Recently, William G. Graziano from Texas A&M University and Lauri A. Jensen-Campbell from Florida Atlantic University conducted a project that explored individual differences in an adolescent's ability to regulate his/her behavior. This project was supported by a NIMH grant to William Graziano. The project data collection is finally complete. We finished receiving the majority of teacher forms in August 1997. We are still missing three teachers' ratings and will be happy to add them to our data set if they are complete! We are now beginning data analysis of this large data set.

We would like to take this opportunity to thank all of the principals, teachers, and students who participated at Plumstead Christian Elementary and High Schools, Henderson Middle School, St. Bernadette's Middle School, St. David's Middle School, and Crystal Lake Middle school. You helped make this project a success.

We wanted to let you know why we think this research is important and the preliminary findings of the study you participated in. Since we have just begun analyses, new findings may emerge in addition to what is reported here.

**Introduction**

Self-control is considered to be an important developmental milestone. Without the ability to control one's emotions and behaviors, people would be constantly violating other's rights, breaking rules, being disruptive, and unable to display patience. According to a report by the National Center for Clinical Infant programs, being able to control impulses (i.e., self-control) is predictive of school success (Goleman, 1995). The ability to regulate one's behavior has been referred to as ego-control (Block & Block, 1983), self-efficacy (Bandura, 1986), ego-resilience (Block & Block, 1983) and recently as "emotional intelligence" (Goleman, 1995, Salovey & Mayer, 1990).

Walter Mischel has been studying self-regulation in preschool children since the early 1960s. To measure self-regulatory competencies objectively in preschool children, Dr. Mischel measured how well children could delay gratification. Imagine that you are in preschool and someone tells you that you have the choice between 1 marshmallow immediately or if you can wait until he/she comes back you can have two marshmallows. Dr. Mischel found that the choice a preschool child makes can predict of his/her cognitive and self-regulatory competencies later when s/he is an adolescent. He specifically found that parents of children who delayed longer as preschoolers rated them as more conscientious and more able to handle frustrations. Individual differences among preschoolers were most apparent when the children had no help with delaying and the marshmallow was in sight. For example, it is harder for a child to delay when he/she is not given any ideas from adults about how to delay gratification (e.g., think of the marshmallow as a white puffy cloud). Moreover, it is harder for children to delay when the marshmallow is in view than when it is hidden (Shoda, Mischel, & Peake, 1990).

As children become older, their delay behavior rapidly becomes less responsive to the marshmallow manipulation. In other words, older children can all wait without difficulty. Thus, the marshmallow task loses its ability to diagnose self-regulation early in the course of
development (i.e., by elementary school). In fact, very little research has been done to examine possible predictors of young adolescents' self-regulatory behavior. If we can understand what personality dimensions predict a child's ability to control his/her behavior, it would be possible to use the information from this basic research to develop self-control interventions for adolescents.

Another way to measure self-control is by placing child in a situation in which they must resist temptation. Our study explored the links among personality and self-regulation within a resistance to temptation framework. We were specifically interested in individual differences in agreeableness and conscientiousness. Evidence in personality psychology now suggests that five comprehensive dimensions make up the main elements of one's personality.

An easy way to remember these dimensions is to think OCEAN:
- Openness to Experience (or Intellect)
- Conscientiousness
- Extroversion
- Agreeableness
- Neuroticism or emotional stability

Our specific interest was in individual differences in agreeableness and conscientiousness. Agreeableness and conscientiousness are assumed to emerge out of the same temperamental origins of effortful control. In addition, Walter Mischel found evidence that adolescent personality description for delay related behaviors were similar to trait words marking the dimensions of conscientiousness.

Our study examined how self-ratings and teachers' ratings of personality would predict self-regulation and adjustment. Moreover, we examined how different situations will combine with individual differences to change an adolescent's ability to resist temptation.

Method

Participants
The participants were 6th (N = 180), 7th (N = 119) and 8th (N = 87) grade boys (N = 173) and girls (N = 213). The ethnic composition of our sample was 61.4% European, 23.3% Cuban, 12.2% Haitian/African, 1.3% Asian American and 1.8% who were classified as other. After receiving parental permission, students volunteered to participate.

Materials
Personality Measures. We used a measure by Goldberg (1992) to assess the five dimensions of personality. This measure was the 100 adjectives teachers completed. Students also completed the same 100 adjectives. Students could range from -40 (very unconscientious/very disagreeable) to +40 (very conscientious/very agreeable) on each dimension. Teachers also gave us their professional evaluation of each child's interpersonal adjustment in school.

Self-regulation Measures. In the face of probable failure on a general knowledge questionnaire, people can choose to cheat or not to cheat. We measured resistance to temptation in two ways: Looking at answers and changing answers (i.e., cheating). A general knowledge test was created to assess self-control. The questions were adapted from Nelson and Narens (1980). Nelson and Narens (1980) examined college students' ability to answer to general knowledge questions. We took 51 of these questions and asked 126 children (6th - 9th grade) at Plumstead Christian Elementary and High Schools to answer these questions. Based on their answers 20 questions were retained. The final "test" consisted of 14 easy items and 6 difficult items. We chose the items that showed no sex or grade differences. That is, both boys and girls were equally likely to know the answers. Moreover, 6th and 9th graders were equally likely to
know the answers. The items were as follows (The number in parentheses signify the difficulty of the question. For example, 1.00 signifies that 100% of the students gave the correct answer and .01 signifies that only 1% of the students gave the correct answer):
1. What is the name of the comic strip character who eats spinach to increase his strength? Popeye (1.00)
2. What is the name of the horse-like animal with black and white strips? Zebra (.92)
3. What was the last name of the brothers who flew the first airplane at Kitty Hawk? Wright (.80)
4. What is the name of the remains of plants and animals that are found in stone? Fossils (.83)
5. What is the last name of the man who showed that lightening is electricity? Franklin (.80)
6. What is the term for hitting a volleyball down hard into the opponent's court? Spike (.85)
7. What is the name of the supposedly unsinkable ship that sunk on its maiden voyage in 1912? Titanic (.77)
8. What is the name of a dried grape? Raisin (.77)
9. What is the name of the long sleep some animals go through during the entire winter? Hibernation (.95)
10. Which precious gem is red? Ruby (.88)
11. What is the name of the ship that carried the pilgrims to America in 1620? Mayflower (.91)
12. What is the name of the thick layer of fat on a whale? Blubber (.73)
13. What is the last name of the woman who supposedly designed and sewed the first American Flag? Ross (.67)
14. What is the name of the last name of the villain captain in the story "Peter Pan"? Hook (.91)
15. What is the name of the author who wrote "The Old Man and the Sea"? Hemmingway (.03)
16. What is the name of the woman who began the profession of nursing? Nightingale (.05)
17. What is the name of the Roman Emperor who fiddled while Rome Burned? Nero (.04)
18. What is the capital of Chile? Santiago (.09)
19. What is the name of the twenty-first President? Arthur (.09)
20. What is the highest mountain in South America? Aconcagua (.01)

Procedure

In both phases of the study, each adolescent was assessed individually using laptop computers (Campbell et al., 1994). In phase 1, all of the students were presented with Goldberg's (1992) adjectives and Harter's Self-Perception Profile.

In phase 2, students were randomly assigned to one of three conditions. In all conditions, students were told that the researcher was looking to see what kind of general knowledge information kids their age knew. We told them that they would be entered in a raffle if they could answer 80% of the questions correctly. In actuality, students their age should not be able to correctly answer 80% of the questions (i.e., 6 difficult items = 30%).

In two conditions, students were told that we were using a new computer program that was broken to allow them to see the answers if they pressed F1. This did not seem unusual to the children because the program in Phase 1 allowed them to gain definitions for words in some sections using F1 and not in other sections. The program in Phase 2 was a different program. We claimed we needed this new program because the first program did not allow them to do fill-in-the-blank.

In condition 1, students were told that not looking at answers was extremely important because we really needed to know what kids their age could answer. In condition 2, we again told them that it was extremely important not to look at the answers. The researchers told the students, however, that their boss did not want students to look at the answers because it would ruin his study, but the researcher empathized with the desire to look at answers and admitted that he/she too would be tempted to look. Condition 2 endorsed behavior that was clearly wrong. In Condition 3, students were not told anything about the program being broken. The computer did, however, tell students that answers could be obtained by pressing F1 (as in Conditions 1 & 2). After all students completed the study, raffles were held in each school. All students who participated in the study were "debriefed" at that time. In other words, we told the students about our interest in whether they looked at answers or not. The students were told that we expected everyone to at least look at one answer and explained the three conditions to the students.
Students then guessed that other students would look more in Condition 2 (as we also predicted). We might note here that parents were fully aware of the true nature of the study at the time they gave parental consent.

Results

First, we examined the relation among the five dimensions of personality. We were specifically interested in whether teachers and students agreed in their ratings of the student using correlations. A correlation is a measure of relation among two variables. A correlation coefficient allows researchers to determine the strength and direction of the relationship. A correlation can range from -1.00 to +1.00. The size of the correlation describes the strength of the relationship. For example, teachers believe that conscientiousness is strongly related to interpersonal adjustment in school (.72). Teachers, however, did not think extraversion was strongly related to adjustment (.06). The sign determines the direction of the relationship. A positive correlation signifies that when one variable increases the other variable will also increase. For example, the higher teachers rate students on conscientiousness the higher they also rate them on adjustment. A negative correlation represents a relationship where one variable increases the other will decrease. For example, the more a child cheats the less adjusted he/should be.

<table>
<thead>
<tr>
<th>Self-Report</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>Adjustment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extraversion (1)</td>
<td>0.22</td>
<td>0.09</td>
<td>0.14</td>
<td>0.11</td>
<td>0.18</td>
<td>0.16</td>
</tr>
<tr>
<td>Agreeableness (2)</td>
<td>-0.06</td>
<td>0.27</td>
<td>0.30</td>
<td>0.10</td>
<td>0.24</td>
<td>0.66</td>
</tr>
<tr>
<td>Conscientiousness (3)</td>
<td>-0.08</td>
<td>0.30</td>
<td>0.37</td>
<td>0.25</td>
<td>0.31</td>
<td>0.28</td>
</tr>
<tr>
<td>Emotional Stability (4)</td>
<td>0.09</td>
<td>0.10</td>
<td>0.09</td>
<td>0.11</td>
<td>0.07</td>
<td>0.11</td>
</tr>
<tr>
<td>Intellect (5)</td>
<td>0.07</td>
<td>0.24</td>
<td>0.32</td>
<td>0.23</td>
<td>0.36</td>
<td>0.28</td>
</tr>
<tr>
<td>Adjustment</td>
<td>0.06</td>
<td>0.66</td>
<td>0.72</td>
<td>0.62</td>
<td>0.68</td>
<td></td>
</tr>
</tbody>
</table>

Numbers in red represent statistically significant relationships. Overall, students' ratings of themselves and teachers' rating of them agreed (see the correlations in boxes). The strongest relations were for the dimensions of conscientiousness and intellect (.37 and .36). The weakest relation was between teacher and student ratings of emotional stability (.11).

To examine possible differences among teacher- and self-ratings of personality, we examined possible sex of participant effects. For self-ratings, girls reported that they were more agreeable than boys. For teacher ratings, this effect was amplified. Girls also reported being less emotional stable than boys.
Teachers, however, reported that boys were less emotionally stable than girls. Boys and girls did not differ on their self-ratings of extroversion, conscientiousness, and intellect. Teachers, however, reported that girls were higher on conscientiousness and intellect. Teachers rated boys and girls equally on extroversion.

Next, we examined the relations among the five dimensions of personality and self-regulatory behavior using correlations. Adolescent's self-reported conscientiousness and intellect were positively related to looking at answers and changing answers only when the researcher appeared to endorse cheating. For teacher-rated personality, all five dimensions of personality moderated self-regulation, but only in the condition where a socially significant other appeared to endorse cheating. Moreover, teacher's ratings of adjustment predicted the self-regulatory behaviors associated with cheating.
<table>
<thead>
<tr>
<th>Self-Report</th>
<th>OVERALL</th>
<th>CONDITION 1</th>
<th>CONDITION 2</th>
<th>CONDITION 3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Looking Cheating</td>
<td>Looking Cheating</td>
<td>Looking Cheating</td>
<td>Looking Cheating</td>
</tr>
<tr>
<td>Extraversion (1)</td>
<td>-0.08 -0.11</td>
<td>-0.08 -0.06</td>
<td>0.11 0.06</td>
<td>-0.21 -0.24</td>
</tr>
<tr>
<td>Agreeableness (2)</td>
<td>-0.02 -0.04</td>
<td>0.04 0.06</td>
<td>-0.12 -0.14</td>
<td>-0.02 -0.06</td>
</tr>
<tr>
<td>Conscientiousness (3)</td>
<td>0.00 0.01</td>
<td>0.12 0.14</td>
<td>-0.17 -0.19</td>
<td>0.02 0.02</td>
</tr>
<tr>
<td>Emotional Stability (4)</td>
<td>0.02 0.00</td>
<td>-0.05 -0.04</td>
<td>0.04 0.03</td>
<td>0.07 0.04</td>
</tr>
<tr>
<td>Intellect (5)</td>
<td>-0.13 -0.16</td>
<td>-0.06 -0.06</td>
<td>-0.26 -0.29</td>
<td>-0.11 -0.15</td>
</tr>
<tr>
<td>Teacher Report</td>
<td>Extraversion (1)</td>
<td>0.01 0.00</td>
<td>-0.01 -0.05</td>
<td>0.22 0.23</td>
</tr>
<tr>
<td>Agreeableness (2)</td>
<td>-0.08 -0.11</td>
<td>-0.20 -0.20</td>
<td>-0.25 -0.30</td>
<td>0.15 0.12</td>
</tr>
<tr>
<td>Conscientiousness (3)</td>
<td>-0.07 -0.09</td>
<td>-0.10 -0.07</td>
<td>-0.30 -0.34</td>
<td>0.13 0.09</td>
</tr>
<tr>
<td>Emotional Stability (4)</td>
<td>-0.08 -0.10</td>
<td>-0.11 -0.07</td>
<td>-0.21 -0.24</td>
<td>0.06 0.02</td>
</tr>
<tr>
<td>Intellect (5)</td>
<td>-0.12 -0.15</td>
<td>-0.18 -0.18</td>
<td>-0.17 -0.22</td>
<td>-0.06 -0.09</td>
</tr>
<tr>
<td>Adjustment</td>
<td>-0.06 -0.09</td>
<td>-0.16 -0.15</td>
<td>-0.17 -0.23</td>
<td>0.06 0.04</td>
</tr>
</tbody>
</table>

We also examined other possible moderators of self-regulatory behavior. First, we found that the type of admonishment affected both looking at and changing answers. Young adolescents cheated more and looked at more answers when a social significant other appeared to endorse their doing do (Condition 2). Young adolescents cheated the least when a socially significant others reminded them about the importance of not looking at answers. We might point out here that a full 37.6% did not cheat and 36.5% did not look at answers!

![Means for Self-Regulation Behavior by Condition](image)

In addition, we found that the grade the adolescent was related to self-regulation. As anticipated, older adolescents were better able to regulate their behavior than were younger adolescents. Sex of the participant, however, was not related to self-regulation in this study.
Means for Self-Regulation Behavior by Grade

Summary

- Self-regulation is important for interpersonal adjustment in school. Teacher-rated adjustment in school was significantly related to cheating behavior in young adolescents.
- Teacher and student ratings of the students were similar to one another. Teachers, however, made more distinctions between boys and girls on the personality measures.
- The personality of students was predictive of their interpersonal adjustment to school (from teacher's professional evaluations).
- Personality ratings were also good predictors of actual self-regulatory behavior (i.e., cheating), especially when a socially significant other endorsed cheating (making it tougher to resist temptation).
- Teacher ratings of personality tend to be better predictors of self-regulatory behavior and interpersonal adjustment in school.

References


The Two Faces of Temptation: Differing Motives for Self-Control

Lauri A. Jensen-Campbell
University of Texas at Arlington

William G. Graziano
Purdue University

L.A. Jensen-Campbell, Department of Psychology; W.G. Graziano, Child Development and Family Studies.

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Communications about this research may be directed to Lauri A. Jensen-Campbell (lcampbell@uta.edu) or to W. G. Graziano, Department of Child Development & Family Studies, 101 Gates Road, Purdue University, West Lafayette, IN 47907 (USA), grazianow@purdue.edu.
Abstract

Self-regulation is critical to social/personality development in all cultures. Self-regulation may have developmental origins in temperament, yet also interact with socialization processes. This research specifically probes children's self-regulation during resistance to temptation. Socialization of self-regulation may be influenced by the way adults communicate rules about cheating. The impact of adult communications will interact, however, with personality characteristics of the child receiving the message. When adult messages stress matching performance to standards (Conscientiousness), then different children will cheat than when adult messages stress maintaining positive social relations (Agreeableness). Children \( (N = 371) \) were placed in a testing situation to assess resistance to temptation. After completing ratings on the Big Five dimensions of personality, children were randomly assigned to one of three message conditions. Resistance was related to adult communication and to personality. Outcomes were discussed in terms of socialization of self-regulation and the differential activation of motive systems by adult communications about cheating.
The Two Faces of Temptation: Differing Motives for Self-Control

"The greatest principle and foundation of all Virtue and Worth is placed in this; that a man is able to deny himself his own desires, cross his own inclinations, and purely follow what reason direct as best, although the appetite leans the other way."

John Locke (1690), *Essay Concerning Human Understanding*

In the 314 years since the appearance of Locke’s optimistic revolutionary manifesto, confidence in the power of reason and willpower has been badly bruised. The historical record of corruption and lack of self-restraint offer abundant evidence that most lives are not regulated adequately, or perhaps even commonly, by reason and willpower. Intellectuals have joined in the assault by showing how reason and willpower can be subverted, sometimes without conscious awareness, by apparently baser self-serving impulses (Ellenberger, 1970; Freud, 1959; Nietzsche, 1918; Sartre, 1956; Toynbee, 1964; Zajonc, 1980).

That willpower can be subverted by other motives does not gainsay its values. Words related to willpower are used by adults to describe children in many (perhaps most) cultures worldwide, and willpower-related tendencies seems to be a valued outcome of socialization (Kohnstam, Halverson, Mervielde, & Havill, 1998; Halverson et al., 2003). Self-control and self-regulation are probably an important part of becoming integrated into any social system, but it is one aspect of a larger socialization matrix (e.g., Hogan, 1983). That is why willpower should be studied, but in context, as one of several motive systems that could interact with other motives and aspects of the socialization context, to affect behavior.
In recent years, "socialization" has undergone a related transformation as a concept in social/personality development theory. Prior to the cognitive revolution of the 1960's, socialization was regarded as an **outcome** that was a consequence of relatively passive learning (e.g., Bugental & Goodnow, 1998; Sears, 1975; Graziano, 2003). With the cognitive revolution came ideas that the recipients of socialization efforts were more active than previously suspected in selecting and integrating information. Children were presented as responding to relationship qualities of caregivers like warmth, as "building internal working models" of relationships, and even as directing aspects of the socialization process itself through their own tendencies and dispositions (e.g., Bell, 1968). In this newer approach, socialization provides not just an outcome, but also arrays of situational contexts within which specific relationship and personality variables can be activated and expressed.

Modern psychological theory and research offer a complex, textured account of willpower as a subordinate aspect of the more inclusive construct of self-regulation (Bandura, 1986, 1994; Bullock & Lutkenhaus, 1988; Funder & Block, 1989; Funder, Block, & Block, 1983; Metcalfe & Mischel, 1999; Mischel & Mischel, 1983; Zimmerman & Kitsantas, 1997). Self-regulation can be defined succinctly as "processes by which an individual, in the absence of external instruction or surveillance, actively maintains a course of action for the purposes of achieving a goal" (Shaffer, 1994, p. 227; for related definitions, see Harter, 1983, pp. 339-342; Mischel, Cantor, & Feldman, 1996, pp. 330-333). Bandura (1986) noted that the acquisition of self-regulatory processes allows humans to be less reflexive and more planful than they might be without such
processes. Self-regulation allows us to transcend the demands of the immediate environment.

Rothbart and her colleagues (e.g., Rothbart & Posner, 1985; Rothbart & Bates, 1998; Rothbart, Ellis & Rueda, 2003) provided a conceptual analysis of self-regulation that involves temperament. In traditional accounts of temperament (e.g., Buss & Plomin, 1984), individuals are disposed towards patterns of social behavior within specific domains, such as emotionality, sociability, and activity. Rothbart and her colleagues propose an additional aspect of temperament called “Effortful Control” (EC), which is a superordinate, self-regulatory system that controls other temperament systems. EC is associated with early-appearing individual differences in the ability to sustain and shift attention, and the ability to initiate and inhibit action voluntarily. EC has been further defined as the ability to suppress a dominant behavior to perform a subdominant response (Kochanska & Knaack, 2003; Kochanska, Murray, & Harlan, 2000). Ahadi and Rothbart (1994) go further, suggesting a developmental connection between early appearing processes of EC and subsequent personality structure in children, adolescents, and adults. Specifically, Ahadi and Rothbart propose that EC indexes the common developmental process underlying two of the major dimensions in the Big Five structural model of personality, namely Agreeableness and Conscientiousness (Graziano, 1994; Graziano & Eisenberg, 1997).

Conceptually, the processes within EC that provide the developmental foundation for such seemingly different personality dimensions involve self-regulation of frustration. When an infant’s goal directed activity (e.g., reaching for a rattle) is
blocked, frustration occurs that can generate goal-diverting emotional reactions (e.g., crying). If a superordinate self-regulatory system were able to sustain attention toward the goal, and to inhibit unsuccessful behavior or initiate new goal-directed action voluntarily, then longer-term frustration could be minimized (Kiers, Tobin, & Graziano, 2004). During the course of normal development, the EC system differentiates into two separate but related systems that deal with the frustration coming from people (agreeableness) and the frustration coming from objects and tasks (conscientiousness).

This analysis has several potentially important theoretical implications. First, two of the major Big Five dimensions of adult personality structure may be linked to each other developmentally through the common, emotion-related substrate indexed by EC. Second, normal development may produce two separate personality modules in most persons, but the key to explaining the operation of both involves frustration from constraint. Conscientious persons maintain standards and persist at tasks in the face of goal blockage (e.g., Arthur & Graziano, 1996, pp. 598-600; Barrick & Mount, 1991; Digman & Inouye, 1986; Hogan & Ones, 1997). A similar argument can be made for high agreeable persons, who respond to interpersonal conflict more constructively (Graziano, Jensen-Campbell, & Hair, 1996; Jensen-Campbell, Graziano, & Hair, 1996), cooperate more productively during interdependent group tasks (Graziano, Hair, & Finch, 1997) and work harder to suppress negative emotions during social interaction (Tobin, Graziano, Vanman, & Tassinary, 2000) in part because they are able to control frustration coming from goal blockage generated by other people.
Third, this analysis suggests answers to basic issues of construct validity. Within the Big Five literature, questions remain about the most suitable conceptualizations for the hypothetical constructs underlying both Factors II (Agreeableness) and III (Conscientiousness) (e.g., Digman, 1997; Goldberg & Rosolack, 1994). For example, is Factor II best conceptualized in terms of its most central theoretical processes, as social conformity, social desirability concerns, communal orientation, likeability, prosocial motivation, or even “love” (see John, 1990, Table 3.4, p. 89; Digman & Takemoto-Chock, 1981; Graziano & Tobin, 2001; Graziano & Eisenberg, 1997; Paulhus & John, 1998)? Developmentally, persons who lack skills in frustration tolerance early in life may be less able to acquire other interpersonal and goal-directed skills than their peers. This suggests that the key motives in the agreeableness and conscientiousness constructs develop out of reactions to constraint, not to acquiescence or social conformity or prosocial motivation, per se (e.g., Asendorpf & Van Aken, 1999; Graziano & Tobin, 2001). Fourth, this analysis may help explain why preschool children’s delay of gratification and resistance to temptation can predict long-term coping and adjustment (e.g., Funder, et al., 1983; Mischel, Shoda, & Peake, 1988). The undifferentiated EC processes underlying preschooler’s delay of gratification may also underlie more differentiated, later appearing skills in social relations and academic goal setting.

Baumeister, Tice, and Heatherton (1994) further theorize that self-regulation processes are limited mental resources that allow persons to react appropriately in situations (i.e., control impulses and desires). According to their strength model, self-regulatory systems can be fatigued by attentional, situational, or competing demands.
Given that self-regulatory processes are subject to temperamental individual differences, this resource may be more limited for some individuals than for others and may become increasingly important in development. Jensen-Campbell and colleagues (2002) have found that agreeableness predicted Stroop reaction times and both Agreeableness and Conscientiousness predicted Wisconsin Card Sorting Task measures, a neuropsychological test that traditionally examined self-regulatory processes.

One potential limitation of this dispositional analysis is that it does not deal explicitly with socialization contexts, or more proximally, with social-cognitive moderators of self-regulatory behavior, such as salience of rewards and distracting ideation (e.g., Metcalfe & Mischel, 1999; Shoda, Mischel, & Peake, 1990). Mischel and his colleagues have demonstrated empirically that self-regulatory processes like resistance to temptation and delay of gratification can be undermined by subtle but theoretically meaningful changes in situational contexts and in cognitive strategies for dealing with reward delays (e.g., Mischel & Baker, 1975; Mischel & Ebbesen, 1970; Mischel, Ebbesen, & Zeiss, 1972, 1973; Mischel & Metxner, 1962; Mischel & Mischel, 1983).

Mischel’s program of research shows that situational variables not only interact with dispositional variables like EC, but also may provide information on motives underlying delay of gratification and self-regulation. Bem and Funder (1978) reported self-regulation data that are consistent with Mischel’s in certain respects. Bem and Funder used parent descriptions to identify characteristics of children who delayed
gratification longest in a Mischel-type laboratory task (e.g., Marshmallow task; Shoda, Mischel, & Peake, 1990). Bem and Funder found that the longest-delaying children were described as "helpful," "cooperative," "obedient." Some of these are, of course, descriptors of high agreeable persons. Bem and Funder suggest that delay behavior may be motivated less by an omnibus cross-situational dispositional skill than by a situation-elicited tendency to cooperate, in this case, with adults. Agreeable children may engage in compliance with adult requests, at least while the adults could watch. This is probably not what Locke meant by willpower.

It is possible to refine these predictions further. Resistance to temptation may be influenced by two different motives in different situational contexts. In the first kind of situation, meeting high standards of performance may be particularly salient aspect of achieving a goal. Temptations here may take the form of cutting corners, setting lower standards, or engaging in illicit behavior to obtain the goals. In this kind of goal situation, differences in motives for matching performance to standards may be activated, and may be related to resistance to temptation. Mischel et al. (1988) showed that preschoolers' ability to delay gratification in temptation situations predicted later adolescent cognitive and self-regulatory skills. In another kind of situation, however, performance standards may be less salient than the maintenance of positive relations with others. Temptation here also takes the form of matching to standards, but the standards are provided by the expectations of socially significant others (e.g., Miller & Prentice, 1996, regarding situation-induced performance norms).

From the perspective of the developmental theory outlined previously,
temperament-based effortful control may provide a common precursor for frustration regulation, out of which conscientiousness and agreeableness later develop into two separate motive systems with distinct patterns of responsiveness to situational contexts. More specifically, in socialization situations making salient issues of social approval and expectations for the maintenance of positive social relations, agreeableness (but not conscientiousness) motives will be activated. In socialization situations in which these issues are not salient, or issues about assessing individual performance standards are more salient, then conscientiousness (but not agreeableness) motives will be activated. Concretely, if this line of reasoning is correct, then resistance to temptation to take illicit action will be predicted by agreeableness in situations involving messages from socially significant others that cheating is potentially relationship threatening because it is socially undesirable. In mixed or ambiguous message situations, however, cues from the social environment are not clear, and internal performance standards may offer more reliable guidance (e.g., Bem, 1972). In these cases, the internal standards will be set by conscientiousness, and resistance to temptation will be predicted by conscientiousness but not agreeableness.

Self-Regulation During Adolescence

One of the most complex life ecologies surrounds the transition from childhood to adolescence. Nowhere in the life course are conflicts among diverse intrapersonal and interpersonal forces, and problems of adjustment, more apparent than in the transition to adolescence (e.g., Larson & Richards, 1994). In adolescence, relations with parents and peers are altered, school structure and academic requirements change,
puberty takes place, and sex roles are reevaluated (Simmons & Blythe, 1987). Moreover, susceptibility to peer influence is highest during early adolescence compared to preadolescence and late adolescence, especially for behaviors such as cheating (e.g., Berndt, 1979; Krosnick & Judd, 1982; Steinberg & Silverberg, 1986). Many researchers also now believe that changes in self-regulatory processes also occur during adolescence and are linked to the maturation of the brain (Case, 1992; Somsen et al., 1997). For example, myelination of higher brain center areas is believed to continue into adolescence. Specifically, the development of the prefrontal cortex continues until at least age 20 (Spreen et al, 1995; Stuss, 1992). These changes in the prefrontal cortex may be less dramatic than changes that occurred during the preschool years, but may lead to critical advances in the ability to regulate social behavior. Self-control is a reasonably stable attribute (e.g., Shoda, Mischel, & Peake, 1990), but little is known about the ways that personality and self-control are associated with adolescent's adaptations to their social environments. Moreover, stable personality characteristics seem to have their greatest impact in weak ambiguous situations or when new responsibilities are not yet mastered, which are distinctive of transition periods such as early adolescence (Caspi & Moffit, 1993; Ickes, 1982).

The Present Study

This study was designed to examine self-regulation as resistance to temptation, and the potentially different motives underlying its expression during early adolescence (Graziano, Jensen-Campbell, & Finch, 1997). Theoretical analyses show that resistance situations are not identical to delay situations, but the two do share key
conceptual properties, at least for the present work (See Karniol & Miller, 1981, pp. 46-48). If agreeableness and conscientiousness have a common developmental substrate in effortful control, then children high in agreeableness and conscientiousness may be better able than their peers are to resist temptation to cheat because they are better able to control frustration during goal blockage. In this approach, resistance to temptation is a skill, and performance of the skill should be influenced little by adult admonitions about task performance, even by important people like the experimenters.

This analysis may apply more clearly to conscientiousness than to agreeableness. Conscientiousness is concerned largely with matching behavior to performance standards. Evidence suggests that conscientiousness is a valued outcome of socialization. At virtually every age group, conscientiousness has been associated with a broad band of performance standards, including elementary school grades (e.g., Digman & Inouye, 1986; Graziano & Ward, 1992), performance at work and industrial settings (e.g., Barrick & Mount, 1991; Hogan & Ones, 1997), and even driving accident involvement (e.g., Arthur & Graziano, 1996). The skills and motives that presumably underlie conscientiousness may be activated across a relatively broad band of situations where matching performance to standards is salient.

The skill analysis may not apply as clearly to agreeableness. Like conscientiousness, agreeableness may be related to frustration control and matching behavior to standards, but the domain of expression may be different. More specifically, if agreeableness is related to motives for maintaining positive social relations, then high agreeable children should be willing to resist temptation when
cheating is disapproved by important persons like experimenters, but also be willing to cheat when cheating appears to be approved. In situations in which important persons are not clear on what is wanted, however, relationship maintenance may be less salient, and other motives may become more salient, at least for some people. It is plausible that in apparently ambiguous situations, the individual may “look inward,” and matching behavior to internal standards may become an important social-cognitive activity (cf., Bem, 1972). In these cases, conscientiousness motives will be activated, and differences in conscientiousness will predict resistance to temptation. In situations in which maintaining positive social relations are salient, agreeableness motives will be activated, and differences in agreeableness (but not conscientiousness) will predict resistance to temptation. In this approach, the behavior of resistance to temptation is determined by two different motive systems.

Method

Research Participants

A total of 371 students in 6th (n = 175), 7th (n = 111), and 8th grade (n = 85) (169 boys) from southern Florida volunteered for the study. Child participants received written parental permission prior to their participation. Of the parental permission letters we received back, we had an 83% affirmative response rate. Proportions based on ethnic background were 62.3% European American, 22.9% Latino American (primarily Cuban American), 11.6% African American/Haitian American, 1.3% Asian American and 1.9% who were classified as Other. Teachers completed ratings on 332 of the students (89%).
Materials

*Personality measures.* Computer versions of standard scales were used to obtain measures of each of the Big Five dimensions and self-concept. Goldberg's (1992) standard markers were used to measure the Big Five dimensions of personality. Children rated themselves from 1 (strongly disagree) to 5 (strongly agree). Instead of presenting the markers in a bipolar format (e.g., warm-cold), we separated the poles and presented them in a unipolar format (Briggs, 1989, 1992). This allowed us to produce difference scores for each of the five dimensions. Next, we used a quasi-Q scoring procedure recommended by Goldberg (1992) to produce less dependence among the five-factor scores. Difference scores were then computed for appropriate pairs and then used to replicate Goldberg's five-factor structure (see Briggs, 1992, p. 268). Sample agreeableness items included [kind-unkind], [cooperative-uncooperative], [polite-rude], and [agreeable-quarrelsome]. Sample items on conscientiousness included [organized-not organized], [conscientious-not conscientious], [practical-not practical], [reliable-not reliable], and [thorough-careless]. Reliabilities on the Big Five dimensions ranged from .65 (emotional stability) to .83 (openness to experience) with a mean reliability of .75. (For details on the computer assessment methodology, see Graziano, Jensen-Campbell, & Finch, 1997; Graziano, Jensen-Campbell, Steele, & Hair, 1998). Measures of self-esteem and adjustment were also collected but will not be discussed in this paper.

Teachers also provided measures of the Big Five using a paper-and-pencil
version of Goldberg's (1992) trait markers. Reliabilities on the teacher-reported Big Five dimensions ranged from .92 (emotional stability) to .98 (agreeableness) with a mean reliability of .96. Teachers also provided professional evaluations of adjustment for each child, but these measures will not be reported here.

*Resistance to Temptation Measures.* In the face of probable failure on a general knowledge questionnaire, children can choose to cheat or not to cheat. We measured resistance to temptation in two ways: frequency of looking at answers and changing answers after looking. A “test” was created to assess general knowledge, and it served as a vehicle for measuring resistance to temptation. The items were adapted from Nelson and Narens (1980), who examined college students' ability to answer general knowledge questions. A total of 51 questions were pretested with 6th-9th grade children (N=126). Based on item analyses from these children, 20 questions were retained. The final "test" consisted of 14 easy items (e.g., "What is the name of the comic strip character who eats spinach to increase his strength?") and 6 difficult items (e.g., "What is the highest mountain in South America?"). There was no evidence of any sex or grade differences, Fs < 2.50, ns.

The questions were presented using the RDT (Research Data Tools) program (Campbell, 1995). This program completely randomized the presentation order of the items. Moreover, the program recorded the order in which the questions were asked. These procedures eliminate order effects of the kind that may be present in typical paper and pencil measures (Knowles, 1988). These procedures also allowed us to partition uniquely variance due to order of presentation versus difficulty of items.
We measured resistance to temptation in two ways: frequency of looking at answers and changing answers\(^1\). Frequency of looking at answers was operationalized as the number of times the students pressed F1 to look at answers. Thus, the scale for illicit looking could range from 0 (no looking) to 20 (looking at every answer). The average number of answers children looked at was 7.54 questions ($SD = 7.57$; $skewness = .45$); the actual range was 0 to 20.

The computer also recorded what the students had typed on the screen at the time they pressed F1 and at the time they pressed enter for the next question. Changing answers was operationalized as any change in response from the time the student pressed F1 until he/she pressed enter. The scale for cheating ranged from 0 (no changing of answers) to 20 (changing all answers). The average number of answers children cheated on was 6.83 questions ($SD = 7.05$; $skewness = .53$); the actual range was 0 to 20. Because our two dependent measures were highly correlated ($r = .98$) and results for our two dependent measures were virtually identical, only results for changing answers are reported due to space limitations. Unless stated otherwise, personality outcomes for self-reported measures and teacher ratings on the same variable produce the same outcomes.

Procedure

**Personality Description.** Data collection took place in two distinct phases. In both phases, each adolescent was assessed individually in a self-paced computer format (see Graziano, Jensen-Campbell, Steele, & Hair, 1998, for more details).

Participants were taken from class and shown how to use the computer to
describe themselves as accurately as possible. Following Goldberg's (1992) trait marker format, the computer instructed students to describe themselves compared to other students the same age and sex, as they are now and not as they wished to be in the future. Each marker adjective word appeared on the screen one at a time. Using the arrow keys, the student moved a cursor to rate each word as an accurate description, from 1 (strongly disagree) to 5 (strongly agree). If the student did not know a word, he or she could press the [F1] key for a definition.

After completing the Goldberg adjectives, adolescents were given Harter's (1985) Self-Perception Profile using the same format. When the participants finished the scales, they were thanked and escorted back to class. Finally, teacher reports were collected using paper-and-pencil measures of levels of adjustment and Goldberg's (1992) adjectives on each of the adolescents.

Phase 2 took place several months after phase 1. In phase 2, students were randomly assigned to one of three admonition/message conditions. In all conditions, students were told that the researcher was looking to see what kind of general knowledge information kids their age knew. The researchers told them that they would be entered in a raffle if they could answer 80% of the questions correctly. (Based on pretesting information, the researchers expected that almost none of the students in this age would be able to answer correctly 80% of the questions (i.e., 6 difficult items = 30%).

In two conditions, students were told that we were using a new computer program that was similar to the one they had used previously. Unfortunately, the
computer was “broken,” and allowed students to see the correct answers if they
pressed F1. This manipulation was credible because in Phase 1 the program allowed
students to gain definitions for unknown words in some sections using F1 and not in
other sections. The program in Phase 2 was a different program. The researchers
claimed they needed this new program because the first program did not allow
students to complete fill-in-the-blank. In both conditions, researchers told participants
that they knew that it was really tempting to look at the answers so they could get in
the raffle but it was really important that they did not look at the answers. The
researchers told them that the researchers really needed to find out what kinds of
answers students their age knew and that if they looked at the answers, researchers
would not be able to tell if they really knew the answers or not. In the second
condition, additional information was added to create a mixed message. The student
researcher admitted he/she probably would be tempted to look him/herself but that
his/her professor, Dr. Graziano, thinks it is really important not to look at the answers.
(Every participant in all conditions knew that the on-site experimenter was a college
student who was working for Dr. Graziano and that it was not the student researcher's
project.) The researcher then told the student in a hushed voice that even though they
should not look at the answers because it would ruin the study, he/she did not care if
they did. ²

After all students completed the study, raffles were held in each school. All
participants in the study were entered into the raffle. Students were debriefed at that
time and thanked for their participation. Parents were fully aware of the true nature of
the study at the time they gave parental consent.
Motives for Resisting Temptation

Results

Overview

First, correlations among measures were examined. Subsequently, analyses were conducted to examine the unique contribution of conscientiousness and agreeableness to children's looking at answers. It was anticipated that both agreeableness and conscientiousness would be uniquely and negatively related to looking at answers. The hypothesis that personality predicts resistance to temptation was evaluated iteratively, initially without employing controls, and subsequently, with appropriate controls.

Correlations among Measures

Zero-order correlations among the measures are presented in Tables 1 and 2. First, as expected, the relation between adolescent self-rating and teachers' ratings of agreeableness and conscientiousness was significant. Second, agreeableness and conscientiousness were also highly correlated with one another. (This finding was anticipated given that agreeableness and conscientiousness were assumed to develop from the common substrate of effortful control.) Third, both agreeableness and conscientiousness were correlated with our index of resistance to temptation, namely changing answers after looking. Finally, the correlations between personality and resistance to temptation were dissimilar in different experimental conditions (See Table 2). Interpretations of these associations, however, will be offered following the results of regression analyses that employ appropriate controls.

Tests of Hypotheses
To evaluate our hypotheses, iterative sets of analyses were conducted, using an Agreeableness X Conscientiousness X 2 (sex of participant) X 3 (type of admonishment) general linear model. More specifically, we used moderated regression analyses outlined by Aiken and West (1991). Unweighted effects coding were used for categorical variables (i.e., sex of participant and type of admonishment, Aiken & West, 1991, pp. 129-130). Multiple df tests were done within MMR to determine the overall main and interactive effects related to type of condition. Post hoc analyses followed procedures outlined by Aiken and West (1991) and Cohen, Cohen, West, and Aiken (2003).

Do Adult Admonitions/Communications Affect Children's Resistance to Temptation?

First, we predicted that some situations are structured to support resistance to temptation, whereas others inhibit it. More specifically, when adults communicate to children a clear message that looking at answers in a testing situation is cheating, children will cheat less than when adults communicate an ambiguous or mixed message. As predicted, there was a significant condition main effect, \( F(2, 355) = 6.59, p < .01 \). Using MMR, we found that children in the Clear Message condition cheated less (\( M = 5.30, SD = 6.65 \)) than did children in the No Message condition (\( M = 7.04, SD = 7.31 \), \( t(355) = -2.13, sr = -.11, p < .05 \)). Children in the Mixed message condition also cheated marginally more (\( M = 8.11, SD = 6.91 \)) than did children in the No Message condition, \( t(355) = 1.63, sr = .09, p = .05 \), one-tailed. We also examined the proportion of children who cheated on at least one question. For the Clear Message condition, 53.3% of the children cheated on at least one question. For the Mixed Message and No
Message Condition, the proportion of children who cheated at least once was greater (74% for Mixed Message; 60.3% for the No Message).

*Does Personality Interact with Admonitions/Communications to Predict Cheating Behavior?*

Next, we predicted that situations would activate and interact with individual differences in conscientiousness and agreeableness using the same MMR models. More specifically, in situations in which matching behavior to standards is salient, conscientiousness motives will be activated, and differences in conscientiousness will predict resistance to temptation. In situations in which maintaining positive social relations are salient, agreeableness motives will be activated, and differences in agreeableness (but not conscientiousness) will predict resistance to temptation.

Consistent with predictions, there was a significant self-reported Conscientiousness X Condition interaction, $F(2, 355) = 3.14, p < .05$. There was not however, a teacher-rated Conscientiousness X Condition interaction, $F(2, 317) = 1.76, ns$. To examine further the interaction, we examined the unique contributions of conscientiousness (both self and teacher reports) within each condition using multiple regression. Sex of participant, agreeableness, and conscientiousness were entered on the first step and their cross-products were entered on the final step.

Children higher in Conscientiousness cheated less than children lower in Conscientiousness did in the Mixed message condition, $t(110) = -1.87, p < .05, sr = -.18$, one-tailed. The interaction was not significant, but teacher-rated conscientiousness also predicted cheating in the mixed message condition, $t(109) = -2.36, p < .02, sr = -.21$. 
There was no evidence that Conscientiousness uniquely influenced self-control in the No Message condition when agreeableness was controlled, $t_s = .56, -.31, df_s = 128, 123$ (for self and teacher reports), $ns$. (See Table 3 for bivariate correlations).

There was a significant teacher-rated Agreeableness X Type of Condition interaction, $F(2, 317) = 3.30, p < .04$. For the Clear Message condition, children higher in teacher-rated Agreeableness cheated less than children lower in Agreeableness did, $t(94) = -2.12, sr = -.21, p < .04$ (See Table 3 for correlations). There was no evidence that Agreeableness was uniquely related to cheating in the other two conditions when conscientiousness was controlled, $t_s = -.52, .66, df_s = 109, 123, ns$.

There was also a self-reported Agreeableness X Conscientiousness interaction for cheating, $t(355) = 2.48, p < .01$. Children low in Conscientiousness and low in Agreeableness cheated the most (See Figure 1), $t(355) = 2.48, p = .01$. Using procedures outlined by Aiken and West (1991), we examined the relation between Agreeableness and cheating across levels of Conscientiousness. We specifically examined the relation of Agreeableness to cheating at low (-1 SD), medium (0 SD), and high (+1 SD) levels of Conscientiousness. When there were low levels of Conscientiousness, Agreeableness had a impact on cheating, $t(355) = -1.88, p < .05$, one-tailed. At lower levels of conscientiousness, children higher on Agreeableness cheated less than persons lower on Agreeableness did. When there were medium or high levels of Conscientiousness, there was no evidence Agreeableness had an effect on cheating, $t_s(355) < 1.16, ns$.

Finally, there was a significant teacher-rated Agreeableness X sex of participant interaction, $t(317) = -2.36, p < .02$. To examine this interaction, we ran separate
regression equations for boys and girls. Girls higher in Agreeableness cheated less than girls lower in Agreeableness did, \( t(168) = -2.82, sr = -.21, p < .01 \). For boys, there was no evidence that teacher-rated agreeableness moderated cheating behavior, \( t(143) = .58, sr = .05, ns \).

**Supplemental Analyses.**

By not telling participants that the program was broken in the No Message condition, we may have accidentally decreased the salience of the answers to students. It is likely, however, that students were aware of the purpose of the F1 button due to their participation in Phase 1. In addition, at least one student in each control group asked about the F1 button and the group was told to ignore it because the computer program was broken. To examine more formally the possibility of different salience in the No Message Condition and the Clear Message condition, we compared the number of participants who did not use the F1 key versus the number of who used F1 at least once. There was no evidence that more students used F1 at different rates in the No Message versus the Clear Message condition, \( X^2(1, N = 263) = 1.28, ns \). Next, we compared students who used F1 in the three groups. Each participant answered twenty questions (in a randomized order), so correlating each participant's looking with question order was possible. Following r-to-Z transformations, we calculated whether children in the No Message condition were significantly more likely to wait longer to use F1 than did children in the other conditions (suggesting that that F1 may be less salient than in the other 2 conditions). There were differences among the conditions, \( F(2, 184) = 3.84, p < .02 \). Using Scheffe tests, we found that children in the
No Message group waited longer to use F1 \((Z = .22)\) than did children in the Clear Message condition \((Z = .01), p < .01\). There was no evidence, however, that the Mixed Message and No message groups differed from each other \((Zs = .22, .11), p > .05\). The overall pattern of results suggests that viewing answers was not differentially salient across conditions.

The Relation of Personality to Cheating (with Intellect Controlled)

It is also possible that the Big Five dimension of Openness/Intellect (Factor 5) moderates cheating within the laboratory context. That is, children who rate themselves higher on Intellect may look at fewer answers because they know more general knowledge information. To examine this hypothesis, we divided individuals into nonlookers (those who looked at no answers) and lookers (those who looked at 1 answer or more). Using independent sample t-tests, we then examined whether lookers and nonlookers differed on Intellect. Nonlookers were rated by their teachers as marginally higher in Intellect \((M = 12.70, SD = 8.12)\) than lookers \((M = 10.84, SD = 9.90, t(243.2) = 1.81, p = .07)\). There was no evidence, however, that looking at answers was related to self-reported Intellect, \(t(368) = .98, ns, (Ms = 15.05, 14.39, SDs = 5.77, 6.44)\).

Next, we examined whether teacher-rated Intellect was related to giving correct answers among the nonlookers. Persons higher in teacher-rated Intellect answered more questions correctly than persons lower in teacher-rated Intellect, \(r(102) = .35, p < .001\). We found, however, that teacher-rated Agreeableness and Conscientiousness were still significantly related to cheating after partialling Intellect (See Table 3).

Discussion
This research examined self-regulation processes in children as expressed through situational and dispositional influences on resistance to temptation. In most models of socialization, adults and adult-based institutions direct communications to child recipients. The pattern of these adult communications is presumed to leave residues on the children—the outcome of socialization. We found that the structure of adult communications and admonitions to children could promote resistance to temptation. More specifically, clear messages from adults that cheating is wrong promote resistance. Mixed messages from adults appear to undermine resistance, and appear to be worse than no message at all for inhibiting cheating. We also found that children's levels of agreeableness and conscientiousness, two major dimensions of the Big Five structural approach to personality, were related to cheating. These relations were moderated, however, by the nature of the situation within which cheating could occur. Agreeableness (but not conscientiousness) was related negatively to cheating in a clear message situation, whereas conscientiousness was related negatively to cheating in a mixed message situation. Neither was related to cheating in the no message situation.

This program of research began with the assumption that socialization and social development were not unitary or monolithic, but consisted of sets of socialization contexts within which specific situational variables could exert their influence. Clear or mixed messages from adults represent one important set of communication variables. We also assumed that aspects of the child receiving the adult communication would moderate its impact. In particular, we assumed that early appearing, temperamental
differences in "effortful control" provided the developmental substrates from which some forms of self-regulation emerge (e.g., Rothbart & Bates, 1998; Rothbart & Posner 1985; Rothbart et al., 2003). Ahadi and Rothbart (1994) suggested that agreeableness and conscientiousness, two major dimensions of the five-factor structural approach to personality, have a common origin developmentally in processes of effortful control. If this is true, then children high in agreeableness and conscientiousness may be able to resist the temptation to cheat because they are able to control frustration during goal blockage. In this approach, resistance to temptation is a cross-situational skill, the performance of which should not be influenced by admonitions about task performance.

We examined a somewhat different theoretical variant, based on the notion that the socialization and expression of temperament-based motives underlying conscientiousness may be different from motives underlying agreeableness (Graziano, Jensen-Campbell, & Finch, 1997). In this perspective, there are two different motives for resisting temptation. Both conscientiousness and agreeableness may have a common developmental substrate, but conscientiousness becomes part of a motivation system for matching behavior to performance standards, whereas agreeableness becomes part of a motive system for maintaining positive social relations. At some times and places these motives systems can work in concert. Being a "good student" in middle school, for example, probably requires both turning in homework on time and getting along with others (Graziano & Ward, 1992; Hair & Graziano, 2003). If the frustration regulation system has differentiated during development, however, then it is also
possible that these two motive systems will be activated selectively in different situations. It is even possible that they could be set in opposition to each other, such as in “cross pressure situations” in which peers encourage cheating but institutional norms and adults do not (e.g., Berndt, McCartney, Caparulo, & Moore, 1983).

Following this logic, conscientiousness motives may be activated when the situation seems to be assessing performance against some standard. Cutting corners or using illicit means to obtain goals would represent the most obvious temptations here. Children high in conscientiousness may be quicker to recognize and resist such temptations. Similarly, agreeableness may be activated when the situation seems to involve matters of maintaining good social relations. Taking short cuts to a goal that could harm another person (e.g., “it would ruin his project”) would represent a temptation. Children high in agreeableness may be quicker to recognize and resist these kinds of temptations. It would seem, then, that temptation has a Janus-like two-faced structure. In some situations, temptation involves inducements not to meet high performance standards, whereas in other situations, temptation involves inducements to engage in illicit behavior for the purpose of maintaining positive relations. In this approach, resistance to temptation is determined less by general-purpose skills in frustration tolerance than by situationally sensitive motives.

Outcomes of this research are consistent with our theoretical extension, but with qualifications. First, the mixed message situation appeared to activate both agreeableness and conscientiousness motives. Mixed messages may imply that performance standards are being assessed, but also that illicit means to the goal may be
acceptable. This may be a situation in which the two motive systems operate in concert, and perhaps offer overlapping and redundant support for resistance to temptation. The clear message situation elicited the lowest overall level of cheating, and it appeared to activate agreeableness, but not conscientiousness. In clear message situations, temptation may take on a character different from the mixed message situation in that illicit action is clearly defined, potential harm could be done to another person, and a specific request is made not to cheat. Second, we examined how the relations between agreeableness and cheating changed across levels of conscientiousness; we found that persons higher in agreeableness cheated less than persons lower in agreeableness did. However, there was no evidence that when conscientiousness levels were high, agreeableness was related to cheating. This suggests again that agreeableness and conscientiousness may be linked by common control motivation, and may even compensate for each other in temptation situations.

A third qualification is that the pattern of outcomes was somewhat different when personality was assessed in self-rating and in teacher rating. The outcomes based on teacher ratings for agreeableness were more consistent with predictions than were outcomes based on the children’s self-rating for agreeableness. Self-ratings from children present challenges, of course, due to ongoing cognitive development. Beyond this problem, students and teachers may be making judgments about student agreeableness based on somewhat different samples or different aspects of behavior. It is interesting, perhaps, that an adult observer’s rating predicted a student’s resistance to temptation better than the students’ own self-rating.
Motives for Resisting Temptation

Taken together, however, these overall patterns of outcomes suggest that agreeableness and conscientiousness may have a common developmental substrate, but different messages and admonitions can differentially activate their distinctive motives systems. An important issue for future research will be to identify more precisely the motive systems and activating information (e.g., Graziano & Tobin, 2001; Graziano, Jensen-Campbell, & Finch, 1997; Paulhus & John, 1998). It is possible, for example, that in a clear admonition condition, interpersonal issues (e.g., responsiveness to appeals not “to ruin” another person’s project) are more salient than in the mixed message situations, and such relations are especially important to high agreeable adolescents.

If we assume that the present research provides some preliminary evidence for two different motives for resisting temptation, and that these motives are connected to conscientiousness and agreeableness, then it will be important in future research to study the specific processes responsible for the connections. Several possibilities were examined and ruled out in the present studies (e.g., looking at answers may not be regarded as cheating; some children did not need to cheat because they knew more answers). These interpretations were made less plausible by demonstrating that the primary link of personality and cheating remained stable when other measures were controlled. Given that the resistance situation moderated the link between personality and cheating, it seems likely that the import of both agreeableness and conscientiousness lies more in its association with specific kinds of socialization, and with corresponding social-interactional and social-cognitive processes that warrant
attention in future research.

Moving to a higher level of analysis, another issue involves the merits of using very broad personality factors for testing specific hypothesis about motives and development (e.g., Paunonen, 1998). It could be argued that broad personality dispositions like agreeableness and consciousness are not well suited for such tasks. More specific motive measures or more focused facets of broader dispositions are assumed to be better predictors. This is a variation of the familiar “fidelity-bandwidth problem,” in which generality is purchased at the price of precision and visa versa. The position has considerable merit. However, the counterargument is that most past research on broad personality dispositions has not situated the dispositions in specific contexts, nor has it sought situational moderation. Tactics of this sort may give an unfair predictive advantage to facets and more specific motives because these tend to be tied more closely to situations and their demands. In the present research, if we had not manipulated message type, we also would not have found any relation between broad dispositions and behavior. Furthermore, broad dispositions may be more closely linked to specific motives than had been previously recognized (e.g., Finch & West, 1997). It is possible that broad dispositions will be summarizing or aggregating aspects of persons in ways that allow for both prediction and explanation, when properly situated in context. Finally, if broad dispositions like agreeableness and conscientiousness can be linked to specific motives and behavior, and can be shown to interact with situational variables, then this is gain for both generality and theory. Of course, more refined analyses with better predictors may come later, but even they will
require theoretical integration into a more comprehensive theoretical account.
Mischel et al., 1996; Yates & Mischel, 1979) has shown the complex, situational and motivational contingencies that surround self-regulation. A modern rewriting of Locke may be necessary. In it we now add theory about the different motives that may influence the expression of will power in specific situations.
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Footnotes

1 To test whether there were varying perceptions across conditions, 212 children (101 boys, 101 girls, 10 not reporting) with parental permission were randomly assigned to one of the three vignette conditions that matched our experimental conditions. Using 7-point Likert-type scales, they were asked if looking at an answer: (1) would it be wrong; (2) would it be a "big deal"; (3) would it be cheating; (4) would it be the same as cheating on a test; (5) would it be okay to do; and (6) would it be fair to their classmates. On average, participants reported that looking at an answer was wrong ($M = 5.45$, $SD = 1.59$), a "big deal" ($M = 4.91$, $SD = 1.76$), cheating ($M = 5.68$, $SD = 1.83$), the same thing as cheating on a test ($M = 4.97$, $SD = 2.05$), not okay to do ($M = 2.70$, $SD = 1.84$), and not fair to other classmates ($M = 2.31$, $SD = 1.76$). We found no evidence that the type of condition affected construal of the behavior, $F(12, 376) = 1.36$, ns (eta-squared = .04). There was also no evidence that either agreeableness or conscientiousness predicted different construal of looking behavior. High agreeable and high conscientious individuals, however, were more likely to see looking at an answer as unfair to their classmates, $rs = -.25$, -.36, $ps < .05$, respectively.

2Verbatim instructions can be obtained from the authors at request.

3There were no significant cross products for 3rd and 4th order interactions. Moreover, the variance inflation indices were relatively high (VIF > 7) for these cross products. Thus, we removed these cross products from the analyses reported here.
Table 1

*Intercorrelations among Personality Measures*

<table>
<thead>
<tr>
<th>Measure</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Agreeableness (S)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Conscientious (S)</td>
<td>0.62**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Agreeableness (T)</td>
<td>0.26**</td>
<td>0.25**</td>
<td></td>
</tr>
<tr>
<td>4. Conscientious (T)</td>
<td>0.28**</td>
<td>0.39**</td>
<td>0.55**</td>
</tr>
</tbody>
</table>

+p<.05, one-tailed, *p<.05, **p<.01
Table 2

Intercorrelations among Personality and Self-Regulation Measures

<table>
<thead>
<tr>
<th>Measure</th>
<th>Cheating Overall</th>
<th>Cheating Clear Message</th>
<th>Cheating Mixed Message</th>
<th>Cheating Control Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agreeableness (Self)</td>
<td>-0.09+</td>
<td>0.02</td>
<td>-0.18*</td>
<td>-0.13</td>
</tr>
<tr>
<td>Conscientious (Self)</td>
<td>-0.05</td>
<td>0.12</td>
<td>-0.23**</td>
<td>-0.08</td>
</tr>
<tr>
<td>Agreeableness (Teacher)</td>
<td>-0.14**</td>
<td>-0.25**</td>
<td>-0.30**</td>
<td>0.05</td>
</tr>
<tr>
<td>Conscientious (Teacher)</td>
<td>-0.11*</td>
<td>-0.06</td>
<td>-0.35**</td>
<td>0.03</td>
</tr>
</tbody>
</table>

+p<.05, one-tailed, *p<.05, **p<.01
Table 3

*Intercorrelations Among Teacher-rated Personality and Cheating Partialling Intellect*

<table>
<thead>
<tr>
<th>Measure</th>
<th>Cheating Overall</th>
<th>Cheating Clear Message</th>
<th>Cheating Mixed Message</th>
<th>Cheating Control Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bivariate Correlations</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agreeableness</td>
<td>-0.13**</td>
<td>-0.26**</td>
<td>-0.28**</td>
<td>0.09</td>
</tr>
<tr>
<td>Conscientiousness</td>
<td>-0.10+</td>
<td>-0.07</td>
<td>-0.33**</td>
<td>0.03</td>
</tr>
<tr>
<td>Intellect</td>
<td>-0.21**</td>
<td>-0.10</td>
<td>-0.35**</td>
<td>-0.20*</td>
</tr>
<tr>
<td>Partial Correlations</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agreeableness</td>
<td>-0.09+</td>
<td>-0.23**</td>
<td>-0.21*</td>
<td>0.15</td>
</tr>
<tr>
<td>Conscientiousness</td>
<td>-0.04</td>
<td>0.02</td>
<td>-0.26**</td>
<td>0.18*</td>
</tr>
</tbody>
</table>

+p<.05, one-tailed, *p<.05, **p<.01
Figure Caption

*Figure 1.* Agreeableness X Conscientiousness Interaction (Self-Report) for Self-Regulatory Behavior.