ACHIEVEMENT MOTIVATION

By

Thomas G. Zenzen

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University of Wisconsin-Stout
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Graduate School
University of Wisconsin-Stout
Menomonie, WI 54751

ABSTRACT

Zenzen Thomas G
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The purpose of this study was to determine the level of correlation between Achievement Motivation, as measured by Atkinson's Risk Taking Model of Achievement, and student performance as measured by project completion for 7th grade Industrial Technology students at Kellogg Middle School, Rochester, Minnesota.

The subjects of this research were the 99 students in the Industrial Technology course at Kellogg Middle School, Rochester, Minnesota, during the period of August 1999 through January 2000. The instrument used was based on Atkinson and Feather's (1966) study in which they used a ring toss to estimate achievement motivation. Each participant in the study was allowed to

have one throw of a ring at any of three pegs. One peg was at five feet, one peg at ten feet, and one peg at fifteen feet. Atkinson and Feather (1966) contend that individuals with high achievement motivation will throw at the ten-foot peg.

The students had many project choices they could attempt. The number of projects attempted was noted for each student. A project was considered attempted if the student completed it or worked on it until the learning unit was completed. The number of projects attempted was correlated with the distance of the ring toss attempted. A Pearson Correlation was calculated. Additionally, an ANOVA was computed on the number of projects attempted by the selected ring toss distance.

The results of this study did not match the results of the original study done by Atkinson and Feather (1966). The Pearson Correlation was not significant. No relationship was found between the number of projects attempted and the distance of the ring toss attempted.

TABLE OF CONTENTS

PAGE

LIST OF TABLES

CHAPTER I

INTRODUCTION

Every year many students elect to take Industrial Technology courses. Some of these students accomplish little in class. According to Monte and Lifrieri (1973), these students may have the desire to achieve, and the ability to accomplish the task, but feel the accomplishment has little or no value and feel doing it is not worth the effort or time. Others may fear that they are not capable of completing the required task, so they do not even begin. They feel it is better to receive a lower overall grade than to prove they do not have the ability to correctly complete the task. Atkinson and Feather (1966) describe this rational as Achievement Motivation. It is typically a non-conscious process in which a decision how to act or not to act is made. Spence (1983) and Wlodkowski (1985) state that achievement can often bring benefits, and failure can often bring shame. Atkinson (1974) and Aschuler (1973) add that it is only a small number of students who fall into these categories of little accomplishment.

Some students have a need to achieve in all that they do. Their desire for success drives them to accomplish every task, no matter what the task is, or the difficulties involved in completing it. Other students also feel a need for success, but consider the value or worth of the task before attempting it. If the student feels the task has no value, the student chooses not to do the task, even though they are perfectly capable of accomplishing the task (Atkinson, 1974).

Still others, who may or may not be capable, plod on with their tasks, some achieving accomplishment, others not. Then there is a final group; those who choose not to do the task. These students are afraid they will not be able to accomplish the task. They have a fear of failure. Rather than face the humiliation of not being able to complete the task, thus failing the task, these students choose not to do the task at all. They would rather risk a poor grade than a poor image (Veroff, McClelland, and Marquis, 1971; Grabe, 1979).

Most students tend to fall somewhere in the middle of this achievement scale between extremely high achievers and those who may not achieve at all (Alschuler, 1973). Everyone has a need to achieve and a fear of failure, but these needs vary from person to person and from situation to situation. Each student acts on the levels of motivation differently, but some students are predisposed to having little desire to accomplish certain tasks (Atkinson, 1999). Using a simple test designed by Atkinson and Feather (1966), those students who lack motivation could be identified (McClelland, 1968). Then those students could be worked with independently to increase their motivation and their productiveness (Parker and Johnson, 1981).

Since it has been shown that all students are influenced by achievement motivation (Atkinson, 1999; Spence, 1983; Wlodkowski, 1985), all students may benefit from increased motivation from teachers (Bar-Tal, Frieze, and Greenberg, 1974). With proper training, the teacher can guide and motivate students into choosing to complete the task. Teachers are able to increase the perceived value of the task, causing greater numbers of students to complete

projects. This increases the overall production of the class (Alschuler, Tabor, and McIntyre, 1969).

The students at Kellogg Middle School in Rochester, Minnesota, should also behave in the same manner. All of the 7th grade students are required to take the Industrial Technology course. The course requires that certain techniques be learned and that projects be completed by each student. The students will choose whether or not to complete these projects, and their reasoning is the basis for this research.

With the current image of Industrial Technology students as low scoring non-academics, an increase in project completion and an improvement in final grades would be welcomed by students, parents, teachers, and administration (Hill, Wicklein, and Daugherty, 1996). This increased student performance and motivation could draw other students into the program. Increased student numbers would validate the need for Industrial Technology programs (Hatzios, 1996).

Statement of the Problem

The purpose of this study is to determine the level of correlation between Achievement Motivation, as measured by Atkinson's Risk Taking Model of Achievement, and student performance as measured by project completion for Industrial Technology students at Kellogg Middle School, Rochester, Minnesota.

Purpose of the Study

This study will attempt to find correlation between Achievement Motivation and project completion in Industrial Technology courses. It will try to measure a student's motivation and relate it to the completion of the student's projects. If the student has high motivation, then the student will choose to do the projects. Similarly, if the student is not motivated, or afraid that they will not be able to complete the project, due to lack of ability, they will choose not to do the project. This study hopes to identify those motivation choices.

Null Hypothesis

There is no statistical significant correlation between Achievement Motivation and student performance in Industrial Technology courses at Kellogg Middle School, Rochester, Minnesota.

Significance of the Study

This study is significant in that it will help instructors realize the reason for some choices made by students. Also, it will increase student performance by influencing the student's decisions based on their knowledge of achievement motivation.

Limitations

This study was limited to students in the 7th grade Industrial Technology course at Kellogg Middle School, Rochester, Minnesota, during the period August 1999 through January 2000.

Terms to Define

Intrinsic – Engage in actions for their own sake without coercion.

Extrinsic – Engage in activities to attain rewards.

Chapter I presented background for this study. Chapter II will provide a review of literature. Chapter III will discuss the methodology used. Chapter IV will present and discuss the analyzed data. Chapter V will offer a summary, conclusion, and recommendations.

CHAPTER II

REVIEW OF LITERATURE

Research has shown there is an interest in Achievement Motivation as it relates to students. Many studies have been conducted to discover what motivates students (Atkinson, 1999; Atkinson and Feather, 1966; Spence, 1983). With these studies came ideas on how to predict an individual's task performance (Atkinson and Feather, 1966; Grabe, 1979; Mukherjee, 1964). Other studies have been conducted to increase student motivation. These studies also have spawned new ideas on motivation (Accordino, Accordino, & Slaney, 2000; Atkinson, E., 1999; Bar-Tal, Frieze, & Greenberg, 1974; Grabe, 1979; Latta, 1974; McClelland & Alschuler, 1971; Rathvon, 1999; Simons, VanRheenen, & Covington, 1999; Veroff, 1975). This chapter will look at person's Need to Achieve, Fear of Failure, Probability of Success at a task, Perception of the Outcome of a Task, and other testing methods.

One theory of Achievement Motivation was proposed by Atkinson and Feather (1966). They stated that a person's achievement oriented behavior is based on three parts: the first part being the individual's predisposition to achievement, the second part being the probability of success, and third, the individual's perception of value of the task. Atkinson and Feather (1966) state, "The strength of motivation to perform some act is assumed to be a multiplicative function of the strength of the motive, the expectancy (subjective probability) that the act will have as a consequence the attainment of an

incentive, and the value of the incentive: Motivation = f(Motive X Expectancy X Incentive)" (p. 13).

The individual's perception of probability for achieving the task would cause a need to achieve and a fear of failure. Both are strong emotions that influence the individual's decision on whether or not to attempt the task (Bar-Tal, Frieze, and Greenberg, 1974). If a task simultaneously arouses an individual's motivation to approach the task and motivation to avoid the task, then the sum of the two motivations will be the result. If the result is more positive to approach the task, then the individual will be motivated toward the task. If the result is more positive to avoid the task, then the individual will be motivated to avoid the task. The strength of motivation also is important. Different variables are taken into account for each task. Often this is done subconsciously. These variables factor into how much the individual is motivated to approach or avoid the task (Atkinson and Feather, 1966). In a person motivated to achieve, their behavior is directed by a positive possibility. In a person motivated to avoid failure, their behavior is directed by an undesirable possibility. The same person may experience both motives at the same time depending on the situation. Which motive the person selects depends on the relative strength of the achievement motives, either to achieve success, or to avoid failure. An individual will find a task easy if they have a high probability of successfully completing the task. An individual will find a task hard if they have a low probability of successfully completing the task.

Motivation, as it relates to students, is very important. Students who have high motivation to achieve generally do well academically. Students with low motivation do not do well academically. But motivation does not guarantee achievement. Similarly, achievement does not reflect motivation (Keefe and Jenkins, 1993).

The Need to Achieve

All students are influenced by a need to achieve. It causes them to want to be successful at what they attempt. But each student is affected to different degrees. For some students, the desire to achieve overwhelms other factors that could cause failure, such as; lack of skills, lack of experience, lack of ability, or lack of time. The individual does whatever it takes to work through or eliminate these setbacks (Atkinson, 1974). Studies conducted by Atkinson (1999) showed a percentage of students will work hard to achieve a task they do not enjoy, solely to maintain their high grade point average or high class rank. This reflects back on the student's attitude toward success. Those students who hold a high attitude of success work hard to achieve success, regardless of the task. High achievement motivation and high achievement may be associated with normal perfectionism (Accordino et al, 2000).

Haasen and Shea (1979) state, "If we accept the notion of intrinsic motivation, it implies that there is a powerful potential for self – actualization within each of us" (p. 94). This potential is based on the intensity of our need to achieve, as well as our enjoyment of achieving. Students who are intrinsically motivated participate in learning activities for their own sake; they desire the

outcome. They do not need rewards or praise; they find satisfaction in knowing that what they are learning will be beneficial later. They want to master the task, and they believe it is under their control to achieve mastery. The work may reflect personal interest or be a new challenge. "Academic intrinsic motivation has been shown to be positively and significantly related to students' achievement and perception of their academic competence, and inversely related to their academic anxiety" (Eskeles-Gottfried, Fleming, Gottfried, 1998, p. 1448).

Extrinsically motivated individuals are those who participate to receive a reward or avoid a punishment, they typically do not want to do the task and believe that it is out of their control on whether they succeed or not. If they do the task, they expect some sort of gain other than knowledge, such as praise, rewards, or avoiding punishment (Keefe and Jenkins, 1993).

A person's expectations about their life are very powerful, and a person's attitude is determined by their expectations contends Tracy (1993). Expectations have a great influence on ones personality. Attitude is shown by the way one reacts when under pressure. A positive attitude allows you to respond constructively. You expect the best from yourself, you expect to succeed. A negative attitude may contain self-limiting beliefs, which will reflect on how you handle, or feel you can handle certain situations. You may expect to do poorly or to even fail. "You are the person you imagine yourself to be. If you imagine that you are successful, then you will be a success. If you imagine that you are a failure, then you will be a failure. Our self – image

determines how or if we do certain things" states Murphy (1996,p. 69). Simon (1988) adds, "You need to believe in yourself. If you think that you can do no better, then that thinking will limit you. If you believe that you can, you will succeed, if you do not believe you can, you will fail (p. 44).

Successful people are confident, enthusiastic, and remain positive and optimistic. They expect to succeed. "Individuals with strong self – efficacy are less likely to give up than are those who are paralyzed with doubt about their capabilities" (Alderman, 1999, p. 60). Unsuccessful people often lack confidence and are negative and pessimistic, they rarely expect success. In fact, they expect to fail. "Everything that happens to you, everything you become and accomplish is determined by the way you think, by the way you use your mind" (Tracy, 1993, p. 59).

Our self-esteem and how competent we feel is what causes certain behaviors and establishes certain goals. Some people like to try new experiences and set more challenging goals, others prefer to stay in their comfort zones and be happy with what they know they can accomplish. But it is all based on our view of ourself (Haasen and Shea, 1979).

The Fear of Failure

Some individuals need to achieve is overwhelmed by their fear of failure. They are so concerned they will not be able to succeed at the task; they do not even attempt the task. They feel that if the task is not attempted, it cannot be failed. These individuals have a hard time dealing with their shortcomings, or they fear failing in front of their peers, so they avoid situations where the

opportunity to fail exists or where things are out of their control (Atkinson, 1974). According to Tracy (1993), "Fear of failure is what keeps most adults from succeeding" (p. 77). Simon (1988) adds, "Fear persuades you to set easier goals and do less than you are capable of doing. Fear triggers an internal defense system and fools you into thinking that you have perfectly good reasons not to change" (p. 175).

According to Atkinson and Feather (1966), "One of the more novel implications of a consistently applied expectancy X value-type of theory of motivation is the notion that the anticipation of a negative consequence should always produce negative motivation, that is, a tendency to inhibit activity that is expected to produce the negative consequence" (p. 6). If a student anticipates failure or a similar negative response, the student will actively try to avoid being in that situation. Likewise, if the student does end up confronted with a possible negative consequence, the student does little, if anything, to achieve a positive outcome. If the task is not attempted, it cannot be failed. Alderman (1999) adds to this idea, "Students often believe that ability is the primary element for achieving success and lack of ability is the primary reason for failure. Their motive then becomes avoiding failure and protecting their self – worth from the perception that they have low ability" (p. 68). If the student attributes achievement to ability, effort may be seen as useless, and the student may actually decrease effort to protect their self-worth. "A student's motivation may be buried under years of less – than – successful experiences in school" (Canfield and Siccone, 1993, p. 67). Murphy (1996) adds, "Many people will

avoid a stressful task as much as possible. Attempt to put it off as long as possible. This increases anxiety, and allows little time to accomplish the task" (p. 112).

For some students, the way to avoid failure is to succeed. Even though achieving the outcome is a success, the goal for these students is to not fail. Their goal is not to gain the rewards or benefits of the outcome, but to avoid failing at any cost (Simons et al, 1999).

The Probability of Success

People are normally motivated to act in ways that help them achieve goal accomplishment. The strength of the motivation to act depends on the perceived achievability of the task as well as the importance of the task.

Atkinson and Feather (1966) further state, "When the probability of success is high, as in confronting a very easy task, the sense of humiliation accompanying failure is also very great. However, when the probability for success is low, as in confronting a very difficult task, there is little embarrassment in failing" (p.15). For some individuals, failing a task that should be easy is humiliating. Rather than fail the task it is easier to never attempt the task, thus not completing it. But if the task is very difficult to accomplish, then a failure to achieve the task is expected. Attempting the difficult task and failing brings no shame, since failure was expected, but attempting the difficult task and succeeding brings happiness.

Atkinson and Feather (1966) continue:

> What should we expect of the person in whom the disposition to avoid failure is stronger than the motive to achieve? It is apparent at once that the resultant motivation for every task would be negative for him. This person should want to avoid all of the tasks. Competitive achievement situations are unattractive to him. (p. 17).

Alderman (1999) adds that some individuals feel that success is based on ability, and failure is caused by a lack of ability. When competitive situations occur, many of these individuals often feel a need to protect themselves from failure or a perceived lack of ability, so they develop strategies such as withholding effort or setting unrealistic goals (too high or too low).

Often people have self-limiting beliefs, ideas that categorize the thinker in certain ways, according to Tracy (1993). Usually the beliefs are based on some past performance and are untrue. Feelings of inadequacy, whether true or false, become true if the belief is strong enough. Beliefs can cause individuals to disregard information contrary to ones beliefs. Many students feel that if they make the effort and work hard, they will be successful. Effort is the key to success (Leondari, Syngollitou, and Kiosseoglou, 1998).

Alderman (1999) adds to the achievement theories, "Ability and effort have typically been found to be the most frequent reasons for success and failure in achievement contexts" (p. 25). "Ability and self – worth are often seen by students as synonymous. It is ability, often in the absence of accomplishment that defines self – worth for them. For students who believe success is unlikely,

the main priority is to avoid failure that is linked or attributed to ability through the use of failure – avoiding strategies" (Alderman, 1999, p. 68). Alderman (1999) continues, "Personal experience is one of the most influential sources of efficacy information. It follows then that successes tend to raise efficacy expectations – whereas failures tend to lower them" (p. 61).

Latta (1974) postulates that the intended effort of the task also plays a part in achievement motivation. If the individual has related experiences or abilities in doing the task, the amount of intended effort to complete the task will be low, and the chances for a positive outcome are increased. Alderman (1999) adds, "We are more likely to undertake tasks we believe we have the skills to handle, but avoid tasks we believe require greater skills than we possess" (p. 60). Latta (1974) continues that if the individual has no experiences or ability, then the intended effort is great, and the chances for a positive outcome are decreased. Alderman (1999) states, "If we fail at a task, our expectations for future success differ depending on whether we attribute the failure to lack of effort (try) or to not having the ability (can) to succeed on the task" (p. 60). But, adds Tracy (1993), people have skills and talents that are developed with education and experience. These can improve with study and practice. With the correct attitude, one can make deliberate, conscience efforts to make improvements. Even so, Rathvon (1999), "Improvement in on-task behavior does not necessarily lead to increases in academic performance" (p.114). One must gain knowledge or understand the concept to improve, not just behave in a manner conducive to learning.

Some students do not believe in additional effort. They believe that the ability to learn is fixed at birth. These students believe they can only learn so much so fast, and that any effort put forth to learn more or faster will be wasted. To avoid failure, they will arrange the circumstances so that if poor performance should occur, those circumstances will be seen as the cause rather than a lack of ability (Schommer and Dunnell, 1997).

In dealing with the probability of success, Atkinson and Feather (1966) state, "The person more motivated to achieve should prefer a moderate risk. His level of aspiration will fall at the point where his positive motivation is strongest, at the point where the odds seem to be 50 – 50" (p. 18). A person with a fear of failure does not want to take any risk, but when forced will choose either a task so easy it can not be failed, or a task so difficult it can not be expected to be accomplished. In an experiment with five-year-olds, a ring-toss was used to help identify individual motivation levels. Those five-year-olds with high motivation levels tended to throw at targets of medium difficulty. The five-year-olds with low motivation levels tended to avoid targets of medium difficulty. They tended to choose targets that were very near, or those targets that were distant (Atkinson and Feather, 1966).

Atkinson and Feather (1966) state:

> In summary, the person in whom the achievement motive is stronger should set his level of aspiration in the intermediate zone where there is moderate risk. Carefully measuring where they will get the best payoff, not too easy but yet not too difficult. On the other hand, the person in

> whom the motive to avoid failure is stronger should select either the easiest of the alternatives or should be extremely speculative and set his goals where there is virtually no chance for success. These are activities, which minimize his anxiety about failure. (p. 18)

Perception of the Outcome

Keefe and Jenkins (1993) add, "Authentic human achievement, on the other hand, is concerned with what is significant, worthwhile, and meaningful in the lives of successful adults from all walks of life – artists, business people… Authentic academic achievement, then, should concern itself with accomplishments that are significant, worthwhile, and meaningful for students preparing for adulthood" (p. 55). Jenkins (1997) includes, "Children are born motivated to learn. Children enter Kindergarten still possessing this enthusiasm for learning. Educators need not motivate children to learn; this was accomplished at birth. The responsibility of educators is to eliminate the loss of innate enthusiasm" (p. 111). Keefe and Jenkins (1993) continue, " Most children begin school with enthusiasm for learning. School is firmly fixed in their positive system of values. Over time, however, the importance begins to diminish as school experiences fail to connect with their lives" (p. 154).

Ownership of ideas and projects also increases achievement motivation. States Atkinson (1999), "Ownership develops a sense of responsibility, pride, and the motivation to succeed . . . " (p. 18).

According to Parker and Johnson (1981), an individuals' achievement motive may be seen as a personality trait. Each person has different degrees of

achievement motivation. High achievers may be classified as driven, striving for success, competitive, or taking charge. Low achievers may be seen as quitters, non-participants, or failures. Each person approaches each situation with a unique combination of several achievement motives. These achievement motives are shaped by significant interactions in a child's early developmental years. They are learned motives, shaped by play, experience, and rewards or consequences for actions or behaviors. It is at this time when parents, role models, and teachers can have the greatest impact on the child's habits and values about achievement motivation.

Studies done by VanZile-Tamsen and Livingston (1999) showed that students who value the outcome put forth more effort and try more strategies to achieve the outcome. High achievers work harder and will try different means to accomplish success. Studies by Senecal et al (1995) show that even when all possibilities of failure are removed from a situation, many students will procrastinate, quit, or not attempt the task if the outcome has no perceived value.

Other Test Methods

Other test methods for measuring achievement motivation include: Story Sequence Analysis, Thematic Apperception Test, and surveys.

Story Sequence Analysis

Story Sequence Analysis is a method of testing achievement motivation by analyzing stories told by subjects. The subject is shown a series of ambiguous photographs and asked to write a detailed story about each photograph. The

stories must explain what is occurring, the feelings of the photographed people, and what will result. It is thought that the story will reveal the storytellers motivation level. People with high levels of motivation will tell stories of success based on work and accomplishment. People with low levels of motivation tell stories of dreams and wishes where failure often results (Magda, 1962).

Thematic Apperception Test

Thematic Apperception Test is quite similar to Story Sequence Analysis. The subject is shown a series of 31 ambiguous photographs and asked to write a story for each photograph describing what happened, how the photographed people feel, and how things will end. The story is analyzed for recurrent motivational themes that are thought to reflect the motivation of the author (McClelland and Alschuler, 1971; Rossini and Moretti, 1997).

Survey

Most Achievement Motivation surveys are constructed in the same manner. They ask a number of questions designed to explore certain behavioral characteristics. The surveys have related groups (or components) of questions that are scattered throughout the questionnaire. The questions may ask the respondents their likes and dislikes of various topics. Other questions may ask respondents to rate themselves or their abilities. By having related groups of questions, the survey can ask the respondent the same question in different manners and compare how the student answered each time. In this manner the consistency of the respondents answers can be checked. The answers to the

questions are presented as a Likert – type scale. Typically, there are between five and seven answers the respondent can select (Chiu, 1997; Jagacinski & Duda, 2001; Sagie, 1993; Wagner, Powers & Irwin, 1985).

Summary

Some individuals have a need to achieve. They want to be successful at whatever they attempt. They have a high attitude toward success and work hard to ensure they are successful (Atkinson, 1974). If they are intrinsically motivated, they participate in the activity for the sake of learning that activity or improving their ability at that activity. If they are extrinsically motivated, they participate in the activity with the expectation of reward (Eskeles-Gottfried, Fleming, and Gottfried, 1998).

Other individuals have a fear of failure. They will avoid failure at all costs. Usually the individual will not even attempt the task. In this manner they save face with their pears. If the task is not attempted, it cannot be failed (Atkinson and Feather, 1966; Atkinson, 1974).

The probability of success also has bearing on an individual's achievement motivation. An individual may not need to put forth much effort to accomplish an easy task. A difficult task may be thought to take too much effort. Tasks of moderate difficulty seem to be preferred by individuals with high achievement motivation. An individual's perception of the outcome also effects their achievement motivation. If the outcome of a task is not viewed as unimportant, little or no effort may be made in attempting the task (Atkinson and Feather, 1966).

CHAPTER III

METHODOLOGY

The purpose of this study was to find correlation between Achievement Motivation and project completion. An objective was to find if a simple ring-toss game could predict the Achievement Motivation and thus the possible quantity of projects completed. This chapter will look at the procedure and instrumentation used, as well as projects and data analysis.

Procedure

The subjects of this research were the students in the Industrial Technology course at Kellogg Middle School, Rochester, Minnesota, during the period of August 1999 through January 2000. Dr. Dwight Jennings, school's principal approved the study. Then, permission slips were sent to all of the parents. The students with permission were then allowed to throw a ring at their choice of three pegs.

Instrumentation

The instrument used was Atkinson's Risk Taking Model of Achievement Motivation (Atkinson and Feather, 1966). The instrument uses a ring toss as its basis. The rings are tossed at pegs that are five, ten, and fifteen feet away from the thrower. Each peg is worth points. The five-foot peg equals one point, the ten-foot peg equals two points, and the fifteen-foot peg equals three points. The points may be related to a prize or reward or just left as points. In this

instrument, the points were not related to anything, but the throwers were not made aware of that fact until the completion of the instrument.

Atkinson contended that higher achievement motivated individuals tend to throw at the center peg, it being not too easy, such as the near peg, yet not too unlikely such as the far peg. Low achievement motivated individuals would select the nearest peg, it being easiest to encircle, thus giving the greatest chance of success; or they selected the farthest peg, where a miss, or failure, was expected, but the payoff was greatest.

The instrument was executed in the following manner. Once the class was present and seated, they were told the schedule for the day would be different. They were told to wait quietly at their tables until they were called. When the individual was called they were to bring all of their materials and step out into the hallway. In the hallway, they were allowed to set their books down, and they were given one ring. The ring was a new ¾ inch roll of masking tape with an inside diameter of three inches. On the hallway floor were three pegs: one peg at five feet from the thrower, one at ten feet, and one at fifteen feet. Each peg was constructed from a six-inch length of ½ inch diameter wooden dowel fastened in the center of a six-inch by six-inch pine board. The thrower was told they could throw the ring only once, but at any of the pegs. It was also explained that the five-foot peg was worth one point, the ten-foot peg was worth two points, and the fifteen-foot peg was worth three points. Questions about what the points were good for were answered with the reply "Throw the ring please". The student then attempted their one throw, which was recorded in a

log by the researcher. No record was taken to signify if the ring successfully encircled the peg, only which peg distance was attempted. The student then recovered their materials and went to a different classroom. The students who had attempted the ring toss were kept separate from those who had not thrown; this eliminated any discussion about the event.

The record log was then used to compare the peg distance attempted to the number of projects the student attempted. A project was considered attempted if the student completed it or if the student continued working on it until the learning unit ended. Using Atkinson's Risk Taking Model of Achievement Motivation, the students who attempted the ten-foot ring toss should be the higher motivated students. The lesser-motivated students should have attempted the five-foot distance where there is a greater likelihood for success, or the fifteen-foot distance, where success is least expected, but the points are greatest (Atkinson and Feather, 1966).

Projects

The students in this study had many project choices they could attempt. Most projects could typically be completed in two class periods, while two or three projects took an additional period. Some possible projects included; metal chisels, punches, offset screwdrivers, and 30 objects, which could be drafted. The number of projects attempted was noted for each student. A project was considered attempted if the student completed it or worked on it until the learning unit was completed.

Data Analysis

The number of projects attempted was correlated with the distance of the ring toss attempted. A Pearson Correlation was calculated. In addition, an ANOVA was computed on the number of projects attempted by the selected ring toss distance.

CHAPTER IV

RESULTS AND DISCUSSION

This chapter presents and discusses the findings of the study. Graphs and Tables are used whenever possible.

Statistical Analysis

In a ring toss conducted at Kellogg Middle School, Rochester, Minnesota, 99 students participated. Of those 99 students, 33 students attempted the five-foot peg, 48 students attempted the ten-foot peg, and 18 students attempted the fifteen-foot peg.

Frequency of Peg Chosen

The results of the throws for the entire ring toss are listed in Table 1. The left column (Distance) of Table 1 shows the distance of the thrower to the peg: five feet, ten feet, and fifteen feet. The center column (Frequency) shows how many students attempted that distance. The right column (Percent) shows the percentage of the study's population that attempted that distance.

Table 1

Frequency of Peg Chosen

Distance	Frequency	Percent
5 Feet	33	33.3
10 Feet	48	48.5
15 Feet	18	18.2
Total	99	100

Mean, Median, and Standard Deviation for Distance of Ring Toss Attempt

Table 2 shows there were 99 participants in this study and none of them were absent for the ring toss. It also shows the Mean for the distance of the ring toss attempts is 9.24, while the Median is 10. The Standard Deviation is 3.53.

Table 2

Mean, Median, and Standard Deviation for Distance of Ring Toss Attempt

		Distance of Ring Toss Attempt
N	Valid	99
	Missing	0
Mean		9.24
Median		10
Standard Deviation		3.53

Frequency of Projects Attempted

Table 3 shows the amount of students who completed which number of projects. The left column (Projects) has numbers of projects attempted. The number of projects attempted ranged from zero to sixteen projects. No student attempted more than sixteen projects. The center column (Frequency) shows how many students attempted that amount of projects. The right column (Percent) shows what percent of the study's population attempted that amount of projects. The totals for the Frequency column and the Percent column are given at the bottom of each column.

Table 3

Frequency of Projects Attempted

Projects	Frequency	Percent
0 projects	1	1.0
1 project	6	6.1
2 projects	14	14.1
3 projects	15	15.2
4 projects	14	14.1
5 projects	13	13.1
6 projects	11	11.1
7 projects	5	5.1
8 projects	4	4.0
9 projects	4	4.0
10 projects	4	4.0
11 projects	0	0.0
12 projects	1	1.0
13 projects	2	2.0
14 projects	4	4.0
15 projects	0	0.0
16 projects	1	1.0
Total	99	100.0

Mean, Median, Mode, and Standard Deviation for Number of Projects Student Attempted

Table 4 shows there were 99 participants in this study and none of them were absent for the ring toss. It also shows the Mean of the projects the students attempted is 5.24, while the Median is 4.00. The Mode of the projects the students attempted is 3.00, and the Standard Deviation is 3.45. The range of attempted projects was zero projects to sixteen projects.

Table 4

Mean, Median, Mode, and Standard Deviation for Number of Projects Attempted

		Number of Projects Respondent Attempted
N	Valid	99
	Missing	0
Mean		5.24
Median		4.00
Mode		3.00
Standard Deviation		3.45

Distance of Ring Toss Attempt and Number of Projects Attempted

Table 5 shows how many students from each group (5 Feet, 10 Feet, 15 Feet) attempted each number of projects. The left column (Projects) lists the number of projects. The center three columns (5 Feet, 10 Feet, 15 Feet) show how many students from each group attempted that amount of projects. The right column (Total) shows the total amount of students who attempted that amount of projects. The total for each column is given at the bottom of each column.

Table 5

Distance of Ring Toss Attempt and Number of Projects Attempted

Projects	5 Feet	10 Feet	15 Feet	Total
0 projects			1	1
1 project	1	3	2	6
2 projects	6	5	3	14
3 projects	4	10	1	15
4 projects	6	4	4	14
5 projects	3	9	1	13
6 projects	2	7	2	11
7 projects	3	2	0	5
8 projects	1	2	1	4
9 projects	2	1	1	4
10 projects	0	4	0	4
11 projects	0	0	0	0
12 projects	0	1	0	1
13 projects	1	0	1	2
14 projects	3	0	1	4
15 projects	0	0	0	0
16 projects	1	0	0	1
Total	33	48	18	99

Pearson Correlation of Number of Projects and Distance Attempted

The main effort of this study was to see if there was any relationship between the amounts of projects the students attempted and the distance of the peg they threw their ring at. Table 6 shows a Pearson Correlation of number of projects the students attempted and the distance of the peg attempted during the ring toss. The Pearson Correlation was -.115. This result was not significant at the .05 level. No relationship was found between number of projects attempted and ring toss distance attempt.

Table 6

Pearson Correlation of Number of Projects and Distance Attempted

		Distance of Ring Toss Attempt
Number of Projects Respondent Attempted	Pearson Correlation	-.115
	Sig. (2-tailed)	.258
	N	99
	* .05 Level of Significance	.200
	** .01 Level of Significance	.261

Analysis of Variance of Number of Projects Attempted by Selected Ring Toss Distances

An ANOVA was calculated on number of projects attempted and distance of ring toss attempted. The F value was .839 which was not significant. Therefore no differences were found on number of projects attempted and distance of ring toss attempted.

Table 7

Analysis of Variance of Number of Projects Attempted by Selected Ring Toss Distance

Number of Feet	N	Mean	Standard Deviation	F Value	Significance Level
5 Feet	33	5.88	4.14	.839	.435
10 Feet	48	4.94	2.67		
15 Feet	18	4.89	3.94		
Total	99	5.24	3.45		

DISCUSSION

In Tables 3 and 5, the majority of the students have numbers of projects attempted between one (1) and nine (9) projects. Two interesting observations can be made using these tables. First, the amount of students in the ten-foot category (more motivated) that had low amounts of projects attempted rather than higher amounts. Second, in both the five-foot and the fifteen-foot categories there are a small number of students who attempted higher numbers of projects, rather than lower numbers. In fact, the highest number of projects attempted in the ten-foot range is twelve projects, while the fifteen-foot range has one individual with thirteen projects and another individual with fourteen projects, and the five-foot range has one individual with thirteen projects, three individuals with fourteen projects and one individual with sixteen projects.

These two observations are inconsistent with the research conducted by Atkinson and Feather (1966). The more motivated students should have thrown rings at the ten-foot peg and should have attempted higher numbers of projects. Less motivated students who throw at the five foot peg are not predicted to attempt thirteen or more projects, which is what occurred during this trial. The students who threw at the fifteen-foot distance performed similar to the original research, except for the two students who attempted thirteen or more projects.

Another inconsistency is the mean for Table 7. This represents the average amount of projects attempted by each group. With a larger amount of students in the ten-foot group (Higher Motivated), the mean of this group should be significantly higher than the other two groups. Yet in the Kellogg Middle School ring toss, the mean for the five-foot group is higher than the ten-foot group, and the mean for the fifteen-foot group is just slightly lower than the ten-foot group.

One reason for this study not matching the original study may be in the verbal directions given to the students in this study. While the directions were read from a prepared statement, it may have altered the result if the students were each given a written copy of the directions, task, and expectations.

Another possibility for the differences in the studies may have been the time constraints. The study done at Kellogg Middle School needed to be competed within the 50-minute class period. After reading the instructions and providing the directions this left little more than one minute of time for each of the 34

students per class period to obtain the ring, chose their target, and make their throw.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

This chapter will provide an overview of the Achievement Motivation study conducted at Kellogg Middle School, Rochester, Minnesota. It is followed by conclusions and recommendations.

SUMMARY

The purpose of this study was to attempt to find correlation between Achievement Motivation, as measured by Atkinson's Risk Taking Model of Achievement and student performance as measured by project completion for Industrial Technology students at Kellogg Middle School, Rochester, Minnesota. This study was to replicate a study done by Atkinson and Feather (1966). The study was designed to see if an individual's Achievement Motivation could be predicted using a simple ring toss game.

The subjects of this study were the 7th grade Industrial Technology classes at Kellogg Middle School, Rochester, Minnesota. The course is required curriculum, and there was about even distribution of males and females.

The study was conducted by allowing each student to throw a ring one time at one of three targets. The student was only allowed one toss. The targets were pegs; one positioned five feet from the thrower, the second peg was positioned ten feet from the thrower, and the third peg was fifteen feet from the thrower. A log was kept to record which peg the student attempted, although no

mention was made on if the throw successfully encircled the peg. Another log was kept on the amount of projects the student attempted during the course.

The statisticians in the University of Wisconsin-Stout computer center analyzed the raw data. The number of projects attempted was correlated with the distance of the ring toss attempted. A Pearson Correlation was calculated. In addition, an ANOVA was calculated on the number of projects attempted by the selected ring toss distance.

While the ten-foot peg attempt was chosen more often, the quantity of projects attempted by that group was similar to the other groups in the five-foot and fifteen-foot attempts. The mean for each of the three groups is quite close, with the five-foot group being slightly higher. The Pearson Correlation was -.115. This result was not significant at the .05 level. No relationship was found between projects attempted and distance of ring toss attempted.

CONCLUSIONS

This study found no relationship between Achievement Motivation, as measured by Atkinson's Risk Taking Model of Achievement, and student performance as measured by project completion for 7th grade Industrial Technology students at Kellogg Middle School, Rochester, Minnesota.

RECOMMENDATIONS

Recommendations for further study include:

1. Replicate the study using written directions for the ring toss as well as using verbal directions.

2. Replicate the study with High School students in a Technology Education class.

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