the first crucial step before proceeding further, they should plan their operations in a step-by-step manner to lead to comprehensive and in-depth conclusions in synthesizing research on that issue. Leedy and Ormrod (2015, p. 260) offer guidance on the process, suggesting that once researchers identify the research problem, they should follow these three steps: Step 1 Perform a comprehensive search for pertinent literature using systematic and comprehensive approaches. Step 2 Select appropriate studies to incorporate into the meta-analysis. Step 3 Transform the findings of each study into a comprehensive statistical index. Moreover, there exist established methodologies for meta-analysis developed by several scholars and researchers, which include distinct, detailed stages. Some individuals divide the process into four steps, such as Wiratchai, N., et al. (2009, p. 37-47) and Glass (1981), for example. Some individuals, like Anja-Julia Duveneck (2017, p. 2), Harris M. Cooper (1982), and Cooper and Hedges (1994), have defined the operation into five steps, while others, like Cooper, Hedges, and Valentine (2009, pp. 11-15; 2019, pp. 12-15), and Kyung Won Kim et al. (2015, pp. 1176-1185), have defined processes with six or more steps. However, when examining the details of each step, there may be slight variations (Tables 1.1 and 1.2). Therefore, in this research, the researcher has divided the steps for conducting a meta-analysis into six stages, primarily adapting the steps from Cooper, Hedges, and Valentine (2019, pp. 12–15) and refining the details based on other scholars and researchers. The details are as follows:

Step 1: Establishing the research problem and objectives is necessary. To accurately define the research problem and objectives, three factors must be considered: 1) the magnitude of the central tendency of the standard index; 2) the amount of variance of the standard index; and 3) the relationship between the characteristics of the synthesized research and the standard index resulting from the research. Nevertheless, the research problem, which focuses on research studies as the primary unit of analysis, must possess a sufficiently large number of studies that can be examined, as well as appropriate independent and dependent variables.

The objective of this research is to examine important meta-analyses in order to draw more comprehensive and profound conclusions compared to those obtained from individual research investigations. This will be achieved by combining a substantial number of research findings on the same topic. This analysis may uncover discrepancies or incongruities in the findings from various research, as well as explore conditional connections that can result in valuable implications in policy formation, development planning, or implementation. Moreover, the study goals should be in accordance with the presented challenges and research questions.

Step 2: The process of searching for pertinent research materials includes thoroughly and methodically examining and combining theories and research pertaining to the specific research issue of interest. This entails examining ideas, principles, and relevant theories to develop a conceptual framework and generate hypotheses for the research. Use diverse search methods such as electronic databases, references from readily available research papers, abstracts, reports from various agencies, and specialists, among other viable options. Researchers should prioritize defining search indexes or keywords derived from electronic database queries. Researchers should select search indices that are sufficiently focused or comprehensive to cover the subjects under examination. The essential concepts for this study are excellent citizenship behavior, ethical cognition, and self-assessment. These concepts will be used to develop a conceptual framework for examining the main issues of the research and then establishing the research hypotheses.

Step 3: Evaluation of the Research Methodology. The criteria for data gathering and selection are to be defined. The researcher must formulate the study design, set selection criteria, extract or emphasize significant information, specify measurement instruments, and define procedures for operation. Implementing this step helps to strengthen the credibility of both the researcher and the research they are conducting. The researcher ensures that the research aligns with the investigated questions by establishing selection criteria that encompass both inclusion and exclusion criteria. The aforementioned criteria also serve to enable the researcher to validate the accuracy and eradicate any bias in the selection process, necessitating meticulousness and patience. The development of tools and data gathering should include conducting tests on 5–10 research projects and then enhancing the tools to attain comprehensive form.

Research synthesis requires researchers to consider two essential components: 1) the research findings for each topic, quantified using a standard index, often utilizing effect size and correlation coefficient; and 2) data pertaining to the research characteristics. This study categorizes the variables into three groups: the first group comprises variables pertinent to the research characteristics, such as the publication type, content, and research methodology; the second group comprises variables associated with the socio-demographic background of the sample group, such as gender, age, and education; and the third group comprises variables related to situational psychological characteristics, such as attitudes. The data gathering procedure consists of three stages: examination of existing studies, identification of pertinent research papers based on pre-established selection criteria, and documentation of data using a developed tool form.

Table 1.1 Shows the Steps for Analyzing the Meta-analysis by Harris Cooper in the years 1982, 2010, and 2019.

Harris M. Cooper (1982)	Cooper and Hedges (1994)	Cooper, Hedges and Valentine (2009, pp.11-15)	Harris M. Cooper (2010)	Cooper, Hedges and Valentine (2019, pp.12-15)
1. Defining the research problem	1. Defining the research problem	1. Defining the research problem	1. Defining the research problem	1. Defining the research problem
2. Data collection	2. Examine related theoretical documents.	2. Searching for relevant research documents.	2. Searching for relevant research documents.	2. Searching for relevant research documents.
3. Analyzing important data.	3. Data collection	3. Evaluation of data.	3. Data collection	3. A evaluation of the methods and data collecting used for research publications.
4. Analysis, synthesis of information, and interpretation.	4. Analysis, synthesis of information, and interpretation.	4. Analyzing important data.	4. Evaluation of research	4. Describe the statistical data in detail and the process of merging research findings.
5. Presentation of empirical results.	5. The presentation and distribution of the research synthesis report are performed.	5. Analysis and interpretation of study results.	5. Analysis and integration of research findings.	5. Analysis and interpretation of study results.
		6. The presentation and publication of the research synthesis report are performed.	6. Analysis and interpretation of study results.	6. The presentation and publication of the research synthesis report are performed.
			7. The presentation and publication of the research synthesis report are performed.	

Table 1.2 Shows a Comparison of the Steps in the Meta-analysis Analysis between Scholars and Researchers.

Wiratchai, N., et al. (2009: 37-47)	Glass (1981)	Kyung Won Kim et al. (2015, pp. 1176-1185)	Anja-Julia Duveneck (2017, p.2)	Harris M. Cooper et al. (2019, pp.12-15)
1. Creating the research problem and establishing the research objectives.	1. search for research	1. Formulating research problems and establishing criteria to identify parallels and differences.	1. Creating the research problem	1. Creating the research problem
2. Studying relevant research documents	2. Characterize, classify, and code research. 2.1 Create a data collection tool 2.2 Research coding	2. Systematic search and selection of relevant research documents	2. Studying relevant research documents	2. Studying relevant research documents
3. Data collection	3. Measure variables from research results	3. Assessment of the quality of the research studied	3. Study data extraction refers to the process of extracting significant data from the study.	3. Evaluation of study methods and data collection from study reports
4. Analyze data	4. Analyze data	4. Data extraction and management	4. Analyze data	4. Describe the statistical data and compilation of study results.
		5. Data analysis and synthesis	5. Presentation of study results (publish information)	5. Interpreting the results of data synthesis
		6. Presentation of study results published information		6. Presentation of data synthesis results

Step 4: Analyze statistical data and integrate study findings. During this stage, the researcher uses statistical techniques to examine the chosen data, treating each study topic as a distinct unit of analysis. The data analysis includes two components: initial data analysis and meta-analysis aimed at addressing the research inquiries. The study, which sought to address the research issues, quantifies all conventional coefficients to ascertain the presence of statistically significant

disparities among the research papers. In the absence of any disparities, the researcher can amalgamate the comprehensive research results into a definitive conclusion. If statistically significant variances exist, more study is necessary to clarify the variations in the standard indices, which may result from research characteristics. In their 1990 publication, Hunter and Schmidt classify data analysis for addressing problems into two distinct categories: moderator variable analysis and theory creation performed through causal model testing.

Step 5: To analyze the data synthesis outcomes, clarify the variability of the research findings. Compared to standard investigations, quantitative data analysis produces research findings with more statistical power. Frequently, researchers use regression analysis to clarify the variability of effect size and correlation coefficient size.

Step 6, the process of presenting data synthesis findings, includes composing a research report that follows the same criteria as the creation of traditional research reports. The research paper should include the methodologies used at each stage, a concise overview of the research-synthesis results and suggestions, as well as the publication and public release.

1.5 Variables in This Research

This study categorizes the variables into three groups, as follows:

1.5.1 Independent variable: Need for Achievement. The researcher further investigated the need for achievement by dividing it into two categories: (1) The need for achievement trait and (2) The need for achievement state.

1.5.2 Dependent variable includes adolescent behavior, which is divided into three subgroups: study behavior, other behavior, and grade point average (GPA).

1.5.3 Moderating variables include: (1) basic research information, including publication location, year of publication, researcher's expertise, and theoretical concepts; (2) the bio-social background of the research, including gender, educational level, father's education, and mother's education.

1.6 Operational Definition

In this research study, the researcher has established precise and universally accepted explanations for better comprehension in the synthesis. The operational definition of terms was described as follows:

1) Youth behavior

Youth behavior refers to the way individuals demonstrate their behaviors. The United Nations categorizes the behaviors of individuals aged 15 to 24 into three distinct groups: study behavior, other behavior, and GPA.

1.1) Study behavior

Study behavior refers to the expressions or actions of individuals in learning, as well as their intention, determination, love for learning, and preparedness for learning.

1.2) Other behaviors

Other behaviors refer to those who express themselves in ways other than studying, such as taking care of their health. Self-reliance, sufficiency, and democratic behavior Disciplined behavior, etc.

1.3) Grade point average or GPA

A GPA refers to a number, or average score, that indicates a student's academic performance.

2) Need for achievement

Need for achievement refers to a type of mind that drives individuals to achieve what they desire through their own abilities. Actions are taken to achieve success. Establish objectives for achieving achievement. Develop a plan for achieving that goal. Create a strategy that guarantees that, in the event of limitations, there will be an active effort to successfully overcome them. If the goal succeeds, the knowledge received can be utilized to improve future achievements. In addition, the researcher examined two distinct forms of need for achievement:

2.1) The need for achievement trait

The need for achievement trait refers to the ability to define the significance and/or establish a measure for motivation towards achieving goals without describing specific situations. The needs for Achievement trait are commonly experienced in everyday life.

2.2) The need for achievement state

The need for achievement state refers to defining the meaning and/or creating a measure related to achievement motivation by specifying the specific circumstances surrounding that behavior, such as achievement motivation that focuses on learning behavior, health behavior, work behavior, etc.

3) Moderator variable

A moderator variable refers to a variable that influences the size or direction of the relationship between the independent variable and the dependent variable to change according to the value of that variable. In this research, two groups of adjustment variables were included:

3.1) Basic information

Basic information about the research includes (1) the place of publication, (2) Year of publication, (3) the researcher's expertise and (4) theoretical concepts.

3.2) The research's bio-social background includes (1) gender, (2) educational level, (3) father's education, and (4) mother's education.

4) Meta-analysis

Meta-analysis refers to a quantitative synthesis of research findings on the relationship between the need for achievement and adolescent behavior, Examine behavior, other behaviors, and GPA. Each piece of research is counted as one unit of analysis and analyzed using statistical methods. and bring all the findings to explain and summarize the results. Whether the findings align with or diverge from the outcomes of the data synthesis and analysis. This form of research will yield results or knowledge that is more comprehensive and profound than that of a single study. Research, policy setting, or further development can apply and utilize this knowledge.

5) Correlation coefficient

Correlation coefficient refers to a standard index of research results that examines the relationship between the need for achievement and adolescent behavior, study behavior, other behavior, and GPA. The meta-analysis method is used.

6) Effect size

Effect size refers to the standard index value of the effect size value of research results that study the relationship between need for achievement and adolescent behavior, study behavior, other behaviors, and the grade point average. Meta-analysis methods were used. This research used the effect size value of Cohen (1988).

1.7 Research Framework

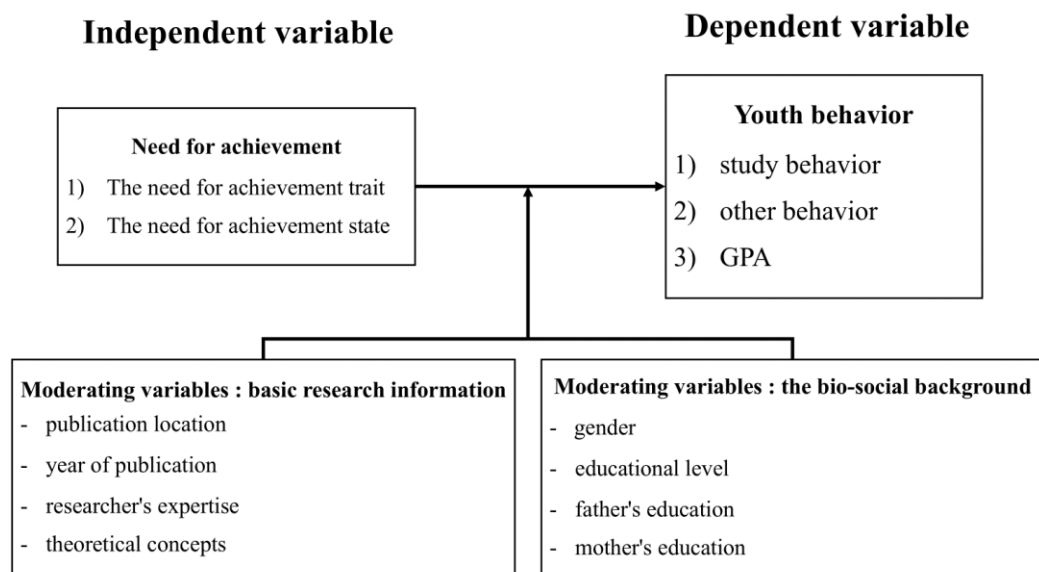


Figure 1.4 Conceptual Framework

Source: Constructed by researcher

1.8 Research Hypotheses

Hypothesis 1: The magnitude of the effect size between need for achievement and study behavior, other behaviors, or GPA have a magnitude value of at least.50.

(1.1) The magnitude of the effect size between need for achievement and study behavior, other behaviors, or GPA have a scale value of at least.50 in the combined group.

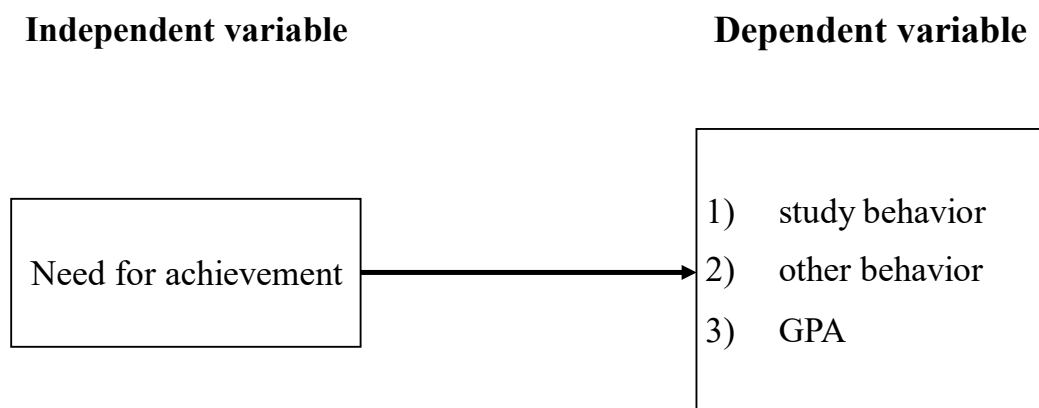


Figure 1.5 Hypothesis Model 1.1

Source: Constructed by researcher

(1.2) In the group, the effect size between need for achievement and study behavior, other behavior, or GPA (grade point average) have a magnitude value of at least .50. This result will appear in the subgroups that are basic data moderate variables of the research, including 1) the place of publication, 2) the year of publication, 3) the researcher's field of study, or 4) the theoretical concepts used in the study.

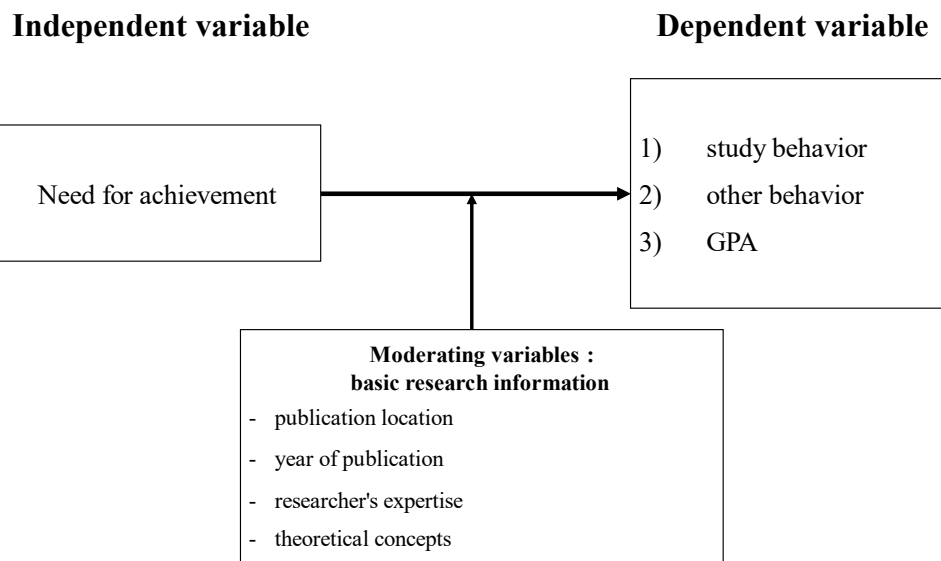


Figure 1.6 Hypothesis model 1.2

Source: Constructed by researcher

(1.3) In the group, the effect size between need for achievement and study behavior, other behaviors, or grade point average have a magnitude value of at least .50. This result is observed in Thailand's research subgroups that focus on background biosocial moderate variables, including 1) gender, 2) education level, 3) father's education, and 4) mother's education.

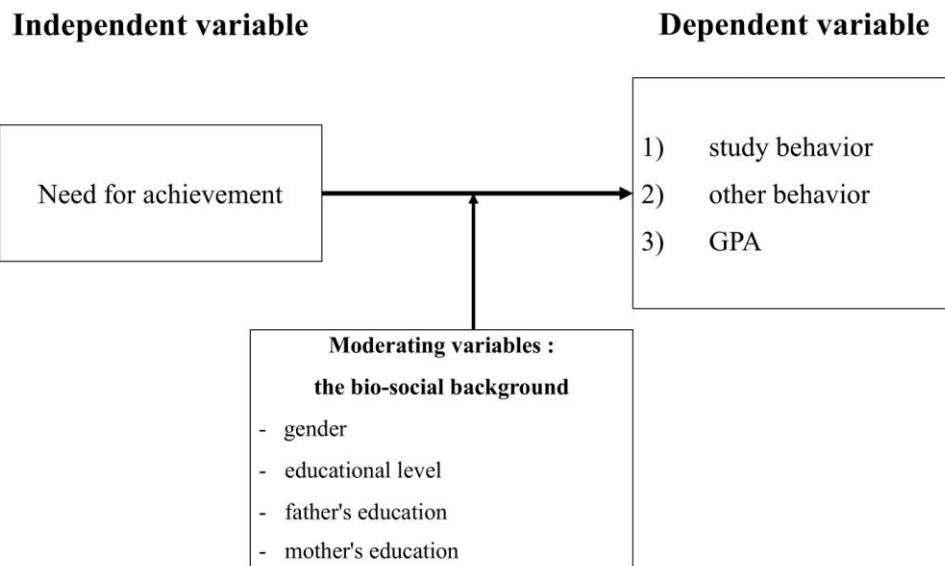


Figure 1.7 Hypothesis Model 1.3
Source: Constructed by researcher

Hypothesis 2: The magnitude of the effect size between the need for achievement trait and study behavior, other behaviors, or grade point average have a magnitude value of at least .50.

(2.1) The magnitude of the effect size between the need for achievement trait and study behavior, other behaviors, or grade point average have a scale value of at least .50 in the combined group.

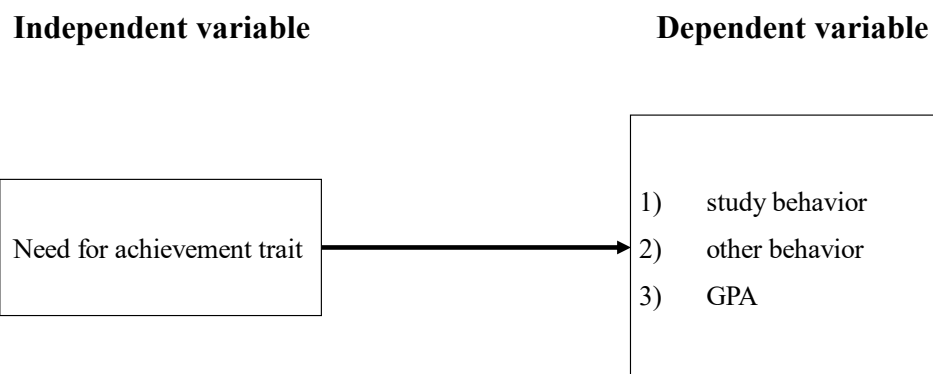


Figure 1.8 Hypothesis Model 2.1

Source: Constructed by researcher

(2.2) In the group, the effect size between the need for achievement trait and study behavior, other behavior, or GPA (grade point average) have a magnitude value

of at least .50. This result will appear in the subgroups that are basic data moderate variables of the research, including 1) the place of publication, 2) the year of publication, 3) the researcher's field of study, or 4) the theoretical concepts used in the study.

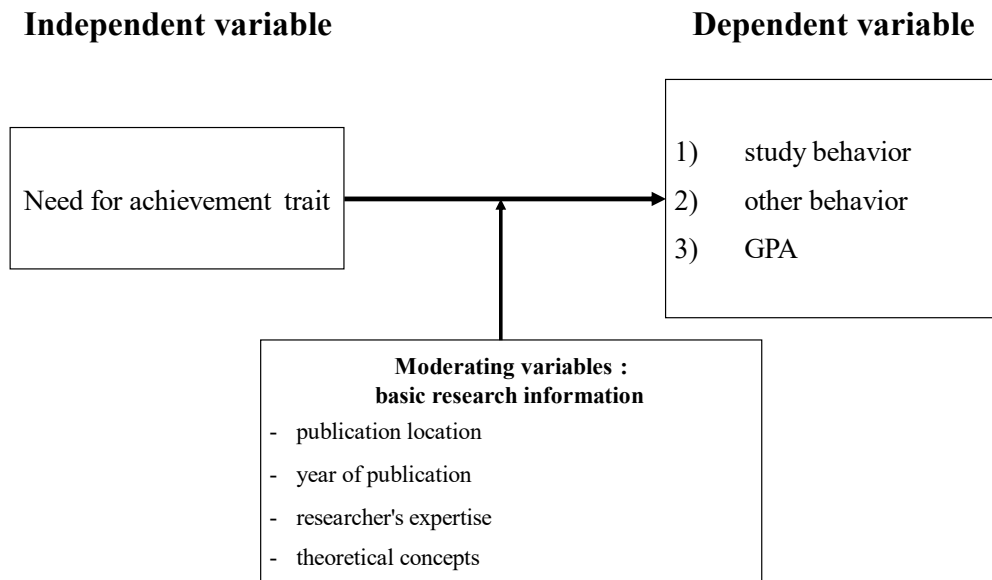


Figure 1.9 Hypothesis Model 2.2

Source: Constructed by researcher

(2.3) In the group, the effect size between the need for achievement trait and study behavior, other behaviors, or grade point average have a magnitude value of at least .50. This result is observed in Thailand's research subgroups that focus on background biosocial moderate variables, including 1) gender, 2) education level, 3) father's education, and 4) mother's education.

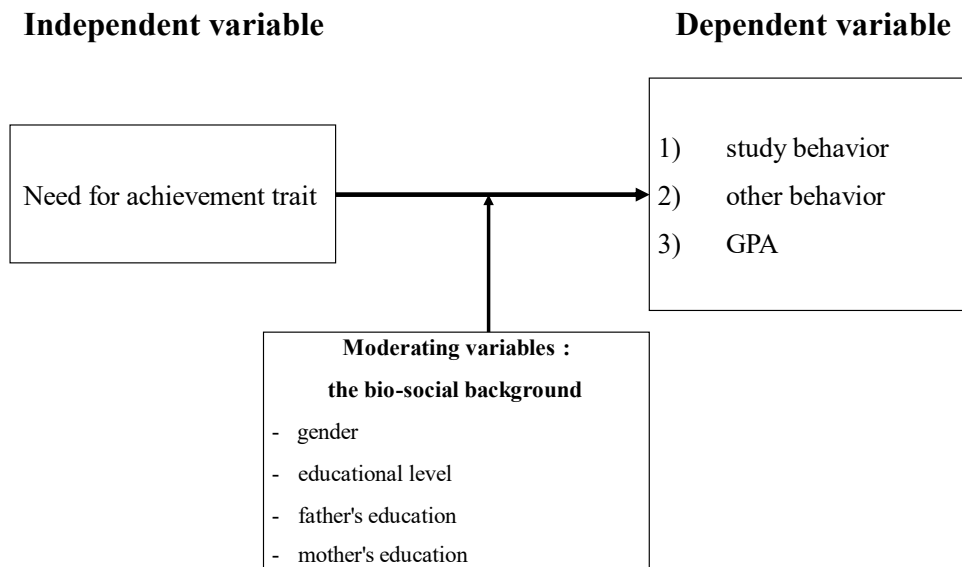


Figure 1.10 Hypothesis Model 2.3

Source: Constructed by researcher

Hypothesis 3: The magnitude of the effect size between the need for achievement state and study behavior, other behaviors, or grade point average have a magnitude value of at least.50.

(3.1) The magnitude of the effect size between the need for achievement state and study behavior, other behaviors, or grade point average have a scale value of at least.50 in the combined group.

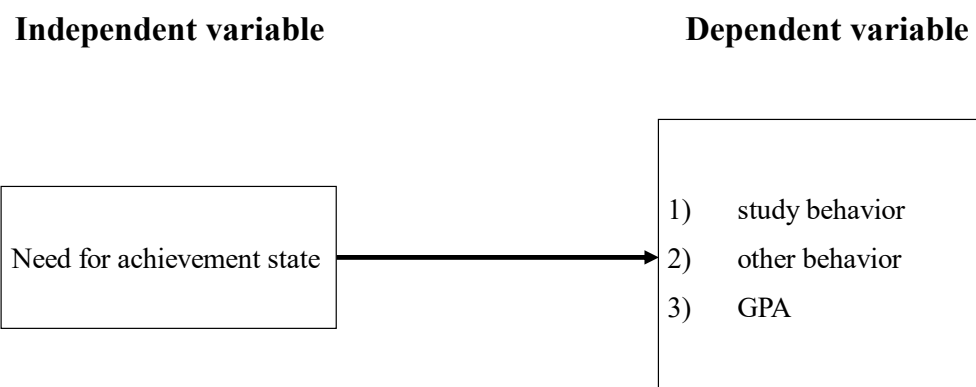


Figure 1.11 Hypothesis Model 3.1

Source: Constructed by researcher

(3.2) In the group, the effect size between the need for achievement state and study behavior, other behavior, or GPA (grade point average) have a magnitude value of at least .50. This result will appear in the subgroups that are basic data moderate variables of the research, including 1) the place of publication, 2) the year of publication, 3) the researcher's field of study, or 4) the theoretical concepts used in the study.

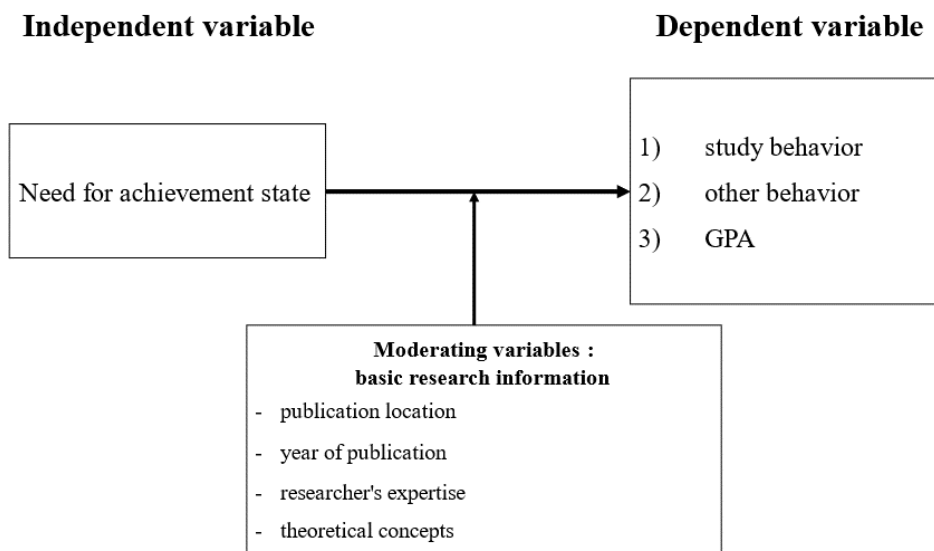


Figure 1.12 Hypothesis Model 3.2

Source: Constructed by researcher

(3.3) In the group, the effect size between the need for achievement state and study behavior, other behaviors, or grade point average have a magnitude value of at least .50. This result is observed in Thailand's research subgroups that focus on background biosocial moderate variables, including 1) gender, 2) education level, 3) father's education, and 4) mother's education.

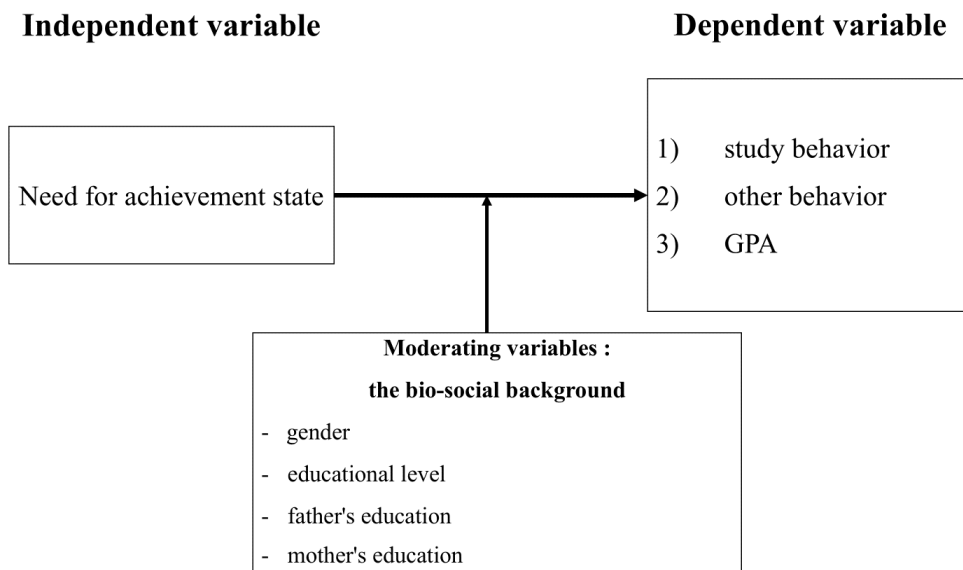


Figure 1.13 Hypothesis Model 3.3

Source: Constructed by researcher

CHAPTER 2

RESEARCH METHODOLOGY

The research titled "Relationship between need for achievement and desirable behaviors in youth: a meta-analysis" is a compilation of quantitative research. A quantitative research study will investigate the correlation between need for achievement and desirable behavior in adolescents from 2007 to 2020. This study mainly used McClelland's theory and concept of Need for Achievement, utilizing a Meta-Analysis Approach to summarize and synthesis existing knowledge. Studying the relationship between need for achievement and youth behavior. The details and operating procedures are as follows.

2.1 Population and Sampling Method

2.1.1 Population

The population in this research consists of research reports or research articles from various sections, research articles, thesis, term papers, or dissertations at the graduate level that study the relationship between need for achievement and desired behavior in youth. Work published between 2007 - 2020 is a document that has been published only in Thai and English. Authoritative electronic databases consist of both published and unpublished research documents. In Thailand, the electronic databases consist of the Thai Digital Collection (TCD) database of ThaiLIS, together with the electronic databases found in educational institution libraries including the National Institute of Development Administration, Behavioral Science Research Institute, Srinakharinwirot University, Chulalongkorn University. Foreign electronic databases include ScienceDirect, ProQuest, Springer, APA PsycInfo, APA PsycNet, JSTOR.

2.1.2 Sample

The sample group in this research consists of documents that have been researched between the independent variables, namely the need for achievement, and the dependent variables, which are the desired behaviors of youth, consisting of: 1) Study behavior 2) Other behavior and 3) GPA

This study's sample group comprises documents that examine the relationship between the independent variables, such as the need for achievement, and the dependent variables, which are the desired behaviors of young people.

Each research paper is considered as a single unit of analysis. The research sample was collected through a two-step process: conducting a search for and choosing research documents. The sample size for this meta-analysis consisted of 57 studies. However, multiple sub-behaviors subdivided the dependent variable in certain volumes. So, this meta-analysis includes multiple synthesized investigations. Upon conducting a comprehensive review of the literature, we identified 89 codes in total, providing the following information:

Step 1: Searching for research Step 1 involves searching for academic documents, such as research reports, research articles, term papers, theses, or dissertations, published during the years 2007–2020.

1) The process involves searching for research documents in electronic databases located in Thailand, including: Thai Digital Collection (TCD) database of ThaiLIS, together with the electronic databases found in educational institution libraries including National Institute of Development Administration, Chulalongkorn University, Behavioral Science Research Institute at Srinakharinwirot University. Foreign electronic databases include ScienceDirect, ProQuest, Springer, APA PsycInfo, APA PsycNet, JSTOR.

2) Search using keywords, both Thai and English vocabulary, including: Need for Achievement, Achievement Motive, Achievement Need, Achievement, McClelland, Achievement Goals, Goal Orientation, Students' Behavior, Adolescents' Behavior

3) The search yielded a total of 15,928 studies in Thailand and 139,210 studies from abroad.

Step 2: Following a search, the researcher chooses pertinent study documents according to their predetermined criteria. The researcher has effectively concluded the acquisition of pertinent research materials. For this research, the document selection procedure was divided into two distinct steps: The process involves two main steps: initial document selection and assessment of research quality. These steps include the following details:

1) Preliminary document selection The preliminary selection of documents is a selection process in which the researcher determines two criteria: inclusion criteria and exclusion criteria. Consideration of relevant research documents found that there were 185 studies that passed the inclusion criteria for research in Thailand and 193 studies of foreign research, for a total of 378 studies. After that, the inclusion criteria were taken into account, resulting in 44 studies from Thailand and 36 studies of foreign research papers, totaling 80 studies.

2) Assessing the quality of research. Bring documents that have passed the preliminary selection criteria. Begin the process of considering and evaluating the quality of research. The researcher has applied the criteria from 7 evaluative criteria for the report by Mayo and La France (1977). Leedy and Ormrod (2016: 257) provide three recommendations that align with Mayo and La France's approach to conducting quality evaluations using the research quality assessment form. A consultant has evaluated the document and offered guidance. After implementing the required amendments in accordance with the instructions, we formed a committee consisting of three individuals to evaluate the quality of the research. The committee employed the quality inspection criteria in the index of item objective congruence (IOC) format, as outlined in Appendix A. A total of 33 studies successfully met the criteria for quality assessment. We then categorized these documents into 33 studies of Thai research and 24 studies of foreign research. A total of 57 studies successfully met the quality assessment criteria for the subsequent research phase.

The process of synthesis and analysis includes a total of 57 research publications. We have examined a total of 60 codes from 33 studies conducted in Thailand, as well as 29 codes from 24 studies conducted outside of Thailand. There are a total of 89 codes that need to be evaluated.

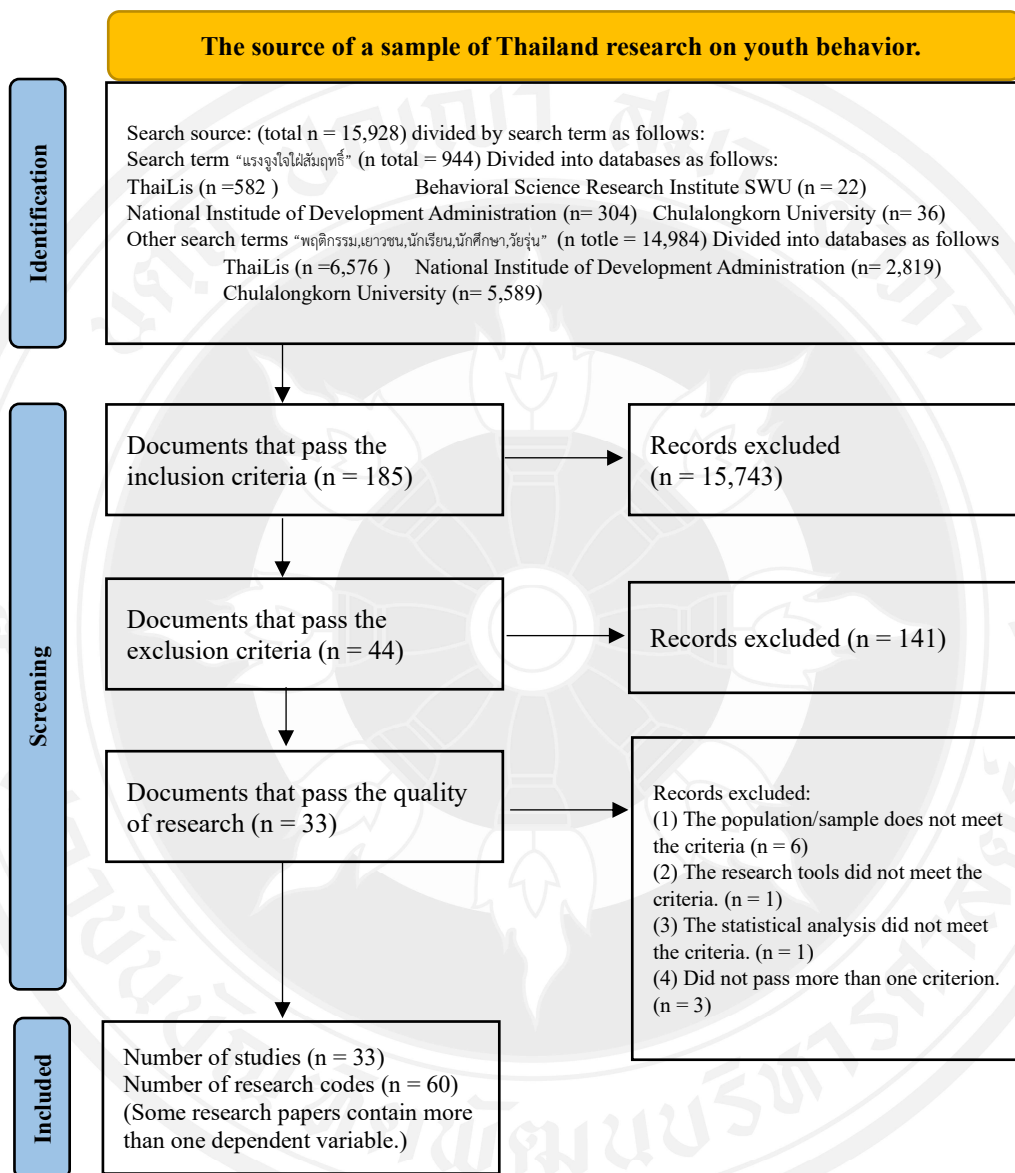


Figure 2.1 Shows the source of a sample of Thailand research on youth behavior based on the PRISMA diagram (PRISMA, 2020).

Source: Page et al. (2021, p.5)

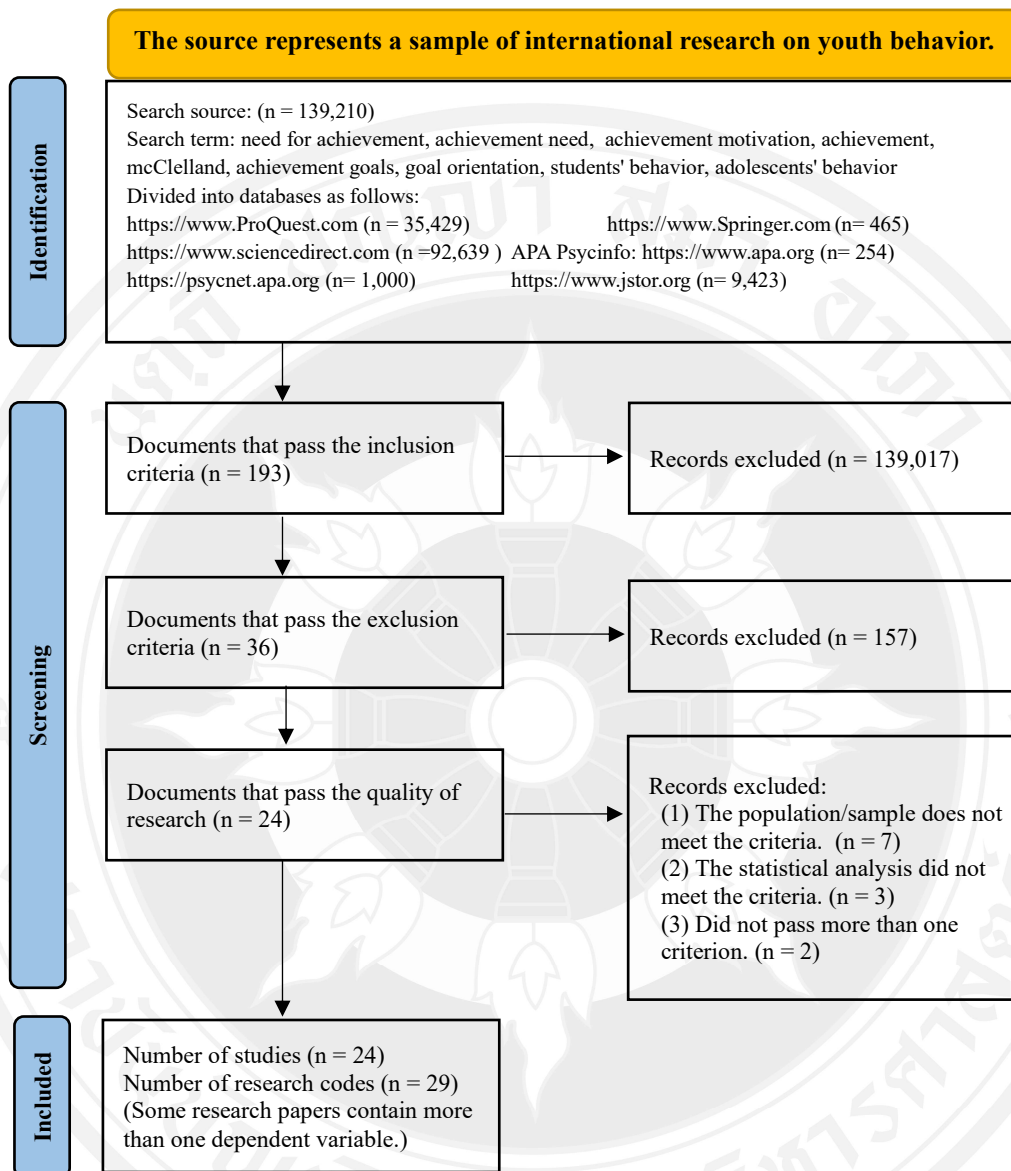


Figure 2.2 Shows the source of a sample of international research on youth behavior based on the PRISMA diagram (PRISMA, 2020).

Source: Page et al. (2021, p.5)

2.2 Research Instruments

The research instruments consist of two components.

Section 1 Preliminary document selection form.

Section 2 Evaluation of research quality form.

Below are descriptions of both tools. (Appendix A)

Section 1 Preliminary document selection form. The researcher devised a preliminary document selection tool by systematically accounting for the selection criteria through a two-step process: The first stage of the inclusion criteria consists of the following six selection criteria:

- 1) The document takes the form of a research report, research article, essay, thesis, or philosophy, excluding academic articles.
- 2) Research published between the years 2007 and 2020.
- 3) Research findings obtained by quantitative analysis.
- 4) The need for achievement is the independent variable under study.
- 5) Primary data is different from secondary data, such as meta-analysis.
- 6) The research published in Thai or English.

In the second stage, an exclusion criteria is applied, comprising six specific characteristics.

- 1) A study did not investigate the correlation between the need for achievement and conduct, nor did it analyze average grades.
- 2) Unexplored research on adolescent collectives. (Individuals aged 15-24 or individuals who have completed high school or are now enrolled as undergraduate students in the traditional education system.)
- 3) Research was conducted without clearly defined variables or operational specifications.
- 4) The research studies that lack sufficient statistical data for computation and conversion into standard index values are as follows: t , F , χ^2 and p -value.
- 5) The research is not related to behavioral, psychological, humanities, or social sciences research.
- 6) The research repeats the previously defined criteria of inclusion and exclusion.

Section 2 Evaluation of research quality form. The research's quality has been assessed to enhance the reliability of the synthesized and analyzed findings.

The researchers developed a technique to assess the quality of their research based on criteria established by Leedy and Ormrod (2016: 257). Leedy and Ormrod determined three elements that contribute to an increase in the power of statistical testing: Initially, the primary consideration is the magnitude of the sample. Secondly, The measurement instrument's validity. Finally, utilize both parametric and nonparametric statistical methods. By categorizing the evaluation points into three distinct categories, the researchers devised an evaluation approach. 1) The population and sample groups have three criteria for evaluation. 2) There are five criteria used to evaluate research tools. And 3) Statistical analysis has one criterion for evaluation. The research quality assessment has a total of nine criteria(Appendix A). Details are as follows:

1) Populations and samples.

1.1) Utilize suitable random sampling techniques that are transparent and methodical.

1.2) The method involves systematically gathering data from the sample group.

1.3) The sample size in each study must be at least 120 individuals.

2) Criteria of characteristics of measurements in each study.

There are 5 criteria of measurement quality. At least any three of five criteria must be shown for further investigation.

2.1) Operational definition variables, especially need for achievement, and behavior must be stated.

2.2) These measures must be in the form of summated rating scale.

2.3) The item qualities such as item-total correlation or item discrimination should be reported.

2.4) Any type of reliability scores, such as Cronbach's alpha coefficient should be given.

2.5) Measurement details such as measurement structure or examples of items should be provided.

3) Criteria for statistical analysis. The study should provide statistical data that can be converted into effect size (d), such as correlation coefficient, t-test, or beta.

2.3 Data Analysis

The data analysis in this study is divided into two stages: Stage One: Evaluation of research properties. Stage two involves conducting data analysis to evaluate the validity of the assumptions. The following are the details:

2.3.1 Evaluation of research characteristics

The research characteristics have been examined through the use of frequency and percentage analysis.

1) The research incorporates the essential data.

- 1.1) The year in which the research was published.
- 1.2) The researcher's field of study
- 1.3) Define the concept and theory of the need for achievement
- 1.4) The sample group's level of education
- 1.5) Sample size

2) Categorized based on primary characteristics associated with a need for achievement.

- 2.1) Classifying a definition of the need for achievement
- 2.2) Classifying the need for achievement by measurement

3) The data was classified according to the primary features associated with behavioral factors or average grades.

- 3.1) The variable consists of behavior, other behaviors, and average grades.
- 3.2) Creating the dependent variable consists of a measurement obtained from another individual, bringing measurements from others and bringing new improvements, and creating an entirely new measurement.

2.3.2 Conducting data analysis to evaluate the validity of the assumptions

Meta-analysis is the synthesis of several research findings related to a certain topic. The results of each study have different methods of analysis, so standard index estimates and adjustments of standard index values are required to trace the distribution characteristics of the standard index, namely, average data distribution. The assumption test consists of the following statistical analysis:

- 1) The number of primary studies (n)
- 2) Mean of correlation (r)
- 3) Mean of effect size (m)
- 4) The number of effect size (k)
- 5) Median of effect size (med)
- 6) Standard deviation of effect size (SD)
- 7) Minimum of effect size (min)

8) Maximum of effect size (max)

9) Confidence interval (CI)

10) Standard error (se)

11) Fisher's Z (Z)

Examining variations in effect size is a crucial aspect of analyzing the outcomes to ensure conformity with the initial agreement. The estimation of the effect size is referred to in two cases:

For case 1, the effect size (d) can be calculated using the following formulas based on the correlation coefficient (r):

$$d = \sqrt{\frac{n-2}{n}} \left[\frac{2r}{\sqrt{1-r^2}} \right]$$

d = the effect size

n = sample size

r = the correlation coefficient

Case 2 involves estimating the impact (d) using F statistics based on variability analysis in samples with k groups. The calculation formula was developed by West and Wiratchai (1984) using the following method:

$$d = 2f \sqrt{\frac{3(k-1)}{k+1}}$$

$$f = \frac{n^2}{1-n^2} \quad \text{and} \quad n^2 = \frac{F(k-1)}{F(k-1)+(n-k)}$$

To adjust the effect size to the correlation coefficient, use the following formula:

$$r = d / \sqrt{d^2 + 4}$$

Cohen (1988) and Hopkins (2002) have provided the following definitions for the principle of effect size dimension:

d = 0.10 means very small

d = 0.20 means small

d = 0.50 means medium

d = 0.80 means large

d = 0.90 means very large

2.3.3 Analysis to test variable assumptions

Data analysis, which divided the study based on moderating variables, tested the assumption. A moderating variable is a factor that influences the relationship between the need for achievement and the behavior of adolescents by dividing the analysis of a variable into two separate sections.

1) Adjustable moderating variable analysis, which includes

1.1) Publishing website in Thailand and internationally.

1.2) The period of publication. During the early group period, which includes the years 2007-2013, and Group the second period, which encompasses the years 2014-2020.

1.3) The researchers have expertise in the fields of education, behavioral science, as well as psychology and education.

1.4) The utilized concepts and theories include McClelland's theory, other theories, and unclear theories.

2) The study involves an examination of characteristic variables, which includes

2.1) Gender, male and female.

2.2) Graduate levels include high school and university.

2.3) Father's education consists of high education and low education.

2.4) Mother's education consists of high education and low education.

CHAPTER 3

RESEARCH RESULTS

The study titled "Relationship between need for achievement and desirable behaviors in youth: a meta-analysis" uses meta-analysis methods informed by the principles developed by Glass et al. (1981). The research's objective is to investigate the relationship between the general need for achievement, the need for achievement trait, the need for achievement state, and youth behavior. Youth behavior can be classified into three domains: study behavior, other behaviors, and GPA. Moreover, it can yield a concise overview of the data collected from the meta-analysis performed to examine the relationship between a need for achievement and the behaviors of youth. The data analysis consists of two components: the findings obtained from the investigation of basic elements and the findings attained from the data analysis performed to analyze the proposed hypothesis. The findings derived from the data analysis are further presented as follows:

3.1 Analysis results of the basic research information of the study

A systematic examination of studies or theses related to need for achievement and youth behavior from 2007 to 2020 was carried out by collecting data from research databases both in Thailand and abroad. The analysis of the initial features of the sample group yielded the following results (Table 3.1).

From 2007 to 2020, an overall total of 89 data of research studies pertaining to the need for achievement and youth behavior conformed to the established criteria, classified by the year of study conducted. During the period from 2007 to 2013, there were 38 data, or 42.7 % of the total. Between 2014 and 2020, a total of 51 data were investigated, representing 57.3 % of the research carried out in Thailand during that period. Between the years 2007 and 2013, a total of 29 data fulfilled the stated criteria, representing 48.3 % of the duration of the time range. Between 2014 and 2020, a total of 31 data, or 51.7 % of the total, fulfilled the specified criteria. Furthermore, research conducted overseas revealed that investigations pertaining to the need for achievement and youth behavior were conducted at that specific period. Between the years 2014 and 2020, a total of 20 data matched the specified criteria, or 69.0 %, which is an increase compared to the years prior. Between 2007 and 2013, there were precisely 9 data, or 31.0 % of the total.

The field of research shows that more than half of the researchers are in the behavioral sciences, with 58 data accounting for 65.2 %. Following that, researchers in the educational sciences number 25 data, making up 28.1%, and those in both educational sciences and psychology total 6 data, or 6.7 %. Furthermore, when considering the types of research conducted domestically and internationally, similar results are found researchers studying motivation related to achievement are

predominantly in the behavioral sciences, with 41 data in Thailand representing 68.3 %, and 16 data internationally accounting for 55.2 %.

Table 3.1 Basic Characteristics of Samples

Background Characteristics	All Research (n=89)		Thailand Research (n=60)		Abroad Research (n=29)	
	Number	Percentage*	Number	Percentage*	Number	Percentage*
Year of publication						
2007-2013	38	42.7	29	48.3	9	31.0
2014-2020	51	57.3	31	51.7	20	69.0
Researcher's expertise						
Education science	25	28.1	19	31.7	6	20.7
Behavioral science	58	65.2	41	68.3	16	55.2
Education science and Psychology	6	6.7	0	0.0	7	24.1
Definition of the concept of the need for achievement.						
McClelland	18	20.2	16	26.7	2	6.9
Other academics	20	22.5	2	3.3	18	62.1
Unclear specified	51	57.3	42	70.0	9	31.0
The education level of the samples						
High school	41	46.1	33	55.0	8	27.6
Undergraduate student	48	53.9	27	45.0	21	72.4
Sample size						
Low sample size (<500)	59	66.3	39	65.0	20	69.0
High sample size (≥500)	30	33.7	21	35.0	9	31.0

Note: *Missing value not included

A comprehensive analysis of the notion of need for achievement indicates that over half of the research uses this idea without providing clear specifications. This sample includes 51 studies, which account for 57.3% of the total. Subsequently, there are 20 research conducted by other academics, accounting for 22.5% of the total, and 18 studies that explicitly follow McClelland's need for achievement, representing 20.2%.

However, upon analyzing the studies classified into Thailand and Abroad research, contrasting findings are observed. Most of the research conducted in Thailand utilizes unclear concepts and hypotheses, with a total of 42 data representing 70% of the evidence. Subsequently, McClelland's conceptions and theories are employed in 16 investigations, accounting for 26.7% of the total, whereas only 2 data,

or 3.3%, incorporate concepts and theories from other academics. By contrast, abroad research extensively depends on concepts and theories derived from other academics, with 18 data representing 62.1% of the total. As a result, there is an unclear specification in 9 data, accounting for 31.0% of the total, whereas only 2 data, or 6.9%, use McClelland's concepts and theories.

Analysis of the sample's education level reveals a comparable distribution, with 48 university students representing 53.9% and 41 high school students representing 46.1%. Upon categorizing the study into Thailand and Abroad research, it is observed that in Thailand, the research that fulfills the requirements gathers data from a comparable number of high school and university students. Nevertheless, in the context of broad research, the studies that satisfy the established standards largely collect data from university students. Specifically, high school students collected only 8 data, accounting for 27.6% of the total, while 21 data represented 72.4% of the total.

All the research samples fulfilled the selection criteria, over half obtained data from sample consisting of less than 500 samples, totaling 59 data, which represents 66.3%. Conversely, those with a population above 500 sample included 30 data, accounting for 33.7%. Differentiate between studies carried out in Thailand and abroad; comparable findings were obtained. Among samples consisting of less than 500 samples, research conducted in Thailand documented 39 data, accounting for 65% of the total, while abroad research included 20 data, representing 69.0%. Among over 500 samples, research conducted in Thailand included 21 data, which accounted for 35.0% of the total, while research abroad had 9 data, representing 31.0%.

This study examined the need for achievement in two distinct categories: 1) the need for achievement trait, and 2) the need for achievement state (Table 3.2).

Table 3.2 Basic Characteristics Relate to the Independent Variable of Need for Achievement.

The classification of need for achievement	All Research (n=89)		Thailand Research (n=60)		Abroad Research (n=29)	
	Number	Percentage*	Number	Percentage*	Number	Percentage*
By definition						
Need for achievement trait	49	55.1	46	76.7	3	10.3
Need for achievement state	32	36.0	14	23.3	18	62.1
Not specified	8	9.9	0	0.0	8	27.6
By measurement						
Need for achievement trait	42	47.2	38	63.3	4	13.8
Need for achievement state	31	34.8	17	28.4	14	48.3
Not specified	16	18.0	5	8.3	11	37.9

Note: *Missing value not included

In the research of the study on the application of the need for achievement, it was determined that the concept of the need for achievement trait consists of 49 data points, which represents 55.1% of the total. The need for achievement state is defined by 32 data points, accounting for 36.0% of the available data. Of the total, 8 data points are unspecified, accounting for 9.9%. Furthermore, when comparing studies conducted in Thailand and abroad, the findings vary: studies conducted in Thailand mostly describe the need for achievement characteristic, with 46 data points, representing 76.7% of the total. The concept of the need for achievement state has 14 data points, accounting for 23.3% of the total. By contrast, research conducted abroad mostly establishes the necessity for achievement state, with 18 data points, representing 62.1%. The definition of the need for achievement characteristic comprises 3 data points, which account for 10.3% of the total, and 8 undefined data points, which make up 27.6%.

The measurement analysis of the need for achievement yielded the following findings: 42 data, or 47.2% of the total, were classified as the need for achievement trait in the measuring model. Within the measurement model, 31 data, representing 34.8% of the total, were classified as the need for achievement state. The remaining 16 data, representing 18.0%, could not be recognized since there was no measurement model available. The results of the analyses comparing studies carried out in Thailand and abroad were as follows: Research conducted in Thailand categorized 38 data as indicative of the need for achievement traits, representing 63.3% of the total. The categorization as a need for achievement state included 17 data, or 28.4% of the total. Additionally, the absence of a measuring model led to the identification of 5 data, accounting for 8.3% of the total. In the abroad study, the categorization as a need for achievement state had 14 data, representing 48.3% of the total data. The categorization as a need for achievement trait had 4 data, representing 13.8% of the total data. Additionally, 11 data could not be recognized for the absence of a measuring model, accounting for 37.9% of the total observations. This is because, throughout their research abroad, the researchers conducted a search on websites that predominantly contained research publications. These studies primarily consisted of examples of measurement models, with few of them actually presenting the measurement models employed in the research.

When analyzing the research that met the criteria, Table 3.3 presents a distribution of research based on basic characteristics related to the dependent variables of behavior, or GPA. This distribution categorizes the dependent variables into three groups: study behavior, with 15 data, representing 16.9%; other behaviors, with 45 data, representing 50.6%; and GPA, with 29 data, representing 32.6%. Upon examining the research carried out in Thailand and abroad, it was determined that the research in Thailand covered study behavior through 13 data, representing 21.7% of the total, other behaviors with 38 data, representing 63.3%, and GPA with 9 data, representing 15.0%. The research conducted abroad revealed that study behavior accounted for 6.9% of the data, whereas other behaviors contributed 24.1% and GPA accounted for 69.0%.

Table 3.3 Research is Classified According to Basic Characteristics Related to Dependent Variable.

Variable	All Research (n=89)		Thailand Research (n=60)		Abroad Research (n=29)	
	Number	Percentage*	Number	Percentage*	Number	Percentage*
Dependent variable						
Study behavior	15	16.9	13	21.7	2	6.9
Other behavior	45	50.6	38	63.3	7	24.1
GPA	29	32.6	9	15.0	20	69.0
Creating a dependent variable measurement						
All other researcher's measurement	45	50.6	29	48.3	16	55.2
Improved from other researchers' measurement	15	16.9	14	23.3	1	3.4
Researcher's measurement	12	13.5	12	20.0	0	0.0
No measurement data	17	19.1	5	8.3	12	41.4

Note: *Missing value not included

The measurement process yielded the following results: 45 data were all other researcher's measurements, representing 50.6% of the total. 15 data were improved from other researchers' measurements, accounting for 16.9%. Eleven data were based on the researcher's measurements, making up 13.5% of the total. Out of the total, 17 data were no measurement data, representing 19.1% of the analysis. Analysis of research done in Thailand and abroad revealed that the study in Thailand included 29 data all other researcher's measurements, accounting for 48.3% of the total. 14 data were derived from Improved from other researchers' measurements, representing 23.3% of the total. 12 data were generated, accounting for 20.0%. A total of 5 data, accounting for 8.3%, were no measurement data. On the other hand, the overseas research included 16 data points that came exclusively from the measurements of other researchers, making up 55.2% of the total. Only a single piece of data was derived from Improved from other researchers' measurements, accounting for 3.4%. A total of 12 data, accounting for 41.4%, were either no measurement data or not completely researcher's measurements were discovered.

3.2 Data Analysis Results for Analysis of Hypothesis 1

3.2.1 Analysis of the relationship between a need for achievement and study behavior, other behaviors, and GPA in the total group.

Hypothesis 1: The magnitude of the effect size between need for achievement and study behavior, other behaviors, or GPA have a magnitude value of at least .50.

Hypothesis 1.1 The magnitude of the effect size between need for achievement and study behavior, other behaviors, or GPA have a scale value of at least .50 in the combined group.

Table 3.4 and Figure 3.1 present the results of the data analysis in the following manner:

Researchers studied the relationship between the need for achievement and study behavior in a sample of 5,042. The research findings revealed that the average correlation coefficient was .422, and the average effect size was .947, indicating a very large effect size with a total of 15 effect size values. The median effect size was .951, with a standard deviation of .259. The average effect size ranged from .305 to 1.413, and the confidence interval was between .889 and 1.000, with a standard error of .030. Fisher's Z was 1.802. The analysis concludes that there is a positive relationship between study behavior and the need for achievement.

Table 3.4 Show the Effect Size of the Relationship Between the Need for Achievement and Study Behavior, Other Behavior, and GPA in the Total Group.

Dependent variable	n	r	d	k	med	SD	min	max	95% CI		SE	Z
									Lower	Upper		
Study behavior	5,042	.422	.947	15	.951	.259	.305	1.413	.889	1.000	.030	1.802
Other behavior	12,748	.416	.954	45	.977	.441	-.225	1.918	.927	.981	.014	1.874
GPA	9,854	.304	.708	29	.580	.597	.100	3.086	.516	.900	.098	.883

n= the number of primary studies; r= mean of correlation; d = mean of effect size); k = the number of effect size; Med = median of effect size; SD= standard deviation of effect size; min = minimum of effect size; max= maximum of effect size; CI = confidence interval; SE= standard error; Z = Fisher's Z

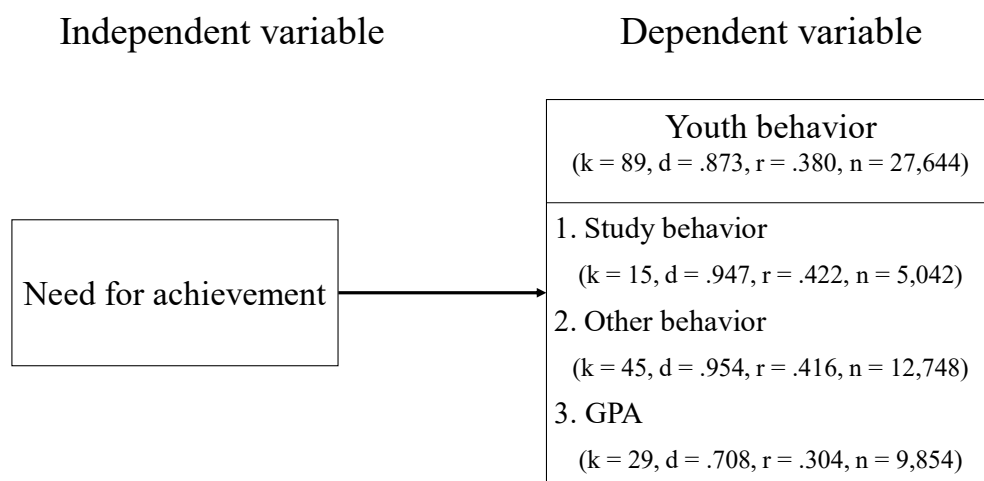


Figure 3.1 Show the Effect Size of the Relationship Between the Need for Achievement and Study Behavior, Other Behavior, and GPA in the Total Group.

The relationship between need for achievement and other behavior was studied from a sample of 12,748. The research findings revealed that the average correlation coefficient was .416, and the average effect size was .954, indicating a very

large effect size, with a total of 45 effect size values. The median effect size was .977, with a standard deviation of .441. The average effect size ranged from -.225 to 1.918, and the confidence interval was between .927 and .981, with a standard error of .014. Fisher's Z was 1.874. The analysis results indicate a positive relationship between the need for achievement and other behavior.

The relationship between need for achievement and GPA was studied in a sample of 9,854. The research findings revealed that the average correlation coefficient was .304 and the average effect size was .708, indicating a moderate effect size with a total of 29 effect size values. The median effect size was .580, and the standard deviation was .597. The average effect size ranged from .100 to 3.086, and the confidence interval was between .516 and .900, with a standard error of .098. The Fisher's Z was .883. Based on the analysis, it can be concluded that the need for achievement has a positive relationship with GPA.

The analysis of the above findings reveals that the need for achievement has an average effect size of .947 with study behavior, .954 with other behavior, and .708 with GPA. Therefore, the need for achievement has a positive relationship with study behavior, other behavior, and GPA, with effect sizes greater than .50. These results support hypothesis 1.1.

3.2.2 An analysis of the relationship between the need for achievement and study behavior, other behavior, and GPA in subgroups that moderating variables the basic data of the research.

Hypothesis 1.2 In the group, the effect size between need for achievement and study behavior, other behavior, or GPA (grade point average) have a magnitude value of at least .50. This result will appear in the subgroups that are basic data moderating variables of the research, including 1) the place of publication, 2) the year of publication, 3) the researcher's field of study, or 4) the theoretical concepts used in the study. The usage meta-analysis analysis yielded the following findings:

1) Analysis of need for achievement and study behavior according to the basic data moderating variables of the research.

Table 3.5 and Figure 3.2 present the results of the data analysis as follows:

Researchers in Thailand studied the relationship between the need for achievement and study behavior, using a total sample size of 4,161. The research findings revealed that the average correlation coefficient was .420 and the average effect size was .942, indicating a very large effect size with a total of 13 effect sizes. The median effect size was .951, with a standard deviation of .259. The average effect size ranged from .305 to 1.413, and the confidence interval was between .872 and 1.000, with a standard error of .036. The Fisher's Z was 1.756. Based on the analysis results, it can be concluded that the need for achievement has a positive relationship with study behavior in Thailand research.

Table 3.5 Show the Magnitude of the Influence between Need for Achievement and Study Behavior according to Basic Research Information Moderating Variables of the Research.

Moderating variable	n	r	d	k	Med	SD	MIN	MAX	95% CI		SE	Z
									Lower	Upper		
Publication location												
Thailand	4,161	.420	.942	13	.951	.259	.305	1.413	.872	1.000	.036	1.756
Abroad	881	.435	.985	2	.985	.371	.722	1.247	n/a	n/a	n/a	2.443
Year of publication												
2007-2013	1,256	.381	.826	2	.826	.147	.722	.930	n/a	n/a	n/a	1.175
2014-2020	3,786	.429	.966	13	.962	.272	.305	1.413	.925	1.000	.0211	2.029
Researcher's expertise												
Education science	2,525	.461	1.054	4	.990	.257	.821	1.413	1.054	1.054	-.111	n/a
Behavioral science	2,517	.408	.909	11	.951	.261	.305	1.247	.789	1.000	.061	1.522
Education science and Psychology	0	-	-	0	-	-	-	-	-	-	-	-
Theoretical concepts												
McClelland	543	.349	.770	3	.943	.407	.305	1.063	-1.00	1.00	infinity	1.02
Other academics	881	.435	.985	2	.985	.371	.722	1.247	n/a	n/a	n/a	2.443
Unclear specified	3,618	.442	.993	10	.957	.199	.770	1.413	.983	1.000	.005	2.826

n= the number of primary studies; r= mean of correlation; d = mean of effect size); k = the number of effect size; Med = median of effect size; SD= standard deviation of effect size; min = minimum of effect size; max= maximum of effect size; CI = confidence interval; SE= standard error; Z = Fisher's Z

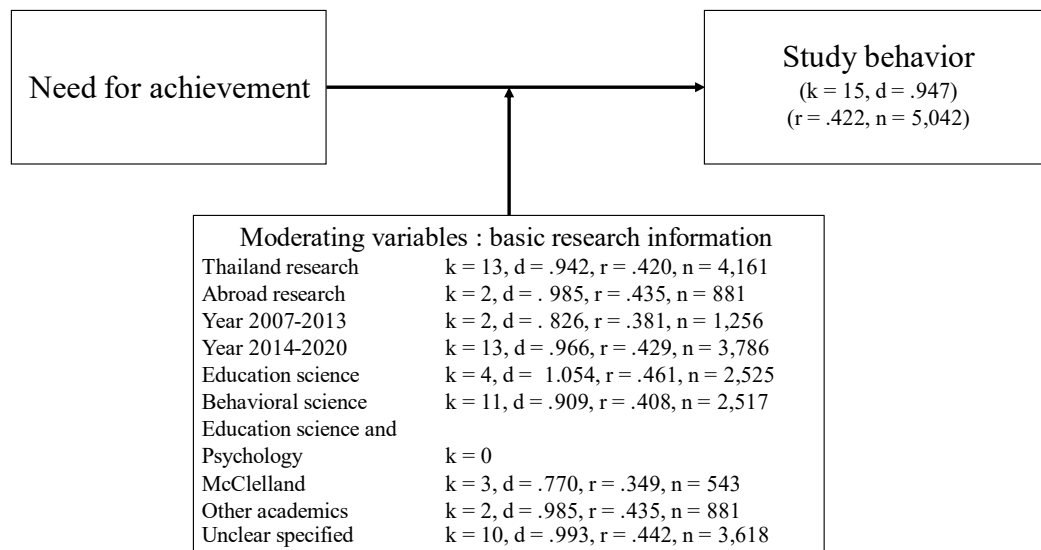


Figure 3.2 Show the Magnitude of the Influence between Need for Achievement and Study Behavior according to Basic Research Information Moderating Variables of the Research.

The relationship between need for achievement and study behavior abroad was studied with a total sample of 881. The research findings revealed that the average correlation coefficient was .435, and the average effect size was .985, indicating a very large effect size, with a total effect size value of 2. The median effect size was .985, with a standard deviation of .371. The average effect size ranged from .722 to 1.247 within the confidence interval, and the standard error could not be processed. The Fisher's Z was 2.443. Based on the analysis results, it can be concluded that the need for achievement has a positive relationship with study behavior in abroad research.

The relationship between need for achievement and study behavior in the years 2007 to 2013 was studied with a total sample of 1,256. The research findings revealed that the average correlation coefficient was .381, and the average effect size was .826, indicating a large effect size with a total effect size count of 2. The median effect size was .826, and the standard deviation was .147. The average effect size ranged from .722 to .930 within the confidence interval, and the standard error could not be processed. The Fisher's Z value was 1.175. Based on the analysis results, it can be concluded that the need for achievement has a positive relationship with study behavior in the years 2007 to 2013.

The relationship between need for achievement and study behavior during the years 2014 to 2020 was studied with a total sample of 3,786. The research findings revealed that the average correlation coefficient was .429 and the average effect size was .966, indicating a very large effect size with a total of 13 effect size values. The median effect size was .962, and the standard deviation was .272. The average effect size ranged from .305 to 1.413, and the confidence interval was between .925 and 1.000, with a standard error of .0211. The Fisher's Z value was 2.029. The analysis results indicate a positive relationship between the need for achievement and study behavior from 2014 to 2020.

Researchers in the field of education studied the relationship between the need for achievement and study behavior with a total sample size of 2,525. The research findings revealed that the average correlation coefficient was .461, and the average effect size was 1.054, indicating a very large effect size with a total of 4 effect size values. The median effect size was .990, with a standard deviation of .257. The average effect size ranged from .821 to 1.413, and the confidence interval was between 1.054 and 1.054, with a standard error of -.111. Fisher's Z could not be processed. Based on the analysis results, it can be concluded that the need for achievement has a positive relationship with study behavior among researchers in the field of education.

The relationship between need for achievement and study behavior in the field of behavioral science research has been studied with a total sample size of 2,517. The research findings indicate that the average correlation coefficient is .408, and the average effect size is .909, demonstrating a very large effect size, with a total of 11 effect size values. The median effect size is .951, and the standard deviation is .261. The average effect size ranges from .305 to 1.247, and the confidence interval

is between .789 and 1.000, with a standard error of .061. The Fisher's Z value is 1.522. Based on the analysis results, it can be concluded that need for achievement motivation has a positive relationship with study behavior in the field of behavioral science research.

The relationship between need for achievement and study behavior in the field of expertise of researchers in education science and psychology lacks data for analysis.

The relationship between need for achievement and study behavior in the McClelland theory framework was studied with a total sample of 543. The research findings revealed that the average correlation coefficient was .349 and the average effect size was .770, indicating a moderate effect size with a total of 3 effect size values. The median effect size was .943, with a standard deviation of .407. The average effect size ranged from .305 to 1.063, and the confidence interval was between -1.000 and 1.000. The standard error could not be processed, and the Fisher's Z was 1.020. Based on the analysis results, it can be concluded that need for achievement has a positive relationship with study behavior in the McClelland theory framework.

The relationship between need for achievement and study behavior in the context of other academics was studied with a total sample of 881. The research findings revealed that the average correlation coefficient was .435, and the average effect size was .985, indicating a very large effect size, with a total effect size value of 2. The median effect size was .985, with a standard deviation of .371. The average effect size ranged from .722 to 1.247, with confidence intervals and standard error values that could not be processed. The Fisher's Z value was 2.443. Based on the analysis results, it can be concluded that the need for achievement has a positive relationship with study behavior in the context of other academics.

The relationship between need for achievement and study behavior in the context of Unclear specified was studied with a total sample of 3,618. The research findings revealed that the average correlation coefficient was .442, and the average effect size was .993, indicating a very large effect size, with a total of 10 effect size values. The median effect size was .957, with a standard deviation of .199. The average effect size ranged from .770 to 1.413, and the confidence interval was between .983 and 1.000, with a standard error of .005. Fisher's Z was 2.826. Based on the analysis results, it can be concluded that the need for achievement has a positive relationship with study behavior in the context of unclear specified.

The analysis of the meta-analysis found a need for achievement relations with study behavior in subgroups with a moderate effect size, such as those using McClelland's theory ($d = .770$). A large effect size was observed in the group published in the years 2007 to 2013 ($d = .826$). For very large effect sizes, significant findings appeared in groups published in Thailand, published abroad, published in the years 2014 to 2020, researchers specializing in education, researchers specializing in

behavioral sciences, groups using other academics, and groups using Unclear specified ($d = .942, .985, .966, 1.054, .909, .985, \text{ and } .993$, respectively).

Therefore, need for achievement has a positive relationship with study behavior, as evidenced in the subgroups that serve as moderating variables in the research, namely: 1) publication location 2) year of publication 3) the researcher's expertise; 4) the theoretical concepts used in the study. All subgroups exhibited an effect size greater than 0.50. These analyses, therefore, support Hypothesis 1.2.

2) Analysis of need for achievement and other behavior according to the basic data moderating variables of the research.

Table 3.6 and Figure 3.3 present the results of the data analysis as follows:

The relationship between need for achievement and other behavior of Thailand research was studied with a total sample size of 9,476. The research findings revealed that the average correlation coefficient was .442, and the average effect size was 1.021, indicating a very large effect size with a total of 38 effect size values. The median effect size was 1.030, with a standard deviation of .419. The average effect size ranged from -.225 to 1.918, and the confidence interval was between 1.000 and 1.021, with a standard error of -.007. The Fisher's Z could not be processed. The analysis results indicate a positive relationship between the need for achievement and other behaviors in Thailand research.

The relationship between need for achievement and other behavior of abroad research was studied with a total sample size of 3,272. The research findings revealed that the average correlation coefficient was .272, and the average effect size was .588, indicating a moderate effect size with a total of 7 effect size values. The median effect size was .746, with a standard deviation of .394. The average effect size ranged from -.119 to .979, and the confidence interval was between -.053 and 1.000. The standard error was .327, and Fisher's Z was .675. Based on the analysis results, it can be concluded that the need for achievement has a positive relationship with other behaviors in abroad research.

Table 3.6 Show the Magnitude of the Influence between Need for Achievement and Other Behavior according to Basic Research Information Moderating Variables of the Research.

Moderating variable	n	r	d	k	Med	SD	MIN	MAX	95% CI		SE	Z
									Lower	Upper		
Publication location												
Thailand	9,476	.442	1.021	38	1.030	.419	-.225	1.918	1.021	1.000	-.007	n/a
Abroad	3,272	.272	.588	7	.746	.394	-.119	.979	-.053	1.000	.327	.675
Year of publication												
Year 2007-2013	8,055	.435	1.010	25	.979	.419	-.225	1.918	1.01	1.00	-.004	n/a
Year 2014-2020	4,693	.391	.884	20	.911	.390	-.119	1.477	.780	.988	.053	1.394
Researcher's expertise												
Education science	4,588	.342	.813	9	.746	.669	-.225	1.477	.542	1.000	.138	1.136
Behavioral science	8,160	.434	.989	36	.978	.368	.302	1.918	.982	.997	.004	2.599
Education science and Psychology	0	-	-	0	-	-	-	-	-	-	-	-
Theoretical concepts												
McClelland	3,698	.429	.978	12	1.045	.335	.338	1.438	.950	1.000	.015	2.249
Other academics	2,800	.308	.699	5	.745	.575	-.119	1.420	-.010	1.000	.362	.865
Unclear specified	6,250	.429	.989	28	.924	.456	-.225	1.918	.980	.998	.004	2.599

n= the number of primary studies; r = mean of correlation; d = mean of effect size); k = the number of effect size; Med = median of effect size; SD= standard deviation of effect size; min = minimum of effect size; max= maximum of effect size; CI = confidence interval; SE= standard error; Z = Fisher's Z

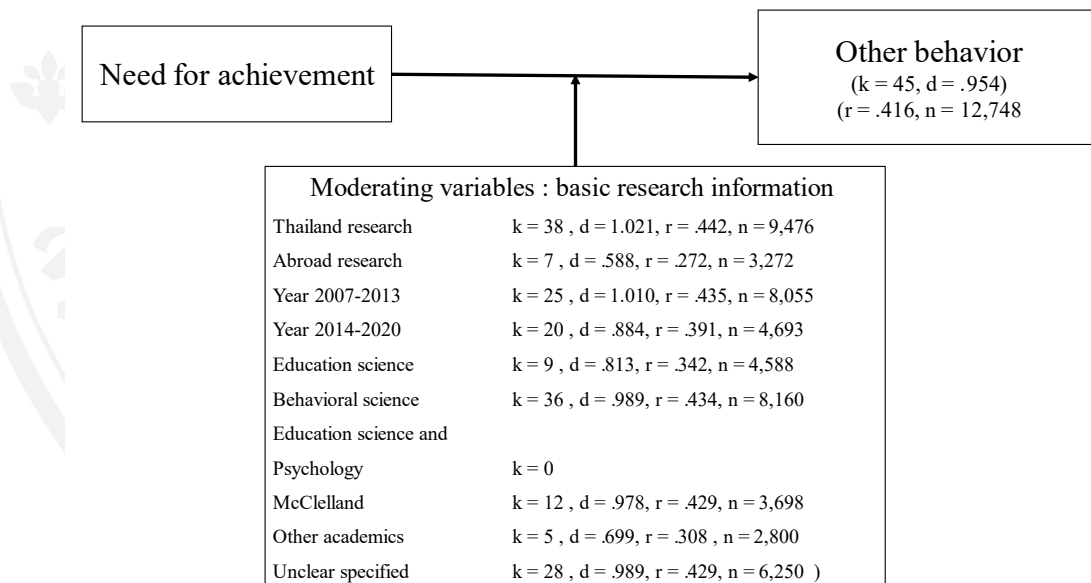


Figure 3.3 Show the Magnitude of the Influence between Need for Achievement and Other Behavior according to Basic Research Information Moderating Variables of the Research.

The relationship between need for achievement and other behaviors during the years 2007 to 2013, with a total sample size of 8,055, was studied. The research findings revealed that the average correlation coefficient was .435, and the average effect size was 1.010, indicating a very large effect size with a total of 25 effect size values. The median effect size was .979, with a standard deviation of .419.

The average effect size ranged from $-.225$ to 1.918 , and the confidence interval was between 1.010 and 1.000 , with a standard error of $-.004$. The Fisher's Z could not be processed. Based on the analysis results, it can be concluded that the need for achievement has a positive relationship with other behaviors during the years 2007 to 2013.

The relationship between need for achievement and other behaviors during the years 2014 to 2020 was studied with a total sample of 4,693. The research findings revealed that the average correlation coefficient was $.391$, and the average effect size was $.884$, indicating a large effect size with a total of 20 effect size values. The median effect size was $.911$, with a standard deviation of $.390$. The average effect size ranged from $-.119$ to 1.477 , and the confidence interval was between $.780$ and $.988$, with a standard error of $.053$. The Fisher's Z was 1.394 . The analysis results indicate a positive relationship between the need for achievement and other behaviors from 2014 to 2020.

The relationship between need for achievement and other behavior in the field of educational science research was studied with a total sample of 4,588. The research findings revealed that the average correlation coefficient was $.342$, and the average effect size was $.813$, indicating a large effect size with a total of 9 effect size values. The median effect size was $.746$, with a standard deviation of $.669$. The average effect size ranged from $-.225$ to 1.477 , and the confidence interval was between $.542$ and 1.000 , with a standard error of $.138$. The Fisher's Z value was 1.136 . Based on the analysis, it can be concluded that the need for achievement has a positive relationship with other behaviors in the field of education science research.

The relationship between need for achievement and other behaviors in the field of behavioral science research was studied with a total sample size of 8,160. The research findings revealed that the average correlation coefficient was $.434$, and the average effect size was $.989$, indicating a very large effect size, with a total of 36 effect size values. The median effect size was $.978$, with a standard deviation of $.368$. The average effect size ranged from $.302$ to 1.918 , and the confidence interval was between $.982$ and $.997$, with a standard error of $.004$. Fisher's Z was 2.599 . Based on the analysis results, it can be concluded that the need for achievement has a positive relationship with other behaviors in the field of behavioral science research.

Researchers in the fields of education science and psychology lack sufficient data to analyze the relationship between the need for achievement and other behaviors.

The relationship between need for achievement and other behavior within McClelland's theory was studied with a total sample size of 3,698. The research findings revealed that the average correlation coefficient was $.429$ and the average effect size was $.978$, indicating a very large effect size, with a total of 12 effect size values. The median effect size was 1.045 , with a standard deviation of $.335$. The average effect size ranged from $.338$ to 1.438 , and the confidence interval was

between .950 and 1.000, with a standard error of .015. Fisher's Z was 2.249. Based on the analysis results, it can be concluded that the need for achievement has a positive relationship with other behavior within McClelland's theory.

The relationship between need for achievement and other behavior in the context of other academics was studied with a total sample size of 2,800. The research findings revealed that the average correlation coefficient was .308, and the average effect size was .699, indicating a moderate effect size with a total of 5 effect size values. The median effect size was .745, with a standard deviation of .575. The average effect size ranged from -.119 to 1.420, and the confidence interval was between -.010 and 1.000, with a standard error of .362. The Fisher's Z was .865. Based on the analysis results, it can be concluded that the need for achievement has a positive relationship with other behavior in the context of other academics.

The relationship between need for achievement and other behavior in Unclear specified was studied with a total sample size of 6,250. The research findings revealed that the average correlation coefficient was .429 and the average effect size was .989, indicating a very large effect size with a total of 28 effect size values. The median effect size was .924, with a standard deviation of .456. The average effect size ranged from -.225 to 1.918, and the confidence interval was between .980 and .998, with a standard error of .004. Fisher's Z was 2.599. The analysis indicates a positive relationship between the need for achievement and other behaviors within the specified unclear category.

The analysis of the meta-analysis revealed a relationship between the need for achievement and other behaviors in subgroups with moderate effect sizes, such as those published abroad and by other academics ($d = .588$ and $.699$). Large effect sizes were observed in publications during the years 2014 to 2020 and in the field of educational research expertise ($d = .884$ and $.813$). For very large effect sizes, significant findings were noted in the group of publications in Thailand, those published in earlier periods, the field of behavioral science expertise, the application of McClelland's theory, and in the group utilizing ambiguous theoretical concepts ($d = 1.021, 1.010, .989, .978, \text{ and } .989$, respectively).

As a result, the need for achievement has a positive relationship with other behaviors, as evidenced by the subgroups that serve as moderating variables in the research data, which include: 1) publication location; 2) year of publication; 3) researcher's expertise; and 4) theoretical concepts used in the study. All subgroups that showed results had an effect size greater than .50. The results thus support hypothesis 1.2.

3) Analysis of need for achievement and GPA according to the basic data moderating variables of the research.

Table 3.7 and Figure 3.4 present the results of the data analysis as follows:

Table 3.7 Show the Magnitude of the Influence between Need for Achievement and GPA according to Basic Research Information Moderating Variables of the Research.

Moderating variable	n	r	d	k	Med	SD	MIN	MAX	95% CI		SE	Z
									Lower	Upper		
Publication location												
Thailand	2,757	.292	.653	9	.449	.470	.215	1.383	.194	1.000	.234	.781
Abroad	7,097	.309	.733	20	.580	.659	.100	3.086	.513	.953	.112	.935
Year of publication												
Year 2007-2013	3,781	.273	.604	11	.440	.443	.215	1.709	.164	1.000	.225	.699
Year 2014-2020	6,073	.323	.772	18	.602	.679	.100	3.086	.568	.977	.104	1.025
Researcher's expertise												
Education science	3,657	.329	.755	12	.526	.527	.215	1.706	.474	1.000	.143	.984
Behavioral science	5,876	.266	.673	11	.440	.823	.100	3.086	.294	1.000	.193	.816
Education science and Psychology	321	.322	.679	6	.636	.148	.534	.945	.069	1.000	.311	.827
Theoretical concepts												
McClelland	1,114	.286	.598	3	.603	.156	.440	.751	-1	1	inf	.690
Other academics	3,914	.274	.579	13	.580	.259	.201	1.121	.167	.991	.210	.661
Unclear specified	4,826	.338	.862	13	.470	.845	.100	3.086	.703	1.000	.081	1.301

n= the number of primary studies; r = mean of correlation; d = mean of effect size); k = the number of effect size; Med = median of effect size; SD= standard deviation of effect size; min = minimum of effect size; max= maximum of effect size; CI = confidence interval; SE= standard error; Z = Fisher's Z

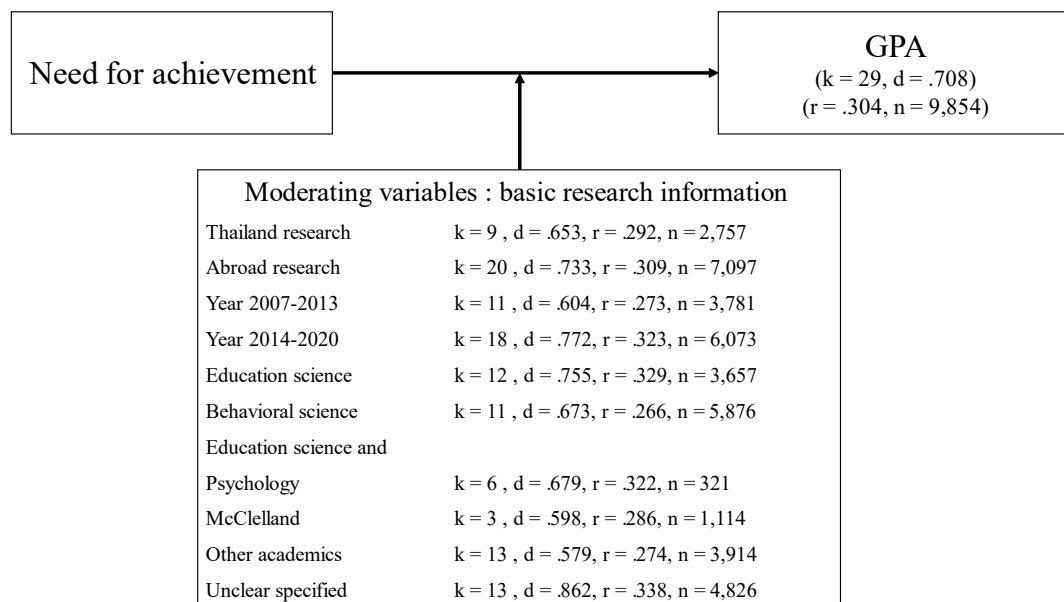


Figure 3.4 Show the Magnitude of the Influence between Need for Achievement and GPA according to Basic Research Information Moderating Variables of the Research.

Researchers in Thailand studied the relationship between need for achievement and GPA, using a total sample size of 2,757. The research findings revealed that the average correlation coefficient was .292, and the average effect size was .653, indicating a moderate effect size with a total of 9 effect size values. The median effect size was .449, and the standard deviation was .470. The average effect size ranged from .215 to 1.383, and the confidence interval was between .194 and 1.000, with a standard error of .234. The Fisher's Z was .781. The analysis results conclude that there is a positive relationship between the need for achievement and GPA in Thailand.

The relationship between need for achievement and GPA abroad research, with a total sample size of 7,097, was studied. The research findings revealed that the average correlation coefficient was .309 and the average effect size was .733, indicating a moderate effect size with a total of 20 effect size values. The median effect size was .580, and the standard deviation was .659. The average effect size ranged from .100 to 3.086, and the confidence interval was between .513 and .953, with a standard error of .112. The Fisher's Z was .935. The analysis concludes that there is a positive relationship between the need for achievement and GPA in abroad research.

Researchers studied the relationship between need for achievement and GPA in the years 2007 to 2013, using a total sample size of 3,781. The research findings revealed that the average correlation coefficient was .273, and the average effect size was .604, indicating a moderate effect size with a total of 11 effect sizes. The median effect size was .440, and the standard deviation was .443. The average effect size ranged from .215 to 1.709, and the confidence interval was between .164 and 1.000, with a standard error of .225. The Fisher's Z was .699. Based on the analysis results, it can be concluded that the need for achievement has a positive relationship with GPA in the years 2007 to 2013.

The relationship between need for achievement motivation and GPA during the years 2014 to 2020, with a total sample size of 6,073, was studied. The research findings revealed that the average correlation coefficient was .323, and the average effect size was .772, indicating a moderate effect size with a total of 18 effect sizes. The median effect size was .602, with a standard deviation of .679. The average effect size ranged from .100 to 3.086, and the confidence interval was between .568 and .977, with a standard error of .104. The Fisher's Z value was 1.025. Based on the analysis results, it can be concluded that the need for achievement has a positive relationship with GPA during the years 2014 to 2020.

The relationship between need for achievement and GPA among researchers in the field of education science was studied with a total sample size of 3,657. The research findings revealed that the average correlation coefficient was .329 and the average effect size was .755, indicating a moderate effect size with a total of 12 effect size values. The median effect size was .526; the standard deviation was .527. The average effect size ranged from .215 to 1.706, and the confidence interval was

between .474 and 1.000, with a standard error of .143. The Fisher's Z was .984. Based on the analysis results, it can be concluded that the need for achievement has a positive relationship with GPA among researchers in the field of education science.

The relationship between need for achievement motivation and GPA among researchers in behavioral sciences was studied with a total sample size of 5,876. The research findings revealed that the average correlation coefficient was .266, and the average effect size was .673, indicating a moderate effect size with a total of 11 effect sizes. The median effect size was .440, with a standard deviation of .823. The average effect size ranged from .100 to 3.086, and the confidence interval was between .294 and 1.000, with a standard error of .193. The Fisher's Z was .816. From the analysis, it can be concluded that the need for achievement has a positive relationship with GPA among researchers in behavioral sciences.

The relationship between need for achievement and GPA among researchers in the fields of education, science, and psychology was studied with a total sample of 321. The research findings revealed that the average correlation coefficient was .322, and the average effect size was .679, indicating a moderate effect size with a total of 6 effect size values. The median effect size was .636, with a standard deviation of .148. The average effect size ranged from .534 to .945, with a confidence interval between .069 and 1.000. The standard error was .311, and Fisher's Z was .827. The analysis results indicate a positive relationship between the need for achievement and GPA among researchers in the fields of education science and psychology.

The relationship between need for achievement and GPA in the framework of McClelland's theory was studied with a total sample size of 1,114 individuals. The research findings revealed that the average correlation coefficient was .286, and the average effect size was .598, indicating a moderate effect size, with a total of 3 effect size values. The median effect size was .603, with a standard deviation of .156. The average effect size ranged from .440 to .751, and the confidence interval was between -1.000 and 1.000. The standard error could not be computed. Fisher's Z was .690. Based on the analysis results, it can be concluded that need for achievement has a positive relationship with GPA within the framework of McClelland's theory.

The relationship between need for achievement and GPA in the context of other academics was studied with a total sample size of 3,914. The research findings revealed that the average correlation coefficient was .274, and the average effect size was .579, indicating a moderate effect size with a total of 13 effect size values. The median effect size was .580, with a standard deviation of .259. The average effect size ranged from .201 to 1.121, and the confidence interval was between .167 and .991, with a standard error of .210. The Fisher's Z was .661. The analysis results indicate a positive relationship between the need for achievement and GPA in comparison to other academics.

The relationship between need for achievement motivation and GPA in a group of Unclear specified was studied with a total sample size of 4,826. The research findings revealed that the average correlation coefficient was .338, and the average effect size was .862, indicating a large effect size with a total of 13 effect sizes. The median effect size was .470, with a standard deviation of .845. The average effect size ranged from .100 to 3.086, and the confidence interval was between .703 and 1.000, with a standard error of .081. Fisher's Z was 1.301. In the specified unclear group, the analysis results indicate a positive relationship between the need for achievement and GPA.

The analysis of the meta-analysis revealed a relationship between the need for achievement and GPA in subgroups with a medium effect size. These subgroups included research published in Thailand, research published abroad, research published in the years 2007 to 2013, research published in the years 2014 to 2020, and research in the fields of education science, behavioral sciences, and education science and psychology, all of which utilized McClelland's theoretical concepts. In other academic groups, the effect sizes were as follows: $d = .653, .733, .604, .772, .755, .673, .679, .598, \text{ and } .599$, respectively. A large effect size was observed in the group using unclear specifications ($d = .862$).

Therefore, as evidenced by the subgroups that serve as moderating variables in the research, the need for achievement has a positive relationship with GPA. 1) publication location 2) Year of publication 3) The researcher's expertise; 4) The theoretical concepts used in the study. All subgroups exhibited significant results, with effect sizes exceeding 0.50. This supports hypothesis 1.2.

3.2.3 Analyzing the relationship between the need for achievement and study behavior, other behavior, and GPA in research subgroups in Thailand as a moderating variable related to bio-social background

Hypothesis 1.3 In the group, the magnitude of the effect size between the need for achievement and study behavior, other behavior, or GPA is at least 0.50. This result will be evident in the subgroups where bio-social background moderating variables, such as 1) gender, 2) educational level, 3) father's education, or 4) mother's education, are used in the study. The usage meta-analysis yielded the following findings:

1) Analysis of need for achievement and study behavior according to the bio-social background moderating variables of the research.

Table 3.8 and Figure 3.5 present the results of the data analysis as follows:

The relationship between need for achievement and study behavior in a group of males, with a total sample size of 289, was studied. The research findings revealed that the average correlation coefficient was .473, and the average effect size was 1.131, indicating a very large effect size, with a total of 6 effect size values. The

median effect size was 1.122, with a standard deviation of .125. The average effect size ranged from 1.005 to 1.342, and the confidence interval was between 1.131 and 1.131. The standard error was -.161, and Fisher's Z could not be processed. Based on the analysis results, it can be concluded that need for achievement has a positive relationship with study behavior in the male group.

The relationship between need for achievement and study behavior in a female group with a total sample size of 890 individuals was studied. The research findings revealed that the average correlation coefficient was .466, and the average effect size was 1.119, indicating a very large effect size with a total of 6 effect size values. The median effect size was 1.102, with a standard deviation of .121. The average effect size ranged from .966 to 1.307, and the confidence interval was between 1.119 and 1.119. The standard error was .146, and Fisher's Z could not be processed. Based on the analysis results, it can be concluded that need for achievement has a positive relationship with study behavior in the female group.

Table 3.8 Show the Magnitude of the Influence between Need for Achievement and Study Behavior according to Bio-Social Background Moderating Variables of the Research.

Moderating variable	n	r	d	k	Med	SD	MIN	MAX	95% CI		SE	Z
									Lower	Upper		
Gender												
Male	289	.473	1.131	6	1.122	.125	1.005	1.342	1.131	1.131	-.161	n/a
Female	890	.466	1.119	6	1.102	.121	.966	1.307	1.119	1.119	-.146	n/a
Education level												
High school	1,862	.427	.960	5	.821	.265	.770	1.413	.851	1.000	.055	1.946
Undergraduate student	2,299	.416	.930	8	.957	.272	.305	1.238	.812	1.000	.060	1.658
Father's education												
Low education	413	.455	1.089	6	1.122	.146	.898	1.239	1.089	1.089	-.107	n/a
High education	418	.467	1.118	6	1.126	.163	.876	1.340	1.118	1.118	-.144	n/a
Mother's education												
Low education	576	.463	1.111	6	1.121	.104	.977	1.233	1.111	1.111	-.135	n/a
High education	306	.505	1.208	6	1.221	.116	1.059	1.355	1.208	1.208	-.266	n/a

n= the number of primary studies; r = mean of correlation; d = mean of effect size); k = the number of effect size; Med = median of effect size; SD= standard deviation of effect size; min = minimum of effect size; max= maximum of effect size; CI = confidence interval; SE= standard error; Z = Fisher's Z

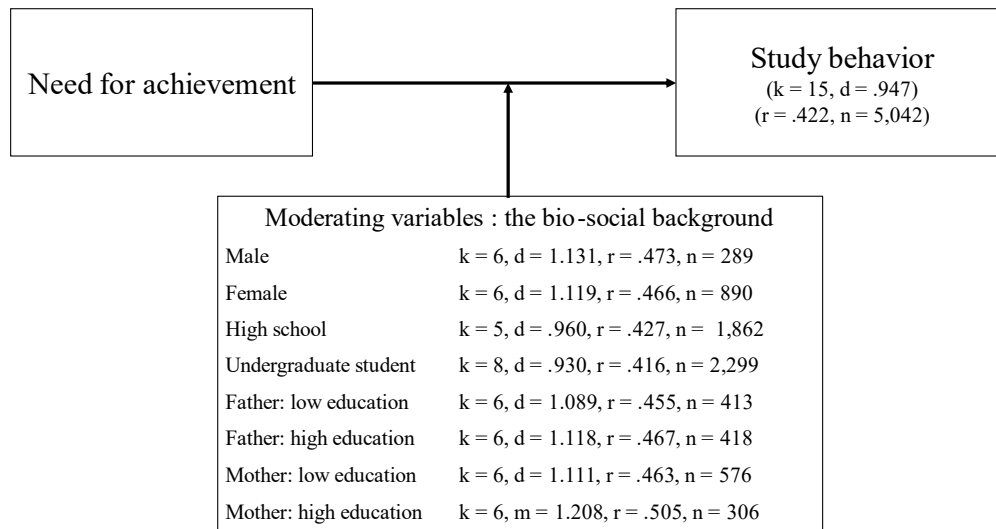


Figure 3.5 Show the Magnitude of the Influence between Need for Achievement and Study Behavior according to the Bio-Social Background Moderating Variables of the Research.

The relationship between need for achievement and study behavior among high school students, with a total sample size of 1,862, was studied. The research findings revealed that the average correlation coefficient was .427 and the average effect size was .960, indicating a very large effect size, with a total of 5 effect size values. The median effect size was .821, with a standard deviation of .265. The average effect size ranged from .770 to 1.413, and the confidence interval was between .851 and 1.000, with a standard error of .055. The Fisher's Z value was 1.946. Based on the analysis results, it can be concluded that the need for achievement has a positive relationship with study behavior among high school students.

The relationship between need for achievement and study behavior among university students, with a total sample size of 2,299, was studied. The research findings revealed that the average correlation coefficient was .416, and the average effect size was .930, indicating a very large effect size with a total of 8 effect size values. The median effect size was .957 with a standard deviation of .272. The average effect size ranged from .305 to 1.238, and the confidence interval was between .812 and 1.000, with a standard error of .060. The Fisher's Z value was 1.658. The analysis results indicate a positive relationship between the need for achievement and study behavior among university students.

The relationship between need for achievement and study behavior in a sample of 413 with low-educated fathers was studied. The research findings revealed that the average correlation coefficient was .455, and the average effect size was 1.089, indicating a very large effect size with a total of 6 effect size values. The median effect size was 1.122, with a standard deviation of .146. The average effect size ranged from .898 to 1.239, and the confidence interval was between 1.089 and

1.089. The standard error was .107, and Fisher's Z could not be processed. Based on the analysis results, it can be concluded that need for achievement has a positive relationship with study behavior in the sample with low-educated fathers.

The relationship between need for achievement motivation and study behavior in a sample of 418 high-educated fathers was studied. The research findings revealed that the average correlation coefficient was .467 and the average effect size was 1.118, indicating a very large effect size with a total of 6 effect size values. The median effect size was 1.126, with a standard deviation of .163. The average effect size ranged from .876 to 1.340, and the confidence interval was between 1.118 and 1.118. The standard error was .144, and Fisher's Z could not be processed. Based on the analysis results, it can be concluded that need for achievement has a positive relationship with learning behavior in the sample with high-educated fathers.

The relationship between need for achievement and study behavior in a sample of 576 mothers who have low education was studied. The research findings revealed that the average correlation coefficient was .463, and the average effect size was 1.111, indicating a very large effect size with a total of 6 effect size values. The median effect size was 1.121, with a standard deviation of .104. The average effect size ranged from .977 to 1.233, and the confidence interval was between 1.111 and 1.111. The standard error was .135, and the Fisher's Z could not be processed. Based on the analysis results, it can be concluded that need for achievement has a positive relationship with study behavior in the sample of individuals with mothers who have low education.

The relationship between need for achievement and study behavior in a sample of 306 with high-educated mothers was studied. The research findings revealed that the average correlation coefficient was .505, and the average effect size was 1.208, indicating a very large effect size, with a total of 6 effect size values. The median effect size was 1.221, with a standard deviation of .116. The average effect size ranged from 1.059 to 1.355, and the confidence interval was between 1.208 and 1.208. The standard error was .266, and Fisher's Z could not be processed. The analysis results indicate a positive relationship between study behavior and the need for achievement in the sample of individuals with high-educated mothers.

The examination of the meta-analysis revealed that the need for achievement has a significant effect size on study behavior in all bio-social background groups.

Therefore, the need for achievement has a positive relationship with study behavior, as evidenced by the subgroups that represent the bio-social background moderating variables in the research: 1) gender 2) education level 3) father's education; 4) mother's education. All subgroups also show an effect size greater than 0.50. These results support Hypothesis 1.3.

2) Analysis of need for achievement and other behavior according to the bio-social background moderating variables of the research.

Table 3.9 and Figure 3.6 present the results of the data analysis as follows:

The relationship between need for achievement and other behavior in a male group, with a total sample size of 1,543, was studied. The research findings revealed that the average correlation coefficient was .432, and the average effect size was 1.037, indicating a very large effect size with a total of 11 effect size values. The median effect size was 1.135, with a standard deviation of .319. The average effect size ranged from .361 to 1.558, and the confidence interval was between 1.037 and 1.037. The standard error was -.027 and processing the Fisher's Z proved impossible. The analysis results indicate a positive relationship between the need for achievement and other behavior in the male group.

The relationship between need for achievement and other behavior in the female group, with a total sample size of 2,175, was studied. The research findings revealed that the average correlation coefficient was .418, and the average effect size was .960, indicating a very large effect size with a total of 11 effect sizes. The median effect size was .960, with a standard deviation of .289. The average effect size ranged from .408 to 1.321, and the confidence interval was between .906 and 1.000. The standard error was .028, and Fisher's Z was 1.946. Based on the analysis results, it can be concluded that the need for achievement has a positive relationship with other behavior in the female group.

Table 3.9 Show the Magnitude of the Influence between Need for Achievement and Other Behavior according to Bio-Social Background Moderating Variables of the Research.

Moderating variable	n	r	d	k	Med	SD	MIN	MAX	95% CI		SE	Z
									Lower	Upper		
Gender												
Male	1,543	.432	1.037	11	1.135	.319	.361	1.558	1.037	1.037	-.027	n/a
Female	2,175	.418	.960	11	.960	.289	.408	1.321	.906	1.000	.028	1.946
Education level												
High school	5,502	.472	1.098	22	1.139	.411	-.225	1.722	1.098	1.000	-.047	n/a
Undergraduate student	3,974	.400	.916	16	.828	.420	.338	1.918	.829	1.000	.045	1.564
Father's education												
Father: low education	1,718	.412	.989	10	1.063	.325	.290	1.362	.973	1.000	.008	2.599
Father: high education	1,250	.396	.951	10	1.006	.283	.448	1.356	.880	1.000	.036	1.842
Mother's education												
Mother: low education	1,520	.404	.970	10	1.004	.316	.331	1.336	.926	1.000	.022	2.092
Mother: high education	1,394	.397	.953	10	1.006	.279	.479	1.256	.885	1.000	.035	1.863

n= the number of primary studies; r = mean of correlation; d = mean of effect size); k = the number of effect size; Med = median of effect size; SD= standard deviation of effect size; min = minimum of effect size; max= maximum of effect size; CI = confidence interval; SE= standard error; Z = Fisher's Z

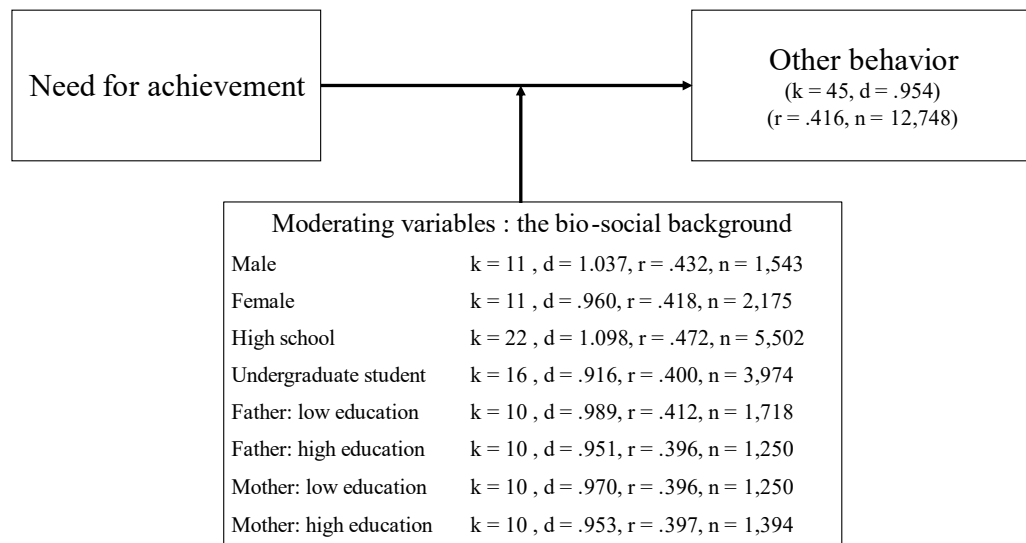


Figure 3.6 Show the Magnitude of the Influence between Need for Achievement and Other Behavior according to the Bio-Social Background Moderating Variables of the Research.

The relationship between need for achievement and other behavior among high school students, with a total sample size of 5,502, was studied. The research findings revealed that the average correlation coefficient was .472, and the average effect size was 1.098, indicating a very large effect size with a total of 22 effect sizes. The median effect size was 1.139, with a standard deviation of .411. The average effect size ranged from -.225 to 1.722, and the confidence interval was between 1.000 and 1.098, with a standard error of -.047. Fisher's Z could not be processed. Based on the analysis results, it can be concluded that the need for achievement has a positive relationship with other behavior among high school students.

The relationship between need for achievement and other behavior among university students, with a total sample size of 3,974, was studied. The research findings revealed that the average correlation coefficient was .400 and the average effect size was .916, indicating a very large effect size with a total of 16 effect sizes. The median effect size was .828, with a standard deviation of .420. The average effect size ranged from .338 to 1.918, with a confidence interval between .829 and 1.000. The standard error was .045, and Fisher's Z was 1.564. Based on the analysis results, it can be concluded that the need for achievement has a positive relationship with other behaviors among university students.

The relationship between need for achievement and other behaviors in a sample of 1,718 fathers who have low education was studied. The research findings revealed that the average correlation coefficient was .412, and the average effect size was .989, indicating a very large effect size with a total of 10 effect sizes. The median effect size was 1.063, with a standard deviation of .325. The average effect size ranged

from .290 to 1.362, with a confidence interval between .973 and 1.000. The standard error was .008, and Fisher's Z was 2.599. The analysis reveals a positive correlation between the need for achievement and other behavior in the sample, particularly among fathers with low education.

The relationship between need for achievement and other behavior in a sample where fathers have high education was studied with a total sample size of 1,250 fathers. The research findings revealed that the average correlation coefficient was .396, and the average effect size was .951, indicating a very large effect size, with a total of 10 effect sizes. The median effect size was 1.006, with a standard deviation of .283. The average effect size ranged from .448 to 1.356, and the confidence interval was between .880 and 1.000. The standard error was .036, and Fisher's Z was 1.842. Based on the analysis results, it can be concluded that need for achievement has a positive relationship with other behavior in the sample where fathers have high education.

The relationship between need for achievement and other behavior in a sample of 1,520 mothers who have low education was studied. The research findings revealed that the average correlation coefficient was .404 and the average effect size was .970, indicating a very large effect size, with a total of 10 effect size values. The median effect size was 1.004, with a standard deviation of .316. The average effect size ranged from .331 to 1.336, and the confidence interval was between .926 and 1.000, with a standard error of .022. Fisher's Z was 2.092. The analysis results indicate a positive correlation between the need for achievement and other behaviors in the sample, particularly among mothers with low education.

The relationship between achievement motivation and other behaviors in a sample of 1,394 individuals whose mothers have high education was studied. The research findings revealed that the average correlation coefficient was .397 and the average effect size was .953, indicating a very large effect size with a total of 10 effect size values. The median effect size was 1.006, with a standard deviation of .279. The average effect size ranged from .479 to 1.256, and the confidence interval was between .885 and 1.000, with a standard error of .035. The Fisher's Z statistic was 1.863. Based on the analysis results, it can be concluded that need for achievement has a positive relationship with other behavior in the sample of individuals whose mothers have high education.

The examination of the meta-analysis revealed that the need for achievement has a significant effect size on other behavior in all bio-social background groups.

Therefore, the need for achievement has a positive relationship with other behavior, as evidenced by the subgroups that represent the bio-social background moderating variables in the research: 1) gender 2) education level 3) father's education; 4) mother's education. All subgroups also show an effect size greater than 0.50. These results support Hypothesis 1.3.

3) Analysis of need for achievement and GPA according to the bio-social background moderating variables of the research.

Table 3.10 and Figure 3.7 present the results of the data analysis as follows:

The relationship between the need for achievement and GPA in male and female groups lacks sufficient data for analysis.

The relationship between need for achievement and GPA among high school students, with a total sample size of 1,836, was studied. The research findings revealed that the average correlation coefficient was .302, and the average effect size was .665, indicating a moderate effect size with a total of 6 effect size values. The median effect size was .526, with a standard deviation of .426. The average effect size ranged from .243 to 1.304, and the confidence interval was between .034 and 1.000, with a standard error of .322. The Fisher's Z value was .802. Based on the analysis results, it can be concluded that the need for achievement has a positive relationship with GPA among high school students.

The relationship between need for achievement and GPA among university students was studied with a total sample size of 921. The research findings revealed that the average correlation coefficient was .273, and the average effect size was .627, indicating a moderating effect size, with a total of 3 effect size values. The median effect size was .283, with a standard deviation of .655. The average effect size ranged from .215 to 1.383, and the confidence interval was between -1.000 and 1.000. The standard error could not be processed. The Fisher's Z was .736. The analysis results indicate a positive relationship between the need for achievement and GPA among university students.

The data analysis does not clearly show the relationship between the need for achievement and other behavior in samples where the parents have low education compared to samples where the parents have high education.

The meta-analysis revealed a medium effect size relationship between the need for achievement and GPA in the analyzed subgroups, namely high school students and university students.

Table 3.10 Show the Magnitude of the Influence between Need for Achievement and GPA according to Bio-Social Background Moderating Variables of the Research.

Moderating variable	n	r	d	k	Med	SD	MIN	MAX	95% CI		SE	Z
									Lower	Upper		
Gender												
Male	0	-	-	-	-	-	-	-	-	-	-	-
Female	0	-	-	-	-	-	-	-	-	-	-	-
Education level												
High school	1,836	.302	.665	6	.526	.426	.243	1.304	.034	1.000	.322	.802
Undergraduate student	921	.273	.627	3	.283	.655	.215	1.383	-1.000	1.000	inf	.736
Father's education												
Father: low education	0	-	-	-	-	-	-	-	-	-	-	-
Father: high education	0	-	-	-	-	-	-	-	-	-	-	-
Mother's education												
Mother: low education	0	-	-	-	-	-	-	-	-	-	-	-
Mother: high education	0	-	-	-	-	-	-	-	-	-	-	-

n= the number of primary studies; r = mean of correlation; d = mean of effect size); k = the number of effect size; Med = median of effect size; SD= standard deviation of effect size; min = minimum of effect size; max= maximum of effect size; CI = confidence interval; SE= standard error; Z = Fisher's Z

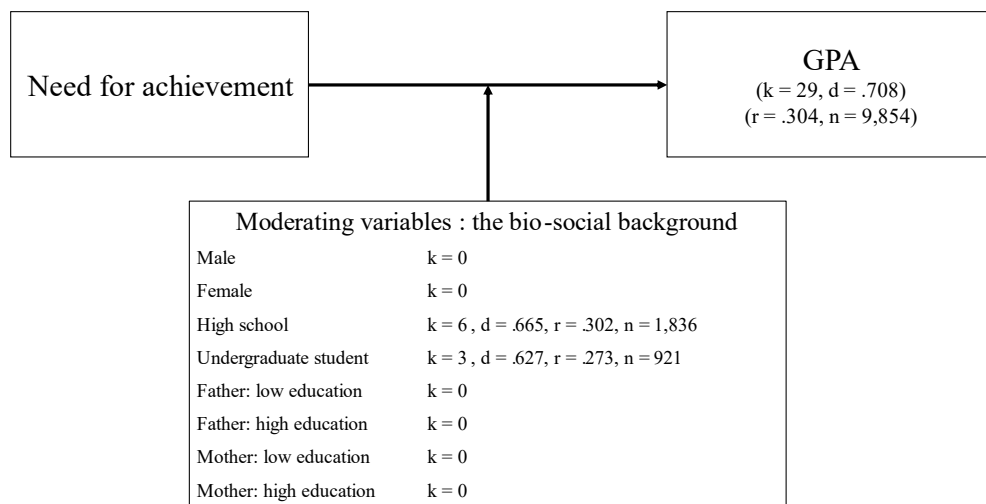


Figure 3.7 Show the Magnitude of the Influence between Need for Achievement and GPA according to the Bio-Social Background Moderating Variables of the Research.

Therefore, need for achievement motivation has a positive relationship with GPA, as evidenced in the subgroups that are the bio-social background of moderating variables of the research, including education level, with an effect size greater than .50 in both subgroups as well. These findings, therefore, support hypothesis 1.3.

3.3 Data Analysis Results for Analysis of Hypothesis 2

3.3.1 Analysis of the relationship between a need for achievement trait and study behavior, other behaviors, and GPA in the total group.

Hypothesis 2: The magnitude of the effect size between need for achievement trait and study behavior, other behavior, or GPA have a magnitude value of at least .50.

Hypothesis 2.1 The magnitude of the effect size between need for achievement trait and study behavior, other behavior, or GPA have a scale value of at least .50 in the combined group.

Table 3.11 and Figure 3.8 present the results of the data analysis in the following manner:

A total sample of 2,780 participants participated in the study of the relationship between the need for achievement trait and study behavior. The research findings revealed that the average correlation coefficient was .420 and the average effect size was .943, indicating a very large effect size, with a total of 11 effect sizes. The median effect size was .951, with a standard deviation of .279. The average effect size ranged from .305 to 1.413, and the confidence interval was between .866 and 1.000, with a standard error of .039. Fisher's Z was 1.764. The analysis results conclude that there is a positive relationship between the need for achievement trait and study behavior.

Table 3.11 Show the Effect Size of the Relationship Between the Need for Achievement Trait and Study Behavior, Other Behavior, and GPA in the Total Group.

Dependent variable	n	r	d	k	Med	SD	MIN	MAX	95% CI		SE	Z
									Lower	Upper		
Study behavior	2,780	.420	.943	11	.951	.279	.305	1.413	.866	1.000	.039	1.764
Other behavior	10,546	.442	1.022	38	.992	.417	-.225	1.918	1.022	1.000	-.008	n/a
GPA	169	.164	.331	1	.331	.331	.331	.331	n/a	n/a	n/a	.344

n= the number of primary studies; r= mean of correlation; d = mean of effect size); k = the number of effect size; Med = median of effect size; SD= standard deviation of effect size; min = minimum of effect size; max= maximum of effect size; CI = confidence interval; SE= standard error; Z = Fisher's Z

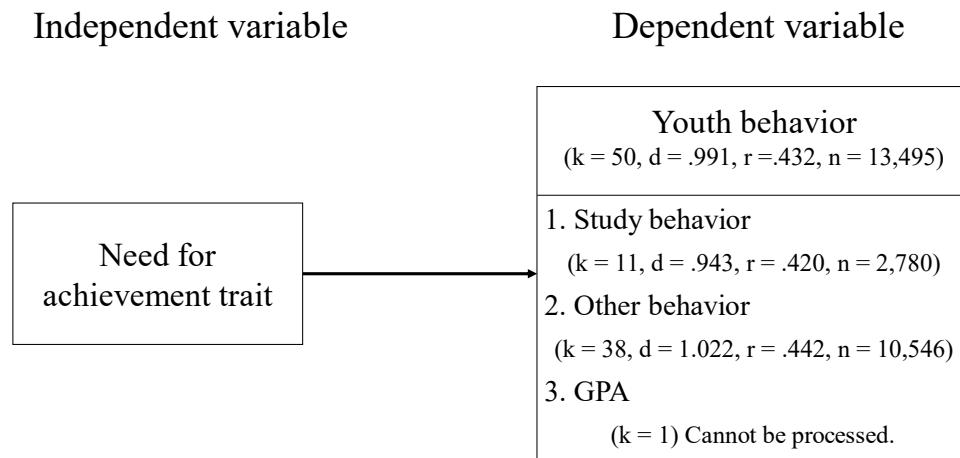


Figure 3.8 Show the Effect Size of the Relationship Between the Need for Achievement Trait and Study Behavior, Other Behavior, and GPA in the Total Group.

There exists a correlation between the achievement trait's need and other behaviors. The research findings revealed that the average correlation coefficient was .442, and the average effect size was 1.022, indicating a very large effect size, with a total of 38 effect size values. The median effect size was .992, and the standard deviation was .417. The average effect size ranged from -.225 to 1.918, and the confidence interval was between 1.000 and 1.022, with a standard error of -.008. Fisher's Z could not be processed. The analysis results suggest a positive relationship between the achievement trait and other behavior.

The relationship between the need for achievement trait and GPA was studied in a sample of 169. The research findings revealed that the average correlation coefficient was .164 and the average effect size was .331, indicating a small effect size with a total effect size value of 1. The median effect size was .331, with a standard deviation of .331. The average effect size ranged from .331 to .331. The confidence interval and standard deviation could not be processed. The Fisher's Z value was .344. Based on the analysis, with only one effect size, it was insufficient for evaluating the analysis, thus it was not possible to process the relationship between need for achievement trait and GPA.

Looking at the above results, we can see that the need for achievement trait has an average effect size of .943 on study behavior, an average effect size of 1.022 on other behavior, and a single effect size value on GPA, which has not been analyzed yet. Therefore, the need for achievement trait exhibits a positive relationship with both study behavior and other behavior, with effect sizes exceeding 0.50. Based on these results, hypothesis 2.1 is accepted for the combined group of study behavior and other behavior, except for the dependent variable of GPA, which could not be determined.

3.3.2 An analysis of the relationship between the need for achievement trait and study behavior, other behavior, and GPA in subgroups that moderating variables the basic data of the research.

Hypothesis 2.2 In the group, the effect size between need for achievement trait and study behavior, other behavior, or GPA have a magnitude value of at least .50.

This result will appear in the subgroups that are basic data moderating variables of the research, including 1) the place of publication, 2) the year of publication, 3) the researcher's field of study, or 4) the theoretical concepts used in the study. The usage meta-analysis analysis yielded the following findings:

1) Analysis of need for achievement trait and study behavior according to the basic data moderating variables of the research.

Table 3.12 and Figure 3.9 present the results of the data analysis as follows:

Table 3.12 Show the Magnitude of the Influence between Need for Achievement Trait and Study Behavior according to Basic Research Information Moderating Variables of the Research.

Moderating variable	n	r	d	k	Med	SD	MIN	MAX	95% CI		SE	Fisher's Z
									LL	UL		
Publication location												
Thailand	2,780	.420	.943	11	.951	.279	.305	1.413	.866	1.000	.039	1.764
Abroad	0	-	-	0	-	-	-	-	-	-	-	-
Year of publication												
2007-2013	744	.422	.930	1	.930	.930	.930	.930	n/a	n/a	n/a	1.658
2014-2020	2,036	.420	.944	10	.957	.294	.305	1.413	.863	1.000	.041	1.774
Researcher's expertise												
Education science	1,144	.500	1.171	2	1.171	.342	.930	1.413	n/a	n/a	n/a	n/a
Behavioral science	1,636	.402	.892	9	.951	.258	.305	1.238	.729	1.000	.083	1.432
Education science and Psychology	0	-	-	0	-	-	-	-	-	-	-	-
Theoretical concepts												
McClelland	543	.349	.770	3	.943	.407	.305	1.063	-1	1	inf	1.02
Other academics	0	-	-	0	-	-	-	-	-	-	-	-
Unclear specified	2,237	.446	1.008	8	.957	.214	.770	1.413	1.008	1.008	-.007	n/a

n= the number of primary studies; r= mean of correlation; d = mean of effect size); k = the number of effect size; Med = median of effect size; SD= standard deviation of effect size; min = minimum of effect size; max= maximum of effect size; CI = confidence interval; SE= standard error; Z = Fisher's Z

The relationship between the need for achievement trait and study behavior in Thailand, with a total sample size of 2,780, was studied. The research findings revealed that the average correlation coefficient was .420 and the average effect size was .943, indicating a very large effect size with a total of 11 effect sizes. The median effect size was .951, with a standard deviation of .279. The average effect size ranged from .305 to 1.413, and the confidence interval was between .866 and 1.000, with a standard error of .039. The Fisher's Z was 1.764. The analysis results show a positive correlation between study behavior in Thailand research and the need for achievement trait.

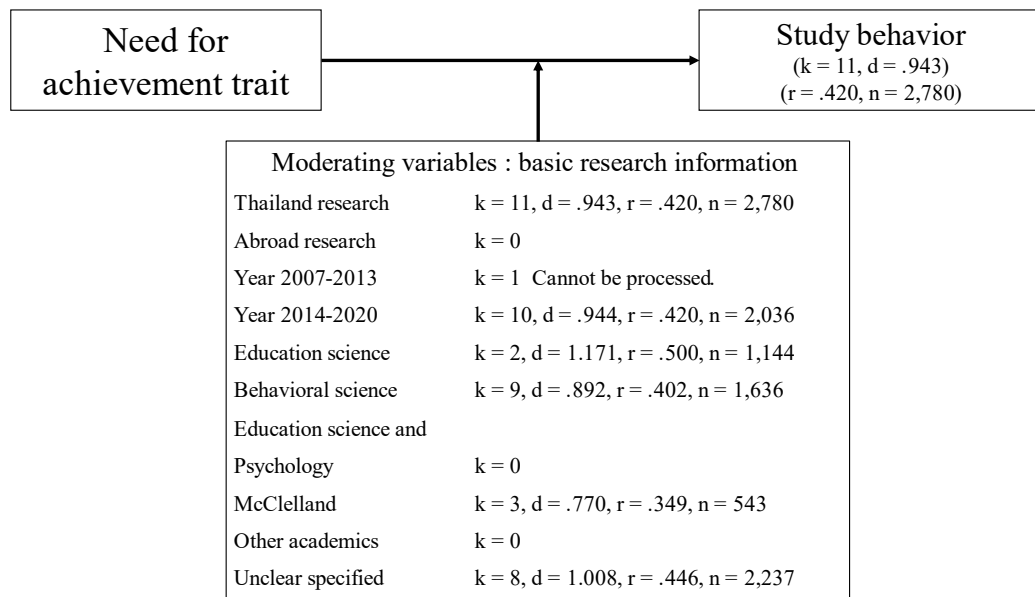


Figure 3.9 Show the Magnitude of the Influence between Need for Achievement Trait and Study Behavior according to Basic Research Information Moderating Variables of the Research.

The relationship between the need for achievement trait and study behavior abroad does not provide data for analysis.

The relationship between the need for achievement trait and study behavior during the years 2007 to 2013 was studied with a total sample size of 744. The research findings revealed that the average correlation coefficient was .422, and the average effect size was .930, indicating a very large effect size with a total effect size value of 1. The median effect size was .930, and the standard deviation was .930. The average effect size ranged from .930 to .930, with confidence intervals and standard deviation values that could not be processed. The Fisher's Z value was 1.658. Based on the analysis, the single effect size value was deemed insufficient for evaluating the relationship between the need for achievement trait and study behavior during the period of 2007 to 2013.

The relationship between the need for achievement trait and study behavior during the years 2014 to 2020 was studied with a total sample size of 2,036. The research findings revealed that the average correlation coefficient was .420 and the average effect size was .944, indicating a very large effect size with a total of 10 effect size values. The median effect size was .957, and the standard deviation was .294. The average effect size ranged from .305 to 1.413, and the confidence interval was between .863 and 1.000, with a standard error of .041. Fisher's Z was 1.774. The analysis results conclude that a positive relationship exists between the need for achievement trait and study behavior from 2014 to 2020.

The relationship between the need for achievement trait and study behavior in the field of expertise among educational science was studied with a total sample size of 1,144. The research findings revealed that the average correlation coefficient was .500 and the average effect size was 1.171, indicating a very large

effect size with a total effect size value of 2. The median effect size was 1.171, with a standard deviation of .342. The average effect size ranged from .930 to 1.413. The confidence interval, standard error, and Fisher's Z could not be processed. Based on the analysis results, it can be concluded that the need for achievement trait has a positive relationship with study behavior in the field of expertise among educational science.

The relationship between the need for achievement trait and study behavior in the field of expertise of behavioral science, with a total sample size of 1,636, was studied. The research findings revealed that the average correlation coefficient was .402, and the average effect size was .892, indicating a large effect size with a total of 9 effect size values. The median effect size was .951, and the standard deviation was .258. The average effect size ranged from .305 to 1.238, and the confidence interval was between .729 and 1.000, with a standard error of .083. Fisher's Z was 1.432. Therefore, the analysis concludes that there is a positive correlation between the achievement trait and study behavior in the behavioral science field of expertise.

The relationship between the need for achievement traits and study behavior in the fields of education science and psychology does not provide data for analysis.

The relationship between the need for achievement trait and study behavior in the context of McClelland's theory was studied with a total sample of 543. The research findings revealed that the average correlation coefficient was .349 and the average effect size was .770, indicating a moderate effect size with a total of 3 effect sizes. The median effect size was .943, with a standard deviation of .407. The average effect size ranged from .305 to 1.063, and the confidence interval was between -1.000 and 1.000. The standard error could not be processed. Fisher's Z was 1.020. The analysis results indicate a positive relationship between the need for achievement trait and study behavior, within the framework of McClelland's theory.

In other academic frameworks, the relationship between the need for achievement trait and study behavior lacks data for analysis.

The relationship between the need for achievement trait and study behavior in the context of Unclear specified was studied with a total sample of 2,237. The research findings revealed that the average correlation coefficient was .446, and the average effect size was 1.008, indicating a very large effect size with a total of 8 effect size values. The median effect size was .957, with a standard deviation of .214. The average effect size ranged from .770 to 1.413, and the confidence interval was between 1.008 and 1.008. The standard error was -.007, and Fisher's Z could not be processed. Based on the analysis results, it can be concluded that the need for achievement trait has a positive relationship with study behavior in the context of unclear specified.

The meta-analysis conducted above revealed that the need for achievement trait has a medium effect size on study behavior in subgroups, particularly in the group that applied McClelland's theory ($d = .770$). For very large effect sizes, they were observed in the published groups in Thailand, published during the years 2014 to 2020, in the fields of expertise of educational science, behavioral science, and groups that utilized unclear specified ($d = .943, .930, .944, 1.171, .892, \text{ and } 1.008$, respectively).

Therefore, the need for achievement trait has a positive relationship with study behavior, as evidenced in the subgroups that serve as moderating variables in the research, namely: 1) publication location, 2) year of publication, 3) researcher's expertise, and 4) theoretical concepts used in the study. All subgroups that could be processed showed an effect size greater than .50. This result, therefore, supports Hypothesis 2.2.

2) Analysis of need for achievement trait and other behavior according to the basic data moderating variables of the research.

Table 3.13 and Figure 3.10 present the results of the data analysis as follows:

Table 3.13 Show the Magnitude of the Influence between Need for Achievement Trait and Other Behavior according to Basic Research Information Moderating Variables of the Research.

Moderating variable	n	r	d	k	Med	SD	MIN	MAX	95% CI		SE	Fisher's Z
									LL	UL		
Publication location												
Thailand	8,657	.454	1.055	34	1.099	.425	-.225	1.918	1.055	1.000	-.020	n/a
Abroad	1,889	.344	.738	4	.806	.189	.468	.871	-.155	1.000	.455	.946
Year of publication												
2007-2013	6,196	.454	1.067	20	1.139	.510	-.225	1.918	1.067	1.000	-.034	n/a
2014-2020	4,350	.430	.972	18	.978	.287	.468	1.477	.944	1.000	.014	2.127
Researcher's expertise												
Education science	4,438	.393	.929	8	1.056	.610	-.225	1.477	.809	1.000	.061	1.651
Behavioral science	6,108	.456	1.046	30	.992	.359	.338	1.918	1.046	1.000	-.018	n/a
Education science and Psychology	0	-	-	0	-	-	-	-	-	-	-	-
Theoretical concepts												
McClelland	3,698	.429	.978	12	1.045	.335	.338	1.438	.950	1.000	.015	2.249
Other academics	1,215	.404	.944	2	.944	.673	.468	1.420	n/a	n/a	n/a	1.774
Unclear specified	5,633	.452	1.050	24	.991	.451	-.225	1.918	1.050	1.000	-.022	n/a

n= the number of primary studies; r= mean of correlation; d = mean of effect size); k = the number of effect size; Med = median of effect size; SD= standard deviation of effect size; min = minimum of effect size; max= maximum of effect size; CI = confidence interval; SE= standard error; Z = Fisher's Z

The relationship between need for achievement trait and other behaviors in Thailand research, with a total sample size of 8,657, was studied. The research findings revealed that the average correlation coefficient was .454, and the average effect size was 1.055, indicating a very large effect size with a total of 34 effect sizes. The median effect size was 1.099, with a standard deviation of .425. The average effect size ranged from -.225 to 1.918, and the confidence interval was between 1.000 and 1.055, with a standard error of -.020. The Fisher's Z could not be processed. Based on the analysis results, it can be concluded that the need for achievement trait has a positive relationship with other behavior in Thailand research.

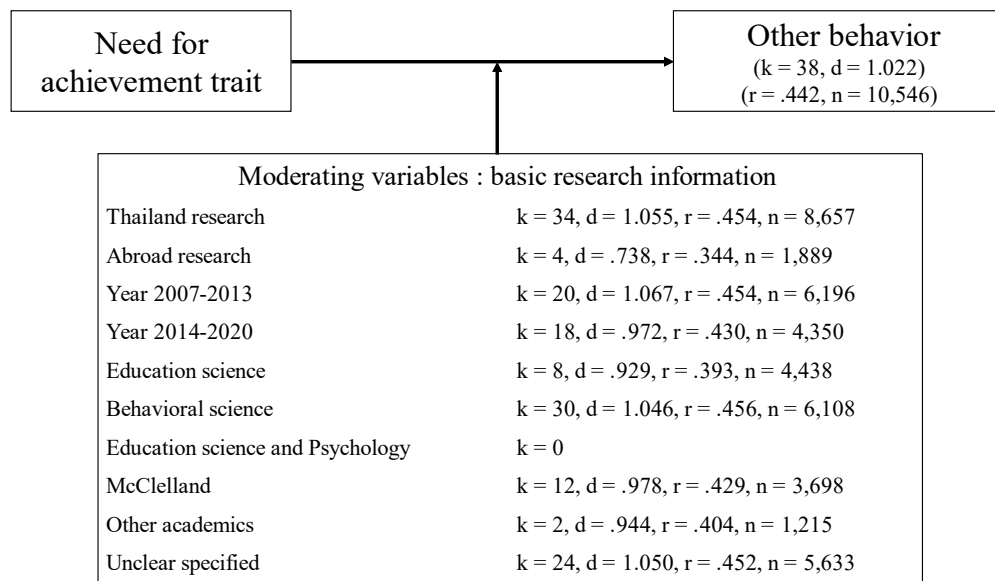


Figure 3.10 Show the Magnitude of the Influence between Need for Achievement Trait and Other Behavior according to Basic Research Information Moderating Variables of the Research.

The relationship between the need for achievement trait and other behavior of abroad research, with a total sample size of 1,889, was studied. The research findings revealed that the average correlation coefficient was .344, and the average effect size was .738, indicating a moderate effect size with a total of 4 effect sizes. The median effect size was .806, and the standard deviation was .189. The average effect size ranged from .468 to .871, and the confidence interval was between -.155 and 1.000. The standard error was .455, and Fisher's Z was .946. The analysis results indicate a positive relationship between the achievement trait and other behavior of abroad research.

The relationship between the need for achievement trait and other behavior during the years 2007 to 2013 was studied with a total sample of 6,196. The research findings revealed that the average correlation coefficient was .454, and the average effect size was 1.067, indicating a very large effect size with a total of 20 effect size values. The median effect size was 1.139, with a standard deviation of .510. The average effect size ranged from -.225 to 1.918, and the confidence interval was between 1.000 and 1.067. The standard error was -.034, and the Fisher's Z could not be processed. Based on the analysis results, it can be concluded that the need for achievement trait has a positive relationship with other behavior during the years 2007 to 2013.

The relationship between the need for achievement trait and other behavior during the years 2014 to 2020, with a total sample size of 4,350, was studied. The research findings revealed that the average correlation coefficient was .430 and the average effect size was .972, indicating a very large effect size with a total of 18 effect sizes. The median effect size was .978, and the standard deviation was .287. The average effect size ranged from .468 to 1.477, with a confidence interval between .944 and 1.000. The standard error was .014, and Fisher's Z was 2.127. The

analysis results suggest a positive relationship between the achievement trait and other behavior from 2014 to 2020

The relationship between the need for achievement trait and other behavior in the field of expertise among educational science was studied with a total sample of 4,438. The research findings revealed that the average correlation coefficient was .393, and the average effect size was .929, indicating a very large effect size with a total of 8 effect sizes. The median effect size was 1.056, with a standard deviation of .610. The average effect size ranged from -.225 to 1.477, and the confidence interval was between .809 and 1.000, with a standard error of .061. Fisher's Z was 1.651. From the analysis results, it can be concluded that the need for achievement trait has a positive relationship with other behavior in the field of expertise among educational science.

The relationship between the need for achievement trait and other behavior in the field of behavioral science with a total sample size of 6,108 was studied. The research findings revealed that the average correlation coefficient was .456, and the average effect size was 1.046, indicating a very large effect size with a total of 30 effect sizes. The median effect size was .992, with a standard deviation of .359. The average effect size ranged from .338 to 1.918, and the confidence interval was between 1.000 and 1.046, with a standard error of -.018. The Fisher's Z could not be processed. From the analysis results, it can be concluded that the need for achievement trait has a positive relationship with other behaviors in the field of expertise of behavioral science.

The relationship between the need for achievement trait and other behavior in the fields of expertise in education, science, and psychology lacks data for analysis.

The relationship between the need for achievement trait and other behavior within McClelland's theory was studied with a total sample of 3,698. The research findings revealed that the average correlation coefficient was .429 and the average effect size was .978, indicating a very large effect size with a total of 12 effect sizes. The median effect size was 1.045, with a standard deviation of .335. The average effect size ranged from .338 to 1.438, and the confidence interval was between .950 and 1.000, with a standard error of .015. Fisher's Z was 2.249. The analysis results indicate a positive relationship between the achievement trait and other behavior within McClelland's theory.

The relationship between the need for achievement trait and other behavior within other academics was studied with a total sample of 1,215. The research findings revealed that the average correlation coefficient was .404 and the average effect size was .944, indicating a very large effect size with a total effect size value of 2. The median effect size was .944, and the standard deviation was .673. The average effect size ranged from .468 to 1.420 within the confidence interval, and the standard error could not be processed. The Fisher's Z value was 1.774. The analysis results indicate a positive relationship between the need for achievement trait and other academic.

The relationship between the need for achievement trait and other behavior in unclear specified areas was studied with a total sample size of 5,633. The research findings revealed that the average correlation coefficient was .452, and the average effect size was 1.050, indicating a very large effect size with a total of 24

effect sizes. The median effect size was .991, with a standard deviation of .451. The average effect size ranged from -.225 to 1.918, and the confidence interval was between 1.000 and 1.050, with a standard error of -.022. The Fisher's Z could not be processed. Based on the analysis results, it can be concluded that the need for achievement trait has a positive relationship with other behavior within the unclear specified range.

The analysis of the above findings revealed that the need for achievement trait has a moderate effect size with other behaviors in subgroups, such as the group abroad research ($d = .738$). For the large effect sizes, they were found in the groups Thailand research, publishing in the years 2007 to 2013, publishing in the years 2014 to 2020, the field of expertise of educational science, the field of expertise of behavioral science, the group using McClelland's theory, the group using other academics, and the group using unclear specified ($d = 1.055, 1.067, .972, .929, 1.046, .978, .944$ and 1.050 , respectively).

Therefore, the subgroups that serve as moderating variables in the research demonstrate a positive relationship between the need for achievement trait and other behavior: 1) publication location 2) year of publication 3) researcher's expertise, and 4) theoretical concepts. All subgroups that could be processed showed an effect size greater than .50. Thus, the results support hypothesis 2.2.

3) Analysis of need for achievement trait and GPA according to the basic data moderating variables of the research.

Table 3.14 and Figure 3.11 present the results of the data analysis as follows:

A total sample size of 169 people participated in the study of the relationship between the need for achievement trait and GPA in Thailand research. The research findings revealed that the average correlation coefficient was .164 and the average effect size was .331, indicating a small effect size with a total effect size value of 1. The median effect size was .331, with a standard deviation of .331. The average effect size ranged from .331 to .331, and the confidence interval and standard error could not be processed. The Fisher's Z was .344. Based on the analysis, the presence of only one effect size was insufficient for evaluating the analysis, thus making it impossible to process the relationship between the need for achievement trait and GPA in Thailand research.

There is no data available for analysis on the relationship between the need for achievement trait and GPA in abroad research.

A total sample of 169 people participated in the study of the relationship between the need for achievement trait and GPA from 2007 to 2013. The research findings revealed that the average correlation coefficient was .164 and the average effect size was .331, indicating a small effect size, with the total effect size amounting to 1. The median effect size was .331, with a standard deviation of .331. The average effect size ranged from .331 to .331, and the confidence interval and standard error could not be processed. The Fisher's Z was .344. The analysis results, which included only one effect size, were insufficient for evaluating the analysis, making it impossible to process the relationship between the need for achievement trait and GPA in the years 2007 to 2013.

The relationship between the need for achievement trait and GPA during the years 2014 to 2020 does not show data for analysis.

A total sample of 169 researchers in the field of education science participated in the study of the relationship between the need for achievement trait and GPA. The research findings revealed that the average correlation coefficient was .164 and the average effect size was .331, indicating a small effect size, with the total effect size being equal to 1. The median effect size was .331, with a standard deviation of .331. The average effect size ranged from .331 to .331, and the confidence interval and standard error could not be processed. The Fisher's C was .344. Due to the analysis showing only one effect size, it was insufficient for evaluating the analysis, thus making it impossible to process the relationship between the need for achievement trait and GPA among researchers in the field of education science.

Table 3.14 Show the Magnitude of the Influence between Need for Achievement Trait and GPA according to Basic Research Information Moderating Variables of the Research.

Moderating variable	n	r	d	k	Med	SD	MIN	MAX	95% CI		SE	Fisher's Z
									LL	UL		
Publication location												
Thailand	169	.164	.331	1	.331	.331	.331	.331	n/a	n/a	n/a	.344
Abroad	0	-	-	0	-	-	-	-	-	-	-	-
Year of publication												
2007-2013	169	.164	.331	1	.331	.331	.331	.331	n/a	n/a	n/a	.344
2014-2020	0	-	-	0	-	-	-	-	-	-	-	-
Researcher's expertise												
Education science	169	.164	.331	1	.331	.331	.331	.331	n/a	n/a	n/a	.344
Behavioral science	0	-	-	0	-	-	-	-	-	-	-	-
Education science and Psychology	0	-	-	0	-	-	-	-	-	-	-	-
Theoretical concepts												
McClelland	0	-	-	0	-	-	-	-	-	-	-	-
Other academics	0	-	-	0	-	-	-	-	-	-	-	-
Unclear specified	169	.164	.164	1	.164	.164	.164	.164	n/a	n/a	n/a	.165

n= the number of primary studies; r= mean of correlation; d = mean of effect size); k = the number of effect size; Med = median of effect size; SD= standard deviation of effect size; min = minimum of effect size; max= maximum of effect size; CI = confidence interval; SE= standard error; Z = Fisher's Z

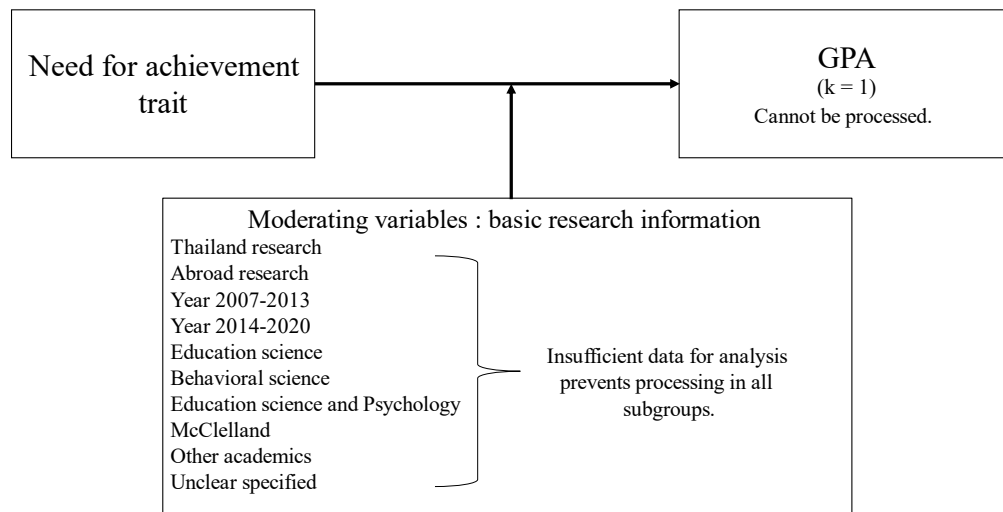


Figure 3.11 Show the Magnitude of the Influence between Need for Achievement Trait and GPA according to Basic Research Information Moderating Variables of the Research.

In the fields of behavioral science, education science, and psychology, the relationship between the need for achievement trait and GPA does not yield data suitable for analysis.

The relationship between the need for achievement trait and GPA in the context of McClelland's theory and other academics lacks data for analysis.

The relationship between the need for achievement trait and GPA in a group of unclearly specified participants, with a total sample size of 169, was studied. The research findings revealed that the average correlation coefficient was .164 and the average effect size was .331, indicating a small effect size with a total effect size value of 1. The median effect size was .331, with a standard deviation of .331. The average effect size ranged from .331 to .331, and the confidence interval and standard error could not be processed. The Fisher's Z was .344. Based on the analysis, the presence of only one effect size was insufficient for evaluating the analysis, thus making it impossible to process the relationship between the need for achievement trait and GPA within the group of Unclear specified.

The meta-analysis revealed that there is either no relationship or only a minimal effect size between the need for achievement trait and GPA in the subgroup, which is insufficient for evaluating the results. Therefore, it is not possible to process the relationship between the need for achievement trait and GPA.

Therefore, the need for motivation trait in relation to GPA cannot be analyzed in subgroups that serve as moderating variables in the research, namely: 1) publication location 2) year of publication 3) Researchers's expertise, and 4) theoretical concepts.

3.3.3 Analysis of the relationship between the need for achievement trait and study behavior, other behavior, and GPA in research subgroups in Thailand as a moderating variable related to bio-social background

Hypothesis 2.3 In the group, the effect size between the need for achievement trait and study behavior, other behaviors, or grade point average have a magnitude value of at least .50. This result is observed in Thailand's research subgroups that focus on background biosocial moderate variables, including 1) gender, 2) education level, 3) father's education, and 4) mother's education. The usage meta-analysis analysis yielded the following findings:

1) Analysis of need for achievement trait and study behavior according to the bio-social background moderating variables of the research.

Table 3.15 and Figure 3.12 present the results of the data analysis as follows:

The relationship between the need for achievement trait and study behavior in a male group, with a total sample size of 289 individuals, was studied. The research findings revealed that the average correlation coefficient was .473, and the average effect size was 1.131, indicating a very large effect size, with a total of 6 effect sizes. The median effect size was 1.122, with a standard deviation of .125. The average effect size ranged from 1.005 to 1.342, and the confidence interval was between 1.131 and 1.131. The standard error was -.161, preventing the computation of Fisher's Z. Based on the analysis results, it can be concluded that the need for achievement trait has a positive relationship with study behavior in the male group.

Table 3.15 Show the Magnitude of the Influence between Need for Achievement Trait and Study Behavior according to Bio-Social Background Moderating Variables of the Research.

Moderating variable	n	r	d	k	Med	SD	MIN	MAX	95% CI		SE	Fisher's Z
									LL	UL		
Gender												
Male	289	.473	1.131	6	1.122	.125	1.005	1.342	1.131	1.131	-.161	n/a
Female	890	.466	1.119	6	1.102	.121	.966	1.307	1.119	1.119	-.146	n/a
Education level												
High school	857	.439	.995	4	.899	.292	.770	1.413	.975	1.000	.010	2.994
Undergraduate student	1,923	.409	.913	7	.851	.289	.350	1.238	.750	1.000	.083	1.545
Father's education												
Low education	413	.455	1.089	6	1.122	.146	.898	1.239	1.089	1.089	-.107	n/a
High education	418	.467	1.118	6	1.126	.163	.876	1.340	1.118	1.118	-.144	n/a
Mother's education												
Low education	576	.463	1.111	6	1.121	.104	.977	1.233	1.111	1.111	-.135	n/a
High education	306	.505	1.208	6	1.221	.116	1.059	1.355	1.208	1.208	-.265	n/a

n= the number of primary studies; r = mean of correlation; d = mean of effect size); k = the number of effect size; Med = median of effect size; SD= standard deviation of effect size; min = minimum of effect size; max= maximum of effect size; CI = confidence interval; SE= standard error; Z = Fisher's Z

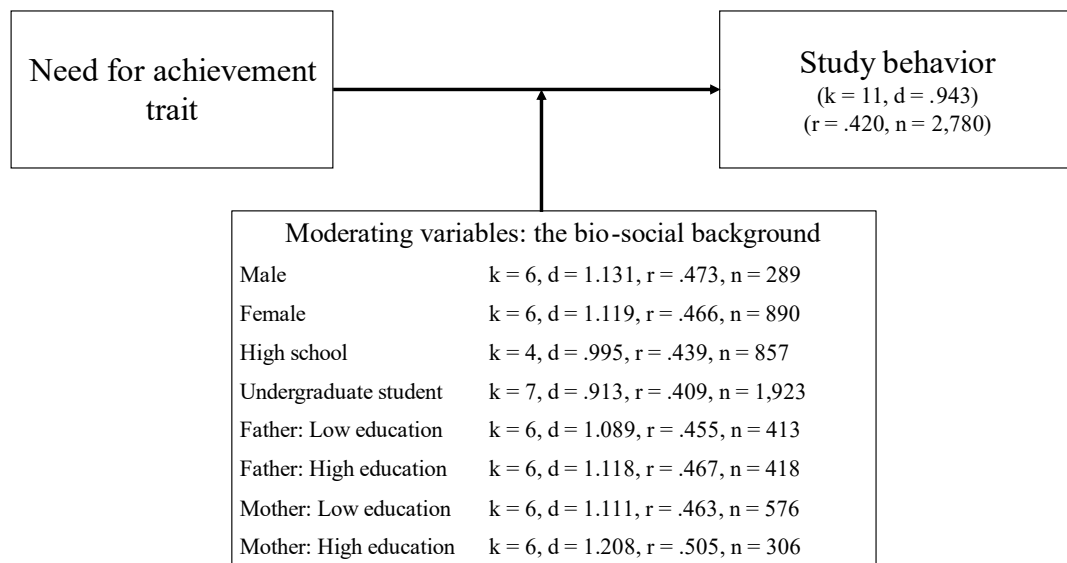


Figure 3.12 Show the Magnitude of the Influence between Need for Achievement Trait and Study Behavior according to the Bio-Social Background Moderating Variables of the Research.

The relationship between the need for achievement trait and study behavior in a female group, with a total sample size of 890, was studied. The research findings revealed that the average correlation coefficient was .466, and the average effect size was 1.119, indicating a very large effect size, with a total of 6 effect sizes. The median effect size was 1.102, with a standard deviation of .121. The average effect size ranged from .966 to 1.307, and the confidence interval was between 1.119 and 1.119. The standard error was .146, and the Fisher's Z processing proved impossible. The analysis results indicate a positive relationship between the female group's study behavior and the need for achievement trait.

The relationship between the need for achievement trait and study behavior among high school students, with a total sample size of 857 individuals, was studied. The research findings revealed that the average correlation coefficient was .439 and the average effect size was .995, indicating a very large effect size, with a total of 4 effect sizes. The median effect size was .899, and the standard deviation was .292. The average effect size ranged from .770 to 1.413, and the confidence interval was between .975 and 1.000, with a standard error of .010. The Fisher's Z value was 2.994. The analysis results show a positive relationship between the study behavior of high school students and their need for achievement trait.

The relationship between the need for achievement trait and study behavior among university students, with a total sample size of 1,923, was studied. The research findings revealed that the average correlation coefficient was .409 and the average effect size was .913, indicating a very large effect size, with a total of 7 effect sizes. The median effect size was .851, and the standard deviation was .289. The

average effect size ranged from .350 to 1.238, with a confidence interval between .750 and 1.000. The standard error was .083, and Fisher's Z was 1.545. The analysis results indicate a positive relationship between the need for achievement trait and study behavior among university students.

The relationship between the need for achievement trait and study behavior in a sample of 413 with less educated fathers was studied. The research findings revealed that the average correlation coefficient was .455, and the average effect size was 1.089, indicating a very large effect size with a total of 6 effect sizes. The median effect size was 1.122, with a standard deviation of .146. The average effect size ranged from .898 to 1.239, and the confidence interval was between 1.089 and 1.089, with a standard error of -.107. Fisher's Z could not be processed. The analysis results indicate a positive relationship between the need for achievement trait and study behavior in a sample of individuals with less educated fathers.

The relationship between the need for achievement trait and study behavior in a sample of 418 with highly educated fathers was studied. The research findings revealed that the average correlation coefficient was .467 and the average effect size was 1.118, indicating a very large effect size with a total of 6 effect size values. The median effect size was 1.126, with a standard deviation of .163. The average effect size ranged from .876 to 1.340, and the confidence interval was between 1.118 and 1.118. The standard error was .144, and Fisher's Z could not be processed. The analysis results indicate a positive relationship between the need for achievement trait and study behavior in the highly educated fathers' sample.

The relationship between the need for achievement trait and study behavior in a sample of 576 mothers who have low education was studied. The research findings revealed that the average correlation coefficient was .463, and the average effect size was 1.111, indicating a very large effect size, with a total of 6 effect size values. The median effect size was 1.121, with a standard deviation of .104. The average effect size ranged from .977 to 1.233, and the confidence interval was between 1.111 and 1.111. The standard error was .135, and the Fisher's exact test could not be processed. The analysis results indicate a positive relationship between the need for achievement trait and study behavior in the sample of individuals with low-education mothers.

The relationship between the need for achievement trait and study behavior in a sample of 306 whose mothers have higher education was studied. The research findings revealed that the average correlation coefficient was .505, and the average effect size was 1.208, indicating a very large effect size, with a total of 6 effect sizes. The median effect size was 1.221, and the standard deviation was .116. The average effect size ranged from 1.059 to 1.355, with a confidence interval between 1.208 and 1.208. The standard error was -.265, and Fisher's Z could not be processed. The analysis results indicate a positive relationship between the need for achievement trait and study behavior in a sample of individuals whose mothers have high education.

The analysis of the above findings revealed that the need for the achievement trait has a very large effect size on study behavior across all subgroups.

Therefore, the need for achievement trait has a positive relationship with study behavior, as evidenced in the subgroups that represent the bio-social background variables of the research: 1) gender 2) education level 3) father's education, and 4) mother's education. All subgroups also have an effect size greater than .50. These results support hypothesis 2.3.

2) Analysis of need for achievement trait and other behavior according to the bio-social background moderating variables of the research.

Table 3.16 and Figure 3.13 present the results of the data analysis as follows:

Table 3.16 Show the Magnitude of the Influence between Need for Achievement Trait and Other Behavior according to Bio-Social Background Moderating Variables of the Research.

Moderating variable	n	r	d	k	Med	SD	MIN	MAX	95% CI		SE	Fisher's Z
									LL	UL		
Gender												
Male	1,305	.410	.985	10	1.107	.283	.361	1.262	.963	1.000	.011	2.443
Female	1,989	.384	.923	10	.957	.277	.408	1.233	.813	1.000	.056	1.609
Education level												
High school	5,502	.472	1.098	22	1.139	.411	-.225	1.722	1.098	1.000	-.047	n/a
Undergraduate student	3,155	.420	.976	12	.910	.456	.338	1.918	.945	1.000	.016	2.205
Father's education												
Low education	1,718	.412	.989	10	1.063	.325	.290	1.362	.973	1.000	.008	2.599
High education	1,250	.396	.951	10	1.006	.283	.448	1.356	.880	1.000	.036	1.842
Mother's education												
Low education	1,520	.404	.970	10	1.004	.316	.331	1.336	.926	1.000	.022	2.092
High education	1,394	.397	.952	10	1.006	.279	.479	1.256	.883	1.000	.035	1.853

n= the number of primary studies; r = mean of correlation; d = mean of effect size); k = the number of effect size; Med = median of effect size; SD= standard deviation of effect size; min = minimum of effect size; max= maximum of effect size; CI = confidence interval; SE= standard error; Z = Fisher's Z

The relationship between the need for achievement trait and other behaviors in a male group with a total sample size of 1,305 individuals was studied. The research findings revealed that the average correlation coefficient was .410 and the average effect size was .985, indicating a very large effect size with a total of 10 effect sizes. The median effect size was 1.107, with a standard deviation of .283. The average effect size ranged from .361 to 1.262, and the confidence interval was between .963 and 1.000, with a standard error of .011. Fisher's Z was 2.443. The analysis results indicate a positive relationship between the need for achievement trait and other behavior in the male group.

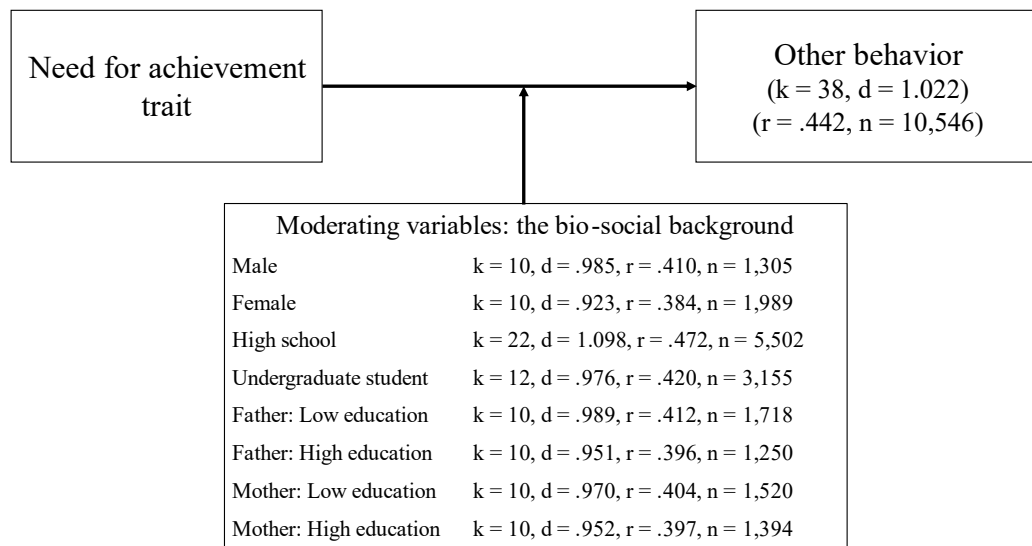


Figure 3.13 Show the Magnitude of the Influence between Need for Achievement Trait and Other Behavior according to the Bio-Social Background Moderating Variables of the Research.

The relationship between the need for achievement trait and other behavior in the female group, with a total sample size of 1,989, was studied. The research findings revealed that the average correlation coefficient was .384, and the average effect size was .923, indicating a very large effect size, with a total of 10 effect sizes. The median effect size was .957, and the standard deviation was .277. The average effect size ranged from .408 to 1.233, and the confidence interval was between .813 and 1.000, with a standard error of .05. Fisher's C was 1.609. Based on the analysis results, it can be concluded that the need for achievement trait has a positive relationship with other behaviors in the female group.

The relationship between the need for achievement trait and other behavior among high school students, with a total sample size of 5,502, was studied. The research findings revealed that the average correlation coefficient was .472, and the average effect size was 1.098, indicating a very large effect size with a total of 22 effect sizes. The median effect size was 1.139, with a standard deviation of .411. The average effect size ranged from -.225 to 1.722, and the confidence interval was between 1.000 and 1.098, with a standard error of -.047. Fisher's Z could not be processed. Based on the analysis results, it can be concluded that the need for achievement trait has a positive relationship with other behaviors among high school students.

The relationship between the need for achievement trait and other behavior among university students, with a total sample size of 3,155, was studied. The research findings revealed that the average correlation coefficient was .420 and the average effect size was .976, indicating a very large effect size, with a total of 12 effect sizes. The median effect size was .910, with a standard deviation of .456. The average effect size ranged from .338 to 1.918, and the confidence interval was between .945 and 1.000, with a standard error of .016. The Fisher's Z value was 2.205.

Based on the analysis results, it can be concluded that the need for achievement trait has a positive relationship with other behaviors among university students.

The relationship between the need for achievement trait and other behavior in a sample of 1,718 fathers who have low education was studied. The research findings revealed that the average correlation coefficient was .412, and the average effect size was .989, indicating a very large effect size with a total of 10 effect size values. The median effect size was 1.063, with a standard deviation of .325. The average effect size ranged from .290 to 1.362, with a confidence interval between .973 and 1.000. The standard error was .008, and Fisher's Z was 2.599. From the analysis results, it can be concluded that the need for achievement trait has a positive relationship with other behaviors in the sample with fathers who have low education.

The relationship between the need for achievement trait and other behavior in a sample of 1,250 with highly educated fathers was studied. The research findings revealed that the average correlation coefficient was .396, and the average effect size was .951, indicating a very large effect size with a total of 10 effect size values. The median effect size was 1.006, with a standard deviation of .283. The average effect size ranged from .448 to 1.356, and the confidence interval was between .880 and 1.000, with a standard error of .036. The Fisher's C value was 1.842. Based on the analysis results, it can be concluded that the need for achievement trait has a positive relationship with other behaviors in the sample with highly educated fathers.

The relationship between the need for achievement trait and other behavior in a sample of 1,520 whose mothers have low education was studied. The research findings revealed that the average correlation coefficient was .404 and the average effect size was .970, indicating a very large effect size, with a total of 10 effect sizes. The median effect size was 1.004, with a standard deviation of .316. The average effect size ranged from .331 to 1.336, and the confidence interval was between .926 and 1.000, with a standard error of .022. The Fisher's Z was 2.092. The analysis results indicate a positive relationship between the achievement trait and other behavior in the sample of individuals whose mothers have low education.

The relationship between the need for achievement trait and other behavior in a sample of 1,394 whose mothers have higher education was studied. The research findings revealed that the average correlation coefficient was .397 and the average effect size was .952, indicating a very large effect size, with a total of 10 effect size values. The median effect size was 1.006, with a standard deviation of .279. The average effect size ranged from .479 to 1.256, and the confidence interval was between .883 and 1.000, with a standard error of .035. The Fisher's Z value was 1.853. Based on the analysis results, it can be concluded that the need for achievement trait has a positive relationship with other behavior in the sample of individuals whose mothers have high education.

The meta-analysis revealed that the need for achievement trait had a significant impact on other behaviors across all subgroups.

Therefore, the need for achievement trait has a positive relationship with other behaviors, as evidenced in the subgroups that represent the bio-social background variables of the research: 1) gender 2) education level 3) father's education, and 4) mother's education. All subgroups also demonstrated an effect size greater than 0.50. These results support hypothesis 2.3.

3) Analysis of need for achievement trait and GPA according to the bio-social background moderating variables of the research.

Table 3.17 and Figure 3.14 present the results of the data analysis as follows:

Table 3.17 Show the Magnitude of the Influence between Need for Achievement Trait and GPA according to Bio-Social Background Moderating Variables of the Research.

Moderating variable	n	r	d	k	Med	SD	MIN	MAX	95% CI		SE	Fisher's Z
									LL	UL		
Gender												
Male	0	-	-	0	-	-	-	-	-	-	-	-
Female	0	-	-	0	-	-	-	-	-	-	-	-
Education level												
High school	169	.164	.331	1	.331	.331	.331	.331	n/a	n/a	n/a	.344
Undergraduate student	0	-	-	0	-	-	-	-	-	-	-	-
Father's education												
Low education	0	-	-	0	-	-	-	-	-	-	-	-
High education	0	-	-	0	-	-	-	-	-	-	-	-
Mother's education												
Low education	0	-	-	0	-	-	-	-	-	-	-	-
High education	0	-	-	0	-	-	-	-	-	-	-	-

n= the number of primary studies; r = mean of correlation; d = mean of effect size); k = the number of effect size; Med = median of effect size; SD= standard deviation of effect size; min = minimum of effect size; max= maximum of effect size; CI = confidence interval; SE= standard error; Z = Fisher's Z

The relationship between the need for achievement trait and GPA in male and female groups does not provide data for analysis.

The relationship between the need for achievement trait and GPA among high school students was studied with a total sample of 169 individuals. The research findings revealed that the average correlation coefficient was.164 and the average effect size was.331, indicating a small effect size with a total effect size value of 1. The median effect size was.331, with a standard deviation of.331. The average effect size ranged from.331 to.331 within the confidence interval, and the standard error could not be processed. The Fisher's Z was.344. According to the analysis, the single effect size was insufficient for evaluating the analysis, making it impossible to process the relationship between the need for achievement trait and GPA among high school students.

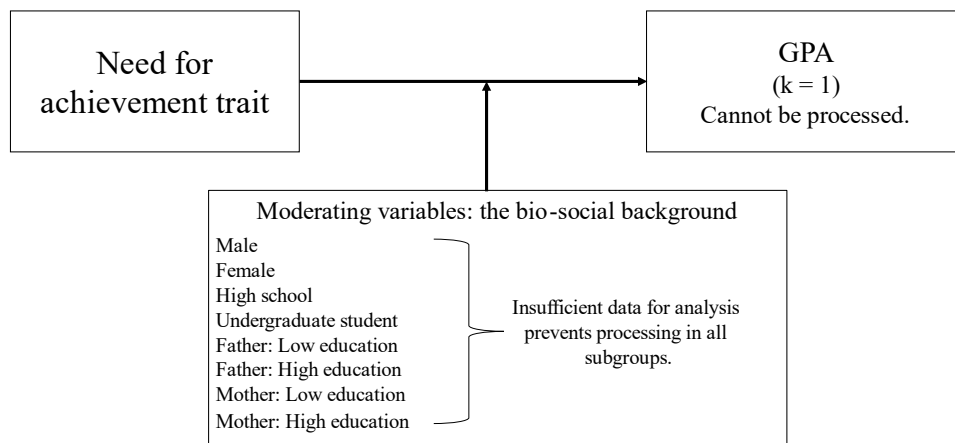


Figure 3.14 Show the Magnitude of the Influence between Need for Achievement Trait and GPA according to the Bio-Social Background Moderating Variables of the Research.

The relationship between the need for achievement trait and GPA among university students, with a sample group whose parents have varying levels of education, is not supported by data for analysis.

The analysis of the data revealed that there was either no relationship or a minimal effect size between the need for achievement trait and the GPA in the subgroup, making it insufficient for evaluation. Therefore, it was not possible to process the relationship between the need for achievement trait and GPA.

Therefore, the need for achievement trait and GPA cannot be analyzed for results in the subgroups that are bio-social background moderating variables of the research, namely: 1) gender 2) education level 3) father's education and 4) mother's education

3.4 Data Analysis Results for Analysis of Hypothesis 3

3.4.1 Analysis of the relationship between a need for achievement state and study behavior, other behaviors, and GPA in the total group.

Hypothesis 3: The magnitude of the effect size between need for achievement state and study behavior, other behavior, or GPA have a magnitude value of at least .50.

Hypothesis 3.1 The magnitude of the effect size between need for achievement state and study behavior, other behavior, or GPA have a scale value of at least .50 in the combined group.

Table 3.18 and Figure 3.15 present the results of the data analysis in the following manner:

Table 3.18 Show the Effect Size of the Relationship Between the Need for Achievement State and Study Behavior, Other Behavior, and GPA in the Total Group.

Dependent variable	n	r	d	k	Med	SD	MIN	MAX	95% CI		SE	Fisher's Z
									LL	UL		
Study behavior	2,262	.429	.960	4	.936	.236	.722	1.247	.806	1.000	.078	1.946
Other behavior	819	.341	.735	4	.716	.247	.454	1.054	-.166	1.000	.460	.940
GPA	8,591	.317	.749	24	.592	.634	.100	3.086	.561	.937	.096	.971

n= the number of primary studies; r = mean of correlation; d = mean of effect size); k = the number of effect size; Med = median of effect size; SD= standard deviation of effect size; min = minimum of effect size; max= maximum of effect size; CI = confidence interval; SE= standard error; Z = Fisher's Z

The relationship between need for achievement state and study behavior was studied from a sample group of a total of 2,262. The research findings indicate that the average correlation coefficient is .429 and the average effect size is .960, which signifies a very large effect size with a total of 4 effect sizes. The median effect size is .936, with a standard deviation of .236. The average effect size ranges from .722 to 1.247, and the confidence interval is between .806 and 1.000. The standard error is .078, and Fisher's Z is 1.946. Based on the analysis results, it can be concluded that the need for achievement state has a positive relationship with study behavior.

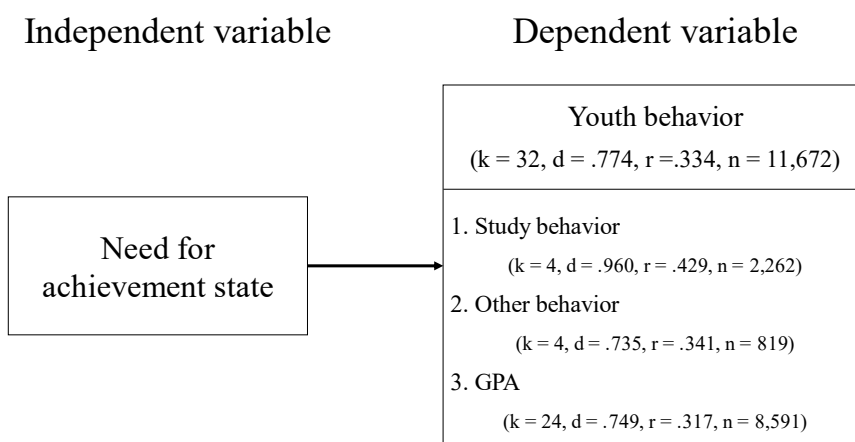


Figure 3.15 Show the Effect Size of the Relationship Between the Need for Achievement State and Study Behavior, Other Behavior, and GPA in the Total Group.

The relationship between need for achievement state and other behavior was studied with a total sample of 819. The research findings revealed that the average correlation coefficient was .341, and the average effect size was .735, indicating a moderate effect size, with a total of 4 effect size values. The median effect size was .716, with a standard deviation of .247. The average effect size ranged from .454 to 1.054, and the confidence interval was between -.166 and 1.000. The standard error was .460, and Fisher's Z was .940. From the analysis results, it can be concluded that the need for achievement state has a positive relationship with other behavior.

The relationship between need for achievement state and GPA was studied in a sample of 8,591. The research findings revealed that the average correlation coefficient was.317 and the average effect size was.749, indicating a moderate effect size with a total of 24 effect size values. The median effect size was.592, and the standard deviation was.634. The average effect size ranged from.100 to 3.086, and the confidence interval was between.561 and.937. The standard error was.096, and Fisher's Z was.971. The analysis results indicate a positive relationship between the need for achievement state and GPA.

The analysis of the above findings reveals that the need for achievement state has an average effect size of.774 with youth behavior, an average effect size of.960 with study behavior, an average effect size of.735 with other behavior, and an average effect size of.749 with grade point average. Therefore, the need for achievement state has a positive relationship with study behavior, other behavior, and GPA, with effect sizes greater than.50. These results support hypothesis 3.1 in the combined group of study behavior, other behavior, and GPA.

3.4.2 An analysis of the relationship between the need for achievement state and study behavior, other behavior, and GPA in subgroups that moderating variables the basic data of the research.

Hypothesis 3.2 In the group, the effect size between need for achievement state and study behavior, other behavior, or GPA have a magnitude value of at least.50. This result will appear in the subgroups that are basic data moderating variables of the research, including 1) the place of publication, 2) the year of publication, 3) the researcher's field of study, or 4) the theoretical concepts used in the study. The usage meta-analysis analysis yielded the following findings:

1) Analysis of need for achievement state and study behavior according to the basic data moderating variables of the research.

Table 3.19 and Figure 3.16 present the results of the data analysis as follows:

The relationship between need for achievement state and study behavior in Thailand was studied with a total sample of 1,381. The research findings revealed that the average correlation coefficient was.423, and the average effect size was.936, indicating a very large effect size with a total effect size value of 2. The median effect size was.936, with a standard deviation of.163. The average effect size ranged from.821 to 1.051, and the confidence interval and standard error could not be processed. The Fisher's Z value was 1.705. Based on the analysis results, it can be concluded that the need for achievement state has a positive relationship with study behavior in Thailand.

The relationship between need for achievement state and study behavior abroad was studied with a total sample of 881. The research findings revealed that the average correlation coefficient was.435, and the average effect size was.985, indicating a very large effect size, with a total effect size count of 2. The median effect size was.985, with a standard deviation of.971. The average effect size ranged from.722 to 1.247, with a confidence interval, while the standard error could not be processed. The Fisher's Z statistic was 2.443. Based on the analysis results, it can be concluded that the need for achievement state has a positive relationship with study behavior abroad.

Table 3.19 Show the Magnitude of the Influence between Need for Achievement State and Study Behavior according to Basic Research Information Moderating Variables of the Research.

Moderating variable	n	r	d	k	Med	SD	MIN	MAX	95% CI		SE	Fisher's Z
									LL	UL		
Publication location												
Thailand	1,381	.423	.936	2	.936	.163	.821	1.051	n/a	n/a	n/a	1.705
Abroad	881	.435	.985	2	.985	.971	.722	1.247	n/a	n/a	n/a	2.443
Year of publication												
Year 2007-2013	512	.340	.722	1	.722	.722	.722	.722	n/a	n/a	n/a	.912
Year 2014-2020	1,750	.459	1.040	3	1.051	.213	.821	1.247	1.04	1.04	inf	n/a
Researcher's expertise												
Education science	1,381	.423	.936	2	.936	.163	.821	1.051	n/a	n/a	n/a	1.705
Behavioral science	881	.435	.985	2	.985	.371	.722	1.247	n/a	n/a	n/a	2.443
Education science and Psychology	0	-	-	0	-	-	-	-	-	-	-	-
Theoretical concepts												
McClelland	0	-	-	0	-	-	-	-	-	-	-	-
Other academics	881	.435	.985	2	.985	.371	.722	1.247	n/a	n/a	n/a	2.443
Unclear specified	1,381	.423	.936	2	.936	.163	.821	1.051	n/a	n/a	n/a	1.705

n= the number of primary studies; r = mean of correlation; d = mean of effect size; k = the number of effect size; Med = median of effect size; SD= standard deviation of effect size; min = minimum of effect size; max= maximum of effect size; CI = confidence interval; SE= standard error; Z = Fisher's Z

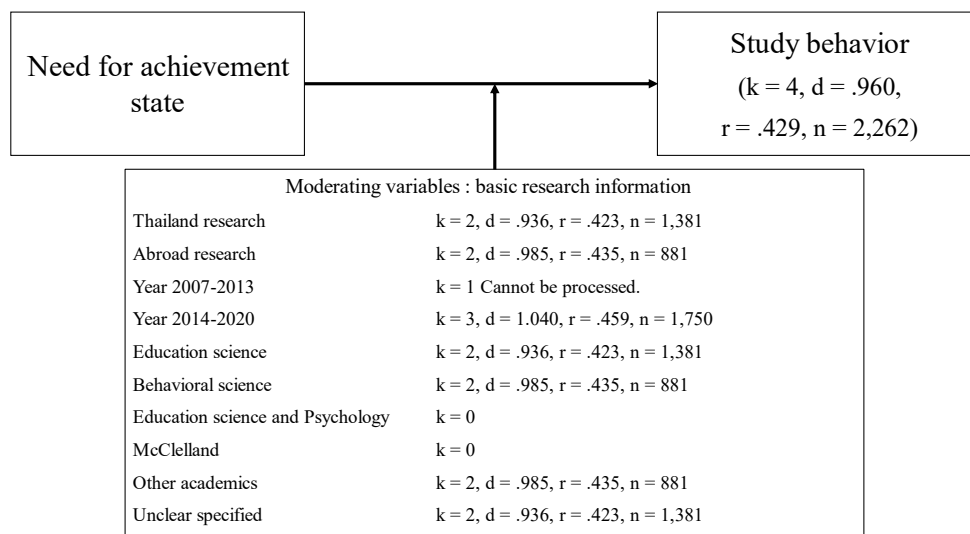


Figure 3.16 Show the Magnitude of the Influence between Need for Achievement State and Study Behavior according to Basic Research Information Moderating Variables of the Research.

The relationship between need for achievement state and study behavior during the years 2007 to 2013 was studied with a total sample of 512. The research findings revealed that the average correlation coefficient was .340 and the average effect size was .722, indicating a moderate effect size with a total effect size of 1. The median effect size was .722, with a standard deviation of .722. The average effect size ranged from .722 to .722, with confidence intervals and standard error values that could not be processed. The Fisher's Z value was .912. Based on the analysis, the single effect size value was insufficient for evaluating the analysis, thus

making it impossible to process the relationship between need for achievement state and study behavior during the years 2014 to 2020.

The relationship between need for achievement state and study behavior during the years 2014 to 2020 was studied with a total sample of 1,750. The research findings revealed that the average correlation coefficient was .459 and the average effect size was 1.040, indicating a very large effect size with a total of 3 effect size values. The median effect size was 1.051, with a standard deviation of .213. The average effect size ranged from .821 to 1.247, and the confidence interval was between 1.040 and 1.040. The standard error and Fisher's Z could not be processed. Based on the analysis results, it can be concluded that the need for achievement state has a positive relationship with study behavior during the years 2014 to 2020.

The relationship between need for achievement state and study behavior in the field of expertise among educational science, with a total sample size of 1,381, was examined. The research findings revealed that the average correlation coefficient was .423, and the average effect size was .936, indicating a very large effect size with a total effect size value of 2. The median effect size was .936, with a standard deviation of .163. The average effect size ranged from .821 to 1.051, and the confidence interval and standard error could not be processed. The Fisher's Z value was 1.705. Based on the analysis results, it can be concluded that the need for achievement state has a positive relationship with study behavior in the field of expertise among educational science.

The relationship between the need for achievement state and study behavior in the field of behavioral science was studied with a total sample size of 881 individuals. The research findings revealed that the average correlation coefficient was .435, and the average effect size was .985, indicating a very large effect size with a total effect size count of 2. The median effect size was .985, with a standard deviation of .371. The average effect size ranged from .722 to 1.247, while the confidence interval and standard error could not be processed. The Fisher's Z value was 2.443. Based on the analysis results, it can be concluded that the need for achievement state has a positive relationship with study behavior in the field of behavioral science.

The relationship between the need for achievement state and study behavior in the fields of education science and psychology does not yield data for analysis.

The relationship between need for achievement state and study behavior in the context of McClelland's theory does not show data for analysis.

The relationship between need for achievement state and study behavior in other academics was studied with a total sample of 881. The research findings revealed that the average correlation coefficient was .435, and the average effect size was .985, indicating a very large effect size, with a total effect size count of 2. The median effect size was .985, with a standard deviation of .371. The average effect size ranged from .722 to 1.247 within the confidence interval, and the standard error could not be processed. The Fisher's Z value was 2.443. Based on the analysis results, it can be concluded that the need for achievement state has a positive relationship with state behavior in other academics.

The relationship between need for achievement state and study behavior in the context of unclear specified was studied with a total sample size of 3,381. The research findings revealed that the average correlation coefficient was .423,

and the average effect size was .936, indicating a very large effect size with a total effect size count of 2. The median effect size was .936, with a standard deviation of .163. The average effect size ranged from .821 to 1.051, while the confidence interval and standard error could not be processed. The Fisher's Z value was 1.705. Based on the analysis results, it can be concluded that the need for achievement state has a positive relationship with study behavior in the context of unclear specified.

The analysis of the meta-analysis found that the need for achievement state had a medium effect size on study behavior in the subgroup that utilized McClelland's theory ($d = .770$). A large effect size was observed in the subgroup published in the years 2007 to 2013 ($d = .722$). For very large effect sizes, they appeared in the remaining subgroups, except for the subgroup in education science and psychology and the subgroup based on McClelland's theory, for which data was not available for analysis.

Therefore, the need for achievement state has a positive relationship with study behavior, as evidenced in the subgroups that serve as moderating variables in the research, namely: 1) publication location 2) Year of publication 3) The researcher's expertise, and 4) the theoretical concepts used in the study. Almost all subgroups showed an effect size greater than .50. These results support hypothesis 3.2.

2) Analysis of need for achievement state and other behavior according to the basic data moderating variables of the research.

Table 3.20 and Figure 3.17 present the results of the data analysis as follows:

The relationship between the need for achievement state and other behavior in Thailand was studied with a total sample of 819. The research findings revealed that the average correlation coefficient was .341, and the average effect size was .735, indicating a moderate effect size with a total of 4 effect sizes. The median effect size was .716, with a standard deviation of .247. The average effect size ranged from .454 to 1.054, and the confidence interval was between -.166 and 1.000. The standard error was .460, and Fisher's Z was .460. Based on the analysis results, it can be concluded that the need for achievement state has a positive relationship with other behavior in Thailand.

The relationship between need for achievement status and other behavior abroad does not show data for analysis.

Table 3.20 Show the Magnitude of the Influence between Need for Achievement State and Other Behavior according to Basic Research Information Moderating Variables of the Research.

Moderating variable	n	r	d	k	Med	SD	MIN	MAX	95% CI		SE	Fisher's Z
									LL	UL		
Publication location												
Thailand	819	.341	.735	4	.716	.247	.454	1.054	-.166	1.000	.460	.940
Abroad	0	-	-	0	-	-	-	-	-	-	-	-
Year of publication												
Year 2007-2013	819	.341	.735	4	.716	.247	.454	1.054	-.166	1.000	.460	.940
Year 2014-2020	0	-	-	0	-	-	-	-	-	-	-	-
Researcher's expertise												
Education science	0	-	-	0	-	-	-	-	-	-	-	-
Behavioral science	819	.341	.735	4	.716	.247	.454	1.054	-.166	1.000	.460	.940
Education science and Psychology	0	-	-	0	-	-	-	-	-	-	-	-
Theoretical concepts												
McClelland	0	-	-	0	-	-	-	-	-	-	-	-
Other academics	395	.350	.745	1	.745	.745	.745	.745	n/a	n/a	n/a	.962
Unclear specified	424	.338	.731	3	.686	.303	.454	1.054	-1.000	1.000	inf	.931

n= the number of primary studies; r = mean of correlation; d = mean of effect size); k = the number of effect size; Med = median of effect size; SD= standard deviation of effect size; min = minimum of effect size; max= maximum of effect size; CI = confidence interval; SE= standard error; Z = Fisher's Z

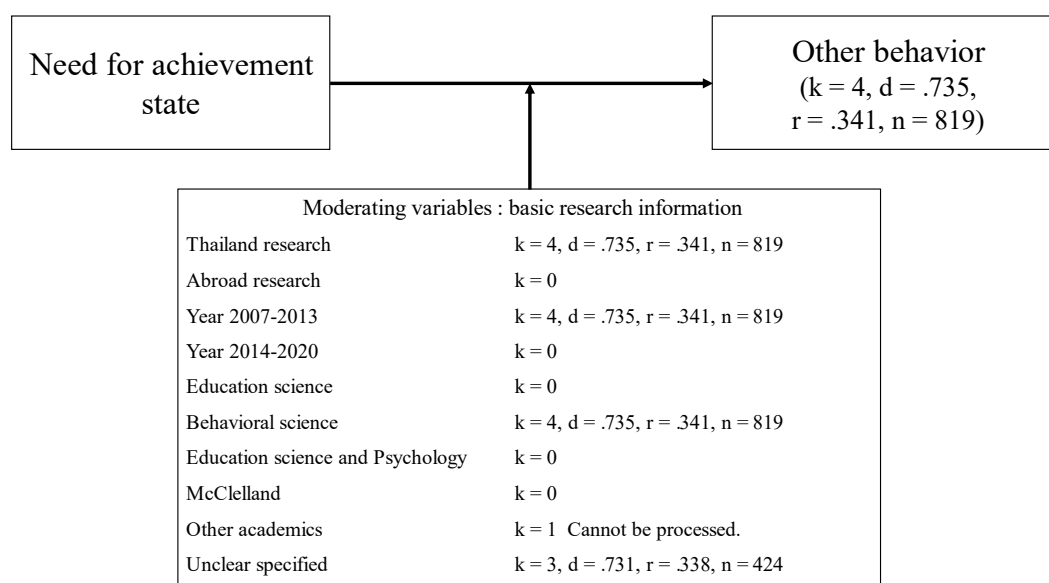


Figure 3.17 Show the Magnitude of the Influence between Need for Achievement State and Other Behavior according to Basic Research Information Moderating Variables of the Research.

The relationship between need for achievement state and other behavior during the years 2007 to 2013, with a total sample size of 819, was studied. The research findings revealed that the average correlation coefficient was .341, and the average effect size was .735, indicating a moderate effect size with a total of 4 effect size values. The median effect size was .716, with a standard deviation of .247. The average effect size ranged from .454 to 1.054, and the confidence interval was between -.166 and 1.000, with a standard error of .460. The Fisher's Z was .940. Based

on the analysis results, it can be concluded that the need for achievement state has a positive relationship with other behaviors during the years 2007 to 2013.

The relationship between the need for achievement state and other behavior during the years 2014 to 2020 is not supported by data for analysis.

The relationship between the need for achievement state and other behavior in the field of expertise of educational science does not show data for analysis.

The relationship between the need for achievement state and other behavior in the field of behavioral science, with a total sample size of 819 individuals, was examined. The research findings revealed that the average correlation coefficient was .341, and the average effect size was .735, indicating a moderate effect size with a total of 4 effect sizes. The median effect size was .716, with a standard deviation of .247. The average effect size ranged from .454 to 1.054, and the confidence interval was between -.166 and 1.000. The standard error was .460, and Fisher's Z was .940. Based on the analysis results, it can be concluded that the need for achievement state has a positive relationship with other behaviors in the field of behavioral science.

The relationship between the need for achievement state and other behavior in the field of expertise of education science and Psychology does not show data for analysis.

The relationship between the need for achievement state and other behavior based on McClelland's theory does not show data for analysis.

The relationship between the need for achievement state and other behaviors within other academics was studied with a total sample of 395. The research findings revealed that the average correlation coefficient was .350 and the average effect size was .745, indicating a moderate effect size with a total effect size of 1. The median effect size was .745, with a standard deviation of .745. The average effect size ranged from .745 to .745, and the confidence interval and standard deviation could not be processed. The Fisher's Z was .962. Based on the analysis, the single effect size was insufficient for evaluating the analysis, thus making it impossible to process the relationship between the need for achievement state and other behavior within other academics.

The relationship between need for achievement state and other behavior within unclear specified was studied with a total sample of 424 individuals. The research findings revealed that the average correlation coefficient was .338, and the average effect size was .731, indicating a moderate effect size with a total of 3 effect size values. The median effect size was .686, with a standard deviation of .303. The average effect size ranged from .454 to 1.054, and the confidence interval was between -1.000 and 1.000. The standard error could not be processed, and the Fisher's Z value was .931. Based on the analysis results, it can be concluded that the need for achievement state has a positive relationship with other behavior within the unclear specified.

The analysis of the meta-analysis found that need for achievement state and other behavior in subgroups had a moderate effect size, including groups that published in Thailand, published in the years 2007 to 2013, researchers specializing in behavioral sciences, and groups that used unclear specified ($d = .735, .735, .735, \text{ and } .731$ respectively).

Therefore, the need for achievement state has a positive relationship with other behavior, evident in certain subgroups that serve as moderating variables in the research data, namely: 1) publication location 2) Year of publication 3) the researcher's expertise, and 4) the theoretical concepts used in the study, with an effect size greater than .50. This result supports hypothesis 3.2

3) Analysis of need for achievement state and GPA according to the basic data moderating variables of the research.

Table 3.21 and Figure 3.18 present the results of the data analysis as follows:

The relationship between need for achievement state and GPA in Thailand was studied with a total sample size of 2,588. The research findings revealed that the average correlation coefficient was .308, and the average effect size was .693, indicating a moderate effect size with a total of 8 effect sizes. The median effect size was .526, with a standard deviation of .486. The average effect size ranged from .215 to .383, and the confidence interval was between .237 and 1.000. The standard error was .232, and Fisher's Z was .854. From the analysis, it can be concluded that the need for achievement state has a positive relationship with GPA in Thailand.

The relationship between need for achievement state and GPA in abroad research, with a total sample size of 6,003, was studied. The research findings revealed that the average correlation coefficient was .322, and the average effect size was .778, indicating a moderate effect size, with a total of 16 effect sizes. The median effect size was .602, with a standard deviation of .710. The average effect size ranged from .100 to 3.086, and the confidence interval was between .563 and .993, with a standard error of .110. Fisher's Z was 1.040. Based on the analysis results, it can be concluded that the need for achievement state has a positive relationship with GPA in abroad research.

The relationship between need for achievement state and GPA over the past year was studied with a total sample size of 3,612. The research findings revealed that the average correlation coefficient was .284, and the average effect size was .631, indicating a moderate effect size, with a total of 10 effect sizes. The median effect size was .510, with a standard deviation of .457. The average effect size ranged from .215 to 1.706, and the confidence interval was between .185 and 1.000, with a standard error of .228. The Fisher's Z value was .743. Based on the analysis results, it can be concluded that the need for achievement state has a positive relationship with GPA in the years 2007 to 2013.

Table 3.21 Show the Magnitude of the Influence between Need for Achievement State and GPA according to Basic Research Information Moderating Variables of the Research.

Moderating variable	n	r	d	k	Med	SD	MIN	MAX	95% CI		SE	Fisher's Z
									LL	UL		
Publication location												
Thailand	2,588	.308	.693	8	.526	.486	.215	.383	.237	1.000	.232	.854
Abroad	6,003	.322	.778	16	.602	.710	.100	3.086	.563	.993	.110	1.040
Year of publication												
Year 2007-2013	3,612	.284	.631	10	.510	.457	.215	1.706	.185	1.000	.228	.743
Year 2014-2020	4,979	.341	.834	14	.636	.741	.100	3.086	.654	1.000	.092	1.201
Researcher's expertise												
Education science	2,972	.346	.805	9	.604	.566	.215	1.706	.523	1.000	.144	1.113
Behavioral science	5,298	.285	.741	9	.440	.903	.100	3.086	.380	1.000	.184	.953
Education science and Psychology	321	.322	.679	6	.636	.148	.534	.945	.069	1.000	.311	.827
Theoretical concepts												
McClelland	1,114	.286	.598	3	.604	.156	.440	.751	-1	1	inf	.690
Other academics	2,995	.276	.578	10	.602	.200	.201	.945	.085	1.000	.252	.659
Unclear specified	4,482	.363	.946	11	.580	.891	.100	3.086	.873	1.000	.037	1.792

n= the number of primary studies; r = mean of correlation; d = mean of effect size); k = the number of effect size; Med = median of effect size; SD= standard deviation of effect size; min = minimum of effect size; max= maximum of effect size; CI = confidence interval; SE= standard error; Z = Fisher's Z

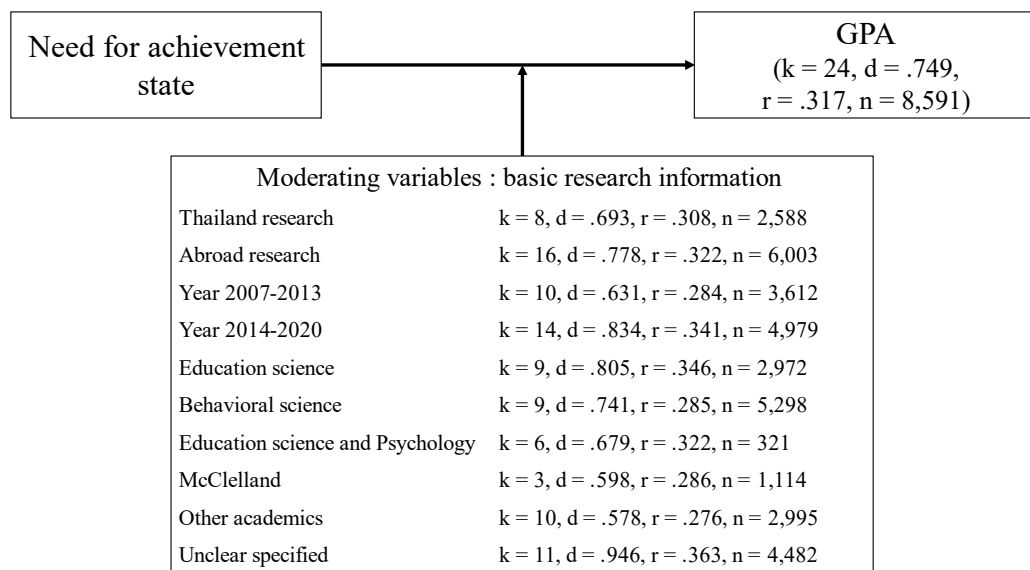


Figure 3.18 Show the Magnitude of the Influence between Need for Achievement State and GPA according to Basic Research Information Moderating Variables of the Research.

The relationship between need for achievement state and GPA during the years 2014 to 2020, with a total sample size of 4,979, was studied. The research findings revealed that the average correlation coefficient was .341, and the average effect size was .834, indicating a large effect size, with a total of 14 effect sizes. The median effect size was .636, with a standard deviation of .641. The average effect size ranged from .100 to 3.086, and the confidence interval was between .654 and 1.000, with a standard error of .092. The Fisher's Z was 1.201. Based on the analysis results,

it can be concluded that the need for achievement state has a positive relationship with GPA during the years 2014 to 2020.

The relationship between need for achievement state and GPA among researchers in the field of education science, with a total sample size of 2,972 individuals, was examined. The research findings revealed that the average correlation coefficient was .346, and the average effect size was .805, indicating a large effect size with a total of 9 effect sizes. The median effect size was .604, with a standard deviation of .566. The average effect size ranged from .215 to 1.706, with a confidence interval between .523 and 1.000 and a standard error of .144. The Fisher's Z value was 1.113. Based on the analysis results, it can be concluded that the need for achievement state has a positive relationship with GPA among researchers in the field of education science.

The relationship between need for achievement state and GPA in behavioral sciences was studied with a total sample size of 5,298. The research findings revealed that the average correlation coefficient was .285, and the average effect size was .741, indicating a moderate effect size with a total of 9 effect sizes. The median effect size was .440, with a standard deviation of .903. The average effect size ranged from .100 to 3.086, and the confidence interval was between .380 and 1.000, with a standard error of .184. The Fisher's Z was .953. From the analysis results, it can be concluded that need for achievement motivation has a positive relationship with GPA in behavioral sciences.

The relationship between need for achievement state and GPA among researchers in the fields of education science and psychology, with a total sample size of 321, was examined. The research findings revealed that the average correlation coefficient was .322, and the average effect size was .679, indicating a medium effect size with a total of 6 effect sizes. The median effect size was .636, with a standard deviation of .148. The average effect size ranged from .534 to .945, and the confidence interval was between .069 and 1.000, with a standard error of .311. The Fisher's Z was .827. Based on the analysis results, it can be concluded that the need for achievement state has a positive correlation with GPA among researchers in the fields of education science and psychology.

The relationship between need for achievement state and GPA in the context of McClelland's theory was studied with a total sample of 1,114. The research findings revealed that the average correlation coefficient was .286, and the average effect size was .598, indicating a moderate effect size, with a total of 3 effect sizes calculated. The median effect size was .604, with a standard deviation of .156. The average effect size ranged from .440 to .751, and the confidence interval was between -1.000 and 1.000. The standard error could not be processed. Fisher's Z was .690. Based on the analysis results, it can be concluded that the need for achievement state has a positive relationship with GPA in the context of McClelland's theory.

The relationship between need for achievement state and GPA in other academics was studied with a total sample size of 2,995. The research findings revealed that the average correlation coefficient was .276, and the average effect size was .578, indicating a moderate effect size with a total of 10 effect sizes. The median effect size was .602, with a standard deviation of .200. The average effect size ranged from .201 to .945, and the confidence interval was between .085 and 1.000, with a standard error of .252. The Fisher's Z was .659. Based on the analysis results, it can be

concluded that the need for achievement state has a positive relationship with GPA in other academics.

The relationship between need for achievement state and GPA in unclear specified was studied with a total sample of 4,482. The research findings revealed that the average correlation coefficient was .363, and the average effect size was .946, indicating a very large effect size, with a total of 11 effect sizes. The median effect size was .580, with a standard deviation of .891. The average effect size ranged from .100 to 3.086, and the confidence interval was between .873 and 1.000, with a standard error of .037. The Fisher's Z value was 1.792. Based on the analysis results, it can be concluded that need for achievement motivation has a positive relationship with GPA in unclear specified.

The analysis of the meta-analysis found that the need for achievement state relationship with the GPA in subgroups with moderate effect sizes, including those published in Thailand, those published abroad, those published in the years 2007 to 2013, the expertise of researchers in behavioral sciences, the expertise of researchers in education science and psychology, and those using McClelland's theory, as well as other academics ($d = .693, .778, .631, .741, .679, .598, \text{ and } .578$, respectively). Notably, the subgroup published during the years 2014 to 2020 and the expertise of researchers in education showed very large effect sizes ($d = .834$ and $.805$, respectively), while the subgroup using unclear specifications exhibited an extremely large effect size ($d = .946$).

Therefore, the need for achievement state has a positive relationship with GPA, as evidenced in the subgroups that are the moderating variables of the research data, namely: 1) publication location; 2) publication year; 3) researcher's expertise; and 4) theoretical concepts used in the study. All subgroups showed significant results, with effect sizes greater than .50. Thus, these findings support hypothesis 3.2.

3.4.3 Analysis of the relationship between the need for achievement state and study behavior, other behavior, and GPA in research subgroups in Thailand as a moderating variable related to bio-social background

Hypothesis 3.3 In the group, the effect size between the need for achievement state and study behavior, other behaviors, or grade point average have a magnitude value of at least .50. This result is observed in Thailand's research subgroups that focus on background biosocial moderate variables, including 1) gender, 2) education level, 3) father's education, and 4) mother's education.

1) Analysis of need for achievement state and study behavior according to the bio-social background moderating variables of the research.

Table 3.22 and Figure 3.19 present the results of the data analysis as follows:

The analysis of the relationship between the need for achievement state and study behavior in male and female groups does not yield any data.

The relationship between need for achievement state and study behavior in high school students and university students. From the analysis results, each group has only one effect size, which is insufficient for evaluating the analysis. As a result, it is not possible to process the need for achievement state in relation to study behavior in high school students and university students.

Table 3.22 Show the Magnitude of the Influence between Need for Achievement State and Study Behavior according to Bio-Social Background Moderating Variables of the Research.

Moderating variable	n	r	d	k	Med	SD	MIN	MAX	95% CI		SE	Fisher's Z
									LL	UL		
Gender												
Male	0	-	-	0	-	-	-	-	-	-	-	-
Female	0	-	-	0	-	-	-	-	-	-	-	-
Education level												
High school	1,005	.380	.821	1	.821	.821	.821	.821	n/a	n/a	n/a	1.160
Undergraduate student	376	.466	1.051	1	1.051	1.051	1.051	1.051	n/a	n/a	n/a	n/a
Father's education												
Low education	0	-	-	0	-	-	-	-	-	-	-	-
High education	0	-	-	0	-	-	-	-	-	-	-	-
Mother's education												
Low education	0	-	-	0	-	-	-	-	-	-	-	-
High education	0	-	-	0	-	-	-	-	-	-	-	-

n= the number of primary studies; r = mean of correlation; d = mean of effect size); k = the number of effect size; Med = median of effect size; SD= standard deviation of effect size; min = minimum of effect size; max= maximum of effect size; CI = confidence interval; SE= standard error; Z = Fisher's Z

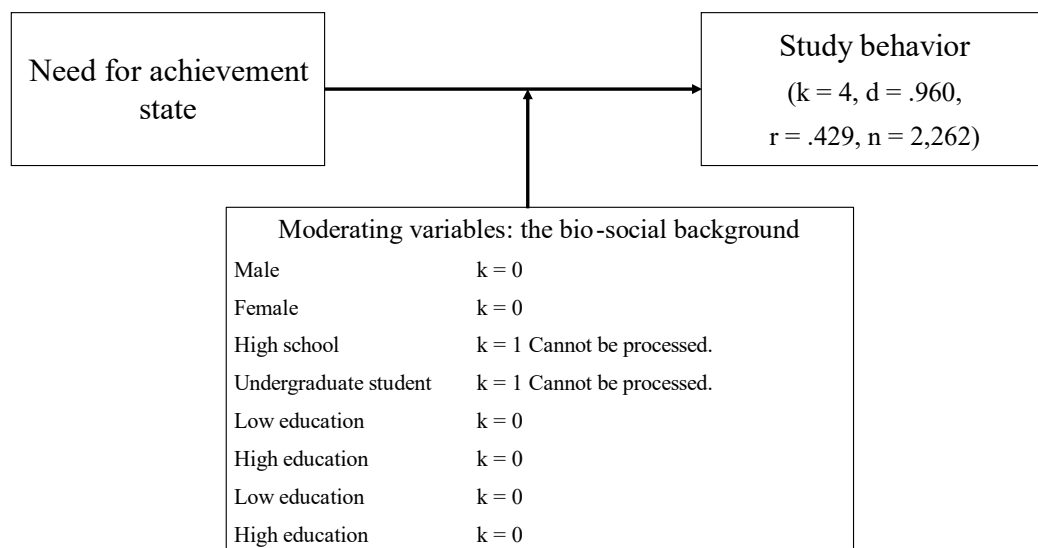


Figure 3.19 Show the Magnitude of the Influence between Need for Achievement State and Study Behavior according to the Bio-Social Background Moderating Variables of the Research.

The relationship between the need for achievement state and study behavior in samples where parents have low education and in samples where parents have high education does not show data for analysis

The meta-analysis revealed that it was not possible to analyze the subgroup's need for achievement state and study behavior.

Therefore, the need for achievement state and study behavior in the subgroup, which are bio-social background variables of the research, include 1) gender 2)

education level; 3) father's education; and 4) mother's education. The data analysis results could not be concluded. Hypothesis 3.3 on this issue could not be concluded.

2) Analysis of need for achievement state and other behavior according to the bio-social background moderating variables of the research.

Table 3.23 and Figure 3.20 present the results of the data analysis as follows:

Table 3.23 Show the Magnitude of the Influence between Need for Achievement State and Other Behavior according to Bio-Social Background Moderating Variables of the Research.

Moderating variable	n	r	d	k	Med	SD	MIN	MAX	95% CI		SE	Fisher's Z
									LL	UL		
Gender												
Male	238	.650	1.558	1	1.558	1.558	1.558	1.558	n/a	n/a	n/a	n/a
Female	186	.760	1.321	1	1.321	1.321	1.321	1.321	n/a	n/a	n/a	n/a
Education level												
High school	0	-	-	0	-	-	-	-	-	-	-	-
Undergraduate student	819	.341	.735	4	.716	.247	.454	1.054	-	1.000	.460	.940
Father's education												
Low education	0	-	-	0	-	-	-	-	-	-	-	-
High education	0	-	-	0	-	-	-	-	-	-	-	-
Mother's education												
Low education	0	-	-	0	-	-	-	-	-	-	-	-
High education	0	-	-	0	-	-	-	-	-	-	-	-

n= the number of primary studies; r = mean of correlation; d = mean of effect size); k = the number of effect size; Med = median of effect size; SD= standard deviation of effect size; min = minimum of effect size; max= maximum of effect size; CI = confidence interval; SE= standard error; Z = Fisher's Z

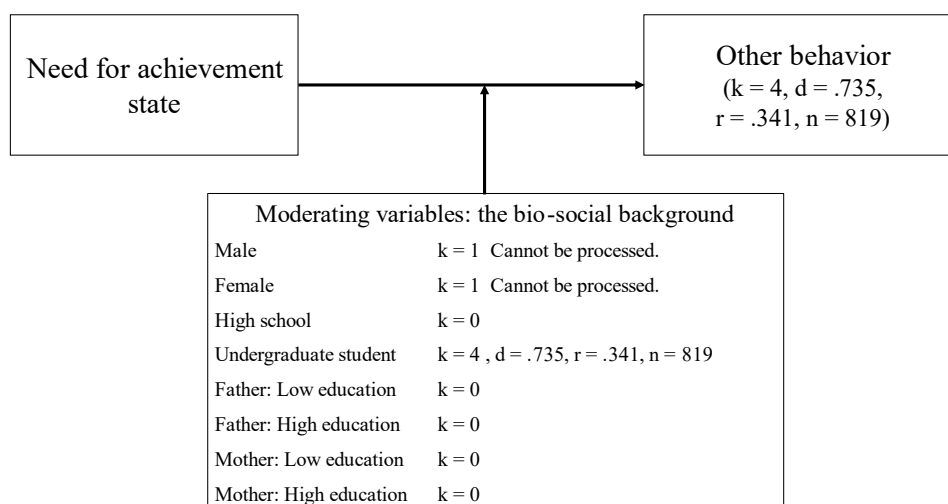


Figure 3.20 Show the Magnitude of the Influence between Need for Achievement State and Other Behavior according to the Bio-Social Background Moderating Variables of the Research.

The relationship between need for achievement state and other behavior in male and female groups, based on the analysis results, shows that each group has only one effect size, which is insufficient for evaluating the analysis. As a result, it is not possible to process the relationship between the need for achievement state and other behaviors in male and female groups.

The relationship between the need for achievement state and other behaviors among high school students does not provide data for analysis.

The relationship between need for achievement state and other behavior among university students, with a total sample size of 819, was examined. The research findings revealed that the average correlation coefficient was .341, and the average effect size was .735, indicating a moderate effect size with a total of 4 effect sizes. The median effect size was .716, with a standard deviation of .247. The average effect size ranged from .454 to 1.054, and the confidence interval was between -.166 and 1.000. The standard error was .460, and Fisher's Z was .940. The analysis results indicate a positive relationship between the need for achievement state and other behavior among university students.

The relationship between need for achievement state and other behavior in samples where parents have low education and where parents have high education does not show data for analysis.

The analysis of the above findings reveals that the need for achievement state has a moderate effect size on other behavior within the subgroup, which includes university students.

Therefore, the subgroup that serves as a bio-social background variable of the research, which can be analyzed, demonstrates a positive relationship between the need for achievement state and other behaviors. One subgroup is the level of education among university students, with an effect size greater than .50. This result supports hypothesis 3.3.

3) Analysis of need for achievement state and GPA according to the bio-social background moderating variables of the research.

Table 3.24 and Figure 3.21 present the results of the data analysis as follows:

The analysis of the relationship between the need for achievement state and GPA in male and female groups does not yield any data.

The relationship between need for achievement state and GPA among high school students, with a total sample size of 1,667, was studied. The research findings revealed that the average correlation coefficient was .330 and the average effect size was .732, indicating a moderate effect size with a total of 5 effect sizes. The median effect size was .604, with a standard deviation of .439. The average effect size ranged from .243 to 1.304, and the confidence interval was between .089 and 1.000, with a standard error of .328. The Fisher's Z value was .933. Based on the analysis results, it can be concluded that the need for achievement state has a positive relationship with the GPA among high school students.

The relationship between need for achievement state and GPA among university students, with a total sample size of 921, was examined. The research findings revealed that the average correlation coefficient was .273, and the average effect size was .627, indicating a moderate effect size with a total of three effect sizes.

The median effect size was .283, with a standard deviation of .655. The average effect size ranged from .215 to 1.383, and the confidence interval was between -1.000 and 1.000. The standard error could not be processed. Fisher's Z was .736. Based on the analysis results, it can be concluded that the need for achievement state has a positive relationship with the GPA among university students.

Table 3.24 Show the Magnitude of the Influence between Need for Achievement State and GPA according to Bio-Social Background Moderating Variables of the Research.

Moderating variable	n	r	d	k	Med	SD	MIN	MAX	95% CI		SE	Fisher's Z
									LL	UL		
Gender												
Male	0	-	-	0	-	-	-	-	-	-	-	-
Female	0	-	-	0	-	-	-	-	-	-	-	-
Education level												
High school	1,667	.330	.732	5	.604	.439	.243	1.304	.089	1.000	.328	.933
Undergraduate student	921	.273	.627	3	.283	.655	.215	1.383	-1	1	inf	.736
Father's education												
Low education	0	-	-	0	-	-	-	-	-	-	-	-
High education	0	-	-	0	-	-	-	-	-	-	-	-
Mother's education												
Low education	0	-	-	0	-	-	-	-	-	-	-	-
High education	0	-	-	0	-	-	-	-	-	-	-	-

n= the number of primary studies; r = mean of correlation; d = mean of effect size; k = the number of effect size; Med = median of effect size; SD= standard deviation of effect size; min = minimum of effect size; max= maximum of effect size; CI = confidence interval; SE= standard error; Z = Fisher's Z

The relationship between need for achievement state and GPA in samples where parents have low education and where parents have high education does not show data for analysis.

The meta-analysis revealed a medium effect size in the relationship between the need for achievement state and GPA among the analyzed subgroups, specifically high school and university students.

Therefore, the need for achievement state has a positive relationship with GPA, as evidenced in the subgroups that are the bio-social background variables of the research, including education level, with an effect size greater than .50 in both subgroups as well. Other subgroup variables lacked sufficient data for analysis. Although only two subgroups showed results, they aligned with the hypothesis, thus supporting hypothesis 3.3.

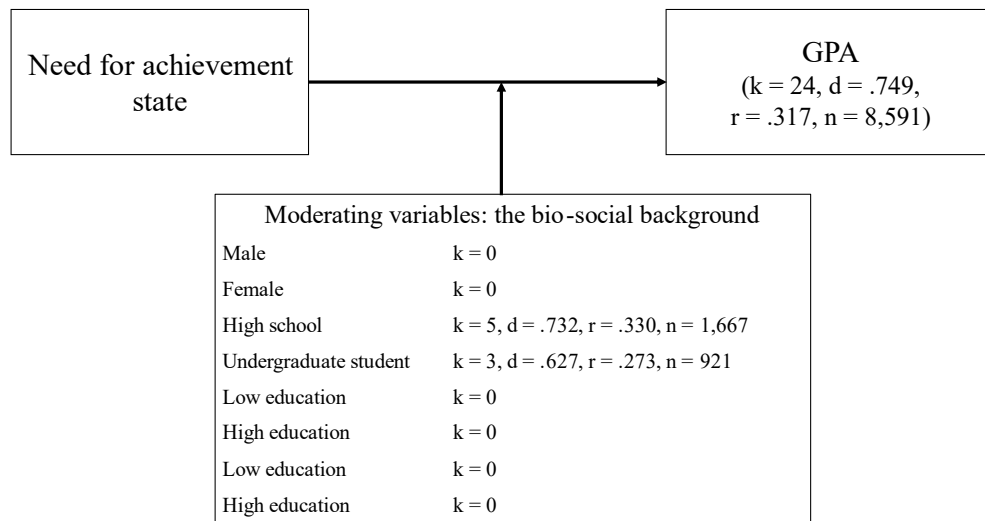


Figure 3.21 Show the Magnitude of the Influence between Need for Achievement State and GPA according to the Bio-Social Background Moderating Variables of the Research.

CHAPTER 4

CONCLUSION AND DISCUSSION

The research, titled "Relationship between need for achievement and desirable behaviors in youth: a meta-analysis," investigated a comprehensive set of 89 effect sizes conducted in Thailand and abroad. The research's objectives were: 1) to examine the relationship between the general need for achievement and the behavior of youths; 2) to investigate the relationship between the need for achievement trait and the behavior of youths; and 3) to determine the relationship between the need for achievement state and the behavior of youths. The researchers obtained the following results after conducting analyses for both the total group and subgroups:

4.1 Summary and Discussion for Hypotheses

Based on the selection of data, the researcher created three primary hypotheses, each of which is further subdivided into three sub-hypotheses. This section provides a concise overview and criticism of the meta-analysis's results, including the following details:

4.1.1 Summary and Discussions for Hypothesis 1

Researchers analyzed this hypothesis using a meta-analysis method that analyzed the relationship between the independent variable, the general need for achievement, and the dependent variables (study behavior, other behaviors, and GPA).

Hypothesis 1: There is an effect size of at least 0.50 between the need for achievement and study behavior, other behaviors, or GPA.

Hypothesis 1.1 states that "the total group's effect size between need for achievement and study behavior, other behaviors, or GPA is at least .50." The meta-analysis found results supporting the hypothesis, with effect sizes greater than .50 in all overall groups. The effect size was very large between need for achievement and other behaviors ($d = .954$) and between need for achievement and study behavior ($d = .947$). For need for achievement and GPA, a moderate effect size was found ($d = .708$).

Hypothesis 1.2 proposes that the total group indicates a 0.50 effect size between the need for achievement and either study behavior, other behaviors, or GPA. The subgroups, which form the basis of the study's research data, reveal the following outcomes: 1) publication location 2) year of publication 3) The researcher's level of expertise; or 4) The theoretical concepts used in the study. The meta-analysis method supported the hypothesis, demonstrating effect sizes of at least 0.50. These data included nearly all subgroups that provided the study's basic research information.

Hypothesis 1.3 states that the overall group indicates a 0.50 effect size between the need for achievement and either study behavior, other behaviors, or GPA. This result will be apparent in the Thai study subgroups that include the moderating variables of bio-social background, specifically: 1) gender; 2) education level; 3) father's education; and 4) mother's education. The meta-analysis confirmed data that support the theory, since effect sizes over 0.50 appeared in nearly every subgroup included as the bio-social background moderating variables in the study.

Hence, the analysis of the data in Hypothesis 1 reveals results that are consistent with the hypothesis in both the total group and its subgroups. Consequently, research hypothesis 1 is considered valid. Furthermore, previous studies including the research conducted by Theeraphong Bampenthan and Narisara Peungposop (2016) suggest that a need for achievement is associated with different behaviors shown by youths. Boualar, K., & Bhanthumnavin, D. (2018). Duchduen Bhanthumnavin and Benjaporn Praneetvatakul (2018), Schoen (2015), Senko (2019), Lee and Seo (2019), and other referenced sources.

4.1.2 Summary and Discussions for Hypothesis 2

Hypothesis 2: Researchers analyzed this hypothesis using a meta-analysis method that analyzed the relationship between the independent variable, need for achievement trait, and the dependent variables (study behavior, other behaviors, and GPA).

Hypothesis 2.1 states that the effect size within the total group between the need for achievement trait and youth behavior, or other behaviors, or GPA is at least 0.50. A meta-analysis revealed results that support the hypothesis, indicating that general need for achievement has a significant effect size on study behavior and other behaviors ($d = .943$ and 1.022), both over .50. However, the available data is inadequate to analyze the relationship between need for achievement and GPA.

Hypothesis 2.2 states that the total group of effect sizes between the need for achievement trait and study behavior, other behaviors, or GPA must be at least 0.50 in effect size. This result will be achieved in the subgroup that operates as the moderating variables of the study, specifically: 1) location of publication; 2) year of publication; 3) researcher expertise; or 4) theoretical concepts. The meta-analysis investigation, conducted in the appropriate information group, reveals that the subgroup acting as moderating variables in the research, which includes need for achievement traits, study behaviors, and other behaviors, has effect sizes of at least 0.50. Thus, the research supports the hypothesis.

Hypothesis 2.3 asserts that the relationship between the need for achievement trait and study behavior, other behaviors, or GPA has an effect size of at least 0.50 in the group that totals these variables. The effects of this result will be apparent within a group of research conducted in Thailand involving the background bio-social moderating factors, namely 1) gender; 2) education level; 3) father's education; and 4) mother's education. The meta-analysis demonstrated that using bio-social background

as a moderating variable resulted in an effect size of at least 0.50 for the subgroup's need to achieve trait, study behavior, and other activities. Therefore, the research supports the hypothesis.

As a result, the conclusion of the data analysis in hypothesis 2 suggest that they are consistent with the hypothesis on the relationship between need for achievement trait and study behavior, as well as other related behaviors throughout the total group. Therefore, the study support hypothesis 2 in the subgroup with adequate data for analysis.

4.1.3 Summary and Discussions for Hypothesis 3

Hypothesis 3: Researchers analyzed this hypothesis using a meta-analysis method that analyzed the relationship between the independent variable, need for achievement state, and the dependent variables.

Hypothesis 3.1: There occurs an effect size of at least 0.50 in the total group between the need for achievement state and study behavior, other behaviors, or GPA. Results from the meta-analysis support the hypothesis, with effect sizes over 0.50 in total groups. The encouraging relationship between the need for achievement state and study behavior is large ($d = .960$), but the relationships between the need for achievement state and other behaviors, as well as GPA, are middle effect size ($d = .735$ and $.749$, respectively).

Hypothesis 3.2: The relationship between the need for achievement state and study behavior, other behaviors, or GPA within a group result in an effect size of at least 0.50. This result will be apparent in the subgroups used as the basic research information of the study, specifically 1) publication location, 2) year of publication, 3) researcher's expertise, or 4) theoretical concepts. The meta-analysis of the groups with adequate data for processing revealed that the effect size of need for achievement state with study behavior, other behaviors, and GPA in the subgroups that serve as baseline variables of the study was at least 0.50 in almost every group. The research supports the hypothesis.

Hypothesis 3.3 states that when the effect size of need for achievement state is total group with study behavior, other behaviors, or GPA in the group, the effect size is consistently at least 0.50. The result will be apparent in the distinct subset of research conducted in Thailand that includes background bio-social variables: 1) gender 2) education level 3) father's education, and 4) mother's education. The meta-analysis revealed that the bio-social background variables, namely the need for achievement state, together with other behaviors and GPA, have effect sizes of at least 0.50. This result supports the research hypothesis.

Therefore, the data analysis results for hypothesis 3 suggest the results are consistent with the hypothesis in all total groups and in the subgroups with adequate data for analysis. Hence, the research supports hypothesis 3.

4.2 Research Results Beyond the Hypothesis

The study of the relationship between need for achievement and youth behavior, together with the synthesis of data to investigate the three primary hypotheses, revealed discoveries that go beyond the testing of hypotheses in four further dimensions, as described below.

Firstly, the application of unclear theoretical concepts is crucial. In the present research on need for achievement, the researcher mainly used McClelland's theory of achievement motivation. However, as the research progressed, it became clear that significant uncertainty persisted, which hindered the identification of current concepts or theories among different scholars. Academic study of the application of concepts and theories is an essential basis for addressing studies. Similarly, this research revealed that 51 out of 89 studies, totaling 57.3%, showed uncertainty in the application of the need for achievement theory. Distinguishing between studies carried out in Thailand and those carried out abroad revealed that Thai researchers encountered ambiguity in identifying thoughts and hypotheses in 42 out of 60 investigations, or 70%. In contrast, only 9 out of 29 studies, or 31%, from outside had difficulties with ambiguous concepts and theories. Insufficient clarity in this matter can impact both the formulation of definitions and the creation of measurement instruments or experimental investigations.

Secondly, the relationship between need for achievement state and GPA. A meta-analysis of the relationship between the need for achievement state and study behaviors, together with other behaviors, indicated a limited number of effect sizes. Nevertheless, the relationship between need for achievement state and GPA revealed varied effect sizes, as indicated (Tables 3.18 and 3.21). Overall, the analyzed effect size was middle ($d = .749$, $k = 24$).

Thirdly, the analysis of risk groups in males reveals a somewhat larger effect size compared to females in the relationship between need for achievement and study behaviors, as well as other behaviors (Table 3.8 and Table 3.9).

Fourthly, the behavior of at-risk groups can vary depending on the effect size of their parents' education. Parents with a lower education should prioritize their children's academic performance, while parents with more education should direct their attention towards other characteristics revealed by youth. Tables 3.8 and 3.9 present the analysis of the study results. It is obvious that although both fathers and mothers with different levels of education have significant effects, a comparison of the two tables shows that the effect sizes of influence alternate. Hence, efforts to encourage the need for achievement in youth should initially evaluate groups that include varying levels of parental education.

4.3 Strengths and limitations of the research

4.3.1 Strengths of the Research

Firstly, this research report presents a collection of data from studies on the need for achievement among youths conducted from 2007 to 2020, representing a comprehensive dataset covering a period of 14 years, during which no prior research in Thailand has used meta-analysis methods to study this topic in such a thorough manner.

Secondly, this study has collected data from both domestic and international sources, revealing useful insights into the methodologies and trends used in studying the relationship between need for achievement and desired behaviors.

4.3.2 Limitations of the Research

Firstly, data sources for the research issues are retrieved from online systems.

Secondly, the research data obtained from foreign sources is derived from research publications, which may offer limited data that excludes the whole of the research material. Furthermore, the analysis of data relating to the moderating variables is limited because it is only examined within the consolidated group.

4.4 Suggestions for Development

4.4.1 Recommendations for Development

The synthesis of research on need for achievement in relation to youth behavior using meta-analysis revealed intriguing results classified into two primary aspects: the significance of the study method and the conclusions of the relationship between need for achievement and youth behavior. The relevant data is as follows:

Firstly, the importance of research methodology.

(1) It is critical to follow the research methodology without compromising. Researchers should give priority to the successive and systematic approaches of the research method. During the data collection process, the researcher came across several papers that discussed the need for achievement and desirable behavior. However, these studies did not satisfy the reasonable criteria for inclusion or exclusion. The analysis in Thailand eliminated a total of 141 research works, while foreign studies eliminated 157 works. While some participants were eliminated because they did not fit the research criteria, others were excluded because of research procedure issues, such as inadequate specification of definitions, operational definitions, limited sample size, and inaccurate statistical analysis, among other reasons.

(2) The process of developing measurement instruments aligns with established definitions or operational concepts. Table 3.2 presents the research data detailing the classification of need for achievement based on the assessment instruments used, namely definitional identification and consideration. The analysis uncovered errors in both definitions and measurements across multiple studies. While some definitions broaden the understanding of the need for achievement, the

development of measurement instruments narrows the focus to specific factors related to this need. Moreover, there are instances where applying the concept of need for achievement to general motivation can lead to more negative consequences.

Secondly, aspect is the result of the research on the relationship between achievement need for motivation and the behavior of youths.

(1) An important effect size from the research on need for achievement suggests that educational research may be able to be used to successfully study behaviors, even though there aren't many effect size data points (Table 3.5). Furthermore, behavioral research has also identified an important relationship size between need for achievement and other behaviors, including health behaviors and responsibility behaviors (Table 3.6).

(2) At-risk group development should emphasize training or programs that integrate the need for achievement with desirable behaviors developed specifically for male students. Furthermore, it is important to take into account the growth and progress of students from families with diverse educational backgrounds. More precisely, it is important to prioritize the development of a need for achievement in student study behaviors for parents with lower levels of education. On the other hand, students whose parents have higher levels of education should focus their efforts on meeting the need for achievement in other behaviors.

(3) The analysis of need for achievement in Thailand, that includes concepts or hypotheses beyond McClelland's theory, indicates, based on the data synthesis in Table 3.1, that the wide adoption of need for achievement theories in Thailand continues to primarily depend on McClelland's theory. Nevertheless, international research has increasingly applied alternative theoretical frameworks. Although McClelland is mentioned, the main purpose is to describe the origins and definitions of the need for achievement motivation rather than precisely following McClelland's thorough investigative methodology. International research tends to focus on topics such as goals and the driving forces towards achievement goals, which requires careful consideration of future-oriented studies and self-regulation that are very closely related.

4.4.2 Recommendations for Future Study

Utilizing the results of this research synthesis, the researcher offers the following suggestions for further research to improve academic performance: The study of the need for achievement motivation related to desired behaviors among persons of working age is suggested. This is because the present data search has shown that, in Thailand, in addition to studies that specifically target youths, there is a significant amount of study on this topic among working-age people in different fields of study. However, there has not been a thorough investigation on this issue. Enhancing research to include both youths and those in the working-age population would yield a more comprehensive understanding of the reinforcement of achievement motivation and its impact as individuals progress from one age group to

a more mature stage. Moreover, it could suggest the results for individuals with strong and low needs for achievement who may display clearly different behaviors.



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APPENDIX A

**Inclusion Criteria Form, Exclusion Criteria Form and
Research Quality Assessment Form**

INCLUSION CRITERIA FORM

Explanation: This preliminary document selection form has been reviewed by the researcher to assess whether the research document in question meets the criteria for inclusion to be used as a sample in the research titled “Relationship between need for achievement and desirable behaviors in youth: a meta-analysis.”

- Criteria:** 1) If the research document meets the criteria, please place a check mark (✓) in the "Yes" comment box, and if you find it does not align with the criteria, please place a check mark (✓) in the "No" comment box.
- 2) When all six items receive a "yes" opinion, the research paper will be accepted.

Study ID:

Researcher's name:

Research Title:

No.	Criteria	Opinion		Suggestions
		Yes	No	
1	It is a document published as a research report, research article, thesis, or dissertation (excluding an academic article).			
2	The research was published from 2007 until 2020.			
3	Research study featuring quantitative analysis results.			
4	Conduct research using the need for achievement as an independent variable.			
5	Research collects data from a sample utilizing primary data rather than relying on secondary data.			
6	Is the research published in Thai or English?			

A summary of the inclusion criteria results.

Pass the criteria.

Not pass the criteria.

EXCLUSION CRITERIA FORM

Explanation: This preliminary document selection form has been reviewed by the researcher to assess whether the research document in question meets the criteria for exclusion to be used as a sample in the research titled “Relationship between need for achievement and desirable behaviors in youth: a meta-analysis.”

- Criteria:** 1) If the research document meets the criteria, please place a check mark (✓) in the "Yes" comment box, and if you find it does not align with the criteria, please place a check mark (✓) in the "No" comment box.
- 2) The mentioned research document may be disqualified if any question is answered with "no."

Study ID:

Researcher's name:

Research Title:

No.	Criteria	Opinion		Suggestions
		Yes	No	
1	This research study investigates the relationship between need for achievement and behavior, specifically grade point average (GPA).			
2	This research study focuses on the youth population, specifically individuals aged 15 to 24 years, encompassing both high school and undergraduate students enrolled in regular programs.			
3	Research has variable definitions or operational definitions.			
4	The research has sufficient statistical significance for estimating and transforming statistics into standard index values, including studies with correlation coefficients. (r)			
5	This research relates to behavioral science, educational studies, or the humanities and social sciences.			
6	The research does not overlap with studies that have already passed criteria.			

A summary of the inclusion criteria results.

Pass the exclusion.

Not pass the exclusion.

Research Quality Assessment Form

Study ID:

Evaluator:

Explanation: Experts use this evaluation form to assess the quality of research, determining whether each paper's research meets the quality criteria for each aspect. The scoring uses the IOC (Index of Item-Objective Congruence) criteria as follows:

Score +1 when confident that the research aligns with the evaluation criteria.

Score 0 when unsure if the research aligns with the evaluation criteria.

Score -1 when confident that the research does not meet the evaluation criteria.

Criteria: 1) The criteria for evaluating the IOC: if the value is 0.50 or higher, it indicates that the research paper is of good quality and meets the standards for assessing the quality of research in that regard.

2) The research paper must meet the criteria in each of the following areas:

2.1) The population and sample issues must meet the IOC criteria of at least 2 points to pass the standards.

2.2) The research instrument must meet the IOC criteria with at least 3 items to pass the standards.

2.3) The issue of using data for statistical analysis must meet the IOC criterion of 1 point to pass the standard.

No.	Criteria	Opinion			Suggestions
		+1	0	-1	
1. Population and sample					
1.1	There is a clear and systematic method for sampling.				
1.2	There is a systematic process for collecting data from the sample.				
1.3	The sample size is appropriate—at least 120 samples or more.				
2. Research instrument					
2.1	There is a definition of the need for achievement motivation.				
2.2	There is an operational or definitional term for behavior.				
2.3	For each item, there is a display of quality, such as item-total correlation or item discrimination, etc.				
2.4	Each measurement set has a certain level of reliability.				
2.5	There is detailed information about the measurement form, such as the layout of the measurement form/sentence text.				
3. Statistical analysis					
3.1	Use parametric statistics, such as the t-value and F-value (ANOVA), in data analysis.				



APPENDIX B

Sample group (research papers)

Research paper written in Thai language.

- Bhanthumnavin, D. (2013). *Antecedents and consequences of mindful risk-taking behaviors in secondary school students* (Research Report). Bangkok: Center for Research and Development of Thai Behavioral System, National Research Council of Thailand, Bangkok.
- Bhanthumnavin, D. (2015). *Antecedents of readiness and potential to become researchers in different types of individuals: Undergraduate students* (Research report). Bangkok: National institute of development administration (NIDA).
- Boonsook, A. (2010). *Factors Effecting to the Science Achievement of Matthayomsuksa Four Students under Phetchabun Educational Service Area Two Office* (Master's thesis). Phetchabun Rajabhat University, Phetchabun.
- Boontasaro, U. (2016). *Factors Influencing Academic Achievement in Physics of Matthayom Sueksa Six Students in Sara Buri Province* (Master's thesis). Ramkhamhaeng University, Bangkok.
- Intachai, A. (2013). *Factors Related to Mathematics Learning Achievement of Engineers Students at Rajamangala University of Technology Lanna Chiangmai* (Research Report). Chiangmai: Rajamangala University of Technology Lanna Chiangmai.
- Intraprasert, P. (2553). *Affecting Learning Achievement of Matthayomsuksa Six Students in Satreeprasertsin School under the Office of Trat Education Service Area* (Master's thesis). Burapha University, Chonburi.
- Jakton, K. (2010). *Factor Effecting the Thai Subjects Achievement of Matthayomsuksa Six Student, Phetchabun Educational Service Area Two* (Master's thesis). Phetchabun Rajabhat University, Phetchabun.
- Kanphichai, K. (2015). *Factors Influencing the Academic Achievement of Medical Students at the College of Medicine Rangsit University* (Master's thesis). Ramkhamhaeng University, Bangkok.
- Khadthipong, P. (2010). *Psychosocial Correlates of Optimistic View of Politics among University Students* (Master's thesis). National institute of development administration (NIDA), Bangkok.
- Khammata, T. (2008). *Psycho-Social Factors Related to Adversity Quotient of Vocational Students in Bangkok* (Master's thesis). Srinakharinwirot University, Bangkok.
- Kongkua, P. (2018). *Factors Affecting Learning Achievement of Grade 6 Students in Triamudomsuksanomklao Samutprakan School under the Secondary Educational Service Area Office 6* (Master's thesis). Burapha University, Chonburi.
- Krisanachot Boualar (2018). *Psychological characteristics and situational factors as correlate of study engagement behavior of the first-generation university students* (Master's thesis), National institute of development administration (NIDA), Bangkok.

- Mekkhachorn, W. Bhanthumnavin, D. Bhanthumnavin, D. Meekun, K. Sitsira-at, S. & Pimthong, S. (2020). Psychosocial Factors Related to Self-Determination Behavior in Learning of Undergraduate Students. *Journal of Behavioral Science for Development*, 12(1), 74-91.
- Narkmanee, S. (2010). *Internet and Related Variables Affecting Learning Achievement of Students at Tangtrongchit Commercial School* (Master's thesis). King Mongkut's Institute of Technology Ladkrabang, Bangkok.
- Norchai, S. (2011). *An Analysis of Multi-Levels Affecting the Self-Esteem-Based Learning Behaviors of the 4th Benchmark-Leveled Students in Phayao Province* (Master's thesis). Chiang Rai University, Chiang Rai.
- Nuntawirah, P. (2008). *Achievement Motive, Attitude Towards Exercise and Internal Locus of Control Predicting Exercise Behaviors of Chiang Mai University Students* (Master's thesis). Chiang Mai University, Chiang Mai.
- Phromarrak, M. (2561). The Development of a Causal Relationship Model of Adaptation for Mathematics Study of the Fourth Level, The Secondary Educational Service Area Office 18 (Master's thesis). Burapha University, Chonburi.
- Praneetvatakul, B. (2017). *Psychosocial as Correlates of Communicable Disease Preventive Behavior in Daily Life of Undergraduate Students* (Master's thesis). National institute of development administration (NIDA), Bangkok.
- Pukdeengam, S. (2010). *Development of a Causal Relationship Model of Adversity Quotient for Vocational Certificate Students* (Master's thesis), Burapha University, Chonburi.
- Rapeesaeng, U. & Buasrikham, T. (2010). *Variables Affect to Reading Habit of Rambhai Barni Rajabhat University Student* (Research Report). Rambhai Barni Rajabhat University, Chanthaburi.
- Reawchaiyaphoom, S. (2010). *A Study of the Relationships between the Moral Quotient and the Emotional Quotient of High School Students at Bang Kapi School* (Master's thesis), Ramkhamhaeng University, Bangkok.
- Resource Conservation Behavior in Senior highschoolers* (Master's thesis). National institute of development administration (NIDA), Bangkok.
- Rungruangkullawanit, S. (2015). *Psychosocial Factors Related to Reading Behaviors and Creative Thinking of Secondary School Students* (Master's thesis). Srinakharinwirot University, Bangkok.
- Sankhiao, Y. (2014). *Factors Related to Self-Regulated Learning by Undergraduates at the Faculty of Education, Ramkhamhaeng University* (Master's thesis). Ramkhamhaeng University, Bangkok.
- Sanookpun, R. (2017). *Factors Affecting the Public Mindedness of Students in Mathayom Suksa 6 under the Jurisdiction of the Secondary Educational Service Area Office 29* (Master's thesis). Ubon Ratchathani Rajabhat University, Ubon Ratchathani.
- Shutpongsawas, C. (2010). *Selected Factors Affecting on Learning Adjustment of the First Year Students of Nakhon Ratchasima Rajabhat University* (Master's thesis). Nakhon Ratchasima Rajabhat University, Nakhon Ratchasima.

- Srimangkornkaew, S. (2014). *Variables Affecting on Learning Behavior through Electronic Media of Certificate Students in Department of Commerce* (Master's thesis). King Mongkut's Institute of Technology Ladkrabang, Bangkok.
- Suvatavorkul, I. (2016). *Psychological and Situational Factors as Correlate of*
- Tansuwannond, C. & Peanratpimon, P. (2008). *Personal Psychological Factors and Social Factors Related to Self-Directed Learning of Suan Dusit Rajabhat University Students* (Research Report). Bangkok: Suan Dusit Rajabhat University.
- Theeraphong, B. (2015). *Sociological Situations and Psychological Characteristics related to Curious in Music Learning Behaviors of High School Students* (Master's thesis). Srinakharinwirot University, Bangkok.
- Wattanacheewanopakorn, W. (2012). *The Psycho-Social Correlates of Academic and Virtue Oriented Behaviors of Undergraduate Students* (Master's thesis). Srinakharinwirot University, Bangkok.
- Wisakhasart, R. (2017). *Psycho-Social Factors Related to Social Responsibility Behavior in Schools among High School Students in Bangkok Metropolitan* (Master's thesis). Srinakharinwirot University, Bangkok.
- Wonnawed, N. (2008). *Casual Factors Influencing a Five-Year Teacher- Curriculum Students' Achievement Study* (Research Report). Ratchaburi: Muban Chombueng Rajabhat University

Research paper written in English language.

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APPENDIX C

**Certificate of Approval by the Ethics Committee
in Human Research**

COE No. 2020/0039

Protocol ID No. ECNIDA 2020/0086



เอกสารรับรองการยกเว้นการพิจารณาจริยธรรมการวิจัยในมนุษย์
Certificate of Exemption

คณะกรรมการจริยธรรมการวิจัยในมนุษย์ สถาบันบัณฑิตพัฒนบริหารศาสตร์ ขอรับรองว่าโครงการวิจัยตามที่ระบุด้านล่างได้ผ่านการพิจารณาจริยธรรมการวิจัยในมนุษย์ และได้รับการยกเว้นการพิจารณาจริยธรรมการวิจัยในมนุษย์ ตามแนวทางหลักจริยธรรมการวิจัยในมนุษย์ที่เป็นมาตรฐานสากล ได้แก่ ประกาศเฮลซิงกิ แนวทางการปฏิบัติการวิจัยทางคลินิกที่ดี และรายงานเบลมอนต์

This is to certify that the research project identified below has been successfully reviewed and granted an exemption on human research protection by the Ethics Committee in Human Research, National Institute of Development Administration, which is in full compliance with international guidelines of human research protection such as Declaration of Helsinki, CIOMS Guidelines, and the Belmont Report.

ชื่อโครงการ:	การสังเคราะห์งานวิจัยแรงจูงใจไม่สัมฤทธิ์ที่เกี่ยวกับพฤติกรรมของเยาวชนด้วยวิธีการวิเคราะห์ทอมีกัน
Project Title:	A Synthesis of Research Results between Need for Achievement and Desirable Behavior in Youth Using Meta-Analysis Approach
ผู้วิจัยหลัก:	นางสาววรรณุช สีปยารักษ์
Principal Investigator:	Miss Woranuch Sipiyrak
อาจารย์ที่ปรึกษา:	รองศาสตราจารย์ ดร. ดุจดเดือน พันธุมนาวิน
Advisor:	Associate Professor Dr. Duchduen Bhanthumnavin
สังกัด:	คณะพัฒนาสังคมและสิ่งแวดล้อม สถาบันบัณฑิตพัฒนบริหารศาสตร์
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(ศาสตราจารย์ ดร. กัญญาณี เสนาสุ)

ประธานคณะกรรมการจริยธรรมการวิจัยในมนุษย์ สถาบันบัณฑิตพัฒนบริหารศาสตร์
Chairperson of the Ethics Committee in Human Research,
National Institute of Development Administration

วันที่รับรอง: 13 สิงหาคม 2563 -

Approval Date: August 13th, 2020

**โครงการวิจัยนี้ได้รับการรับรองจริยธรรมการวิจัยในมนุษย์จากคณะกรรมการจริยธรรมการวิจัยในมนุษย์
สถาบันบัณฑิตพัฒนบริหารศาสตร์ แล้ว**

หากผู้วิจัยต้องการปรับเปลี่ยนรายละเอียดบางส่วน of โครงการวิจัย ขอให้ผู้วิจัยแจ้งมายัง ศูนย์ประสานคณะกรรมการจริยธรรมการวิจัยในมนุษย์ สถาบันบัณฑิตพัฒนบริหารศาสตร์ โดยกรอกแบบฟอร์ม "แบบขอปรับเปลี่ยนรายละเอียดโครงการวิจัยที่ได้รับการรับรองจากคณะกรรมการจริยธรรมการวิจัยในมนุษย์ สถาบันบัณฑิตพัฒนบริหารศาสตร์ แล้ว (Approved Protocol Amendment Request Form)" เพื่อขอรับการพิจารณารับรองก่อนเริ่มดำเนินการวิจัย เมื่อคณะกรรมการจริยธรรมการวิจัยในมนุษย์พิจารณารับรองแล้ว จะมีหนังสือตอบรับแจ้งไปยังผู้วิจัย โดยระบุวันที่รับรอง ผู้วิจัยจึงสามารถเริ่มดำเนินการวิจัยต่อไปได้



**This research project has been certified by the Ethics Committee in Human Research,
National Institute of Development Administration.**

If the principal investigator needs to amend some details of the research project, he/she has to inform the Center of the Ethics Committee in Human Research, National Institute of Development Administration (CECNIDA) by completing the Approved Protocol Amendment Request Form for ECNIDA consideration before carrying out the research project. After the amendment is reviewed, the acceptance letter with the approval date will be sent to the principal investigator. Then the research project can be continued.



ศูนย์ประสานคณะกรรมการจริยธรรมการวิจัยในมนุษย์ สถาบันบัณฑิตพัฒนบริหารศาสตร์
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