

1997

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Gender Differences, Socialization, and Delay of Gratification

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Key Words: Aggression, Socialization, Children, Gender, Delay of Gratification

### ABSTRACT

Measures of delay of gratification are based on observations of a child's ability to maintain self-control and wait for desirable outcomes. Numerous studies have examined boys and their ability to delay gratification. However, surprisingly few studies have examined young girls' performance on the same delay of gratification task. Since young boys and girls differ in terms of biological, emotional, and intellectual behavior, this study sought to examine whether gender differences exist on a delay of gratification task. The procedure involved a simple delay of gratification task in which the children were tested for a twenty-five minute delay. One hundred five children, fifty-three males and fifty-two females, children served as the participants. Results indicated that there were non-significant differences in delay of gratification based on gender. However, results did support previous research indicating that age of a child is related to the length of delay. There was a trend toward an interaction effect for age and gender, suggesting that gender differences may emerge within younger samples of children.

## INTRODUCTION

Sex or biological differences in men and women are quite obvious. However, gender roles are frequently less clear. By definition, gender refers to the sociological dimension of being male and female (Halonen & Santrock, 1996). Sociologists assert that society reinforces gender differences, maintaining that certain behaviors are more appropriate for male or female genders. Masculine gender traits include aggressiveness, independence, activity, objectivity, competitiveness, and emotional restraint. Feminine gender traits typically include being emotional, subjective, submissive, passive, illogical, sneaky, and gentle. These gender traits constitute what society establishes as gender roles- sets of cultural expectations that define the ways in which members of each sex should think, act, and feel (Halonen & Santrock, 1996). The male traditional "breadwinner" and female "homemaker" are common gender role stereotypes in the United States. Gender roles for both men and women are considered to be either directly or indirectly supported and reinforced by society as a whole.

The shaping of gender roles begins during childhood. As the nursery rhyme states, boys are made of "frogs and snails and puppy dogs' tails" and girls of "sugar and spice and everything nice." Furthermore, children's literature depicts boys as active and exploring, whereas girls are described as passive admirers. There is an emphasis on well-adjusted adult males being independent, aggressive, and power-oriented; and adult females being dependent, nurturing, and uninterested in power (Halonen & Santrock, 1996). As a result of the numerous nursery rhymes and books read by and to young children and their frequent exposure to these media and television, children are exposed to very strong ideas

about what men and women are supposed to do in our society (Halonen & Santrock, 1996).

Urie Bronfenbrenner (1979) has established two main sources of influence on child development: the mesosystem and exosystem. In the mesosystem, influences include shared genes, the direct influences of the family (i.e., mother, father, and siblings, if any) and the indirect influence of the hospital at birth, the direct influence of both the family and day care during the preschool years, the direct influence of both the family and the peer group at all ages, and especially the direct influences of the family and school at all ages. The exosystem includes influences caused to the family by work: direct influences of parental employment on family life, the effect of maternal employment and her involvement in the family, and the family and its interaction in the community. It is a combination of these sources that constitute the differences between the genders later in life. In summary, parents, teachers, and peers, provide examples and reinforce expected behavior related to aggression, cognitive (academics), and gender roles.

### Theories of Child Development and Socialization

Behaviorism is a branch of psychology that is concerned with how people learn. Learning has been described as a process by which an individual establishes an association or linkage between two events as a result of experience. According to B F. Skinner (1953), operant conditioning is a form of learning in which the consequences of a behavior produce changes in the future probability of a behavior's occurrence. According to operant conditioning, the frequency of a behavior is increased by following the behavior with a reinforcer [defined as an outcome or event following an organism's spontaneously emitted behavior that increases the occurrence of the behavior (Berk, 1991)]. For

example, in the context of gender role socialization, one may positively reinforce a child with praise for the repetition of a desired gender-related behavior (i.e. girls playing with dolls and boys with trucks). By contrast, one can sometimes reduce the probability of a behavior by ignoring it and/or highlighting alternative behaviors, or through the use of punishment [defined as "any outcome following an organism's spontaneously emitted behavior that decreases the probability that the behavior will be repeated" (Berk, 1991)]. For example, contingent upon a young daughter acting out aggressively in school, one could punish a child by the withdrawal of television privileges for a week.

Because many psychologists have argued that learning is not just the process of connecting two events together, new models have proposed that cognition must mediate learning. Cognition is defined as the act or process of knowing. This involves representing, organizing, treating, and transforming information (Vander Zanden, 1993). According to the cognitive model, people actively evaluate different stimuli and devise their own actions accordingly. The social learning model suggests that people learn new responses without having the opportunity to make the response (i.e. observational learning or modeling and is often thought of as a "cognitive" process). Social learning theory also suggests that by observing others, one forms an idea of how new behaviors are performed, and later this information serves as a guide for action (Bandura 1977). Bandura has also argued that children mentally encode a model's behavior as they watch it, but do not imitate observed behavior unless they believe it will have a positive outcome for them. Consequently, children may discern which behaviors are appropriate for each sex simply by watching the behaviors of numerous male and female models.

A primary focus of social learning theory is on the role of selective reinforcement and imitation play in the process of acquiring and performing behavior. In terms of gender identity, children raised in "normal" family settings would be expected to be rewarded for modeling the behavior of the same-sex parent. Both adults and peers may actively reward and praise young boys and girls for "sex-appropriate behavior," and the children appear to be punished and ridiculed for behavior that is inappropriate for their sex (Eisenberg, Wolchik, Hernandez & Pasternack, 1985; Weitzman, Bims & Friend, 1985). Walter Mischel (1970) adds that children learn from and imitate same-sex models more than opposite-sex models because they see same-sex models as being more like themselves.

Cognitive-Developmental Theory includes the process of self-socialization, which suggests that children first learn to label themselves as males or females and then attempt to acquire and master the behaviors that fit their gender category. According to Lawrence Kohlberg (1966), children form a stereotyped conception of "maleness" and "femaleness" - an oversimplified, exaggerated, cartoon-like image. In turn, they use this image to organize their environment. Specifically, they select behaviors that are consistent with their gender concepts. Further, children use the gender-stereotyped models to structure their experiences and make interpretations regarding gender behaviors (Bem, 1981, 1989; Martin, 1989; Martin & Halverson, 1981; Martin, Wood & Little, 1990; Picariello, Greenberg & Pillemer, 1990; Serbin & Sprafkin, 1986). Children may also "forget" or distort information that runs counter to their developing gender schemes (Bigler & Liben, 1990; Carter & Levy, 1988; Weisner & Wilson-Mitchell, 1990).

## Sources of Influence: Home, School, and Culture

### Home

The primary influences of early gender socialization are parents and family.

Vander Zanden (1993) notes, "Parents have clear stereotypes regarding the behaviors they expect with male infants and female infants (p. 259)." Even as infants, parents seem to characterize their children differently based on gender. Male infants are said to be firm, large-featured, well-coordinated, alert, strong, and hard. Female infants are said to be little, beautiful, pretty, and cute (Vander Zanden, 1993). In general, fathers tend to be more concerned than mothers with enforcing socially appropriate sex roles (Lynn, 1974, 1976; Fagot & Hagan, 1991). Fathers also appear to treat their sons differently from their daughters. Snow, Jacklin, and Maccoby (1983) found that at 12 months of age, boys are punished more by their fathers than girls. Also, fathers tend to give trucks and dolls to their daughters with equal frequency, but tend to withhold dolls from their sons. Furthermore, "Parents generally express more negative reactions when boys make choices culturally defined as feminine than when girls make choices commonly defined as masculine" (Vander Zanden, 1993, p. 260).

Parents and family members also have the capability of influencing children's aggressive behavior. Patterson (1982) states that children are more likely to acquire aggressive behaviors based on the size of the family - the number of siblings. In large families, parents are less able to keep track and punish the child's unacceptable behavior. It has also been shown that broken homes are associated with having aggressive children (Patterson, 1982). Finally, aggressive behavior can also be acquired through the punishment method used by parents. When children misbehave, some parents tend to



respond to the behavior with the use of physical discipline. When the misbehavior occurs in the future, the parents attempt even more coercive discipline than used before. The child may respond to harsher discipline with crying, whining, yelling, or physical aggression. This type of discipline and responses to it may eventually result in a "coercive cycle" (Patterson, 1982). Moreover, when children grow up, they tend to approach the world with a hostile or violent perspective showing an increased likelihood of aggressive behavior (Berk, 1991 ).

According to Serbin, Zelkowitz, Doyle, Gold, and Wheaton (1990), there are numerous aspects of the family environment that may affect the academic performance of young children. One major source of influence involves the socioeconomic status of the family, specifically mother's occupation and father's level of education. Serbin et al. (1990) showed that fathers played a major role in socializing the type of behaviors needed for the child to succeed in a classroom environment. Furthermore, those fathers who had high educational status tended to produce children of both sexes who had the necessary skills to succeed in the classroom - specifically, their children comply with rules and regulations and respond well to highly-structured activities. An additional factor was the availability of certain gender-typed toys in the household. Results from the study showed that the higher the status of the mother's occupation, the more likely that both girls and boys had "masculine" stereotyped toys in the home, rather than "feminine" stereotyped toys. It has also been suggested that the socialization of sex-typed behavior in the home, via parental expectations and modeling, may play a role in the development of the "sex-appropriate" behavior styles, whether feminine or masculine. The greater availability of

male sex-typed toys may be a factor in the advanced development of boys over girls on visual-spatial tasks.

### School

Apart from the influence of parents and families, children are also influenced in the school setting, both by teachers and fellow peers. Typically, expectations for classroom behavior are demonstrating the ability to sit quietly and following directions. Research has shown that young girls and boys whose parents encourage this style of behavior are at an advantage over other children (Serbin et al., 1990). It has also been shown that girls, on the whole, are more compliant and spend more time in teacher-structured activities than boys, from the preschool years onward (Carpenter & Huston-Stein, 1980; Huston, Carpenter, Atwater, & Johnson, 1986). Additionally, it has been argued that schools encourage and reward behavior that is stereotypically feminine in society such as compliance with rules and regulations, and preference for highly-structured, adult-oriented activities. Similarly, schools have been shown to be intolerant of many "masculine" behaviors that are encouraged by adults and peers outside the classroom. Behaviors encouraged outside of the classroom may include physically active play, exploration of the environment, and a preference for low levels of adult structure (Serbin et al., 1990). Further studies have shown that there is a detrimental "trade-off" between teachers and docile students; whereas females received higher grades for conforming to classroom norms, males received more active instruction in their assertive and central classroom role (Sadker, Sadker & Klein, 1991; Sheridan & Henning-Stout, 1994).

There has been a great deal of research on gender differences in academic performance and cognitive functioning, though the causes of such differences are unclear.

Historically, gender differences have been interpreted in ways which favor males over females. Beliefs about the "passive domesticity" of women and the "public agency" of men may have influenced expectations for children's behavior (Sheridan & Henning-Stout, 1994). In the classroom these expectations are reflected in the conventional wisdom that male students have a greater aptitude in science and math. However, some studies showing girls' preferences for math and science suggest these expectations may be changing (Archer & McDonald, 1991; Sheridan & Henning-Stout, 1994),

Biological or genetic theories suggest that there are sex differences in visual-spatial problem solving that contribute to sex differences in performance of mathematics and in the basic applied sciences (Fenema & Sherman, 1977; Fenema & Tartre, 1985; Rosenthal & Rubin, 1982; Serbin et al., 1990). Boys average higher scores on standardized tests of mathematics achievement (Benbow & Stanley, 1980; Chipman & Thomas, 1985; Pallas & Alexander, 1983). They also perform better on visual-spatial tests during preadolescence, especially those tests that measure mental rotation and spatial perception (Johnson & Meade, 1987; Lynn & Petersen, 1985). Interestingly enough, the activities that predict strong visual-spatial skills in children are male sex-type, meaning that they are more appropriate for boys in the culture (Connor & Serbin, 1977; Newcombe, Bandura, & Taylor, 1983; Serbin & Connor, 1975), and are more available for boys in their homes from infancy (O'Brien & Huston, 1985; Rheingold & Cook, 1975). Collectively, these studies suggest that the boys may score higher on standardized tests as a function of experience, rather than purely biological preparedness.

In contrast to high standardized test scores for boys, young girls tend to obtain higher grades than boys in school. As a group, girls have been shown to be more compliant and

are willing to spend more time in teacher-structured activities than boys, from the preschool years onward (Serbin et al., 1990). However, more recent studies of verbal and spatial skills suggest that sex differences may be decreasing (Jacklin, 1989; Marsh, 1989; Feingold, 1988; Lynn & Hyde, 1989; Sheridan & Henning-Stout, 1994).

### Culture

The final major source of influence stems from the community and culture as a whole. With respect to aggression, much research has emphasized the influence of television and the media. Many communication research studies have demonstrated that some prime-time and children's television programs contain high levels of violence (Moliter & Hirsch, 1994). The studies further demonstrate that viewing violent acts repeatedly can affect adults and children in many negative ways (Moliter & Hirsch, 1994). There are at least three consequences that have been linked to media violence - violent behavior, distorted perceptions of reality, and a tolerance of "real-life" aggressive behaviors. Regarding the first consequence, the Surgeon General's Report on Television and Social Behavior (Surgeon General's Scientific Advisory Committee on Television and Social Behavior, 1972), the National Institute of Mental Health (Pearl, Bouthilet & Lazar, 1982), the American Psychological Association (1985), and the meta-analyses of Anderson (1977) and Hearold (1979), have all concluded that exposure to television or film violence may influence persons to engage in acts of aggression that they would not otherwise commit (Moliter & Hirsch, 1994). Additionally, a review of the literature revealed consistent positive correlations between levels of television viewing and perceptual measures. However, many question the strength of the computed associations, the methods, as well as the value of the theory. Finally, a study by Thomas and Drabman

(1975) has shown (replicated by Molitor & Hirsch, 1994) that exposure to violent media content tends to promote greater acceptance of higher levels of aggressive behaviors.

An interesting study by Gerbner and Gross (1980) implied that gender roles may be acquired by television viewing. They found that female television characters are typically punished when they are aggressive and rewarded for passivity (Huston, 1983; Sternglanz & Serbin, 1974). The passivity role may, through observational learning, be passed down to viewers, who may in turn reinforce similar gender roles.

### Delay of Gratification

Long before the 1960's, many people considered infants and young children to be impulse-driven. Freud characterized children as ruled by the "pleasure principle" (Halonon & Santrock, 1996). The principle states that children tend to repeat pleasurable experiences. However, there is some point at which children no longer seek the immediate gratification of pleasurable experiences. Instead, many will put off immediate pleasure and wait for long-term rewards that might be obtained by "delaying gratification."

Children who delay tend to be more intelligent, more likely to resist other temptations, to have greater social responsibility, and higher achievement strivings (Mischel & Metzner, 1962; Mischel & Ebbesen, 1970; Mischel, 1961). Results of a recent follow-up study demonstrated that children who waited longer in the delay situation at 4 years old were described at 10 years old as more academically and socially competent than their peers, and more able to cope with frustration and resist temptation. Their parents saw the children as more verbally fluent and capable of expressing ideas; more reasonable, more attentive and able to concentrate and plan, and more competent and skillful. They

were also shown to cope with stress more maturely and appeared to be more self-assured (Mischel, Shoda, & Peake, 1988).

Walter Mischel and colleagues have studied delay of gratification in school age children for a great many years. Their research paradigm involves an experimenter explaining that a child has a choice between two different size treats (e.g., large vs. small bowl of M&Ms). The children are then told that in order to receive the larger treat, they must wait until the experimenter returns. Children may end the waiting period by simply ringing the bell, or by engaging in some activity for which they will receive a less preferred object in return for prematurely ending the waiting period (e.g., getting out of their chair, eating the reward). After the child understands the situation completely, they are left on their own during the delay period and their behavior is observed unobtrusively.

The results of previous delay studies have shown that preference for delayed rewards decrease when the required time for their attainment increases; a decrease in delay is observed when there is an increase in the expectation that the delayed outcome will occur (Mischel & Metzner, 1962; Mischel & Staub, 1965). Studies also show that the choice to delay increases with the value of the delayed reward relative to the immediate rewards, increases with the age of the subject, and is susceptible to a variety of societal influences, including the behaviors and attitudes that others display (Bandura & Mischel, 1965; Mischel, 1961; Mischel, 1974; Mischel & Metzner, 1962). Overall, the ability to delay is important in the development of young children. The older the individual is, the longer the requirements for delay. For example, an individual may need to work harder and longer hours at work if they expect to be given a promotion at the completion of their project.

### Delay of Gratification and Gender Differences

Some scholars believe that much psychological research has been conducted with a "male-dominant theme" (Denmark and Paludi, 1993; Paludi, 1995). This "male-dominant theme" may contribute to the lack of research done on females. Many psychologists believe that the research that has been conducted on the males could be generalized to females, but this assumption may not be justified. With respect to delay of gratification, very few studies have included both boys and girls. Those studies that have included both genders frequently do not report or analyze gender differences. Many studies do not even include females (Mischel, 1989).

For example, Rodriguez, Mischel, and Shoda (1989) conducted a study consisting of 59 boys aged 77 to 154 months (mean age = 122.3). These boys were given an opportunity to partake in a delay of gratification task. Half of the participants were randomly assigned to a condition of exposed rewards during the delay time, whereas the other half were randomly assigned to a condition where the rewards were covered. The study showed a trend indicating that participants waiting for the rewards in the exposed condition tended to terminate the task more often by rule violation (getting out of their seat) than by ringing the bell. Mean delay time in the rewards exposed condition was 18.6 minutes (N = 29); mean delay time in the rewards covered condition was 17.6 minutes (N = 29). With exposed rewards, 10 out of 13 participants terminated the delay task by rule violation. Whereas, with the rewards obscured, only 5 out of 15 participants terminated the delay task by rule violation. However, no young girls were given the opportunity to participate in the delay task.

Another study by Olson (1989) consisted of 79 white 4 and 5 year olds (47 boys, 32 girls) enrolled in university and community preschools. The procedure for the experiment involved administering, in three separate sessions, tests to measure self-control, vocabulary, and social problem solving ability. Self-control was measured with a simple delay task, in addition was the use of the Kansas Reflection-Impulsivity Scale for Preschoolers and a task involving Draw-a-Line-Slowly/ Walk-a-Line-Slowly. Results showed that behavioral ratings of poor self-control with peers and teachers and impulsive performance on the delay task were longitudinally related to impaired social competence (especially peer rejection and deviant social problem solving). However, male and female differences on the delay task were not examined.

An additional study by Funder and Block (1989) consisted of 104 fourteen year olds (54 girls and 50 boys) who participated in the ongoing study at the University of California, Berkeley. Participants underwent a total of six sessions involving different procedures. As a means of testing delay, the experimenter paid the participants and allowed them to choose when they would be compensated. Participants who chose to wait until the last session would earn interest for the waiting period. Those who preferred to receive their payment at the end of each session did not earn interest. The delay score depended upon the number of times the subject chose to delay payment rather than receive it immediately. The mean delay score for females was 4.57 ( $SD = 1.04$ ) and was 4.38 ( $SD = 1.33$ ) for the male participants. Thus, for this task, no sex differences were observed.

Also, a study conducted by Olson and Hoza (1993) consisted of 79 Caucasian 4 and 5 year old children (47 boys, 32 girls) who were enrolled in university and community preschools. Tests were given to measure self-control, vocabulary, and social problem



solving. Self-control was measured by a delay of gratification task. Results showed that preschool boys who received relatively high conduct problem scores tended to perform more impulsively on the delay task, which predicted future behavior problems the next year; they were shown to provide more forceful-aggressive solutions to hypothetical social conflict situations, and also received more negative peer nominations (most to least preferred classmates) than others. Preschool girls with relatively high conduct-problem scores tended to perform less well on tests of motor inhibition and vocabulary. They also received more negative peer nominations than others. Still, they did not report the young girls' performance on the delay task. This data would shed important light on the issue of gender and delay.

Finally, Atwood, Ruebush, and Everett (1978) studied the effects of modeling and role playing on delay behavior in children. Initially, 220 children were pretested using a delay of gratification questionnaire. This procedure involved 14 delay of reward choices that were presented orally to the children. For example, the children were asked to choose between one Hershey Bar today or two Hershey Bars in two weeks. The children were told to mark their choices a questionnaire booklet where each question was written on a separate page. Children with the lowest delay scores were selected and assigned to one of four experimental conditions: modeling, role playing, modeling combined with role playing, and a no intervention control. Results were analyzed by group and sex. All three treatment conditions were shown to increase the children's delay. A repeated measures analysis of variance showed a significant main effect for treatment condition, a significant main effect for phase, but no significant effect for sex. However, girls appeared to consistently score higher than the boys on the pretest delay task. For example, in the

modeling group, the mean percentage of delay for boys was 25.7%, and for the girls it was 29.2%; in the role playing group, the mean percentage of delay for boys was 22.1% and for girls it was 30.7%. Furthermore, this study also showed that girls scored higher than boys on most of the subsequent treatment and follow-up tests. The possibility of gender differences should have been addressed by analyzing pretest gender differences rather than grouping all the conditions (pretest, treatment, follow-up) together for analysis. In any event, more careful analysis of sex differences may have revealed gender differences.

Since males and females have been shown to differ across several domains (e.g., aggression and academic performance), this study sought to examine the differences between the genders on a simple delay of gratification task. According to Olson and Hoza (1993), "aggressive and disruptive behavior suggests the presence of significant-control deficits." In other words, the more aggressive a child is, the worse one might expect their performance to be on the delay task. It was hypothesized that since young boys are generally considered more aggressive than girls and are diagnosed with impulse control disorders such as Attention Deficit Hyperactivity Disorder more frequently (Conners, 1995), they should therefore perform differently on a delay task. Specifically, girls are expected to perform significantly better on delay of gratification tasks than boys.

## METHOD

### Participants

Participants were male and female elementary school children and their mothers or fathers drawn from a university sponsored elementary school. Participants were recruited by sending home a consent form with the children describing the study. One hundred forty-seven parents returned the consent form on behalf of themselves and their children.

Furthermore, a verbal agreement was obtained from the child for participation in the study. Forty-two parents declined participation in the study. The remaining 105 participants included fifty-three males and fifty-two females.

### Apparatus and Setting

Child data was collected through both survey and observational methods. A questionnaire concerning the child's demographic information was sent home along with the consent form. The child delay task was conducted in a side room adjoining a classroom. The room was stripped of all stimulating materials (e.g., clocks, chairs, books, pens, etc.) and black poster board covered the windows. A portable camcorder (VCR) monitored the children's behavior during the delay task to ensure their comfort and safety. The VCR was connected to a remote monitor in an adjacent room and was concealed inside a box with one-way film located on one side, and was positioned to prevent the children from seeing the camera. The room contained boxes in which the camcorder was hidden, a desk, 1 chair, 2 bowls of candy (M&Ms), and a bell.

The teachers delivered the consent forms and parental questionnaires to the children and provided the children with incentives to ensure the prompt return of the forms (e.g., the children received candy if they returned the forms in a timely manner).

### Measures

#### Child Delay Task

The self-imposed delay task is an adaptation of the task used by Rodriguez, Mischel, and Shoda (1989). After parents returned the informed consent forms, the experimenter was introduced to the group of children by the teacher as a person who would take each of them to go and play a game.

After a preference was established for the larger reward, the experimenter stated, "I have to go out of the room right now, but if you wait until I come back, without eating the M&Ms, and without leaving your seat or moving your chair outside the taped lines on the floor, then you may have the large bowl. But if you don't want to wait, you can ring the bell any time you want to and I will be back. If you ring the bell, then you can't have the large bowl, but you can still have the small bowl." The child was then asked which reward he would receive if he: (a.) rang the bell, (b.) ate the reward, (c.) got out of or moved the seat, or (d.) waited until the experimenter's return. The child's comprehension was tested until he or she reached 100% correct responding and understood that ringing the bell would bring back the experimenter and terminate the delay period.

The experimenter then left the room and removed everything except the large and small bowls of the M&Ms and the bell. The bowls remained directly in front of the child (approximately 6 to 8 inches away) with the bell located slightly further back (approximately 10 inches) between the two bowls. The experimenter did not return until 25 minutes had fully elapsed (by timing on a portable stopwatch), or until the child rang the bell, left the seat (operationally defined as "buttocks out of the chair longer than one second"), or ate the reward (defined as consuming any portion of the reward). The rewards remained exposed throughout the session. The delay score was calculated by recording the total number of seconds from initiation of delay to the child's termination of the task or the end of the session (e.g. 25 minutes - 1500 seconds). Child behavior during the observation period was recorded on the Child Data Form (see Appendix A).

### Procedure

The study examined the relationship between gender and delay behavior. Initially, parents were sent both consent and demographic information forms. Parents were asked to allow their child to participate in a "fun" experiment where the child would choose between different amounts of M&Ms (which they were allowed to consume after the task was completed). After receiving consent and demographic information, a verbal affirmation was obtained from the child for their participation in the study.

The study was conducted between the hours between 8:00 a.m. and 3:00 p.m. The teachers were notified ahead of time regarding the ideal times for the testing of the children. For each session, an individual child was removed from the classroom setting one at a time and was kept for a maximum of 30 minutes. Children were led to the laboratory where they began by playing a game. After one run of the game, they were given the instructions regarding the delay task, questioned for understanding, and then left alone to be monitored. At the conclusion of the task, the child received the earned reward. They were then escorted back to the classroom and were asked not to discuss the task with their friends. The impact of communication amongst the children was controlled for by testing all of the children in one class during the same day, if possible.

### RESULTS

The mean age of the 105 children that participated in the study was 83.75 months. Eighty-seven (83%) children were white, 11 (10%) were black, and 4 (4%) were Asian (data were missing for 3 participants). Eighty-six (85%) parents were married, 10 (10%) were divorced, 1 (.01%) was widowed, 4 (4%) were separated, and 4 (4%) parents could not be reached. Two (2%) families had an income between \$5,000-\$10,000, 2 (2%) had

an income between \$10,000-\$20,000, 2 (2%) had an income between \$20,000-\$30,000, 5 (5%) had an income between \$30,000-\$40,000, 11 (11%) had an income between \$40,000-\$50,000, 8 had an income between \$50,000-\$60,000, and finally 70 (70%) families reported an income over \$60,000. Based on these data, the majority of the sample consisted of white children whose parents were married with an income over \$60,000.

### Dependent Measure

The child's delay score served as the primary dependent variable. The score was determined based on the total number of seconds that the child waited before terminating the delay task (with a maximum of 1500 seconds possible). The initial sample included 105 participants; however, 18 participants (9 girls, 9 boys) initially chose the small bowl as a reward and were excused from the study. Overall, the mean delay score for the sample of 87 (44 girls, 43 boys) participants was 1138.57 seconds, with a range of 2 to 1500 seconds and a standard deviation of 515.66 seconds. The sample of 87 participants included 50 participants (28 girls, 22 boys) who waited for the entire 1500 seconds, resulting in a substantial ceiling effect for this variable. Thirty-four percent (12;7 girls, 5 boys) of kindergarten children, forty-three percent (12;7 girls, 5 boys) of first graders, fifty-five percent (11;6 girls, 5 boys) of second graders, sixty-eight percent (15;8 girls, 7 boys) of third graders delayed the entire 1500 seconds (25 minutes). Table 1 shows the mean, median, range, standard deviation of delay scores for each gender.

Table 1

Mean, Median, Range, and Standard Deviation of Delay Scores by Gender

<u>Gender</u>	<u>Mean</u>	<u>Median</u>	<u>Range</u>	<u>SD</u>
Female	1226.68	1500.00	1431.00	461.56
Male	1048.42	1500.00	1498.00	556.70

Preliminary Analysis

To begin data analysis, a simple correlation matrix was constructed to examine the pattern and magnitude of covariation within the data set. As in other research, this study demonstrated a moderate correlation between age and delay (.29). Furthermore, the correlation between delay and gender was somewhat weaker (-.17) and not significant. This value shows that there is a small effect size for gender on delay. The correlation matrix appears in Table 2.

Table 2

Correlations Among Independent Variables and Delay

<u>Variables</u>	<u>Reward</u>	<u>Gender</u>	<u>Age</u>	<u>Kidih#</u>	<u>Delay</u>	<u>Marry</u>
Gender	.00					
Age	-.03	.02				
Kidih#	.05	.00	.07			
Delay		-.17*	.26**	.02		
Marry	.15*	-.08	.02	.05	-.04	
Grade	-.09	-.06	.92***	.05	.28**	-.02

\*  $p < .15$ \*\*  $p < .05$ \*\*\*  $p < .001$ 

Note: Gender = (1) Female or (2) Male; Age = Number of months; Kidih# = Number of children in the household; Delay = Length of time delayed; Marry = parent's marital status (1 - married or 2 - not married); Grade = Grade the child is in school (1=K, 2=1st, 3=2nd, 4=3rd); Reward = chose (1) small or (2) large bowl.

Means and other descriptive statistics for delay are provided for grades K, 1, 2, & 3 and presented in Table 3.

Table 3

Mean, Median, Range, and Standard Deviation of Delay by Grade

<u>Grade</u>	<u>N</u>	<u>Mean</u>	<u>Median</u>	<u>Range</u>	<u>SD</u>
K	28	1010.57	1323.50	1498.00	576.87
1	23	1017.87	1500.00	1495.00	563.48
2	16	1269.06	1500.00	1050.00	378.03
3	20	1352.20	1500.00	1431.00	382.17

The means for delay were further broken down by gender and grade. As can be seen in the Table 4, females in kindergarten averaged delays of 530.96 seconds longer than the



males, and females in the first grade waited 484.42 seconds longer than the males. By contrast, in the second grade, males average 89.50 seconds longer than the females, and the males in the third grade average 56.60 seconds longer than the females.

Table 4

Mean Delay by Gender and Grade

<u>Grade</u>	<u>Gender</u>	<u>Mean Delay (secs)</u>	<u>SD</u>
Kindergarten	Female	1351.90	391.93
	Male	820.94	573.08
First Grade	Female	1038.92	364.36
	Male	990.50	437.77
Second Grade	Female	1235.50	583.62
	Male	1325.00	580.32
Third Grade	Female	1326.73	428.66
	Male	1383.33	324.58

Between-Groups Analysis

In order to determine whether delay was related to gender and grade, a 2X2 analysis of variance (ANOVA) with two levels for gender and two levels of grade was conducted. The two levels of grade included grouping kindergarten and first grade together (the younger children), and grouping second and third grades together (the older children). Results show a non-significant main effect for gender,  $F(1, 83) = 1.018$ ,  $p < .316$ , and a main effect for grade,  $F(1, 83) = 7.456$ ,  $p < .01$ . Additionally, there was a trend for the interaction,  $F(1, 83) = 2.968$ ,  $p < .089$ , suggesting (on the basis of an

inspection of the means) that the older a child is, the less likely gender differences would be evident. ANOVA results appear in Table 5.

Table 5

2X2 ANOVA Results

<u>Variables</u>	<u>df</u>	<u>F</u>	<u>p &lt;</u>
Gender	1, 83	1.018	.316
Grade	1, 83	7.456	.008
Interaction	1, 83	2.968	.089

## DISCUSSION

This study examined the relationship of child gender to delay performance. The results indicated that overall the girls delayed slightly longer than the boys, but only in kindergarten and first grade. Overall differences were non-significant. More specifically, girls in kindergarten and first grade appear to average higher delay scores than the boys. However, in the second and third grades boys averaged slightly higher delay scores than the girls. Thus, though the interaction was non-significant, it appears that both the age and gender of the child may affect the length of time the child will delay. This is also reflected in the correlation matrix.

The results of this study fall short of confirming the original hypothesis stating that females will delay longer than males. One possible explanation for failure to reject the null hypothesis could be the nature of the population sampled. The present sample was drawn from a private, university-run elementary school. Taking the following steps might increase the likelihood of finding gender effects on delay. First, it may important to draw

a sample that is more socioeconomically diverse. Lower-SES groups tend to have higher rates of marital instability, divorce, and parental psychological difficulties (Barkley, 1990). By contrast, high SES families tend to value education, and since many believe that the classroom already has a feminine bias (Serbin et al., 1990), the boys may be rapidly socialized to be less impulsive and hyperactive. Because the present sample was obviously of higher socioeconomic status, it may have obscured gender differences. Had we included a more economically diverse group, we may have observed stronger gender differences than in the present sample. Second, it should be noted that the greatest variability in delay occurred in the kindergarten and the first grade. Therefore, when future research is conducted, one might expect to find larger gender differences among younger children. Third, one should carefully consider sample size. The results obtained from this study could possibly have achieved significance if more children had participated. The larger the sample size, the more likely one will find a population difference (i.e., greater power makes it more likely one can correctly reject the null hypothesis). For example, the study by Serbin et al. (1990) included a sample of 347 subjects and found differences in academic performance though the size of the correlation was only .16 between Sex and Academic Performance. Therefore, if the present study had a larger sample size, the correlation between gender and delay of gratification probably would have achieved statistical significance. In summary, there is probably a weak to moderate relationship between gender and delay overall, but gender differences may be larger for younger children, at least among high SES groups.

This study supports previous research showing that age is related to length of delay. Relative to older students, children in the kindergarten and first grade classes

demonstrated a lower probability of delaying gratification. This information supports Mischel et al. (1989) who suggested that age of a child was related to the length of a child's self-initiated delay. In other words, the younger a child is, the less likely they will delay gratification. Children appear to acquire the ability to delay longer as they grow older. This acquired ability is explained by Mischel et al. (1989) as a result of cognitive development in the maturing child and is reflected in the increasing percentage of children who delayed at each grade level in the present study.

Based on the results of this study, it appears that Funder and Block (1989) were correct in collapsing and disregarding gender differences for adolescents. However, the study by Olson (1989) and Olson & Hoza (1993) which measured self-control in 79 white 4 and 5 year olds (without accounting for gender differences) probably should have examined the possibility of gender differences because of the ages of the children sampled. It is probably always important to consider gender differences in delay as a function of age. Collapsing gender for males and females at young ages may obscure differences and lead to overgeneralization.

In summary, the results of this study suggest a weak to moderate relationship between gender and delay of gratification among a younger population of high socioeconomic status. It is important to consider age when testing child delay. The older children, and perhaps especially high SES males and females, may respond similarly to delay tasks. Furthermore, because gender effects may be small and difficult to detect, it is important to obtain a large sample with all levels of SES represented if statistical significance is to be achieved.

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Appendix A

Child Delay Data Form

**CHILD DELAY DATA FORM**

**Name:** \_\_\_\_\_ **Child's Date of Birth/Age:** \_\_\_\_\_

**Teacher:** \_\_\_\_\_ **Time:** \_\_\_\_\_

**Reward (Circle One)** M&Ms Marshmallows Other \_\_\_\_\_

**Delay Time:** \_\_\_\_\_

**Termination Type: (Circle One)**

ATE SEAT BELL TIME

Observation Notes:

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What did you say (do) to help you wait?

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**Why Did You Wait?** (Can "X" more than one of the following)

- \_\_\_\_\_ I wanted the "Big Bowl" of M&Ms.  
\_\_\_\_\_ Because I was waiting for you, you told me to wait.  
\_\_\_\_\_ I liked being all alone, by myself.  
\_\_\_\_\_ I didn't want to go back to my classroom.  
\_\_\_\_\_ Other

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