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INTRODUCTION

My Virtual Child is designed to be a self-contained module that can be utilized alongside the curriculum of a typical Developmental Psychology or Child Development course, or integrated with it in various ways. This manual provides general instructions on how to use the program, the conceptual background to the operation of the program, a description of the major features of the program, and an outline of the age levels and numbers of questions at each age level. The manual also contains several suggestions about how to use My Virtual Child in the classroom or study section. There is a list of the events and questions at each age level to give the instructor an idea of the variety of developmental paths that the simulated children can take within the program. Finally, copies of the Personality Questionnaire, Introduction to the Program, and the writing assignments provided with the program are printed in appendices.

NEW TO MY VIRTUAL CHILD: My Virtual Child maintains all of the questions and events from Virtual Child, the same sequence of age levels, and the same reports and reflective questions. There are six main changes. First, the program has a new and more inviting graphic design. Second, the children are more diverse in appearance - the child’s general appearance, skin tone, hair color and eye color are selected by users from a menu. Third, a “genetic” component has been added. Student responses to a brief personality and intellectual ability questionnaire are used to alter the random initial settings of the child in the direction of the student-user’s profile. Fourth, an alternative set of questions that conforms more closely to the structure of a typical chronologically organized text is presented in Appendix 4. Fifth, links to short videos illustrating key concepts have been added. Sixth, 53 definitions of terms are shown in Appendix 5 and at some point will be added to the program.
GENERAL INSTRUCTIONS AND OVERVIEW OF MY VIRTUAL CHILD

To start the My Virtual Child web site, each student needs an access code, which is obtained by ordering a book that has a student access kit for My Virtual Child, or by ordering My Virtual Child as a stand-alone product. Once the student enters the access code, the student sets up a username and password for My Virtual Child and agrees to terms of use. The same procedure applies to instructors. Consult your local Pearson sales representative if you need assistance in this process.

At the beginning of the program, there is about a page and half of instructions for the user. This introduction is printed verbatim in Appendix 2, and is entitled, “Introduction to My Virtual Child.” It can be used as a handout if instructors want to give students a succinct description of the program.

Users running the program will see a series of about 295 screens, on each of which is a message, if they run all the way through age 18 years. There are several types of messages, including instructions, a description of an event that happened to the child, interactive parenting questions where the student has to decide what to do as a parent in a specific situation involving the child, a report on the child or a set of reflective questions for the student to answer in class or through a written response. Instructors might want to run the program once before the term, to get a clear idea of how the program works and how it might be integrated into the class, and once again during the term, possibly in the service of class discussions (see the section on "Suggested Classroom Activities").

An instructor can get a good flavor of how the program works, including its various features, by running it through the end of age 3. This would take about 1 1/2 hours.
Instructors who want more than two access codes (e.g., for themselves, teaching assistants or other instructors of the course) can simply request more from the publisher.

**Getting Started**

Once the student logs on with an access code, My Virtual Child is mostly self-explanatory. Students fill in a personality and abilities questionnaire about themselves at the beginning of the program. A copy of this questionnaire is provided in Appendix 1. Students will be asked to choose which personality type is closest to themselves (resilient, undercontrolled or overcontrolled). They will use a Likert scale to respond to specific items asking them to rate their own temperament. These responses will be used to construct scores on five temperamental/personality dimensions (emotionality, extroversion/introversion, cooperativeness/aggression, impulsiveness/self control and activity level. Finally, they will use a Likert scale to rate themselves in five ability areas (verbal, logico-mathematical, spatial, musical and bodily-kinesthetic). Scores on the questionnaire are used to alter randomly preset values of the virtual child. The specific areas of temperament and ability, and the manner in which student characteristics alter the virtual child’s personality and abilities are discussed later in this manual.

Next students take on the role of a parent. They’ll learn that they and their partner have just had a baby and they'll learn the gender of the baby. The student gets to name the baby. Then, the student is asked to choose how s/he expects the baby to look. The five choices roughly resemble young children from five ethnic/racial categories: African-American, Asian American/Pacific Islander, European-American, Hispanic, and Middle Eastern (Arabic or Indo-Asian). The student also selects the skin tone (light, medium or dark), hair color (light, medium or dark), and eye color (blue, green or brown) of the child. Students may choose features that make the child resemble them or choose on some other basis. However, the choice of general
appearance, skin tone, hair color, and eye color has no impact on the behavior of the child. Any ethno-cultural differences that emerge would have to emerge out of systematic differences in the way the student parent raises the child.

**Basic Structure of the Program**

Once the initial student choices are made, the program "tells the story" of the development of this child up to 18 years of age. At key points (e.g., 8 months, 15 months, etc.) the child's picture is shown, and remains on the screen throughout that age period or a subsequent age period, until the child's appearance changes yet again. At each age, the student will hear about various milestones the child has attained, specific problems the child is having, or experiences that occur in the family or in the school or community environment, and the student will be able to make decisions about how to parent the child. On the average, the program should take about 6-8 hours for students to complete, working straight through. An additional hour will be needed to complete each of the 12 writing assignments. So the total time spent during the semester to run the program and write up the assignments should average about 20 hours.

The main goal the program is that students will be able to integrate their course work with their practical “experiences” in raising a child. The program is written so as to fit well with almost any chronologically organized child development textbook. Some ideas about how to use the program with a topically organized textbook are provided later in this manual.

The basic premise of the program is that, depending on the child’s and the student-parent’s personality characteristics at birth, decisions the student makes about child rearing, and random events in the environment, each child will develop along a unique path. However, there are some general developmental changes that will occur with all children.
There are over 1250 questions or events in the database for the web site, and the student will get about 25% of them for any given child. In addition, at nearly every age level, students will see reflective questions and reports on the child's progress.

The reports on the child’s progress occur immediately prior to each set of reflective questions (i.e., 9 months, 19 months, 30 months, etc.). They come in the form of realistic assessments, such as a pediatrician’s report, a developmental assessment, a psychologist’s report, and school report cards. The student is urged in the assigned questions to reflect on specific events that happened with his/her child, rather than simply relying on the reports to draw conclusions about the child’s development.

Once the student starts running the program, s/he gets only one "turn" and cannot go back and change earlier decisions (as in real life parenting!). Students can log off the website at any point, and come back on at a later time. The program will remember all of their responses and pick up where they left off. They can look back at earlier answers they gave and earlier events by clicking on the Time-Line at the top of the screen. The Time Line has rows for years, months, and for particular items. Navigation using the time line is easy.

**Types of Items in the Program**

There are two main types of items describing the child's behavior: events and questions. Events are statements about something that happened to the child or to the family, and no response from the student is required. Some of the events are simply descriptions of the child's normative development, and others are non-normative events that do not occur for all children. An example of a normative event is the following (from a child named "Joanna" at age 12 months):
At nine months old, Joanna began to understand a few words and point to something she wanted. At twelve months old, Joanna now clearly understands a couple of dozen words. In fact, Joanna just recently pronounced her first clear word and pointed at the object in question.... Was it "Mom"? Was it "Dad"? No, it was the name of your parents' dog!

An example of a non-normative event (at age 18 months) is the following:

One of your favorite cousins, a cheerful and energetic 18 year old named Melody, is staying with you while she works to save money for college. She is sleeping in a bed that you have set up in Joanna's room, and the two are becoming fast friends. She is willing to babysit for you, so both you and your partner have felt less stressed. You have more time for yourself, your partner, and Joanna.

The other main type of item is the question. Questions are typically brief descriptions of the child's behavior, or a problem the child is having. Here is an example of a question that all users of the program will get at age 18 months (the student is required to click on one of the four options in order to advance to the next question or event):

You know that by age two and a half Joanna needs to be toilet trained for daycare/preschool. You buy a potty chair, training pants, and a little storybook about a child learning to use the potty.

To speed things up, you begin to scold her for soiled diapers, and say that you want her to wear the training pants and use the potty.

- You wait for her to show an interest in the potty and pants before saying that you want her to learn to use them.

You put her on the potty about every half hour while at home, and praise her lavishly if she happens by chance to urinate or defecate.

You praise her for small steps such as trying on the training pants and sitting on the potty chair, even if nothing "happens".

Many questions are variable and depend on the child's personality, cognitive abilities, attachment security, peer competence, etc. The following question is given only to students
whose child has a somewhat reserved temperament, and tends to be "slow to warm up" to strangers at 12 months:

When strangers come to visit, they think Joanna is really cute so they want to hold Joanna. Joanna usually starts crying if the person tries to get too close. However, after meeting a person two or three times, you notice that Joanna is staring at the person and manages a shy smile. Typically you:

- Immediately let the new person hold Joanna before her positive mood has a chance to change.
- Stay close to Joanna and let her gradually get used to the person and make her own choices about interacting with them.
- Smile and converse with the person and gradually encourage Joanna to be friendlier, but don't put any pressure on Joanna.

**Reflective Questions (Assignments)**

Every main age level from 8 months onward has 3 reflective questions that encourage students to compare their child's development to information on normative development from the textbook, analyze their child’s unique personality and ability traits, apply theories from the textbook, or reflect how their child's behavior might vary if the social context was different. There are 13 question sets altogether, and they occur at 9 months, 19 months, 30 months, 3, 4, 6, 8, 10, 12, 14, 16 and 18 years, with a bonus assignment at age 18 years focusing on the transition to early adulthood. The bonus assignment has two questions.

Each assignment (except for the bonus assignment) is printed out on the screen in advance at the beginning of an age-range, so the student can take notes on the questions as s/he is running through the program. These assignments can be used all or in part by the instructor as writing assignments (brief papers) or as the basis for class or small-group discussions of My Virtual Child.
A complete list of the questions in the program is provided in Appendix 3, along with suggested scoring rubrics for the use of the questions as written assignments. An alternative arrangement of the questions into 9 sets of questions that correspond more closely to the chapter structure found in chronologically organized texts is found in Appendix 4, along with scoring rubrics. The two sets of questions are substantially the same.

Reports

Nearly every age level from 8 months onward ends with a summary of the child's behavior. The summaries are couched in the form of a pediatrician's report, a developmental assessment, a school report card, etc., to maintain the realism of the program. The reports address two goals: summarizing the child's behavior at a particular point in time, and evaluating the child's behavior in relation to norms of behavior for that age. For example, the parents of Joanna had a developmental assessment done at age 19 months, and received the following report:

The preschool that you are considering for Joanna offers low-priced developmental assessments. Joanna is able to enroll when she becomes reasonably well potty-trained. She is 19 months old now. Just to find out how Joanna's development compares to other children of her age at this point, you have an assessment done. The early childhood specialist observes Joanna in free play with other kids and does a little testing of cognitive skills. She reports the following: Overall, Joanna appeared to be fairly aggressive with the other children and was not very compliant with the examiner. The examiner recommended setting firmer guidelines for behavior at home, giving Joanna practice at expressing her needs, and using time-out plus explanations for acts of aggression.

The specialist said it was clear that Joanna had a strong and secure attachment to Mom and was beginning to develop such an attachment to Dad. She recommended "keep doing whatever you are doing" and don't be afraid for Dad to be involved more in day to day care, feeding, etc.
The specialist thought that Joanna was slow to warm up to new situations and people, but that if you gave her time, she usually came around. She recommended increased time spent in child playgroups in familiar settings such as the neighborhood, the daycare center, etc.

The examiner observed Joanna become irritable or lose her temper with other children on a couple of occasions. She recommended trying to get Joanna to communicate more and the use of non-punitive time outs to help Joanna learn to get control of her emotions.

Joanna scored at about the 12-15 month old range in terms of communication skill, language comprehension, and language production. The examiner recommended that you spend more time talking with Joanna, even if her replies are short or hard to understand. She also recommended asking questions that require some kind of extended answer (rather than just "yes" or "no"), and looking at and naming things in picture books, etc.

Joanna was below age-norms on tasks such as building a block tower to model one made by the examiner and other spatial skills such as copying shapes, coloring within the lines and solving picture puzzles. The examiner said that if Joanna was interested, you could work on these kinds of activities more, but not to push them. In that case, just making the materials available as an option would be a good idea.

Joanna was about average for gross motor development. The examiner recommended that you give her plenty of opportunities to play on indoor and outdoor play gyms and to play games of catch and kickball with you.

The examiner commented that Joanna had some difficulty concentrating for more than a few minutes on any one activity. She noted that it could be the newness of the situation that prompted this, and that 18-month olds shouldn't be expected to stay focused more than 10-15 minutes on any one activity. However, she noted that you might try to engage Joanna's attention in something really interesting for longer and longer periods of time, to gradually build up her tolerance for preschool-type activities. She also recommended, when she seemed ready for it, to get Joanna to follow simple directions at home, and that you gradually increase the complexity and length of the directions.
Number of Events/Questions at Each Age Level

The following is the list of age levels and the number of questions or events that occur at each age level, as well as the type of report that is provided. The 13 sets of assignment questions are also listed. Note that there are 12 primary ages where there are a large number of child questions and events (marked in bold below), but also some transitional ages where a few questions occur. The transitional ages are typically in the late spring or early summer and are used to tie together the main age levels, as well as internally by the program to update the personality, intelligence and other variables based on changes in the previous age range. The last main age level is age 16, which corresponds to the child's 11th grade year in school. After this, only a few questions and events occur, basically to finish the story of the child's high school years and describe the path on which the child will embark next (e.g., living at home and working, engaging in vocational training, going to community college, attending a four-year college, going away to a prestigious 4-year college).

0 months - 6 questions, 1 event

3 months - 8 questions, 3 events

8 months - 8 questions, 3 events, pediatrician's report, assignment (reflective question set # 1)

12 months - 9 questions, 5 events

18 months - 11 questions, 5 events

19 months – 1 event, developmental assessment, assignment # 2

24 months - 10 questions, 4 events

30 months – 2 events, developmental assessment, assignment # 3
3 years - 13 questions, 5 events
3 years, 10 months & 3 years, 11 months - 3 events, developmental assessment, assignment # 4

4 years - 12 questions, 5 events, pre-K evaluation, assignment # 5

5 years, 10 months - 2 events

6 years - 11 questions, 5 events
6 years, 10 months & 6 years, 11 months – 4 events, first grade report card, assignment # 6

8 years - 12 questions, 4 events
8 years, 9 months, 8 years, 10 months & 8 years, 11 months – 1 question, 6 events,
psychologist's report, assignment # 7

10 years - 12 questions, 3 events
10 years, 11 months - 4 events, 5th grade report card, assignment # 8

11 years, 11 months - 2 questions, 1 event

12 years - 11 questions, 4 events
12 years, 11 months - 4 events, 7th grade report card, assignment # 9

13 years, 10 months and 13 years, 11 months - 3 events

14 years - 10 questions, 5 events
14 years, 10 months, 14 years, 11 months and 15 years, 0 months - 2 questions, 5 events, 9th
grade report card, assignment #10

16 years - 12 questions, 5 events
16 years, 11 months – 1 question, 1 event, 11th grade report card, assignment # 11
17 years - 3 questions, 1 event

17 years, 6 months - 2 events

17 years, 11 months - 1 event (status of child at end of high school)

18 years, 1 month - 1 event, assignment # 12, bonus assignment, end of program

**Video segments**

At quite a number of points in the program, a link to a short video is provided. The videos help the student visualize child behavior at the approximate current age of the virtual child, or compare the behavior of children at two different ages. In addition, the videos contain instructional content that explains important terms, research findings and theoretical concepts.

**Definitions**

There are 53 definitions of terms that pop up and remain visible as the user scrolls across a given word. The definitions are provided in this version as a convenience. Nearly all of the terms should be available in a standard textbook. However, Virtual Child integrates social, cognitive and physical aspects of development at every age, and thus, terms may come into use before the student has had a chance to read about them. In addition, some students tend to run the program beyond the point assigned, and will benefit from having the terms handy within the program. Most of the terms are found in reports such as the psychologist’s report, or boxes describing concepts such as temperament, personality and intellectual abilities, but a few are found within questions. The entire set of definitions can be found in Appendix 5.
THE CONCEPTUAL FOUNDATIONS OF MY VIRTUAL CHILD

My Virtual Child is a simulation of the possible development of a child. It is designed to represent the normative development of children, depict some common experiences of children, and provide examples of common variations in child personality, social behavior, physical development, and intellectual abilities. The program is based on theory and research in developmental psychology. There is no particular theoretical bias. Ideas from Piaget, Vygotsky, Bronfenbrenner, Kohlberg, social learning theory (Bandura, Patterson, etc.), attachment theory (Bowlby, Ainsworth, etc.), developmental systems theory (Gottlieb, Thelen), family systems theory (Minuchin), and from many research studies are incorporated into the program. All of the children will progress through the classic sequences of development described by many researchers and theorists (e.g., the development of attachment, language milestones, Piaget's sensorimotor stages, gender concepts, moral thinking, etc.).

The program makes certain assumptions about key developmental issues, such as nature vs. nurture, critical periods, active vs. passive child, continuity vs. discontinuity, etc. As in most developmental textbooks, the program assumes that development reflects continuous bi-directional interactions between genes, brain development, behavior, and experience. In this sense, the developmental systems framework (e.g., Gottlieb, 1992) is the deepest layer of theory and the foundation of the program. Thus, it is assumed that children are born with different personalities and intellectual abilities which interact dynamically with the child's environment. At the same time, there are certain universal aspects of development that will occur for all children (e.g., attachment, language milestones, development of a self-
concept). Children are assumed to be just as much agents of their own development as they are recipients of attempts to change their behavior from parents and teachers. There are many examples of evocative and active genotype-environment correlations in My Virtual Child scenarios. There are examples in the program of continuous developmental processes (e.g., the gradual improvement of self-control) as well as discontinuous development (e.g., the onset of symbolic thinking and associated changes such as pretend play). The writing assignments explicitly ask students to think about these issues.

**The Child's Personality**

At birth, each child is randomly assigned a personality type, based on the person-centered approach to personality development (e.g., Hart, Atkins, & Fegley, 2003; Overton, 2003). There are three possible personality types, as described in a box that pops up for the student to read at the beginning of age 3 years:

There is evidence that there are three main personality types in childhood and the Virtual Child’s behavior beginning at age 3 and 4 is designed to resemble one of these personality types. The personality types combine some of the temperamental traits with which you are already familiar. The overcontrolled category refers to a child who is cooperative, and follows the rules, but is shy in social situations and anxious and clingy under pressure. The undercontrolled category refers to a child who is uncooperative or even aggressive, does not follow the rules, is not particularly shy in social situations, and has a tendency to become distracted and overly emotional, particularly when under stress. The resilient category refers to a child who is cooperative and follows the rules, is friendly, non-aggressive and outgoing, is able to focus on tasks without being too distracted, has good regulation of his or her emotions, and is adaptable to new situations.

The personality types are associated with values of four personality variables: cooperativeness/aggression, impulsiveness/self-control, emotionality, and introversion/extroversion. The preset values are altered by student input in the beginning of the program. E.g., a student who rates him/herself as high on introversion is more likely to
have an introverted child than an extroverted student, but there will be cases of mismatch, just as occur in real families! In the course of development, the values of these variables are affected by a large number of factors, including parental warmth, responsiveness and control, but they tend to remain stable unless the child's experiences push the child consistently in one direction or another. The behavior of the child at any given age level is consistent with the current personality type. For example, given the common experience of starting at a new school, the overcontrolled child is shy but cooperative, the undercontrolled child is aggressive, emotional and tends to misbehave, and the resilient child is cooperative, friendly, and adaptable. Personality type remains stable within an age level, but can be changed at certain key points if the child has accumulated experiences of a certain type over the past time periods. For example, an undercontrolled child could become resilient after years of firm but responsive parenting. Without consistently positive parenting, however, an undercontrolled child will go on to experience problems in school and problems interacting with peers. The change points are listed in the last section of this manual (see “Description of Events and Questions at Each Age Level”).

Other aspects of social and emotional development are also depicted in the program, such as the child’s developing levels of attachment security and competence with peers. The latter two variables are preset to zero and depend almost completely on parenting practices and the child’s experiences within the program. More details about socioemotional and personality variation are provided in the section on "Individual Differences."

The Child's Intellectual and Physical Abilities

At birth, each child is also randomly assigned values of five ability domains: verbal ability, spatial ability, logical-mathematical ability, musical ability, and physical/athletic
ability (corresponding closely to five of Howard Gardner's multiple intelligences). The preset values are altered by students’ input about their own intellectual and physical/athletic ability. A student who rates him/herself as high in athletic ability is more likely to have a virtual child who gravitates toward sports than average, but mismatches between student parents and virtual children are still possible. Once the program gets going, these variables can be changed by a large number of factors, but tend to remain fairly stable unless there are dramatic changes in the child's experiences. The behavior of the child at any given point is consistent with the child's ability level. For example, a child with high musical ability in middle childhood will be enthusiastic and talented in the school instrumental program, a child with average musical ability will take up an instrument, learn something about music, but not become accomplished at it, and a child with low musical ability will be uninterested in playing an instrument and unable to carry a tune.

The student parent has choices whether to push the child in each ability domain, and in some cases this can result in steady progress. However, it is unlikely that a child at the bottom level of musical ability will attain the highest level by the end of the program. To mention another example, children who are low in verbal ability go through the language milestones (such as forming two-word sentences) at a slower rate than children of average or above average ability. More details about intellectual variation are provided in the section on "Individual Differences".

Other Important Preset Variables

There are several variables beyond personality and intellectual ability that are randomly preset for each child. One of these is the divorce variable. Each child is programmed at random either to experience a divorce or not, and the age at which the
divorce takes place is pre-determined. Approximately 50% of all children run through the program will experience marital conflict, 10% at each of the ages 4, 6, 8, 10 and 12. Half of these families will separate and re-unite, and half will get a divorce. This makes the cumulative divorce rate about 25%.

There is also a "daycare" variable. Approximately 60% of the student-parents will be told that both parents must work for the family to make ends meet, and 40% will be told that the mother does not need to work. At a later point in development (e.g., by age 6 or 8 years of age) virtually all of the mothers will have returned to work at least part-time. There is also a health variable. This is preset at birth, and is influenced by factors such as the child's type of birth (e.g., full vs. preterm birth), the parent's choice of feeding (breast vs. bottle) and certain non-normative events. Descriptions of the child’s health in the program will vary from sickly to robust, depending on the values of this variable.

There are two developmental disorder variables, dyslexia and attention deficit-hyperactivity disorder (ADHD). At birth, 5% of the children are programmed to have severe dyslexia, 5% moderate dyslexia, and 90% no dyslexia at all. Depending on the value of this variable, the student-parent may or may not see developing signs of dyslexia beginning at age 3 years (e.g., lack of facility with rhyming games and with learning the names of letters). Children with severe dyslexia experience reading failure when they go to school. Depending on the parent's choices of intervention, some of the dyslexic symptoms can ameliorate over time.

At birth, 5% of the children have severe ADHD (hyperactivity, impulsivity and inattentiveness-distractibility), 5% have inattentive symptoms only, and 90% are symptom-free. Parents will start hearing about some unusual behavior in the preschool period
(impulsive or inattentive behavior in the preschool class), and this will become exacerbated for the 5% with severe ADHD in the early school years. Parents who aggressively pursue treatment (either medication, behavior management or both) will see the symptoms ameliorate over time. It is unclear from research how much symptoms of ADHD change over the long-term, but the program assumes that they lessen in adolescence, as the individual develops coping strategies.

The child can manifest either internalizing or externalizing problems, typically more toward the end of middle childhood or in adolescence. One way that internalizing problems may occur is via a "depression" variable. The depression variable is not pre-set, but can be triggered at age 14 if the child happens to have low current values of emotional regulation, peer competence and/or parental warmth and control. The exact percentage is determined by how the student-parents respond and is not preset, but should turn out to have an incidence of less than 5%, unless a group of students deliberately sets out to make poor parenting choices. Prior to age 14, the child may show some minor symptoms of depression or anxiety, such as various fears (e.g., fear of school), low self-esteem, poor peer interaction, and poor school performance, as a result of current values of several variables used in the program. More girls than boys are assumed to show internalizing problems and this gender difference is built-in to the program.

The child may show externalizing problems, such as acting out in school, fighting with peers, disobeying parents, ditching school, sneaking out at night, using drugs and engaging in precocious sexual behavior. More boys than girls are assumed to show externalizing behavior problems, and this gender difference is built in to the program. There is no single variable that determines internalizing or externalizing problems, but they are
more likely if the child has the undercontrolled personality profile, if parents have been low on control and warmth, if peer competence is low, and if the child is high on the aggression variable.

**Environmental Effects**

There are several child characteristics that are not set at the beginning of the program. These characteristics are influenced by the child's personality (i.e., genes and earlier environment) as well as by the child's current developmental level, and the child's social experiences. Examples of these characteristics are security of attachment and social competence with peers. The program assumes that temperament interacts with parenting behavior to produce attachment and social competence. Children with difficult temperaments (e.g., the undercontrolled personality type) will tend to be resistant and troublesome, but if the parent is consistent and affectionate, the attachment relationship will be positive and the child will get along well with peers. The program is biased toward a nurture point of view with regard to these variables. If the parent makes consistently positive parenting choices, the child will become securely attached. Secure attachment contributes to positive relationships with peers, in keeping with a number of research studies (e.g., Lieberman, Doyle, & Markiewicz, 1999; Sroufe & Fleeson, 1986). Competence with peers is also affected by day-care experiences, other experiences with peers, and the parent's use of authoritative parenting techniques.

The experiences of the child are coded by means of about 50 environmental variables. The environmental variables are used by the program to keep track of non-normative events that happen to the child (such as the parent losing a job, the child sustaining a brain injury, the child becoming overweight, etc). Cumulatively across the entire program, there are a
large number of potential non-normative events. Some are quite serious (such as the child becoming overweight) and others are relatively minor, and might be perceived as an everyday experience (such as making friends with the child next door). At least one, and sometimes as many as three, of these events occurs at each age-level, selected from a menu of 4-8 possible events. By definition, these non-normative events simply occur by chance and are not within the parent's control.

Another function of the environmental variables is to code the effects of the choices of the parents on child characteristics, such as attachment, social competence, aggressiveness, etc. The effects of these choices accumulate slowly, but can eventually have a large impact on the child's behavior. For example, a child who started the lowest level of verbal ability at the beginning of the program (due to a combination of random preset values and the student’s “genetic” questionnaire responses, could potentially come up to the average range if the parent consistently chooses stimulating activities, and encourages the child to use language.

Parenting choices are also encoded by means of two parenting variables corresponding to the dimensions of warmth and control identified by Baumrind, and Maccoby and Martin, and discussed in every developmental textbook. Values of warmth and control are used at certain key points to adjust the child's personality. For example, if a parent of an undercontrolled child has accumulated a high level of both warmth and control, the child's personality will change to resilient. On the other hand, if the parent of a resilient child has accumulated a low level of warmth and a high level of control, the child's personality will change to overcontrolled (see “Description of Events and Questions” for additional details). The student-parent receives five reports on the degree of warmth and
control in his or her parenting, at ages 3, 4, 9, 12, and 17. The means of reporting varies from developmental assessments to statements by the child him/herself to the parent. These reports can be used by student-parents to think about their style of parenting and its possible effects on the child, and there are two reflective questions pertaining to this issue.

**Contextual Variation**

The program currently does not have much of what might be termed contextual variation. A generic American middle-class environment is assumed to be in place. For example, the child's family is able to buy a home, and does not suffer any serious poverty or deprivation. It is assumed that both parents have at least a B.A. degree and are employed at white-collar or professional level jobs. There are a variety of positive and negative experiences that occur in the child's "exosystem" (to use Bronfenbrenner's terminology), such as the parent losing a job, the parent getting a promotion, the family having to live for a while in a crime-ridden urban environment, etc. However, the range of socioeconomic circumstances is fairly narrow. It would have complicated the program considerably to keep track of a variety of extreme variations in socioeconomic status. Moreover, it can generally be assumed that the student-users of the program, who are in the process of going to college, will tend to be in the upper half in terms of SES in their later life, making the program a realistic depiction of what they might experience as a parent.

The child does not have strong behavioral characteristics of any racial or ethnic group (even though students can choose a combination of features at the beginning of the program that make the child have facial features resembling a particular ethnic/racial group). The child would probably be thought by most people to have the general characteristics of a highly U.S.-acculturated, middle-class youngster. The child does not appear to have any
particular religious background (although the parent is presented with choices about teaching
the parent's own particular religious values to the child at a few points). For technical
reasons it was beyond the scope of the program to represent a variety of ethnic or religious
groups and follow these tracks through all 18 years of the program. Allowing the student to
choose the racial, ethnic, or religious background of the child would have necessitated the
creation of many more pathways in the child's development, many more environmental
variables, and many more questions in the database.

Moreover, it can be argued that the creation of say, Hispanic, Asian-American, or
African-American "tracks" within the program would run the risk of being unrepresentative
of the true variation in American ethnicity, as there is no one set of cultural values or
experiences that define these groups, and many children today live in families that are a
blend of different ethnicities. Worse, it is possible that questions that were assumed by the
author to be prototypical of a particular ethnic group would end up in fact being
stereotypical, and actually offending many members of the group in question. However, two
of the reflective questions ask the student to think about how the child's experiences and
behavior might be different if the child’s family strongly identified with a particular ethnic or
racial group.
REFLECTIVE QUESTION SETS (ASSIGNMENTS)

Thirteen-Assignment Version (from the program)

Instructors have the option of using all of the built-in reflective question sets, or only some of them, depending on the amount of time available in the course, other planned assignments, etc. The 12 question sets presented in the program, plus the bonus question set (13 sets of questions altogether), are provided verbatim in Appendix 3, along with a scoring rubric for each question. This can be distributed as an electronic or printed handout to students and can be altered by the instructor to suit his or her needs.

The lead author (Frank Manis) has tested versions of the program that are essentially the same as the current version in four classes of 50-70 students, and in two intensive 6- to 8-student summer classes. The question sets can be done on a weekly basis as 2- to 3-page papers and students can read and make comments on each other’s papers. It was also useful in the larger classes to have small group and whole class discussions of the reflective questions after the writing assignments were turned in. Discussions can involve additional questions generated by both instructor and students about specific ways in which My Virtual Child relates to the course material. There are many possible points of contact.

The written assignments in Manis’s classes generally showed that students were able to apply concepts from the course effectively to the development of the child. One of the interesting things about the assignments in the 13-assignment format is that students were able to integrate diverse aspects of development (physical, social and cognitive), within a given age range, and to see how these domains of development were related. The assignments were judged by the great majority of students to be worthwhile experiences, and most reported that this was an enjoyable way to learn the content of the course. Most
students did indeed follow the program's advice and printed out (or made an electronic copy of) the upcoming assignment at the beginning of an age period. They reported that they used the assignment to help guide their note-taking as they moved through the program. They also used the time-line feature of the program to look back at specific questions.

It is also possible to use some or all of the reflective question sets or individual questions from the sets as prompts for class discussion, rather than writing assignments. Instructors using a typical chronologically organized textbook should find that the questions tie in well to the material in the book. For example, the child at age four encounters a number of situations involving compliance and cooperation with other children, preschool teachers and the student-parent. One of the reflective questions for age four asks:

How would you characterize your parenting style? How have your specific parenting techniques changed since infancy? In what ways do you think your parenting style, or any other aspect of your parenting, has been influenced by your cultural background or other experiences?

This question could be used as a prompt for a 15-20 minute discussion of parenting. Students can reflect on whether they are following an authoritative, authoritarian or permissive parenting style. They can think about how their parenting techniques have changed in response to the increased independence of the child after the age of 18 months. They can discuss typical expectations parents have about socializing children to behave appropriately in various settings. Finally, students can discuss some of the research indicating that parenting style varies with culture and ethnicity. The instructor can work in research findings or developmental theories at various points in this discussion.

The twelve main reflective question sets and the bonus question set are printed verbatim from the program in Appendix 3. Each question is followed by a short scoring
rubric, which assumes each question set is worth 8 points. The question sets are labeled “assignment 1”, “assignment 2”, etc. and additional instructions are provided to facilitate the use of the question sets as written assignments.

The suggested scoring rubrics provided with the assignments can be used by the students to self-evaluate or to evaluate each other’s work, or they can be used by instructors and teaching assistants. One device used by Frank Manis in class was to use the first few assignments as formative assessments rather than summative. For example, instructors can ask students to evaluate each other’s first assignment, and allow them either to turn it in as is, or to re-write it to meet more of the criteria specified in the rubric. It might be useful to repeat this process for the first 2 or 3 assignments so that students get the idea of using the events and questions within the program in conjunction with the material in their text and lectures to formulate well-supported answers.

Nine-Assignment Version

New to this edition of the instructor’s manual is a 9-assignment version of the reflective questions that will be classroom-tested in fall, 2008, by Frank Manis. The goal in devising the 9 sets of assignments was to create question sets that corresponded more closely to the typical chapter structure of a chronologically organized textbook. For example, Assignment 1 focuses on physical and cognitive development in infancy, Assignment 2 on social-emotional development in infancy, Assignment 3 on physical and cognitive development in early childhood, etc. The questions in the 9-assignment version are substantially the same as those in the 13-assignment version, but some questions were deleted, and two new questions on cognitive and language development were written
(Assignment 3, question 4 and Assignment 7, question 3). See Appendix 4 for the complete set of questions and suggested scoring rubrics.

The 9-assignment version was developed in 2008 because students using the 13-assignment version have been finding that they had to move ahead of the current chapter they were working on in class to do the assignments. For example, at one point in the semester, they might be running My Virtual Child from birth to 8 months, and reading the chapters on infant physical and cognitive development. However, the question set at 8 months requires students to know something about temperament and attachment, which are topics covered in the next chapter, on infant social-emotional development. Some students also believed there were too many short assignments in the 13-assignment version and said they would prefer a smaller number of assignments with more questions per assignment.

In order to run the 9-assignment version, instructors will obviously need to tell the students to ignore the questions in the program. Instructors should provide a handout or electronic copy of the questions from Appendix 4. Instructors should also keep in mind that students must generally run through two or more age levels before answering questions. For example, they must run ages 24 months and 3 years before doing Assignment 3 on physical and cognitive development in early childhood. Then, for Assignment 4 on social and emotional development in early childhood, they must run the four-year-old segment, and look back at ages 24 months and 3 years to answer the questions. Both the 13- and 9-assignment versions require students to integrate material over several age levels, but it is more common in the 9-assignment version.
SUGGESTED CLASSROOM ACTIVITIES

My Virtual Child can be used as a self-contained unit of study that runs in parallel with an existing course. It is not necessary to change the course to accommodate My Virtual Child. Students need only run the program outside class, and turn in the writing assignments to obtain a valuable learning experience. However, at various points, it might be desirable to integrate My Virtual Child into the class. It could be the basis of several interesting in-class activities. The following is a partial list of in-class activities based on the author’s experience using My Virtual Child in six classes ranging in size from 8 to 70 students between September, 2005 and December, 2007. If you think of an interesting classroom application of My Virtual Child, please send a short description of the activity to Frank Manis (manis@usc.edu).

Group Activities

Because each student ordinarily has time to run only one child, it would be beneficial if the students talked to each other and compared notes on their children. Of course, this is an age-old practice of parents everywhere. The advantage of comparing notes is that students can get first hand experience with the variation in personality and intellectual skills found in a typical sample of children, see some of the possible effects of different parenting styles and experiences (such as divorce) on the child, and get exposed to more rarely occurring problems such as dyslexia, ADHD, depression and externalizing behavior problems.

One way to accomplish this goal is schedule a "parent forum" meeting for a 20-minute period of class, and to ask students to come prepared to discuss their child through a certain age level. To maximize the chance that students come prepared, a small point value
could be given for bringing a one page sheet of notes about their virtual child. Next, assign students to a group of 5-8 students during class, and ask the group to compare and discuss their children. The discussion might begin with each parent bragging about some of their child's achievements and how they fit within the unit under study (e.g., preschool social development). The group could then move on to discuss problems that particular children or families are having (such as poor school performance, disobeying the parent, or parental conflict, separation or divorce). The students can advise each other on how to deal with these problems based on what they have learned in class. The instructor can ask a couple of members of the group to take notes on the discussion and report some of the kinds of problems the children had to the class as a whole. These problems can be discussed by the instructor with the entire class, and related to the subject matter of that unit. For example, a 6-10 year-old child who is having trouble relating to other children might prompt a lecture/discussion of research on peer relationships, friendships, popularity, the consequences of bullying and rejection, etc.

In fall, 2005 and 2006, Frank Manis used the parent forum idea at four points in class, corresponding to the points where students would have run the child through infancy, early childhood, middle childhood, and mid-adolescence, and when they would have read the social and personality development chapters for each age-period. Student discussions were lively and humorous, and students became interested in several of the issues that came up, such as whether or not to medicate an ADHD child and what was the best way to deal with teenagers who were sulky and uncooperative. One area for improvement noted in 2005 was that some students came ill prepared and did not have much to offer. Assigning points for
turning in a page of notes on the student’s own child in 2006 helped correct this problem. The small-group discussion procedure worked well for class sizes of 45 to 60 students.

Another way to achieve the same purpose (allowing students to compare their child to other children) is to assign the students to a small group at the beginning of the term. The group can be encouraged to share information about their virtual child over e-mail, or to meet together to discuss the assignment questions. Ultimately, however, each student's writing should be their own work, unless the instructor explicitly allows group write-ups. The groups can decide to do interesting things on purpose, such as to try out different styles of parenting. In fall, 2005, two students had differing opinions about how strictly children should be raised, so they tried their opposing methods on their virtual children and discussed the results with each other and in their written assignments. To formalize the group activities a bit, the groups could be asked periodically in class to share some of the discussions they have had over e-mail. The e-mail type discussions could also be posted to an on-line course management system, such as Blackboard, for all students to tap into. This technique might be more manageable than the parent forum technique for larger classes (e.g., 75 students and up).

Another variation on the group activity is to have students work in pairs throughout the semester. Each pair would be encouraged to discuss a variety of issues, such as general parenting strategies, how to analyze and solve child behavior problems, similarities and differences in the physical, cognitive and social development of their children, and personality differences between their children. It might be fun for each student to come up with some problematic or puzzling behaviors in his or her own child, and see if the other student can use the course material to explain or attempt to solve the child's problems.
Pairing off would also enrich the written assignment. Students could refer to the other child of the pair in their written assignments, comparing and contrasting the development of the two children and possible reasons for the differences. This would make the written assignment somewhat longer than usual, due to the inclusion of explicit comparisons to the other child. A variation on this option would be to have the student pairs work on each assignment together, and turn in a combined assignment in which they report on both children. Of course, this assignment would be nearly twice as long as the standard assignment, but the amount of effort beyond that which the students would have expended on their individual assignments is not that great. The opportunity to discuss their child's development with another student could be interesting and fun.

Students might be given the option of working in a group or working in pairs throughout the semester. It is also possible that some students would want to work solo. In the latter case, in-class parent forums might provide the solo students with some valuable comparative experiences. The parent forum in this case would consist of at least two types of groups, pre-existing parent groups, and groups formed on the fly for students who are working in pairs or as a solo parent.

As there are 12 question sets in the program, another approach is to have students turn in a written assignment every week, and spend about 20 minutes of class time discussing issues that came up in their assignments. This could be accomplished by breaking students up into small groups, or using it as a whole class activity in classes of 30 students or less. Because students are required to turn in written assignments, it is highly likely they will have something to say about their child, and they will benefit from hearing about the different experiences, and different “takes” on the questions other students have. This activity worked...
well in a small intensive summer class of 8 students, and Manis used it in weekly 50-minute student lab sections (10-20 students per section) in a fall, 2007, class of about 70 students. Students were asked to pair off and then read and grade (using the rubrics) each other’s assignments, prior to engaging in the discussion of the content of the assignments. Teaching assistants led these sessions, and were primed by the instructor to bring up certain links to the course content, if students didn’t bring these up themselves. TAs had the authority to assign final grades on the assignments, but most often found that student scoring with the rubrics was fairly accurate. This system would work well in class sizes up to 300 students, providing there are smaller discussion sections led by TAs. Students grew a little tired of the routine toward the end of the 12 assignments. Using the 9-Assignment format (8 main assignments) might address the issue of too much repetition, or the instructor might hold discussions and student gradings of only half of the assignments in the 13-assignment format.

In class sizes of 75 and up with no lab sections, it might be an undue burden on the instructor (depending on the amount of TA support provided) to grade and keep track of 12 writing assignments, or to hold group discussions. In this case, My Virtual Child might be best used as a supplemental or extra credit option, where students have the option of turning in a subset of the assignments for grading. Larger classes might be better suited to using the 9-Assignment version of the Reflective Questions (see Appendix 4).

Using My Virtual Child as the Basis for Lectures

The instructor may want to plan a few classroom activities or lectures of his or her own around My Virtual Child. In this case, it would be most beneficial for the instructor to run the program in order to have a working knowledge of the program, and to identify for him- or herself some useful points of contacts between existing lectures and the program. All
instructors will be given at least two access codes to My Virtual Child for their own use by
the publisher (corresponding to two different children). It would probably take an instructor
about two hours to run one child through a given age level (e.g., infancy, from birth to 19
months) and to generate some classroom activities or tie-ins to lectures.

My Virtual Child provides a number of interesting reflective questions in which
issues of child behavior management come up that could be discussed in class (refer to the
reflective questions at age 2, 3, 4 and 6 years in Appendix 3 and Assignments 4 and 6 in
Appendix 4). The instructor might engage students in a discussion on the limitations of
behavior management techniques based on positive reinforcement, time-out and punishment.
That is, would the same techniques work equally well for a two-year-old, a four-year-old,
and a six-year-old, based on what we know of the developing child's self regulation and
communication skills? Would these techniques have the same impact on children with
different levels of aggressiveness and emotional regulation, or children with undercontrolled
vs. overcontrolled personality types?

My Virtual Child can prompt discussions of the importance of environmental impacts
on development. For example, if the instructor wanted to discuss divorce, it is important to
point out that by age 10 there should be several students in the class who have experienced
family conflict and divorce within their virtual family, and who have observed their child's
behavior in the ensuing years. A discussion of the behavior of children in the program that
got through marital conflict and divorce could lead naturally to a discussion of the research
on this issue. My Virtual Child simulates some of the most common and robust effects of
conflict and divorce. For example, disruptions of school work, peer relations, and the parent-
child relationship occur in many cases of family conflict and divorce in the program.
However, there are moderator variables in the program. Children of the three personality types react differently to divorce (the resilient child has only minor difficulties). Girls and boys react differently, as indicated by research (girls recover more quickly). Finally, the child's behavior in the years after the divorce is affected by the parent's adoption (or continuation) of authoritative parenting, as indicated again by research. The divorce topic could be picked up again at age 14, as students who experience conflict and divorce will see a different and developmentally appropriate set of reactions to divorce on the part of the virtual child in the early teen years. For example, some girls become flirtatious and sexually precocious, and some boys act out.

There are quite a number of other topics that could be used as discussion starters. The “Description of Events and Questions” printed in this manual contains a complete list of the topics and when they occur in the program. This section also provides some idea of the amount of variation that is likely to occur across different students running the program.

**USING MY VIRTUAL CHILD WITH A TOPICALLY ORGANIZED TEXT**

My Virtual Child obviously fits more easily into a chronologically organized course than a topically organized course. However, it can be used with a topically organized text as well. One way of thinking about this is that MyVirtual Child can provide students with a picture of the typical behavior of children in certain periods of development that is often missing from a topical course. In addition, My Virtual Child will help students in a topical course understand how the pieces of development that have been treated separately by their textbook (i.e., physical, social and cognitive development) could fit together at a given age level.
However, the question arises as to when in a topically organized course My Virtual Child should be used. An argument can be made that it should be run at the same time in the course as the social and personality development chapters. The reason for this is that students will already be familiar with physical and cognitive development, and My Virtual Child can help them visualize how these two strands of development interact with social experience. Running the first 18 months of My Virtual Child would make sense in conjunction with a chapter on attachment, and sections of the book on temperament as well as the development of the self concept. The preschool and middle childhood segments of My Virtual Child (ages 3 to 10 years) would make sense in conjunction with chapters on peer relationships and relationships in the family. The adolescent segment (12 years to 18 years) might be utilized in the last two weeks of the course as a device for helping students see how all of the strands of development, including biological, social and cognitive developmental influences, come together in adolescence.

**USING MY VIRTUAL CHILD IN A LIFESPAN DEVELOPMENT COURSE**

My Virtual Child fits very well in the first 2/3 of a typical lifespan development course, organized chronologically. Most of the comments in this manual pertain to the use of the program in a typical child development course (birth to adolescence). The main difference in a lifespan development course would be the shorter amount of time allocated to each period of development. This might argue for reducing the number of writing assignments, or skipping some of the reflective questions in any writing assignments or discussions held on child and adolescent development in a lifespan course.

One topic found in most lifespan development courses is the transition to being a parent. After running My Virtual Child, many students who have not been parents
themselves tend to form opinions about parenting that can be explored in class. My Virtual Child is a rich source of these opinions! In the experience of the author students are often struck by the magnitude of the responsibility involved in raising a child. Some frequent comments made in class or in assignments were that students never knew how much was entailed in raising a child, that they were looking forward to doing so, and that they would wait until they were mentally and emotionally ready for such a task. The comments in the next section pertaining to parenting courses are also relevant to the topic of parenting in a lifespan course.

**USING MY VIRTUAL CHILD IN OTHER TYPES OF COURSES**

My Virtual Child might be useful in courses on parenting, and courses on shorter periods of development (infancy, early childhood, middle childhood and adolescence).

In parenting courses, My Virtual Child might be used with a somewhat different set of goals. Here the goal would be to analyze parenting rather than the broader aspects of child development. A variety of parenting issues are raised by the program. A partial list of some of the issues raised in the reflective questions and assignments includes:

a) parenting styles and their possible effects on child development

b) specific parenting techniques and their possible effects on child behavior

c) how children do not always turn out the way the parent planned or hoped

d) how parenting methods interact with child characteristics (goodness of fit concept)

e) multiple factors (genes, parenting, non-normative experiences, and the child’s own choice of activities) affect the path of development a child takes

f) how difficult it is sometimes to deal with child problems, such as slow language
development, ADHD, dyslexia, shyness, aggression, and problems with peers.

My Virtual Child could be used in courses covering other periods. Obviously infancy would be the easiest, as the student could move directly through infancy from the beginning of the program. Early childhood and middle childhood would be more challenging, as students would have to move through considerable material to get to the age range of interest. However, running the child through infancy and early childhood could be used to review concepts students need to know to understand the unique features of middle childhood. If students are not pausing to take notes or answer the reflective questions, but are reading the events and questions and making thoughtful parenting choices, it would take the average student about 3-4 hours to run through the end of early childhood. The student could slow down and focus on the period of development of interest in the course (early childhood or middle childhood).

Adolescence courses represent a special problem, as students would have to run the program for a considerable amount of time (about 5-6 hours) to get to the beginning of adolescence. There is no way right now to skip the earlier segments, and indeed this makes no sense, as the way the program “behaves” in adolescence will be partially predictable from its behavior at earlier ages, and it may be useful for students to know about the temperament, personality type, social experiences, and intellectual abilities of their child in the earlier years. An instructor choosing to use My Virtual Child in adolescence should have students start discussing and writing about the program at age 10, as the child is finishing elementary school (5th grade) and about to make a transition to middle school. At this point, the virtual children should have well developed clusters of personality traits and intellectual abilities. The 12, 14 and 16-year-old segments of the program illustrate many of the phenomena of
adolescence, including increased moodiness and introspection, increased interest in the peer
group and issues of conformity, acceptance, friendship and popularity, increased interest in
the opposite sex, and increasingly abstract thinking about self, others, moral issues, political
issues and scientific concepts. Issues of how differing constellations of cognitive abilities
relate to school achievement also come up in these segments. Altogether, a student would
work through more than 90 events and questions in this time period (age 10-18). There are
five assignments (8-12) and the bonus assignment, reflections on the transition to adulthood,
would be ideal for inclusion in an adolescence course.

STUDENT REACTIONS TO THE PROGRAM

Students generally have some type of emotional reaction to the program. The
instructor should be prepared to respond to these reactions. For example, somewhat to the
author’s surprise, many students reported becoming emotionally attached to their virtual
child. They realized it was only a computer simulation, but they found themselves
visualizing the child as a real human being, perhaps one who shared qualities and
experiences with people they knew, including friends, siblings and even themselves. In
general, even students who didn’t report (or wouldn’t admit to) a close attachment described
emotions such as pride in their child’s “achievements”, disappointment in and sympathy for
their child’s failures, frustration with a child who did not overcome problems such as ADHD,
dyslexia, or low school achievement, and even embarrassment at a child who was not doing
well.

Some students thought they must not have been a very good parent, given the number
of problems their virtual child had. Most of these comments are best viewed with a sense of
humor, because after all, it is not a real child. The instructor might point out that parenting is a learned skill, and it’s better to practice on a virtual child than a real one!

However, a student who honestly feels that they would not be a very good parent might be dealt with more sensitively. The instructor (and other students) can teach these (and other) students a powerful lesson, which is that not all aspects of a child’s development are attributable to what parents do. Genetic factors that emerge in a child’s development, specific environmental factors beyond the parent’s control, and even cultural effects of raising a child in contemporary America might be at work.

In this program, certain traits of the child are present early in the program (i.e., after the input from the student questionnaire is incorporated into the child’s initial state), and are difficult to alter, even by the best parenting choices. It is probably better for the instructor to encourage students to think of these traits as relatively “stable” characteristics of the child, rather than as “genetic” traits, to avoid oversimplification of gene-environment relationships. Examples of fairly stable characteristics include ADHD, dyslexia, low cognitive ability in any of the four domains (verbal, logico-mathematical, spatial, and musical), activity level, physical ability, and personality type. These characteristics change slowly over time, or the child can be seen as compensating partially for the cognitive and behavioral difficulties seen in childhood. For example, a virtual child who is quite shy in infancy but who experiences sensitive parenting will generally develop into an adolescent who is quietly influential among peers, and well-liked by his or her peers and teachers. Other child characteristics are more readily modified by parenting choices, such as attachment, peer competence, and school achievement, so parents can take more of the blame or praise for these developmental
outcomes. Recognizing the limits of parenting is a very valuable lesson to learn from a child development course.

Students from different countries, or of different ethnic backgrounds may have interesting reactions to the child, when given appropriate encouragement to bring these reactions up. In some of Frank Manis’ classes they sometimes said, “this is how I would raise the child in America” which prompted the question from the instructor, “how would you raise the child in your country (of origin)?” This led to interesting discussions of cultural differences in expectations about parenting and child development. A related observation was that some students born in the United States made parenting choices that were consciously like those of their cultural background, and were able to articulate this. A key point instructors can make is that inferences about cultural factors should be grounded in solid research – it is not enough just to describe differences and assume they have a direct causal effect on the child.

**STUDENTS’ DESIRE TO KNOW IF THEY MADE THE “RIGHT” CHOICES**

A specific concern raised by previous users of the program, both students and instructors, is how the student-parents know when they have given the "right" response to the questions posed to them as parents. Some students view the program as a type of video game, and want to know how well they are playing. This type of student reaction can be used to drive home another very powerful lesson about child development: it is not always obvious what the right parenting choice might be.

The goal of the program is to convey the broad sweep of child development from the point of view of a parent observing a child. The way this is done is by showing students "snapshots" of a child's typical behavior over a period of time (e.g., one year). The program
is not fully interactive, that is, the child in the scenarios rarely responds immediately to something the student parent does. Instead, the child gradually changes, in response to a variety of factors, including parenting choices, innate temperamental or personality characteristics, random environmental events, and general developmental principles. In other words, as in real life, students won't find out whether they have made the "right" choices as a parent until they see how the child turns out at various ages, in a variety of contexts (e.g., home, school, peer group). Feedback about child outcomes can be gleaned from a close reading of the events and questions to parents in the program, from comments or reports by teachers and other professionals, and from other "outcome data" (e.g., grades in school, success in peer relationships).

Although feedback about parenting choices is not provided on a question by question basis, some guidelines for being a "good" parent to the virtual child can be stated. In many cases, the "right" answer is the answer provided by developmental research and theory, which often corresponds to common sense (e.g., comfort a crying baby). This means that students need to search their text and lecture notes for the parenting choices supported by research. In some cases, the "right" answer to a question will depend on the child's developmental level or personality. Again, a consideration of child development research will be relevant. In many cases, there is more than one "right" answer (i.e., there are multiple choices a parent can make, all of them beneficial). Generally speaking, the more extreme answers (i.e., overly strict or overly lenient) will lead to more extreme outcomes (e.g., an overcontrolled or an undercontrolled child), but this may interact with the child's initial temperament. The student parents will discover that some virtual children are harder to get along with and to control, as appears to be the case in real life.
There is fairly direct feedback at a few points in the program, consistent with the program’s theme of realism. Occasionally someone (a developmental examiner, a teacher, a psychologist, or the child him/herself) will tell the student directly how she or he is doing as a parent in terms of two dimensions: warmth/affection and control/discipline. This is reasonably close to advice real parents might get, particularly if they are low on one of the two dimensions. These two dimensions are the basis for four parenting styles discussed in most courses (authoritative, authoritarian, permissive and neglecting). Some classes may deliberately decide to vary styles of parenting in order to see how this affects the virtual children. In addition, the virtual people in the program making developmental assessments of the child at ages 3, 4, 6 and 8 also make specific recommendations to the parent. Often these recommendations are based on the specific needs of the child (e.g., a child with slow language development needs greater stimulation), but in some cases they might be seen by students as things that they did not realize they should be doing.

In short, if students look carefully, they will find a considerable amount of indirect feedback and a small amount of direct feedback about their parenting choices.

**HOW INDIVIDUAL DIFFERENCES ARE TREATED IN MY VIRTUAL CHILD**

My Virtual Child has a particular approach to individual differences that instructors may wish to cover explicitly in class. In this section, the assumptions of the program regarding individual differences in personality and intelligence are discussed in more depth than in the earlier section on the personality and intellectual abilities of the child.

**Personality and Temperament**
Each virtual child has preset values of temperament. This is admittedly an oversimplification of the reality, which is most likely that temperament and other child characteristics are dynamically changing in response to bi-directional influences of genes and environment over time. However, most developmentalists would agree that fairly stable characteristics of the child eventually emerge. The temperamental dimensions are operationally defined in a box that pops up at 12 months of age in the program. The following is a verbatim quotation of what is contained in the box:

Virtual Child uses five dimensions of temperament to describe the child's behavior in the first 30 months. These dimensions are random at birth, are influenced by your questionnaire responses, and change gradually over time in response to events and parenting decisions. The five dimensions are activity, sociability, emotionality, aggressiveness vs. cooperativeness, and self control. There is behavior genetic and longitudinal evidence for varying numbers of temperamental traits and the five traits used in the program are on a lot of lists. Studies also show that temperament changes in response to strong environmental pressures.

ACTIVITY refers to the physical and mental energy level of the child. Highly active children may sleep less, be more restless, and engage in more physical activity. Less active children may sleep more, enjoy quiet pastimes, and show less interest in vigorous physical activity.

SOCIABILITY refers to the child's friendliness and desire for social interaction. Highly sociable children are sometimes given the label "extroverted" and less sociable children the label "introverted."

EMOTIONALITY refers to the intensity of emotion experienced by the child. Highly emotional children may show more of everything (anger, joy, sadness) and more fluctuation in moods. Less emotional children may show less extreme emotions and less fluctuation over periods of time.

AGGRESSIVENESS VS. COOPERATIVENESS refers to the tendency of the child to be aggressive in social situations with the parent, day-care provider or other children. Highly aggressive children may be quite resistant to parental demands and throw tantrums or even lash out at the parent or other children. Less aggressive children tend to be more cooperative, or to whine and fuss rather than actively resist the parent. Research indicates that boys are somewhat more aggressive than girls, but that their is a great deal of overlap between the sexes, and this is reflected in the program.

SELF CONTROL refers to the child's ability to control his or her behavior, delay gratification, plan out a course of action, or inhibit responses to a typical situations.
This is not exactly the same thing as aggressiveness or emotionality. For example, a child with low self control might take a cookie when asked to wait, not out of a spirit of lack of cooperation, but just due to low impulse control. Children who are extreme on this dimension may fit typical criteria for attention deficit disorder with hyperactivity. The Virtual Child has a 5% chance of having moderate to severe hyperactivity and a 5% chance of having mild hyperactivity.

GOODNESS OF FIT is a concept that is closely related to temperament. It refers to the tendency of the parent to adapt his/her behavior to the child's temperament. For example, suppose you have a very active child, and you are trying to promote exploration and learning. Rather than "going against the grain" and attempting to quiet the child down to look at a book about bugs, you might appeal to the child's active nature and choose to go on a walk and talk about the bugs you see. Goodness of fit also applies to developmental level. For example, at 6-8 months most infants are at least somewhat anxious around strangers, so you would want to introduce the child to a new person gradually rather than thrusting the child into the person's arms. Parents desiring to change their child's temperament, or help their child develop a particular skill, can benefit from the principle of goodness of fit, and the related concept of moderate novelty. Parents desiring to encourage growth in their child should introduce moderately novel activities and experiences, because children are more likely to pay attention to and profit from such experiences.

Temperament comes up in several questions. At 9 months, the student is asked to use the concept of easy, difficult and slow-to-warm-up child from the classic Thomas and Chess studies. As these studies are presented in virtually all child and lifespan development texts, it is assumed that students do not need extra instruction on this aspect of temperament within the program. At 19 months, the student is asked to do a more in-depth analysis of the child’s temperament based on the five categories defined in the quote above, and to find examples of how their parenting could be said to reflect the goodness of fit concept.

The temperamental variables do not occur in all possible combinations in the program. E.g., a highly aggressive child is not likely to have a very low value for sociability. Instead, four of the temperamental variables are organized around three personality types, overcontrolled, undercontrolled and resilient. The personality types were discussed earlier in this manual under “Conceptual Foundations – The Child’s Personality.” The program provides a definition of the personality types that pops up at age 3 years. The material in this
box is reprinted in Appendix 3, assignment 5, question 3, and Appendix 4, assignment 4, question 4. However, it might be worthwhile for the instructor to provide a mini-lecture on this material, and/or to assign an article discussing this issue, as it is not often covered in child development textbooks. In this section, a brief background for the concept of personality type is provided and the specific ways in which it is implemented in the program are explained in more detail than was found in the previous section on personality.

Some classic and recent studies relevant to personality types are Block (1971), Caspi & Silva (1995), Robins, John, Caspi, Moffitt, & Stouthamer-Loeber (1996), Hart, Hofmann, Edelstein & Keller (1997), Asendorpf & van Aken (1999), and Hart, Atkins & Fegley (2003). The article by Hart et al. (2003) is an SRCD monograph, and thus it is too long and detailed for students to read. However, this monograph (along with Robins et al., 1996 and Asendorpf & van Aken, 1999) was the primary basis for the "design" of the virtual child's personality. The Hart et al. monograph is highly recommended reading for instructors who want to cover the issue of personality types. The most approachable articles for undergraduates are probably Robins et al. (1996) and Hart et al. (1997).

It is still unresolved whether personality should be viewed dimensionally (e.g., as continuous variation along something like the Big Five personality dimensions of extroversion/introversion, agreeableness, openness to experience, conscientiousness, and neuroticism), or in terms of personality types (see Hart et al., 2003 and John, Caspi, Robins, Moffitt and Stouthamer-Loeber, 1994 for a discussion of this issue). Because My Virtual Child depicts the development of a single child, it was easier to adopt the personality types approach. This was a useful device for achieving some stability of the child’s behavior
within an age level, and to some extent, from age level to age level. However, elements of
the dimensional approach are also included in the program.

Personality type is pre-set in the program (50% resilient, 25% overcontrolled, and
25% undercontrolled). Version 2.0 of the program asks for students’ input on their own
personalities at the beginning of the program. Their input is used to alter the preset
percentages, based on an assumption that parents transmit certain genetic predispositions to
their children. It is difficult to quantify how much students’ “genes” alter the program’s
“genes”, but it is safe to say that a resilient parent is more likely to have a resilient child than
a parent who rates him/herself as overcontrolled, and vice versa. Personality type is used as a
variable in selecting which items to present to the student as early as age 3 years. The
personality types are defined in terms of certain ranges of values on four personality
dimensions, aggression/cooperation (which resembles agreeableness in the Big Five),
emotional regulation (which resembles neuroticism in the Big Five),
extroversion/introversion (similar in the Big Five), and self control (which resembles
conscientiousness in the Big Five). Resilient children score in the average to above average
range on these four variables. Overcontrolled children are low in extroversion, average to
high in self control and cooperation, and average in emotional regulation. Undercontrolled
children are average to high in extroversion, low in self control, low in cooperation, and low
in emotional regulation. Hart et al. (2003) have some useful operational definitions of the
three personality types (overcontrolled, undercontrolled and resilient) based on maternal
reports in early childhood, and social and scholastic outcomes of the personality types are
provided in later chapters of their monograph. In addition, factors associated with change in
the personality types are discussed by Hart et al. (2003). For example, they found that
parenting that was relatively high on both warmth and control was associated longitudinally with a shift to the resilient personality type.

Personality type is programmed in My Virtual Child to change gradually, and only in response to changes in the underlying personality variables toward the pattern defined for each personality type. The personality variables can be changed by parenting choices or by other experiences of the child, including divorce, peer group experiences, and success or failure in athletic and schooling experiences. Authoritative parenting is assumed to be best, and specific parenting techniques (such as use of positive reinforcement, explanations, modeling, time-outs and inductive reasoning) are favored over others (spanking or yelling at the child, and neglect of the child). Permissive or authoritarian parenting has specific negative effects on many of the social and personality variables, and to some extent cognitive variables.

At certain points, cumulative quality of parenting itself is utilized to change the personality variables, or the personality type directly (at the end of ages 6 and 11). At other points, the rules for changing personality type depend on the pattern of values of the personality variables (at the end of ages 4, 8, 10, 12 and 14).

In the program, resilient children are hard to deflect from a positive path of development, and overcontrolled and undercontrolled children require a considerable amount of positive parenting in order to shift to the resilient category. Overly strict parenting of a resilient or undercontrolled child tends to shift the child to overcontrolled, and overly lenient parenting of a resilient or overcontrolled child tends to shift the child to undercontrolled.

In addition to the personality types, finer shadings of personality are provided by the dimensional variables, such as aggression and sociability. For example, an
undercontrolled child with a very high level of aggression will have more problematic behavior than an undercontrolled child with a more moderate level of aggression.

**Intellectual abilities**

The intellectual profile of the child is based in part on Gardner's multiple intelligences framework, which is often covered in development texts, but not typically in much depth. The book by Gardner (1983) has some of the best examples of individual and cultural variation in the original seven intelligences, and systematic evidence from studies of normal development, brain damaged individuals, savants and geniuses for the independence and validity of the seven intelligences. Although Gardner’s views have been criticized, they represent a widely recognized synthesis of views of intelligence from the perspective of developmental psychology and neuropsychology.

In this program, there are five aspects of intelligence that vary across virtual children: verbal, spatial, logico-mathematical, musical, and bodily-kinesthetic. Verbal, spatial and logico-mathematical intelligence are common to many of the psychometrically based approaches to intelligence testing, but musical and bodily-kinesthetic intelligence were brought to the forefront largely through the efforts of Gardner and his colleagues. Interpersonal and intrapersonal intelligence are the two remaining aspects of the original seven multiple intelligences. These are represented in the program primarily by social and personality variables, such as self-control, aggression, peer competence, etc. The newer proposed intelligences (naturalistic and spiritual/existential) are not represented in the program (see Gardner, 1999)

Gardner's framework is typically covered in developmental textbooks later in the text. Middle childhood is the most common age period in chronological texts, and the chapter on
intelligence in a topical text occurs at the half-way point or later). However, in My Virtual Child, differences in verbal, spatial, logico-mathematical, and musical ability begin to manifest themselves as early as age 2 years, and the developmental assessments at age 30 months, 3 years and 4 years of age explicitly describe verbal, spatial, logico-mathematical and motor (bodily-kinesthetic) abilities in the child. The child begins to receive grades in school for reading, math, writing, language arts, music and art in first grade, and the child either takes up an instrument or does not (depending on musical ability) in third grade. The child’s physical and athletic abilities and interests are described as early as age 3 years.

Gardner's framework is first mentioned explicitly in a reflective question at age 8 years 11 months (Assignment 7). A brief description of the multiple intelligences approach as it applies to My Virtual Child pops up in the program at age 6. However, instructors may want to introduce this topic earlier in the course (e.g., by age 2 or 3), and perhaps come back to it in greater depth in middle childhood. A couple of informative and fairly short readings on Gardner's framework that might be used by instructors as the basis for lectures, or even assigned to students are Walters and Gardner (1986) and Chen (2004). See Nolen (2003) for a short paper on the application of multiple intelligences to the classroom. A chapter on assessment within the multiple intelligences framework was written by Chen and Gardner (2005).

The five cognitive abilities described here are preset randomly at the beginning of the program. Version 2.0 of the program asks the students to rate themselves on five cognitive abilities (verbal, logico-mathematical, spatial, musical and bodily-kinesthetic). Their input is used to alter the preset values of the child. It is difficult to quantify how much the parental values alter the preset values, but a highly verbal parent is more likely to have a Virtual Child
with an average to above average verbal ability than a parent with average or low verbal ability.

**DESCRIPTION OF VARIABLES USED BY THE PROGRAM**

At each age, there are three kinds of items presented to the student-parent: 1) normative events and questions, which are presented for all virtual children, 2) variable events and questions, which are presented for all virtual children, but the content of the item differs as a function of variables such as personality type and verbal intelligence, and 3) random or non-normative events, which appear to occur out of the blue (such as the child falling and breaking an arm). The second type of item is by far the most common across the program. The entire list of child variables and a brief operational definition is provided below. Whenever a percentage figure appears (e.g., 5% severe ADHD), this should be taken to mean that over a very large sample of program runs, 5% of the cases will have severe ADHD. Given the characteristics of small samples, it is of course possible that this percentage will be lower or higher for a particular class of students.

*Activity level* – child’s physical activity level and sleep/wake cycle. This variable is set higher if the child receives the severe ADHD classification, and is slightly higher in boys than in girls.

*Aggression/cooperation* – child’s tendency to cooperate with other people, comply with authority or to be resistant or aggressive toward others. This variable is set slightly lower in boys (in the direction of greater aggression).

*Attachment* – degree of security in the parent-child attachment relationship, which falls into the categories of avoidant, resistant/ambivalent and secure following Ainsworth.
**ADHD** – statistically 5% of the children have the full disorder (hyperactivity, impulsivity, inattentiveness and distractibility), 5% have the primarily inattentive profile (inattentive and distractible) and 90% have no sign of this disorder. Depending on treatment options selected by the parent, there can be some degree of amelioration of the problem over time.

* Bodily-kinesthetic ability – child’s gross motor physical strength and dexterity, balance, coordination and athletic ability.

* Daycare – statistically half of the children have a value of 0 (parental income is sufficient for the mother to stay home with the child in infancy and early childhood) or 1 (both parents work, at least part-time), and rely on some sort of day-care (the parent has a choice).

* Depression – approximately 5% of the children will experience depression at the age of 14, if current values of emotional regulation, parental warmth and peer competence are low. When this variable is set to a non-zero value, the responses of girls involve classic clinical depression, whereas that of boys involves irritability and high emotionality.

* Divorce – statistically, half the children do not ever experience conflict or divorce. Another 25% experience conflict (5% each at the ages of 4, 6, 8, 10 or 12 years), but the parents do not divorce. The remaining 25% experience conflict and divorce (5% at the ages of 4, 6, 8 10 or 12 years, with the divorces occurring at ages 6, 8, 10, 12 or 14 years). In the case of divorce, all parents will have a new partner or step-parent for the child to adjust to within 4 years of the divorce.
Dyslexia – statistically 5% of the children have severe dyslexia, 5% moderate dyslexia, and 90% no sign of this disorder. Depending on treatment options selected by the student, there can be some amelioration of the problem over time.

Emotional regulation – child’s ability to regulate and control his/her own emotions.

Extroversion/introversion – child’s tendency to be shy or anxious in new situations or with new people vs. outgoing and attracted to novel situations and people.

Gender stereotypy – this refers to the child’s tendency to be traditionally masculine or feminine or to have qualities of both gender roles (i.e., psychological androgeny), as these roles are typically manifested in American society.

Health – child’s physical health, including digestion, resistance to colds, earaches, etc.

Logico-mathematical ability – this applies to the child’s curiosity and talent in math and science.

Musical ability – this applies to the child’s interest in music, “ear” for music, and ability to sing and to play an instrument.

Parental control – this variable starts at 0 and accumulates either a negative (low control) or positive (high control) value over the years, beginning at age 3.

Parental warmth – this variable starts at 0 and accumulates either a negative (low warmth) or positive (high warmth) value over the years, beginning at age 3. Authoritative parenting is assumed to be in place if both warmth and control are high, authoritarian parenting if control is high and warmth is low, permissive parenting if warmth is high and control is low and neglectful parenting if both warmth and control are low.
**Peer competence** – this refers to the ability to get along with peers, to form friendships, to be well-liked by peers, and to be a group leader.

**Personality type** – at the beginning of the program, statistically 50% of the children are randomly coded as resilient, 25% undercontrolled, and 25% overcontrolled. Values of aggression, emotional regulation, extroversion/introversion, and self control are set within certain ranges for each personality type. All of these values are updated as the program progresses, based on environmental experiences.

**Self control** – this refers to the extent of the child’s ability to persist on tasks, delay gratification, and avoid impulsive behavior. This variable is set lower if the child receives one of the ADHD classifications.

**Spatial ability** – this refers to the child’s ability to manipulate physical objects, understand spatial relations, execute fine motor tasks, and the child’s talent and interest in various artistic or construction activities.

**Verbal ability** – this refers to the child’s language ability; children who are higher on this variable will progress through the language milestones at ages 18 months to 4 years at a faster rate. In addition, children who are higher in this ability will perform better in language arts, reading comprehension, and English and Social Studies classes.

**Environmental variables.** There are about 50 environmental variables, including the two mentioned above (parental warmth and control). The variables are not listed here, as they generally refer to specific events or states that apply over a limited period of time, such as whether a child has a fear of dogs, whether the father lost his job, whether the child behaves well or badly in restaurants, etc. About half of the environmental variables
temporarily code changes in one of the variables listed above during one age period (such as verbal ability at age 8).
DESCRIPTION OF EVENTS, QUESTIONS, REPORTS,
AND ASSIGNMENTS AT EACH AGE

A synopsis of the events and questions at each major age level is provided below. It will be useful for instructors to read through the descriptions below to get an idea of the range of possible developmental paths that virtual children can take within a given classroom. It is also recommended that instructors run the program at least once, to see how it works in practice. Each section below describes, where relevant, the three types of items (normative events/questions, variable events/questions, and non-normative events/questions).

0 months - 6 questions, 1 event:

1) Normative crying, feeding, and states of arousal will be described. Students will be given the choice of breast, bottle, or combined feeding.

2) Children will vary in terms of activity level and health.

3) The only chance event is that parents will experience one of 5 different birth scenarios.

3 months - 8 questions, 3 events

1) The parent will be told whether s/he needs day care and given a choice of type of daycare (60% daycare, 40% non-daycare).

2) Normative descriptions of increasing alertness and attentiveness to the external environment will also be provided.

3) Children will vary in reported levels of activity, emotional regulation (i.e., soothability), and extroversion/introversion (reactions to novelty).
4) One of several chance events will occur, such as postpartum depression, arguments between sleep-deprived parents, or Grandmother helping out with the child.

8 months - 8 questions, 3 events, pediatrician's report

1) Normative behavior changes such as the onset of goal-directed behavior, early object permanence, progress in speech, and a preference for Mom over others will be described.

2) Children will vary in reported levels of activity, emotional regulation, health, and extroversion/introversion (e.g., stranger anxiety).

3) One of several chance events will occur, such as a change in day-care provider, Dad losing his job, Dad feeling left out, Mom feeling stuck at home, or Mom being in a minor traffic accident.

9 months (transitional age)

1) Pediatrician’s report – the pediatrician’s report describes the child’s apparent physical health, the child’s observed motor development, progress on other developmental milestones, and the apparent quality of attachment relationship to mom and dad.

2) Assignment 1 (see Appendix 3 for details)

12 months - 8 questions, 5 events

1) Normative behavior changes such as development of object permanence, first words, increased motor skills, new forms of imitation, experimenting with novel behaviors and the onset of firm emotional attachments will be reported.

2) Children will vary in reported levels of motor development, emotional regulation, health and security of attachment
3) One of several chance events will occur, such as the child having constant colds, Dad getting his job back, living in a noisy neighborhood, having good neighbors with kids, or the child falling and hurting her/himself.

**15 months** – 1 event

The child’s explorations of the environment are described and fit Piaget’s concept of tertiary circular reactions. The attachment variable is updated based on parental decisions, but changes in the child’s behavior aren’t manifested until 18 months.

**18 months** - 11 questions, 5 events

1) Normative behavior changes such as increased motor skills, language gains, recognition of self in the mirror, toddler resistance to parental commands, deferred imitation, and the beginnings of toileting awareness will be reported.

2) Children will vary in reported levels of verbal ability, security of attachment, extroversion/introversion, activity level, emotional regulation, musical awareness, and spatial ability (skill in playing with blocks).

4) One of several chance events will occur, such as moving to a new apartment, an older cousin moving in with the family, arguments among the parents, or the child having recurring ear-aches.

**19 months (transitional age)**

1) 1 event on deferred imitation and categorization abilities. Values of attachment, aggression, self control, emotional regulation, and extroversion/introversion can be changed in response to parental decisions at 18 months, but these changes aren’t manifested in the child’s behavior until 2 years.

2) Developmental assessment
3) Assignment 2 (see Appendix 3 for details)

**24 months** - 10 questions, 4 events

1) Normative behavior changes such as the appearance of the self-conscious emotions (guilt, embarrassment), interest in becoming potty-trained, and transitions in daycare groups or in the Mommy and me playgroup will be reported.

2) Children will vary in reported levels of verbal ability, health, logico-mathematical ability (symbolic thinking), security of attachment, and personality type. The aspect of personality type that varies here is compliance with parental requests.

3) Two of several possible chance events will occur, such as the child being scratched by a cat, the child becoming fearful of dogs, the child falling into a pool and being saved, the child falling off a swing and sustaining an injury, the parent catching pneumonia, or Dad being laid off and going back to school (leading stay-at-home Moms to have to work part-time).

**2 years, 6 months** *(transitional age)*

1) This is a transitional age used to update variables. Two events indicate that the child is better at remembering and retelling recent experiences and that the child is now toilet-trained. Values of attachment, peer competence and the temperamental variables can be changed based on parental decisions at age 2, but these changes don’t show up until age 3 years.

2) A developmental assessment indicates the child’s progress in physical, cognitive, language, social and emotional development.

3) Assignment 3 (see Appendix 3 for details)

**3 years** - 13 questions, 5 events
1) All children are toilet-trained at this point and are described as starting at a new preschool, and all parents hear that both partners are working at least part-time at this point, and they are saving to buy a house. In addition, all parents hear that a younger sibling, a baby sister, is born. Normative behavior changes such as the use of familiar scripts to encode events, interest in educational TV, and the beginnings of an appearance-reality distinction are reported. All parents confront the problem of the child having to follow rules of behavior in a restaurant.

2) The children will vary in manifested levels of verbal ability, extroversion/introversion, logico-mathematical ability (extent of imaginative play), musical ability (singing in tune or not), and bodily-kinesthetic ability (simple sports skills). Personality type is once again used to differentiate the degree to which the child complies with parents’ requests.

3) Non-normative events: this is the first age at which the divorce variable comes into play for a small percentage of the cases, i.e., the parents begin to have serious arguments. In addition to parental conflict, two or three of several possible chance events may occur, such as the child developing some new fears, the child either continuing or getting over a fear of dogs, the child getting lost temporarily in a store, the child getting pushed off a swing by older children, the child walking in on a scary film, the child having an occasional temper tantrum or Dad finishing his extra schooling and getting a new job.

**3 years, 10 months & 3 years, 11 months** (transitional age)

1) 3 events: all parents hear that they have bought a house in a fairly nice area of town, that the child has learned to tell a lie (theory of mind), and that the child is improving in storytelling ability. The attachment variable and the parental control variable are used at this point to alter levels of key temperament/personality variables, such as aggression, emotional
regulation, self control and introversion/extroversion, as well as levels of peer competence, but these changes do not show up in behavior until age 4.

2) A developmental assessment is given preparatory to the child going to a particular preschool. The assessment indicates the child’s progress in physical, cognitive, language, social and emotional development and the parent is given feedback from a questionnaire about his/her warmth and control (authoritative parenting).

3) Assignment 4 (see Appendix 3 for details)

**4 years** - 12 questions, 5 events, pre-Kindergarten assessment, Assignment 5

1) Normative changes in behavior such as becoming more rigid about gender roles, choosing mostly same-sex playmates, and becoming jealous of the baby and regressing a bit in maturity of behavior are described.

2) Depending on how parents respond, the child will either become less fearful of dogs or still remain afraid (some children were never afraid of dogs and simply ask for a puppy at this age), the child will improve in restaurant behavior or not, and the child will get over the jealous behavior or not. The children will vary in described levels of verbal ability, logico-mathematical ability (interest in numbers and games with rules), and spatial ability (playing with trains and connecting blocks). Personality type is used to differentiate levels of compliance at home. For the first time, the full personality type is described in terms of both home and preschool behavior – undercontrolled children are aggressive, uncooperative and emotionally labile, overcontrolled children are shy and dependent, but cooperative and resilient children are friendly, cooperative, and independent. This is the first age at which the dyslexia variable is used, with future dyslexic children showing a lack of interest and facility
with rhymes and learning the ABC’s. The ADHD variable is also used for the first time at this age – the teacher may report symptoms of hyperactivity, inattentiveness, or not report problems at all.

3) Two of several possible chance events may occur, such as the parents having serious arguments, the parents separating, the child getting lost briefly at the zoo with her/his preschool group, the partner getting upset due to stress at work and spanking the child, the child developing some favorite TV shows, the child having an imaginary friend, the child having bad dreams and having to sleep in the parent’s room, or the baby sister getting ill and taking the parents’ attention off the child for awhile.

4) At the age of 4 years, 10 months, the child joins a pre-K session at the school to become familiar with it and meet some kids. One of the kindergarten teachers performs an assessment of school readiness, physical, cognitive, social and emotional development, and provides the parent more feedback about warmth and control.

5) Assignment 5 (see Appendix 3 for details)

5 years, 10 months (transitional age)

Normative events such as shopping for school supplies and having a 6 year-old birthday party are described. The updated levels of aggression, emotional regulation, self control and introversion-extroversion are used to change personality type (if large enough changes in these variables have occurred since birth). Other variables that can change are peer competence, and verbal ability.

6 years - 11 questions, 5 events
1) Normative changes in behavior such as gender-role stereotyped behavior, imitating the same-sex parent more, wondering about people dying (prompted by the death of a pet fish), cheating at games, using memory skills to play more advanced games, and going to first grade are described. When the child asks about death, parents are given the option of talking about their religious beliefs with the child or some other more secular response. All children at this point are well-behaved in restaurants.

2) At this age, degree of gender stereotypy begins to vary based on the parents’ responses in past years. The children will vary in depicted levels of verbal ability, reading ability, attentiveness and self control in the classroom (i.e., ADHD), musical ability (with high musical ability kids starting keyboard and voice lessons), bodily-kinesthetic ability (with average to high ability kids starting a sport chosen by the student-parent from a menu, and low ability kids getting involved in scouting, theatre, science camps or arts and crafts as indicated by the parent), logico-mathematical ability (math and science interest and talent at school). Peer competence and personality type are used jointly to determine how well the child gets along with other children and whether the child is a group leader or a follower. Personality type is also used to refer to the child’s emotional reactivity to stress.

3) Non-normative events: this is the first age at which actual divorce occurs (for 5% of cases), and in all cases, the father moves out of the home into a nearby apartment and joint custody is agreed upon (the mother has the child during the week and the father on weekends). Some parents experience serious quarreling, some separate, and some get re-united after a period of separation, but most still have a sound relationship at this point. Conflict, separation and divorce have widespread effects on other variables, such as aggression, peer competence, emotional regulation, self control and attachment.
behavior of the child after the separation or divorce varies depending on personality type (i.e., resilient children cope fairly well, undercontrolled children act out more, and overcontrolled children become more anxious and dependent). Some of the chance events that can occur aside from conflict or divorces include the child falling and breaking an arm, having a best friend move away, getting a new puppy, falling off a bike and getting a concussion, falling into a creek, becoming overweight, having problems wetting the bed, or having trouble getting to sleep at night.

**6 years, 10 months and 6 years, 11 months** (transitional ages)

1) 4 events occur. All parents hear that they like the neighborhood and will stay, that both parents are working in order to handle the bills (whether divorced or not), and that they went to a teacher conference and got the first grade report card. At this point, cumulative parental levels of warmth and control are used to adjust levels of some personality variables (aggression, emotional regulation, and self control). Updates to peer competence, verbal ability, spatial ability, and logico-mathematical ability can also be made. The child makes a comment about the parent’s degree of niceness (warmth) and how many rules the parent has (control) compared to other parents.

2) First grade report card describes the child’s adjustment to school rules, classroom behavior, peer relations, work habits, and progress in language arts, reading, math, and art.

3) Assignment 6 (see Appendix 3 for details)

**8 years** - 12 questions, 4 events
1) At this age, no developmental changes are described that are true of all children – all reported behavior is a function of one variable or another at this point. All families will have a dog at this point and any lingering fear of dogs is gone. Apologies to cat people.

2) The children will vary in manifested levels of gender stereotypy, with boys ranging from feeling girls are “yucky” to being tolerant of girls, and girls ranging from acting very feminine to being tomboyish. The verbal ability and dyslexia variables are used jointly to determine the child’s language comprehension and reading ability at this point. Parents who have children with very poor reading and spelling ability are given choices about how to intervene. Parents who have children with ADHD are given choices about intervening, including the use of medication and behavior management at home and school. Other reported behavior categories that vary among children are musical ability (the child starts an instrument and the student parent is given a small menu of choices), logico-mathematical ability (math and science interest and aptitude in school), bodily-kinesthetic ability (degree of enjoyment and success in sports, science/theatre/scouting or arts and crafts) and personality type (degree of reactivity to stress). Personality type and peer competence are also used to report on the child’s success with friends, size of peer group and status in the peer group.

3) Non-normative events: past chance events are tracked at this age level, including progress in coping with obesity, parental conflict, or divorce. At this point, girls and boys have a different response to the divorce that occurred for some children at age 6. Boys are still having problems with obedience and school achievement, and girls are doing better and have developed a closer relationship with Mom. However, response to divorce also depends on personality type – undercontrolled children of both genders are still having problems with obedience, peer relationships, and school achievement. Among the new chance events that
can occur are the onset of allergies and asthma, having a serious bike accident, a best friend moving away, developing a mutual love of board games with the parent, being disorganized about getting ready for school, and being exposed to an “R” rated video at a friend’s house.

**8 years, 9 months, 8 years, 10 months, 8 years, 11 months, and 9 years, 0 months**

(Transitional age)

1) Events and questions describe the child’s level of moral reasoning and describe summer activities such as having a 9th birthday party and shopping for school supplies. The parent meets up with an old friend from college who has kids. Personality type can change at 8 years, 9 months, if the parent is high or low in warmth and control. Another chance to change personality type is provided at age 8 years, 11 months, if the four key personality variables (emotional regulation, sociability, self control and aggression) align appropriately. At 8; 10, peer competence and spatial ability can be changed. At 8;11, verbal ability can be changed and the level of logical ability is brought into more synchrony with verbal and spatial ability. That is children who are extremely high or low in verbal and spatial ability are adjusted upward or downward on logical ability to avoid seemingly contradictory school performance at age 10 and up.

2) The psychologist’s report is done ostensibly for routine reasons, but if the child is having problems at this point, they will show up in intelligence test sub-scores, reading and math scores, or the psychologist’s analysis of the child’s concentration and social skills. The psychologist reports on the parent’s degree of warmth and control based on a survey. Personality type is changed if there have been significant changes in the personality variables (aggression, self control, emotional regulation and extroversion/introversion) or the parent’s cumulative levels of warmth and control.
3) Assignment 7 (see Appendix 3 for details)

**10 years** - 12 questions, 3 events

1) All parents are given a question about how to deal with squabbles between the siblings.

All children are slated to go to science camp with the 5th grade class, but varying interest levels are described for children differing in logico-mathematical ability at this point. Other than this, no developmental changes are described that are true of all children – all reported behavior is a function of one variable or another at this point.

2) The categories on which children’s behavior varies include verbal ability, reading and spelling ability, ADHD symptomatology, susceptibility to colds and flu, spatial ability (boys and girls will manifest this somewhat differently) and logico-mathematical ability (math and science performance). Variations in gender stereotyped behavior are described, including highly masculine behavior (riding around in a pack on bikes), highly feminine behavior (shopping and make-up) or somewhat less stereotyped behavior (the boy tolerates girls, and the girl is tomboyish). Peer competence and personality type are once again used to describe the child’s success or failure in social relationships with peers and social standing in the group. At this point, high levels of peer competence and a resilient personality result in the child's becoming one of the most popular in school, and low levels of both variables result in the child being hostile and rejected by peers. Personality type is also used to specify the child’s responses to school (underachiever, conscientious but somewhat anxious, and studious and confident). Children’s success in sports is described as a function of the sport the student-parent chose at age 6 (for average and high ability children), and student-parents are given the option of getting more seriously into training in that sport, letting things be less intense, or allowing the child to shop around to different sports. For children who were low
in bodily-kinesthetic ability, parents are given the choice of continuing with science camps or scouting, or urging the child to give sports another try. Depending on the parents’ choices at this point, children will experience varying degrees of success at sports at age 14 years.

3) Among the chance events that can occur are stomach ulcers, breaking up with a best friend, the parent being promoted to regional manager and having to be away from home, the child going on a family vacation, the child getting lice and spreading it to the entire family, the child having a bike accident that includes a brain injury, the child becoming fearful of big dogs (the family dog is a small dog), a terrorist attack occurring on a government building, or the child being truant from school. Family conflict and divorce occur in the usual manner to some children, and children are coping with a prior divorce in various ways depending on gender and personality type. A new aspect of divorce at this point is that children who experienced a divorce at age 6 are now having trouble getting along with Mom’s boyfriend or Dad’s girlfriend.

**10 years, 11 months** (transitional age)

1) 4 events deal with the child’s transition to middle school in 6th grade, the child getting a cell phone, and the child saving allowance money for a new bike. Updates to peer competence, extroversion/introversion, self control, verbal ability and logical ability can be made.

2) The fifth grade report card evaluates school adjustment, peer relations, and academic performance in the usual categories.

3) Assignment 8 (see Appendix 3 for details)

**11 years, 11 months** (transitional age)
There are two questions and one event. The questions simply describe summer activities such as having a slumber party, having a birthday party, and the child’s state of mind after finishing 6th grade. The child will move on to 7th grade at the next age level. Personality type is changed if parental levels of warmth and control have moved into particular ranges. Bodily-kinesthetic ability and activity level can be changed based on parental decisions at age 10, but this is not reflected until age 12.

**12 years** - 11 questions, 4 events

1) Normative changes in behavior and development that are typical of early adolescence are described, such as a more sophisticated sense of humor, greater interest in current events, advances in moral reasoning (Kohlberg’s stage 3), greater interest in grooming and the opposite sex, having to get braces, and more moodiness. At this point, most children have some arguments with the parents about issues of independence, music and clothing choices, etc., but not about fundamental values such as morality.

2) The children will vary in manifested verbal ability, logico-mathematical ability, self control (study habits), emotional regulation (moodiness), and musical ability. Children who have high levels of either verbal or logico-mathematical ability, or both, will be tracked into gifted and talented classes at this point. Highly musical children are performing with a band or orchestra or giving recitals at this age. Items featuring verbal ability and dyslexia are used jointly to describe the child’s school performance, and the child’s experience of interventions for reading in the past is taken into account. For example, children with high verbal ability who had severe dyslexia and received extensive remediation are able to comprehend a great deal of information when it is presented verbally, and they can read most texts at their grade level, but they have problems with fluency and with spelling and writing.
3) Non-normative events: the conflict and divorce variable is treated in the same way as it was at age 10. The brain injury issue is followed up – the affected children experienced some problems with concentration and school performance, but have mostly recovered at this point. The obesity issue is followed up as well. Some children are still obese and some have recovered (some were never obese). Girls who were formerly obese tend to gain weight again because of pubertal changes. Girls who were not obese worry about weight gain. Boys who were obese have to worry about their diet. Boys who were not obese become a little more interested in a healthy diet. Some of the new random events that are possible at this age include the child causing minor property damage or toilet-papering a house and getting caught, boys who perform practical jokes or get into trouble for climbing around or vandalizing their old school, children who are resistant about completing chores, children who shut themselves in their room or in the bathroom for long periods of time, children who get caught with drugs at school and suspended, and a description of the child’s internet behavior.

12 years, 11 months (transitional age)

1) Four events describe summer activities of various sorts and are used to update levels of peer competence, verbal ability, emotional regulation, self control and aggression.

2) The seventh grade report card describes school adjustment, peer relations, and grades in typical middle school classes such as literature, history, science and math.

3) Assignment 9 (see Appendix 3 for details)

13 years, 10 months and 3 years, 11 months (transitional age)
There are three events. Activities in the summer before high school are described and the transition to high school is described briefly. In one item, the child describes the parent’s degree of warmth and control in relation to other parents. Personality type is changed if the values of the personality variables have moved into particular ranges.

14 years - 10 questions, 5 events

1) The child is now a freshman at a fairly large public high school. The normative behavioral changes are somewhat different for boys and girls. Boys are becoming interested in men’s magazines or sexual images on the internet, more interested in their appearance and attracting the interest of girls, shaving, and possibly getting an ear pierced. Girls have their first crush on a high school boy, are invited to a party and receive parental warnings about drugs and alcohol, are asking for a push-up bra, and are interested in getting additional ear piercings. Parents are confronted in a direct way with having to make choices about being more or less restrictive and controlling, listening to the child’s point of view vs. pushing their own.

2) Children will vary in described levels of verbal ability, spatial ability, emotional regulation (ability to deal with stress) and self control (study habits). Children with high spatial ability are starting down a path in which they enjoy art and are taking art classes in high school. Children with high bodily-kinesthetic ability are now following a particular path in sports and experiencing success in trying out for high school teams (e.g., softball, soccer, football, swimming, dance, hockey, cheerleading, and basketball). Children who had average athletic ability at age 10 but who got extra training in sports also make it onto teams, but those who did not get extra training do not make the team. Children with low athletic ability are joining clubs such as science and nature clubs, hiking clubs, etc., except for undercontrolled children, who are becoming somewhat disaffected and uninvolved in clubs or sports. Peer competence
and personality type combine to produce different kinds of behavior at this point, such as a) a socially active child who has friends and belongs to school clubs, b) a child who is associating with a negative peer group (the “burn-outs”), or c) a child who is shy and withdrawn, but has a couple of close friends.

3) Non-normative events: the program continues to follow up on conflict, separation, reuniting, divorce, and dealing with the new girlfriend or boyfriend of the parent in the same manner as previous ages. Responses to divorce are somewhat dependent on gender, with girls becoming closer to the mother, but experiencing some problems with sexual precocity in the case of a recent divorce, and boys tending to be rebellious with the mother and closer to the father. New random events that can occur include the child getting startled by the fact that another student is caught with a knife and suspended from school, the child being involved in a minor car accident, the child having a vicious internet quarrel, the child fighting with a friend and being ostracized temporarily by the group, the child claiming that a particular teacher hates her/him, the child acting on a dare and littering at school, the child going to a party where they try to play a sexual game, or the child blasting her/his music at home.

**14 years, 10 months and 14 years, 11 months, & 15 years, 0 months** (transitional age)

1) Two questions and four events occur. The child asks some questions about morality, religion, and politics and parents have the option of instruction in their particular beliefs or not. Another question deals with the child’s self concept and whether it is positive or negative at this point. Other questions discuss summer activities, such as going camping with a friend’s family or hanging out with a young, hip uncle or aunt. Some children are fairly cooperative with the parent at this point and some are not, depending on levels of the
aggression/cooperation variable. Peer competence, verbal ability, emotional regulation, aggression, self control and spatial ability can change. Personality type can change again at age 15;0, if the personality variables fall into a pattern characteristic of a different personality type. At this point, the student-parent, whether they like it or not, is over 40 years of age, and should be feeling like the older generation.

2) The 9th grade report card describes the child’s grades in typical 9th grade college-prep classes, teacher ratings of the child’s citizenship, and teacher positive comments.

3) Assignment 10 (see earlier description of assignments for more details)

**16 years** - 12 questions, 5 events

1) The child is a junior in high school and confronts typical issues for this age level, including more serious studying on the college track and preparing for aptitude exams, going on dates, going to parties, first drinking experience, considering a possible first sexual experience, learning to drive, violating curfew and sneaking out at night, whether or not to try drugs, and succeeding or failing in athletic, musical, and scholastic endeavors.

2) Children who are still undercontrolled at this point, or who have very low peer competence, experience many undesirable events. Children who are resilient or overcontrolled tend to have only minor problems. At this age, a combination of being low in emotional regulation and peer competence can lead to serious depression, especially for girls. In contrast, boys with this combination of variables tend to have trouble managing emotions, especially anger. The children will vary in manifested levels of verbal ability, musical ability, self control (study habits), logico-mathematical ability, and bodily-kinesthetic ability. The child’s reported performance on the PSAT test varies as a function of verbal and logico-
mathematical ability. Children with high athletic ability are doing quite well in their sports, and children with average ability are still on the team, but not a star. Children with high musical ability are doing well in the school orchestra, band or in private recitals. Some children can opt to form their own musical group.

3) Non-normative events: there are no new divorces at this age, but the questions follow up on the child’s earlier divorce status, where applicable. New random events that can occur at this age include the child having a scary accident, the dog passing away, hanging out with an older cousin and getting in trouble, getting cited for a clothing violation at school, the parent getting laid off from his or her job, the child having a serious boy/girl friend, or the child breaking up with a boy/girl friend. At this point, based on a combination of several variables, the parent should be able to tell whether the child is on track for going to college or not.

**16 years, 11 months** (transitional age)

1) There is one event and one question. At this transitional age, children who are aggressive or low in peer competence will continue to exhibit problem behavior, such as getting into a fight, sneaking off and getting a tattoo, getting cigarettes from friends, or side-swiping a trash can and not telling the parent. However, most children will have more positive behavior, such as community service or going camping with friends. Levels of aggression and peer competence are adjusted based on parental decisions and events at age 16.

2) The 11th grade report card describes grades and citizenship in typical college prep courses. Some of the children with low academic ability and/or low self control are getting some bad grades that might disqualify them for a 4-year college at this point.
3) Assignment 11 (see Appendix 3 for details)

**17 years** - 3 questions, 1 event

All children are in their senior year of high school and experience different events depending on levels of self control and emotional regulation, such as going to prom, being promoted at their part-time job, or serving as emcee for a senior variety show. All children go through a moral development exercise in a class at school which allows the parent to evaluate the child's current level of moral reasoning (Kohlberg's stage 4). The personality type variable is updated one last time depending on levels of the personality variables. Levels of self control and emotional regulation can also be changed.

**17 years, 6 months** - 2 events

This is mid-senior year, and depending on personality type and peer competence, the student could be getting along well with the parents or getting busted for taking drugs and sent to rehabilitation services, or hanging out with a rough crowd. Children who were depressed have now recovered.

**17 years, 11 months** - 1 event

Based on the current level of verbal and logico-mathematical ability, and the child’s personality type, the child is assigned an outcome from the following list of possibilities: a) living at home and working, but not going to school, b) going to vocational-technical school, c) living at home and going to community college, d) living away from home at a within-state university, d) going away to a top college or university. These outcomes should be consistent with the child’s reported test scores and 11th grade report card from age 16;11. Children with the undercontrolled personality type are less likely to have a positive outcome,
but the outcome for children with the other two personality types (overcontrolled and resilient) is totally dependent on verbal and logico-mathematical ability.

**18 years, 1 month**

1) The final item describes the child’s current relationship with the parent based on levels of parental warmth and control: a) not emotionally close and communicates rarely with you (low warmth, moderate control), b) not emotionally close but respects you (authoritarian), c) emotionally close, but child is undisciplined (permissive), d) emotionally close and regards you as a mentor (authoritative).

2) Assignment 12 is a concluding assignment that asks students to discuss aspects of the child they thought were influenced by their parenting and aspects that were influenced by factors beyond the parent’s control (genes, influence of peers and society, and non-normative events). It also asks what pathways the child seems to be on in terms of physical, cognitive, social, emotional and moral development, and whether the parent could have predicted the child’s current path in life from earlier episodes in the program.

3) The bonus assignment may be of interest to some instructors. It asks the student to apply some of the concepts from the program to his or her early college years, including social relationships, relationship with parents, personality type, and intellectual strengths and weaknesses.
REFERENCES


APPENDIX 1

This survey appears at the beginning of My Virtual Child 2.0. Some explanatory notes are added here in italics for the benefit of instructors. The material in italics is not seen by users of the program.

PERSONALITY AND ABILITY SURVEY

Personality Type Quiz:

Choose one of the following personality types as the one most closely resembling you in the last two years of high school (e.g., ages 16-18). The fit does not have to be perfect. If you have more characteristics of one personality type than the other two types, pick that one.

1. **Overcontrolled**: I was shy with unfamiliar adults or children. I was not very comfortable in group situations. I was fairly obedient to the rules at home or at school. If I got upset, I tended to internalize (e.g., feel tense, worried or depressed). I was fairly dependent on other people to get things done or to make me feel self confident.

2. **Undercontrolled**: I was not particularly shy with unfamiliar adults or children, but I had trouble sharing and cooperating with others. I tended to bend or break the rules at home or at school if I could get away with it. If I got upset, I tended to externalize (e.g., get angry, slam doors, break or throw things, shout at or get aggressive with other people). I did not tend to take on new challenges unless I had a friend or someone supporting me.

3. **Resilient**: I was friendly and got along well with others. I was fairly obedient to the rules at home or at school. I rarely got nervous, anxious or depressed. I rarely got angry or got into arguments, or acted out on my feelings with other people. If I got upset or something bad happened to me, I was able to recover fairly quickly. I was fairly independent and self-reliant.

   *The program will select the child’s personality type in the following way. 50% of the time, the child will have the same personality type as the student-user, and 25% of the time, one of the other two personality types will be selected at random.*

Mini Personality Survey

For each statement, choose a number to indicate often it was true of you at the ages 16-17 (or grades 11-12). Use the following scale. You can choose intermediate numbers such as -4 or +2 if needed.

-5 much more often than others
-4
-3 more often than others
-2
-1 slightly more often than others
0 about the same as others
+1 slightly less often than others
+2
+3 less often than others
+4
+5 much less often than others
KEY:
Emotional regulation: items 1-4
Extroversion/introversion: items 5-8
Aggression/cooperation: items 9-12
Impulsiveness/self-control: items 13-16
Activity level: items 17-20

1. My feelings got hurt if I was made fun of or criticized. This was true of me:

-5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5

2. I got angry with others or with myself. This was true of me:

-5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5

3. I could bounce back quickly after a stressful or bad experience. This was true of me:

-5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5

4. I was calm, cheerful and happy. This was true of me:

-5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5

[The program will alter the child’s emotional regulation variable in the direction of the parent’s score. The child has roughly a 55% chance of having a score that is the same or higher than the parent, and a 45% chance of having a score lower than the parent. The remaining four personality traits will be calculated in the same fashion.]

5. I was shy – I had a hard time getting to know new people. This was true of me:

-5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5

6. I liked to keep my thoughts and feelings to myself. This was true of me:

-5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5

7. I was outgoing – often the center of attention or the life of the party. This was true of me:

-5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5

8. I was comfortable in groups even if the people were unfamiliar. This was true of me:

-5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5

9. I was aggressive and tended to get in fights or arguments. This was true of me:

-5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5

10. I was bossy and liked to dominate others. This was true of me:
11. I was helpful and cooperated with others. This was true of me:

12. I was concerned about pleasing others. This was true of me:

13. I was messy and disorganized. This was true of me:

14. I acted on impulse. This was true of me:

15. I planned things ahead – I thought before I did something. This was true of me:

16. I was self disciplined in my work, practice and study habits. This was true of me:

17. I spent time in quiet and calm activities. This was true of me:

18. I needed to rest or sleep. This was true of me:

19. I was busy. This was true of me:

20. I was physically active. This was true of me:

Cognitive Ability Survey

Rate yourself on the following five dimensions of ability based on your abilities during the last two years of high school. Use the range of values below (including the in-between numbers such as 4, 2, -2, and -4, if needed):

-5 way below average
-4  below average
-3  somewhat below average
-2  0  about the same as others
+1  somewhat above average
+2  above average
+3  way above average

1. Verbal ability (having a good vocabulary and the ability to use words to understand and communicate ideas)
-5  -4  -3  -2  -1  0  +1  +2  +3  +4  +5

2. Logical-Mathematical ability (understanding logical and numerical relationships that can exist among objects, actions, ideas, and numbers)
-5  -4  -3  -2  -1  0  +1  +2  +3  +4  +5

3. Spatial Ability (being able to perceive objects accurately and imagining or visualizing how they can be transformed physically)
-5  -4  -3  -2  -1  0  +1  +2  +3  +4  +5

4. Musical Ability (understanding and producing musical sounds that vary in pitch, loudness, rhythm and emotional tone)
-5  -4  -3  -2  -1  0  +1  +2  +3  +4  +5

5. Bodily-Kinesthetic ability (using one’s body in highly skillful ways, as dancers, athletes, actors, performance artists, or skilled craftspeople do). If you excelled in any one of these activities, it doesn’t matter if you were terrible at another (e.g., great dancer but lousy ball player or the opposite).
-5  -4  -3  -2  -1  0  +1  +2  +3  +4  +5

[The program weights the influence of the child’s preset value on each variable and the parent’s questionnaire response equally. This means that children have a roughly 55% chance of being the same or higher than the parent and a roughly 45% chance of being lower than the parent on a given dimension.]
APPENDIX 2

COPY OF THE INTRODUCTION TO THE PROGRAM

It might be useful to hand out the instructions that appear on the screen at the beginning of the program as a handout when you describe the program to students. These instructions can also be combined with the assignments and scoring rubrics in a single handout. They are printed below in the exact wording used in the program:

Welcome to My Virtual Child!

OVERVIEW OF MY VIRTUAL CHILD – please print out and read this!
Congratulations! You are the proud parent of a virtual child! You will be raising this virtual child from birth to 18 years of age. Your virtual child has a unique set of characteristics at birth, some of which were influenced by your answers to the assessments you completed when you first logged onto My Virtual Child. These characteristics will gradually emerge and affect his or her behavior and development. In addition to these individual differences, there are also universal aspects of development that all virtual children will display. My Virtual Child covers physical, social, emotional, and cognitive development at several age levels. This will give you an opportunity to visualize "the whole child" at various points in development.

HOW MY VIRTUAL CHILD WORKS
As your virtual child progresses through each age level, you will read about events occurring in his or her virtual life and you will be asked to make decisions about your virtual child. Answer the questions the way you think you would act as a real parent. You will have a "partner" (which you can assume to be your spouse, unmarried partner, or whatever you like). You and your partner are assumed to be the biological parents (a male and a female) to make the programming of My Virtual Child as simple as possible. You should assume that a week or more passes between each event or question at a particular age level. The events that happen in your child's life, and the decisions you make as a parent will gradually change your child's inborn characteristics, and will shape other characteristics of the child that emerge after birth. The virtual child’s behavior may vary across ages and settings, although there are basic personality and intellectual traits that remain generally consistent. In addition to the events and questions, you will see typical assessments of your child's behavior at the end of many age levels (pediatrician's report, developmental assessment, psychologist's report, and various school report cards). Some terms and concepts may be unfamiliar to you. Approximately 50 short definitions are available as you roll over certain terms. More complex concepts (such as temperament, personality type and multiple intelligences) are explained in boxes that pop up at appropriate points. Finally, to help you visualize
some of the concepts in My Virtual Child, brief videos are available at almost every age level.

WRITING/DISCUSSION ASSIGNMENTS
There are 13 sets of critical thinking questions (three questions per set) built in to the program. The question sets are designed to be written up as brief papers or used as the basis for discussions in class, and are designed to help you connect your virtual child’s development with course concepts. Each question set appears twice: first at the beginning of the age periods they apply to, so that you can think about the questions and take notes, and again at the point where they should be written up or discussed. The last question set asks you to reflect on your own development from your last years in high school through your first years of college.

NAVIGATING THROUGH MY VIRTUAL CHILD
At any point, you can look at past events, questions, and answers by clicking on the time line at the top of the screen. Click on “Resume Questions” to go from the time line back to the questions where you left off.
You can log off at any time; your information and completed responses are saved automatically. Should you accidentally skip a question, you will be prompted to go back. If you see a screen that says “Time Passes”, there are no questions at that point for your particular child. Continue on.

HOW DO I KNOW IF I’M BEING A GOOD PARENT?
Many students wonder how they will know when they have given the "right" response to the questions posed to them as parents. The goal of the program is to convey the broad sweep of child development from the point of view of a parent observing a child. The way this is done is by showing you "snapshots" of a child's typical behavior over a period of time (e.g., one year). The program is not fully interactive; that is, the child in the scenarios rarely responds immediately to something you do as a parent. Instead, the child gradually changes, in response to parenting choices, innate temperamental or personality characteristics, random environmental events, and general developmental principles. In other words, as in real life, you won't find out whether you have made the "right" choices as a parent until you see how the child turns out at various ages, in a variety of contexts (e.g., home, school, peer group). Feedback about child outcomes can be gleaned from your observation of the child's behavior, from comments or reports from teachers and other professionals, and from other "outcome data" (e.g., grades in school, success in peer relationships).

GENERAL GUIDELINES FOR PARENTING MY VIRTUAL CHILD
Although feedback about parenting choices is not provided on a question by question basis, some guidelines for being a "good" parent to your Virtual Child can be articulated. In many cases, the "right" answer is the answer provided by developmental research and theory, which often corresponds to common sense (e.g., comfort a crying baby). In some cases, the "right" answer to a question will depend on the child's developmental level or personality. In other cases, there is more than one "right" answer. Generally speaking, the more extreme answers (i.e., overly strict or overly lenient) will lead to
more extreme outcomes with regard to the child’s behavior, but this may interact with your child’s temperament. Some Virtual Children are harder to get along with and to control, as appears to be the case in real life. Occasionally someone (a developmental examiner, a teacher, a psychologist, or your child him/herself) will tell you directly how you are doing as a parent in terms of two dimensions: warmth/affection and control/discipline. These dimensions are the basis for four main parenting styles discussed in your book (authoritative, authoritarian, permissive and neglecting). You and your classmates may deliberately decide to vary methods and styles of parenting in order to see how this affects your Virtual Children.

Have fun raising your Virtual Child!
APPENDIX 3

THIRTEEN-ASSIGNMENT VERSION OF REFLECTIVE QUESTIONS
(based on question sets from the program)

Answer the questions listed under each assignment briefly, citing specific examples from your child. Type up the answers in 12 point font, double-spaced, with a recommended 2-page length for each assignment. Assignments are worth 8 points except where noted (e.g., the Bonus Assignment). The assignments add up to 100 points if the Bonus Assignment is included. These numbers are arbitrary, but are based on an assumed midterm score of 100 points.

General guidelines: a good answer will address every part of the question, and will describe the child’s behavior and provide 1 or 2 supporting examples. In addition, wherever possible, you should relate your descriptions and explanations of the child’s behavior to the concepts, theories and research covered in class or in the book. Please avoid expressing an unfounded opinion – try to base your arguments on research studies and conclusions, or a theory that seems well supported by the research in the field. The questions are printed below along with a scoring rubric that has worked well in past classes. Using the rubric, students can grade each others’ papers and then discuss the topics in class. Alternatively, instructors or teaching assistants can grade the papers using the rubric.

Assignment 1: 9 months (8 points)

1. How does your baby’s eating, sleeping and motor development compare to the typical developmental patterns?
   --1 point for describing VC’s behavior and 1 point for referring to what might be expected at these ages. (2 points)
2. At 8 months of age was your child an “easy”, “slow to warm up”, or “difficult” baby in terms of Thomas and Chess’s classic temperamental categories? On what do you base this judgement?
   ---1 point for each of two observations on VC’s behavior (2 points)
3. How is your child’s attachment relationship to you and your partner developing? What is happening at the 3-month and 8-month periods that might affect attachment security according to Bowlby and Ainsworth, and various research studies?
   ---1 point each for describing two aspects of the child’s behavior at 3 or 8 months,1 point for bringing in one of Bowlby’s main points;1 point for describing one aspect of parent’s behavior. (4 points)

Assignment 2: 19 months (8 points)

1. Describe examples of changes in your child’s exploratory or problem solving behavior from 8 through 18 months and categorize them according to Piagetian and information processing theories. Note that 8 months is included, so you’ll need to use the time-line to look back at 8 months for examples.
--- 1 point for discussing one example of changes, 1 point for describing a second example
(possible at a different age, or two different behaviors at the same age). Make sure to utilize
a specific Piagetian or information processing concept to classify the child’s behavior (2
points)

2. Analyze your baby’s temperament in more detail at 19 months than you did at 8 months. How
would you describe your baby in terms of the five aspects of temperament utilized by the
Virtual Child program (activity, sociability, emotionality, aggressiveness vs. cooperativeness,
and self control)? Has your child’s temperament been stable over the first 18 months? A
blurb defining and providing examples of the five aspects of temperament is provided at 12
months, but you should seek out further explanations of temperament from your textbook.
Explain how the concept of goodness of fit (also discussed in the blurb on infant
temperament) applies to your interactions with your child.
---- 1/2 point for giving a supporting example of each of the five aspects of temperament, ½ point
for addressing the issue of stability and 1/2 point for discussing and giving an example of
goodness of fit (4 points)

3. Were you surprised by anything in the developmental assessment at 19 months? That is, does
your perception of your child’s physical, cognitive, language and emotional development
deriffer from that of the developmental examiner? Give specific examples. If you were not
surprised, write instead about some aspects of your child’s behavior that need the most work.
---- 1 point for each of two examples. If there is no discrepancy, describe two aspects
of the child’s behavior that are problematic and need the most help. (2 points)

Assignment 3: 30 months (2 ½ years) (8 points)

1. Have there been any environmental events in your child’s first 2 1/2 years that you think might
have influenced his or her behavior? On what do you base your hypotheses?
---- 1 point for each of two environmental events – be sure to explain how you think they
influenced your child (2 points)
2. How is your child progressing on typical toddler issues, such as learning household rules,
learning to follow routines, listening to you, developing self control and learning to get along
with other children?
---- 1 point for each of three toddler issues (total of 3 points)
3. Analyze your own parenting philosophy and practices. What principles from social learning
theory, Bowlby, Ainsworth, Piaget, Vygotsky, information processing theory, developmental
neuroscience and other theories do you appear to have relied on in making your parenting
choices or interpreting your child’s behavior? Include three principles/theorists from the above
list in your answer.
---- 1 point for discussing an example from your parenting that fits a concept from each of three
theories you select from the list above (3 points)

Assignment 4: 3 years, 11 months (8 points)

1. What activities and experiences you and your child have engaged in might be promoting
healthy behavioral practices and an interest in physical activity?
--- 1 point for each of two activities or experiences (2 points)
2. Describe the development of your child’s language and cognitive skills and discuss how these might be affecting his or her interactions with you & your responses.
--- 1 point for each of three examples illustrating changes in cognitive or language skills, including explanations of how these changes affect parent-child interaction (3 points)
3. How well is your child adapting to social situations in the home and outside the home? Does your child have any behavior or emotional problems at this point? Why do you think these problems are occurring and what are you doing about them?
--- 1 point for an instance of adaptation (i.e., learning to function better) in the home and 1 point for an instance outside the home. 1 point for describing a problem (or an area in which the child needs improvement) and what the parent is doing or plans to do about it. (3 points)

Assignment 5: 4 years, 10 months (8 points)

1. How would you characterize your parenting style? How have your specific parenting techniques changed since infancy? In what ways do you think your parenting style, or any other aspect of your parenting, has been influenced by your cultural background or other experiences?
--- 1 point for describing your parenting style with an example, 1/2 point for illustrating how specific parenting techniques have changed since infancy, and 1/2 point for describing and giving an example of a cultural or background factor (2 points)
2. Describe three specific examples of changes in your child’s behavior at age 4 that seem to stem from growth in cognitive and language ability since the period of infancy (e.g., improvements in symbolic thinking, reasoning, knowledge of the world, theory of mind).
--- 1 point for each of three examples of changes in behavior; be sure to use one or more concepts from the course, including but not limited to those listed above (3 points)
3. How would you characterize your child’s personality? Would you say that your child is primarily overcontrolled, undercontrolled or resilient? Support your argument. The program stated at the beginning of age three that the Virtual Child’s behavior at age 3 and 4 is designed to resemble one of three personality types. The personality types combine some of the temperamental traits with which you are already familiar. The overcontrolled category refers to a child who is cooperative and follows the rules, but is shy in social situations and anxious and clingy under pressure. The undercontrolled category refers to a child who is uncooperative or even aggressive, does not follow the rules, is not particularly shy in social situations, and has a tendency to become distracted and overly emotional, particularly when under stress. The resilient category refers to a child who is cooperative and follows the rules, is friendly, non-aggressive and outgoing, able to focus on tasks without being too distracted, has good regulation of his or her emotions, and is adaptable to new situations.
--- 3 points for a well-documented explanation, with three examples of behavior in different situations that support your argument and illustrate the core features of your child’s personality type (e.g., aggressive, emotional, etc.) (3 points)

Assignment 6: Age 6 years, 11 months (8 points)
1. How well is your child adapting to social situations in the home and outside the home? Does your child have any behavior or emotional problems at this point? Why do you think these problems are occurring and what are you doing about them?
--- 1 point for describing an example of a situation in the home and 1 outside the home where the child is adapting well or not so well. 1 point for describing a behavioral or emotional problem and why it might be occurring. (3 points)

2. Do you notice any improvements in cognitive and language skills since age 4? Give specific examples. Does your child have any special needs with regard to cognitive or language development at this point and what do you plan to do?
--- 1 point for each of two examples of improvements in cognitive or language skills and 1 point for describing an area of special need or at least an area that needs improvement. (3 points)

3. Which aspects of your child’s behavior and personality reflect continuities from earlier behavior (e.g., at ages 3-4 years) and which seem to be novel for this age level?
--- 1 point for an aspect that reflects a continuity and 1 point for behavior that appears to be unique at this age level (a discontinuity) and supporting evidence for both from the program (2 points total)

Assignment 7: age 8 years, 11 months (8 points)

1. How smart is your child, and in what areas? Think back to the blurb on multiple intelligences that appeared at age 6. Find specific evidence regarding your child's verbal, logical-mathematical, spatial, musical and bodily-kinesthetic intelligence from your observations of your own child as well as the psychologist's report at age 8 years, 11 months.
--- ½ point for an example illustrating your child’s level in each of the five areas of intelligence plus ½ point for using evidence at some point from both observations and the psychologist’s report, rather than relying on only one source (3 points)

2. Describe some examples of your child's behavior or thinking that you think are due to typical American gender role socialization and explain why you think so. Several examples can be found at ages 6 and 8. How closely does your attitude toward gender roles correspond to typical American attitudes, and if there is a discrepancy, to what do you attribute this (e.g., cultural background, attitudes of your own parents, etc.)?
--- 1 point for each of two examples illustrating gender role socialization and 1 point for discussing your own attitudes and their possible source, with an example from the program of how you have put them into play (3 points)

3. How might your child's development have been different if s/he was raised by people with a different socioeconomic, ethnic or cultural background? Base your answer on specific evidence of SES/cultural differences from the textbook and class lectures.
--- 1 point for each of two aspects of child behavior (can be from more than one cultural perspective); be sure to cite specific supporting evidence from text or lectures (2 points)

Assignment 8: 10 years, 11 months (8 points)

1. Describe changes in your child’s academic skills between ages 6 and 10 and assess how well these skills are developing. The 5th grade report card will be useful for this but you should also incorporate your own observations. What are you doing to help your child?
----- 1 point each for two aspects of academic skills, which can include oral language/communication, reading, spelling, writing, understanding of science or social studies, and mathematics, and 1 point for explaining and giving examples of how you are helping in either area. (3 points)

2. How well is your child adapting to social situations in the home and outside the home? Does your child have any behavior or emotional problems at this point? Why do you think these problems are occurring and what are you doing about them?
-----1 point each for providing an example to illustrate how well the child is adapting in the home and outside the home. 1 point for describing a problem or an area in which the child needs improvement and providing a hypothesized reason for the problem (3 points)

3. Has your parenting changed since the preschool period and if so, why do you think it has changed and what effect might this have on your child? Refer to your textbook or lecture notes for evidence on typical changes in parenting that occur in middle childhood.
---1 point for describing how parenting has changed, 1 point for thinking about why it has changed. Be sure to include evidence from the text or lecture about typical changes in parenting in middle childhood. (2 points)

Assignment 9: 12 years, 11 months (8 points)

1. Describe any physical or behavioral signs of incipient puberty.
 ---1 point each for two physical and/or behavioral signs of puberty with specific examples (2 points)

2. How would you characterize your child at this point in terms of the under-controlled, over-controlled or resilient categories? Have there been any changes since the preschool period and why might they have occurred?
----1 point for describing the child’s current personality type and providing evidence for your choice, 1 point for describing any changes and 1 point for providing a possible reason for changes. If there are no changes, explain why you think personality type was stable. (3 points)

3. Using the 7th grade report card and your own observations, summarize your child’s academic skills at this point. What specific activities might promote some of these skills?
----1 point each for describing and giving examples of your child’s academic skills. Make sure not to rely solely on the 7th grade report card, but also cite your own observations. 1 point for describing some activities that might facilitate growth in academic skills. (3 points)

Assignment 10: Age 15 years, 0 months (8 points)

1. What activities and experiences at ages 12 and 14 has your teen been involved in that might promote healthy behavioral practices, physical fitness and skill in sports?
----1 point each for examples of two activities that promote physical health and/or sports skill (2 points)

2. Have there been any changes in your teen’s behavior toward you or your partner? Why are these occurring and how are you responding?
----1 point each for describing two changes in teen’s behavior with examples, 1/2 point for hypothesizing about why they are occurring, and 1/2 point for describing how you are responding (3 points)
3. Do you see any examples of how cognitive and physical changes in early adolescence (ages 12-14) relate to your teen's social or emotional behavior?
--- 1 point for each of two examples of how cognitive and/or physical changes might have led to changes in social behavior or emotions, and 1 point for relating these changes to theories or research from the text or lecture (3 points)

Assignment 11: Age 16 years, 11 months (8 points)

1. Think about your teen’s cognitive strengths and weaknesses and how they are reflected in his or her school grades and activities from 14-16 years of age. What careers or courses of study might be best suited to your teen’s abilities and interests?
---1 point for examples illustrating each of two areas of cognitive strength or weakness, and 1 point for thinking about what career path might suit the teen’s ability profile (3 points)
2. How important have your teen’s relationships with peers been to his/her social development, emotional well-being and school achievement from 14-16 years of age?
---1 point for each of two examples of a possible connection between peer and romantic relationships to the child’s social, emotional or academic development. 1 point for bringing in theory or research from the course to explain the connections. (3 points)
3. How has your teen adjusted at 14-16 years of age to typical adolescent issues such as risk-taking, drugs, alcohol, and sexual interests, and how have you responded to your teen?
---1 point for each of two examples of an issue your teen has encountered from this list, and for describing how you responded to that specific issue (2 points)

Assignment 12: Age 18 years, 1 month – Final Reflections (8 points)

1. As the program ends, what pathways does your child appear to be on in terms of physical, cognitive, social, emotional and moral development? To what extent could you have predicted these pathways based on what you knew of your child's earlier development?
---1 point for providing a good discussion of four of the five pathways and providing supporting documentation (4 points)
2. Describe some specific ways in which you think your parenting mattered for your child’s development, based on evidence from the course regarding the contributions of parents to child development.
---1 point each for describing two specific aspects of parenting and providing documentation from the text or lecture as to why they might have had an impact (2 points)
3. Describe some specific ways in which your child developed that appeared to be influenced by factors outside your control, such as genes, random environmental events or the general influence of contemporary middle-class American culture.
---1 point each for describing two specific influences on your child that appeared to be out of your control (2 points)

Bonus Reflective Piece (4 points)

1. Are there any issues you had with your parents, school work, friends, or romantic involvements in the last two years of high school that continued to be issues for you in college?
---Be sure to reflect on how these issues represent themes of adolescent development and connect your descriptions to the material in the course (2 points)

2. Reflect on your own personality, interests and cognitive abilities at the time you graduated high school. How have these personality characteristics and abilities continued to manifest themselves in subsequent years? How have they changed since your high school days, if at all?
---You can use specific aspects of personality or intellectual ability from the program (e.g., personality type, aggressiveness/cooperation, sociability, etc., verbal or spatial ability, etc.) or other aspects of personality or intellectual ability from your textbook, but you should tie your descriptions of change and continuity into material from the course. (2 points)
APPENDIX 4

NINE-ASSIGNMENT VERSION OF REFLECTIVE QUESTIONS

Answer the questions listed under each assignment briefly, citing specific examples from your child. Type up the answers in 12 point font, double-spaced, with a recommended 3-page length for assignments except where noted. Assignments are worth 10 points except where noted (e.g., assignments 2, 4 and 8 and the Bonus Assignment). The assignments add up to 90 points if the Bonus Assignment is included. These numbers are arbitrary, but are based on an assumed midterm score of 100 points.

General guidelines: a good answer will address every part of the question, and will describe the child's behavior and provide 1 or 2 supporting examples. In addition, wherever possible, you should relate your descriptions and explanations of the child’s behavior to the concepts, theories and research covered in class or in the book. Please avoid expressing an unfounded opinion – try to base your arguments on research studies and conclusions, or a theory that seems well supported by the research in the field. The questions are printed below along with a brief scoring rubric that has worked well in past classes. Using the rubric, students can grade each others’ papers and then discuss the topics in class. Alternatively, instructors or teaching assistants can grade the papers using the rubric.

Assignment 1: main ages are 3 mos, 8 mos, 12 mos and 18 mos (run through 19 months) (10 points) – Infant physical and cognitive development

1. How does your baby’s eating, sleeping and motor development compare to the typical developmental patterns in the first 8 months?
   --3 points for describing VC’s behavior in each domain and referring to what might be expected at these ages.
2. Is your child delayed or advanced in any area of development according to the 19-month developmental examiner’s report? Based on what you have studied, do you think this is most likely a result of specific biological or environmental factors?
   --1 point for describing areas of delay or advancement and 1 point for a hypothesis and evidence regarding biological or environmental factors from the lecture or readings (2 points)
3. Describe and give examples of changes in your child’s exploratory or problem solving behavior from 8 through 18 months and categorize them according to Piagetian and information processing theories.
   --- 1 point for discussing one example of changes, 1 point for describing a second example (possibly at a different age, or two different behaviors at the same age), and 1 point for utilizing a specific Piagetian or information processing concept to classify the child’s behavior (3 points)
4. Describe your child’s communication and language development in the first 18 months. Is your child developing at a typical or atypical rate?
   ---1 point for a general description of language development and 1 point for discussing specific evidence of either normal or atypical rate of development (2 points)
Assignment 2: main ages are 8, 12 and 18 months (run through 19 months) (11 points) – Infant social and emotional development

1. At 8 months of age was your child an “easy”, “slow to warm up”, or “difficult” baby in terms of Thomas and Chess’s classic temperamental categories? On what do you base this judgment?
--- 1 point for each of two observations on VC’s behavior supporting the classification (2 points)

2. How is your child’s attachment relationship to you and your partner developing? What is happening at the 8, 12 and 18-month periods that might affect attachment security according to Bowlby and Ainsworth, and various research studies?
--- 1 point each for providing two examples illustrating the attachment relationship; 1 point for providing an example of a parent behavior or event that might affect attachment security (3 points)

3. Analyze your baby’s temperament in more detail at 18 months than you did at 8 months. How would you describe your baby in terms of the five aspects of temperament utilized by the Virtual Child program (activity, sociability, emotionality, aggressiveness vs. cooperativeness, and self control). Has your child’s temperament been stable over the first 18 months? A blurb defining and providing examples of the five aspects of temperament is provided at 12 months, but you should seek out further explanations of temperament from your textbook. Explain how the concept of goodness of fit (also discussed in the blurb on infant temperament) applies to your interactions with your child.
--- 1/2 point for giving a supporting example of each of four of the five aspects of temperament, ½ point for addressing the issue of stability and ½ point for giving an example of goodness of fit (3 points)

4. Analyze the implicit assumptions that might be guiding you in your own parenting practices. Choose three theories from the following list and discuss whether your parenting choices reflect a major concept from these theories (classic learning theory, social learning theory, attachment theory, Piaget, sociocultural theories, information processing theories, ethology, or developmental neuroscience)
--- 1 point for discussing an example from your parenting that fits a concept from each of three theories you select from the list above (3 points)

Assignment 3: main ages are 24 months and 3 years (run through 3 years, 11 months) (10 points) – early childhood physical and cognitive development

1. Have there been any environmental events in your child’s first three years that you think might have influenced his or her behavior? On what do you base your hypotheses?
--- 1 point for each of two environmental events – be sure to explain how you think they might have influenced your child (2 points)

2. What activities and experiences you and your child have engaged in might be promoting healthy behavioral practices and an interest in physical activity?
--- 1 point for each of two activities or experiences (2 points)

3. Describe the development of your child’s language and communication skills and discuss how these might be affecting his or her interactions with you & your responses.
--- 1 point for each of two examples illustrating changes in cognitive or language skills, including explanations of how these changes affect parent-child interaction (2 points)
4. Describe the development of your child’s memory, information processing and reasoning skills, including the theory of mind and explain how these changes might be affecting your interactions with your child.

--- 1 point each for each of 3 examples illustrating advances and 1 point for explaining how one or more of these changes might be affecting parent-child interactions (4 points)

**Assignment 4: main ages are 24 months, 3 years and 4 years (run through 4 years, 10 months) (12 points) – early childhood social and emotional development (recommended page length for this particular assignment is 4 pages)**

1. How is your child progressing on early childhood issues, such as learning household rules, learning to follow routines, listening to you, developing self control and learning to get along with others? Does your child have any behavior or emotional problems at this point? Why do you think these problems are occurring and what are you doing about them?

--- 1 point for describing how your child is progressing in each of two areas and 1 point for describing a problem (or an area in which the child needs improvement) and what the parent is doing or plans to do about it. (3 points)

2. How might your child's development have been different if s/he was raised by people with a different socioeconomic, ethnic or cultural background? Base your answer on specific evidence of SES/cultural differences from the textbook and class lectures. Note, if your cultural background differs from the predominant culture in the U.S., how might you have raised the child differently or made different decisions based on your own culture (e.g., being stricter or more lenient, emphasis on assertive/independent vs. cooperative behavior, emphasis on family relationships vs. relationships outside the family)

--- 1 point for each of two aspects of child behavior (can be from more than one cultural perspective) and one point for bringing in specific supporting evidence from the book (3 points)

3. How would you characterize your parenting style? How have your specific parenting techniques changed since infancy? Can you find any examples of how your parenting might have affected your child, based on research cited in your text or lecture?

--- 1 point for describing your parenting style with two supporting examples, 1 point for describing how your parenting techniques have changed since infancy, and 1 point for describing and giving an example of how your parenting might have affected your child (3 points)

4. How would you characterize your child’s personality? Would you say that your child is primarily overcontrolled, undercontrolled or resilient? Support your argument. The program stated at the beginning of age three that the Virtual Child’s behavior at age 3 and 4 is designed to resemble one of three personality types. The personality types combine some of the temperamental traits with which you are already familiar. The overcontrolled category refers to a child who is cooperative and follows the rules, but is shy in social situations and anxious and clingy under pressure. The undercontrolled category refers to a child who is uncooperative or even aggressive, does not follow the rules, is not particularly shy in social situations, and has a tendency to become distracted and overly emotional, particularly when under stress. The resilient category refers to a child who is cooperative and follows the rules, is friendly, non-aggressive and outgoing, able to focus on tasks without being too distracted, has good regulation of his or her emotions, and is adaptable to new situations.
--- 3 points for a well-documented explanation, with three examples of behavior in different situations that support your argument and illustrate the core features of your child’s personality type (e.g., aggressive, emotional, etc.) (3 points)

**Assignment 5: main ages are 6 and 8 years (run through 8 years, 11 months) (10 points) – middle childhood physical and cognitive development**

1. What activities and experiences you and your child have engaged in might be promoting healthy behavioral practices and an interest in physical activity?  
--- 1 point for each of two activities or experiences (2 points)

2. Do you notice any improvements in language, communication, memory, reasoning or theory of mind since age 4? Give specific examples. Does your child have any special needs with regard to cognitive or language development at this point and what do you plan to do?  
--- 1 point for each of two examples of improvements in cognitive or language skills and 1 point for describing an area of special need or at least an area that needs improvement. (3 points)

3. Describe changes in your child’s academic skills between ages 6 and 10 and assess how well these skills are developing. The first grade report card (age 6; 11) and the psychologist’s report (age 8;10) will be useful for this but you should also incorporate your own observations. What are you doing to help your child?  
----- 1 point each for two aspects of academic skills, which can include oral language/communication, reading, spelling, writing, understanding of science or social studies, and mathematics, and 1/2 point for giving an example of how you are helping in any of these areas. (2 1/2 points)

4. How smart is your child, and in what areas? Think back to the blurb on multiple intelligences that appeared at age 6. Find specific evidence regarding your child’s verbal, logical-mathematical, spatial, musical and bodily-kinesthetic intelligence from your observations of your own child as well as the psychologist’s report at age 8 years, 11 months.  
--- ½ point for an example illustrating your child’s level in each of the five areas of intelligence, making sure that you cite specific examples rather than only the psychologist’s report at age 8 (2 ½ points)

**Assignment 6: main ages are 6, 8 and 10 years (run through 10 years, 11 months) (10 points) – middle childhood social and emotional development**

1. Describe your child’s personality in terms of the three subtypes (resilient, overcontrolled and undercontrolled). Which aspects of your child’s social behavior and emotional responses reflect continuities from earlier behavior (e.g., at ages 3-4 years) and which seem to be novel for this age level?  
--- 1 point for describing personality type with two specific examples of behavior, 1 point for describing behavior that reflects continuity and 1 point for describing behavior that appears to be unique at this age level (3 points)

2. Describe some examples of your child's behavior or thinking that you think are due to typical American gender role socialization and explain why you think so. Several examples can be found at ages 6 and 8. How closely does your attitude toward gender roles correspond to typical American attitudes, and if there is a discrepancy, to what do you attribute this (e.g., cultural background, attitudes of your own parents, etc.)?
--- 1 point for each of two examples illustrating gender role socialization and 1 point for discussing your own attitudes and their possible source (2 points)

3. How well is your child adapting to social situations in the home and outside the home? Does your child have any behavior or emotional problems at this point? Why do you think these problems are occurring and what are you doing about them?

----1 point each for providing an example to illustrate how well the child is adapting in the home and outside the home. 1 point for describing a problem or an area in which the child needs improvement and 1 point for providing a hypothesized reason or ongoing solution for the problem (3 points)

4. Has your parenting changed since the preschool period and if so, why do you think it has changed and what effect might this have on your child? Refer to your textbook or lecture notes for evidence on typical changes in parenting that occur in middle childhood.

---1 point for describing how parenting has changed, 1/2 point for analyzing why it has changed and 1/2 point for hypothesizing about effects on the child. Be sure to include evidence from the text or lecture about typical changes in parenting in middle childhood. (2 points)

Assignment 7: main ages are 12 and 14 years (run through 14 years, 11 months) (10 points)
– adolescent physical and cognitive development

1. Describe any physical or behavioral signs of incipient puberty, including changes in physical appearance, behavior or emotions.

---1/2 point each for examples each of four physical and/or behavioral signs of puberty (2 points)

2. What activities and experiences at ages 12 and 14 has your teen been involved in that might promote healthy behavioral practices, physical fitness and skill in sports?

----1 point each for examples of two activities that promote physical health and/or sports skill (2 points)

3. Describe changes in your child’s thinking (e.g., changes in humor, abstract thinking, or theory of mind) and discuss how this might be affecting his or her interactions with you & your responses and his or her interactions with peers.

---1 point for describing each of two examples and 1/2 point for analyzing how this might be affecting interactions with you and ½ point for analyzing how this might be impacting interactions with peers. (3 points)

4. Using the 7th & 9th grade report cards and your own observations, summarize your child’s academic skills at this point. What specific activities might promote some of these skills? What careers or courses of study might be best suited to your teen’s abilities and interests?

---1/2 point each for describing and giving two examples of your child's academic skills. Make sure not to rely solely on the report cards, i.e., cite your own observations. 1 point for describing some activities that might facilitate growth in academic skills and 1 point for explaining why a particular career or course of study might be suitable. (3 points)

Assignment 8: main ages are 14, 16 and 17-18 years (run through 18 years, 1 month) (12 points) – adolescent social and emotional development (recommended page length for this particular assignment is 4 pages)
1. How important have your teen’s relationships with peers been to his/her social development, emotional well-being and school achievement from 14-18 years of age?
   ---1 point for each of two examples of a possible connection between peer and romantic relationships to the child’s social, emotional or academic development (2 points)

2. How has your teen adjusted at 14-18 years of age to typical adolescent issues such as risk-taking, drugs, alcohol, and sexual interests, and how have you responded to your teen?
   ---1 point for each of two examples of an issue your teen has encountered from this list, and for describing how you responded to that specific issue (2 points)

3. As the program ends, what pathways does your child appear to be on in terms of physical, cognitive, social, emotional and moral development? Choose four aspects of your child to discuss. To what extent could you have predicted these pathways based on what you knew of your child's earlier development?
   ---1 point for discussing each of four pathways and providing supporting documentation (4 points)

4. Describe two specific ways in which you think your parenting mattered for your child’s development, based on evidence from the course regarding the contributions of parents to child development.
   --- 1 point for discussing each of two parenting influences and providing evidence from the course to support your hypotheses (2 points)

5. Describe two specific ways in which your child developed that appeared to be influenced by factors outside your control, such as genes, random environmental events or the general influence of contemporary middle-class American culture.
   ---1 point each for describing two specific influences on your child that appeared to be out of your control (2 points)

**Bonus Reflective Piece (5 points)**

1. Are there any issues you had with your parents, your school work, your friends, or your romantic involvements in the last two years of high school that continued to be issues for you in college?
   ---Be sure to reflect on how these issues represent themes of adolescent development and connect your descriptions to the material in the course (2 ½ points)

2. Reflect on your own personality, interests and cognitive abilities at the time you graduated high school. How have these personality characteristics and abilities continued to manifest themselves in subsequent years? How have they changed since your high school days, if at all?
   ---You can use specific aspects of personality or intellectual ability from the program (e.g., personality type, aggressiveness/cooperation, sociability, etc., verbal or spatial ability, etc.) or other aspects of personality or intellectual ability from your textbook, but you should tie your descriptions of change and continuity into material from the course. (2 ½ points)
APPENDIX 5 – “POP-UP” DEFINITIONS PROVIDED IN MY VIRTUAL CHILD

**Temperament** (introduction): emotional reactions and behavior patterns that appear early in life and are fairly stable over time

**Authoritative parenting style** (introduction): parents who are high in demands and responsiveness and who listen to the child and provide explanations

**Authoritarian parenting style** (introduction): parents who are high in demands and low in responsiveness and who are rigid and punitive

**Permissive parenting style** (introduction): parents who are low in demands and high in responsiveness and who provide little feedback and too much autonomy

**Neglecting parenting style** (introduction): parents who are low in demands and responsiveness and who are indifferent and uninvolved with their child

**Easy temperament** (question set 1): baby has mostly positive and low intensity emotional reactions and is adaptable and curious about new situations

**Difficult temperament** (question set 1): baby has mostly negative and high intensity emotional reactions and tends to withdraw from new situations

**Slow-to-warm-up temperament** (question set 1): baby adapts slowly to new situations but once adapted has relatively calm and positive emotions

**Attachment** (question set 1): emotional bond that develops between the baby and another person

**Secure attachment pattern** (question set 1): the baby uses the attachment figure as a secure base, is generally content when s/he is present, happy to see her/him after an absence, and can be soothed when upset

**Avoidant attachment pattern** (question set 1): the baby does not seek to be close to the attachment figure, is generally not upset when s/he is gone and avoids her/him after an absence

**Ambivalent attachment pattern** (question set 1): the baby is anxious and clinging in a new environment, quite upset when the attachment figure is absent, and is difficult for him/her to soothe when upset

**Object permanence** (8 months): the understanding that people and objects exist even when they cannot be seen

**Bayley Scales of Infant Intelligence** (pediatrician’s report): a set of tasks appropriate for children age 1 month to 3 1/2 years assessing motor, cognitive and language development

**Behavior genetics** (temperament box-12 months): study of the influence of heredity and environment on behavior and psychological characteristics such as IQ and temperament

**Longitudinal evidence** (temperament box-12 months): in this case, evidence that temperamental characteristics are stable over time in an individual child

**Attention Deficit Disorder with Hyperactivity** (temperament box-12 months): diagnosis given to a child who has a combination of low attentiveness, high distractibility, and/or frequent inappropriate behavior or activity levels

**Moderate novelty** (temperament box-12 months): the concept that children respond more when an event, activity or stimulus is somewhat novel, but not too novel

**Self awareness** (18 months): knowledge of oneself; one test is to put a spot of rouge on the child’s nose and note whether the child touches it when looking into a mirror

**Fine-motor coordination** (18 months): skill in using small muscles, primarily of the hands and fingers, e.g., grasping, holding and manipulating small objects

**Aware of basic categories** (18 months): infants of 18 months can actively group similar items together (e.g., in little piles) and this helps them understand the nature and function of objects

**Time out** (assessment-19 months): A discipline technique where a child is asked to sit quietly in a spot away from other people in the group for a few minutes

**Language comprehension** (assessment-19 months): the ability to understand language, typically tested by asking the child to point to pictures named by the examiner or act on verbal requests by the examiner

**Language production** (assessment-19 months): the ability to express oneself with language, typically tested by asking the child to name pictures or answer open-ended questions and analyzing the child’s vocabulary and grammar

**Gross motor development** (assessment-19 months): development of the use of large muscles, such as leg, trunk and arms (e.g., walking, running, kicking, throwing)
Toddler (question set 3): a child generally of age 12-30 months who is walking
Self control (question set 3): also referred to as emotional self-regulation, which is the ability to adjust emotions to a comfortable level and to cope with negative emotions
Symbolic thinking (2 years): the ability to use one object to stand for another as for example in make-believe play or in language, where a word can stand for an action or a thing
Regressing (3 years): Acting more immaturity, perhaps out of emotional insecurity or a desire for more attention
Theory of mind (3 years, 11 months): understanding of how the mind works and how it affects people's behavior
Androgynous (4 years): having behavioral characteristics, attitudes and interests thought to be typical of both sexes in a given culture or society
Phonological awareness (6 years): the ability to reflect on and manipulate the sound structure of spoken language (e.g., identify the third phoneme in "split")
Decoding (6 years): the ability to pronounce an unfamiliar word using knowledge of the sounds that go with each letter
Tomboyish (8 years): American term describing a girl who has some traditionally masculine interests and behavior (e.g., spitting, wrestling, climbing trees)
Pre-conventional (8 years, 9 months): Kohlberg's first level of moral development: the concrete interests of the individual are evaluated in terms of rewards and punishments
Wechsler Intelligence Scales for Children (psychologist report-9 years): Intelligence test providing separate estimates of Verbal and Performance (nonverbal) intelligence and a combined score
Information (psychologist report-9 years): Wechsler Verbal subtest requiring knowledge of various facts
Vocabulary (psychologist report-9 years): Wechsler Verbal subtest requiring children to define words
Similarities (psychologist report-9 years): Wechsler Verbal subtest requiring children to explain why two words go together (e.g., arm and leg)
Comprehension (psychologist report-9 years): Wechsler Verbal subtest requiring children to make judgments about the best course of action in a given situation (e.g., getting lost in a store)
Math concepts (psychologist report-9 years): Test of understanding of math principles (e.g., negative numbers)
Math applications (psychologist report-9 years): Math word problems
Math computation (psychologist report-9 years): Test of ability to solve arithmetic problems or equations
Spatial rotation (psychologist report-9 years): Nonverbal test requiring children to rotate geometric designs and other more abstract figures to match a sample figure
Copying of designs (psychologist report-9 years): Nonverbal test requiring children to copy increasingly complex designs and figures
Impulsivity (psychologist report-9 years): one of the three main symptoms of Attention Deficit Disorder with Hyperactivity: tendency to act on impulse or without thinking ahead, to say or do inappropriate things
Inattentiveness (psychologist report-9 years): one of the three main symptoms of Attention Deficit Disorder with Hyperactivity: inability to concentrate or sustain attention during demanding or distracting conditions
Hyperactivity (psychologist report-9 years): one of the three main symptoms of Attention Deficit Disorder with Hyperactivity: excessive fidgeting or activity level
Academic skills (psychologist report-9 years): Performance on traditional school subjects: reading, writing, oral language, math, science and social studies
Conventional level (12 years): Kohlberg's second level of moral development: children approach morality as a matter of doing what is defined as right by their family, community or society
Intrinsically motivated (12 years): motivated to work based on enjoyment of learning rather than based on external rewards (the latter is extrinsic motivation)