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## Educational Video Impact On College Student Knowledge, Opinions, And Referral Attitudes Regarding Attention-Deficit/ Hyperactivity Disorder

Nichol Frances Pritchard

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EDUCATIONAL VIDEO IMPACT ON COLLEGE STUDENT KNOWLEDGE,  
OPINIONS, AND REFERRAL ATTITUDES REGARDING  
ATTENTION-DEFICIT/HYPERACTIVITY  
DISORDER

By

Nichol Frances Pritchard

A Thesis  
Submitted to the Faculty of  
Mississippi State University  
in Partial Fulfillment of the Requirements  
for the Degree of Master of Science  
in Clinical Psychology  
in the Department of Psychology

Mississippi State, Mississippi

December 2008

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By

Nichol Frances Pritchard

Approved:

---

Kevin J. Armstrong  
Associate Professor of Psychology  
Graduate Coordinator of the Psychology  
Department  
(Director of Thesis)

---

Stephen B. Klein  
Professor of Psychology  
Head of the Psychology Department

---

Kristine M. Jacquin  
Associate Professor of Psychology  
(Committee Member)

---

R. Anthony Doggett  
Associate Professor of School Psychology  
(Committee Member)

---

Gary L. Myers  
Dean of the College of Arts and Sciences

Name: Nichol Frances Pritchard

Date of Degree: December 13, 2008

Institution: Mississippi State University

Major Field: Psychology (Clinical)

Major Professor: Dr. Kevin J. Armstrong

Title of Study: EDUCATIONAL VIDEO IMPACT ON COLLEGE STUDENT  
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DISORDER

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Candidate for Degree of Master of Science

Key controversies surround the ADHD diagnostic category, how well it is understood, and whether the criteria are applied accurately by members of the public, parents, and paraprofessionals. With the exposure provided to the public through online sites, commercials, and media, it is reasonable to ask what the public has learned about ADHD. The purpose of this study was to examine the individual effects of two videos on college students' knowledge and opinions regarding ADHD. The videos depicted on two different views currently held regarding ADHD: one very positive in nature and the other focusing on controversies surrounding ADHD. Students were asked to complete a variety of questionnaires regarding their opinions and knowledge about ADHD. Results indicated a small but significant change in students' knowledge between pre and posttest. College students tended to change their opinions to be consistent with the video viewed.

## DEDICATION

This research is dedicated to my mother, Marsha Brown. Without her love and guidance, my dreams of continuing my education would not be.

## ACKNOWLEDGEMENTS

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## CHAPTER I

### INTRODUCTION

Attention-Deficit/Hyperactivity Disorder (ADHD) is the most recent label representing a construct that has existed for decades. Symptom clusters that we now categorize as ADHD were initially described following an encephalitis epidemic in 1917 and 1918. As Barkley (1990) writes, the children who were left with brain damage from the epidemic showed considerably impaired attention spans, impulsivity, and poor regulation of activities. In the 1960's, the condition was further defined when the idea of hyperactivity was described by Chess (as cited in Barkley, 1990) who also made the observation that parenting was not to blame for the behavior. The concept of attention deficit received particular focus during the 1970's. Studies were intensified regarding the disorder and many key models began to develop. The 1980's and 1990's saw clinical and research interest in ADHD grow rapidly. The need to develop diagnostic criteria became a primary concern. Nearly ninety years after the initial observation in 1917, ADHD has become one of the most controversial and widely researched childhood disorders.

#### *Diagnostic Criteria*

The *Diagnostic and Statistical Manual of Mental Disorders*, fourth edition text revision (*DSM-IV-TR*; America Psychiatric Association, 2000 p. 85) states that Attention-Deficit/Hyperactivity Disorder (ADHD) is “a persistent pattern of inattention and/or

hyperactivity-impulsivity that is more frequently displayed and more severe than is typically observed in individuals at a comparable level of development.” These persistent behaviors must also occur in two or more settings, such as school and home, and the symptoms that are causing impairment must be present before the child is seven years of age. The *DSM-IV-TR* also states that the prevalence rate for this disorder has been estimated between 3% and 7% of children currently in school and that “there are no laboratory tests, neurological assessments, or attentional assessments that have been established as diagnostic in the clinical assessment of Attention-Deficit/Hyperactivity Disorder” (p. 88-89). In addition, there are three subtypes for the diagnosis. ADHD, Combined Type is the most commonly occurring diagnosis. For the Combined Type specifier, an individual must have multiple symptoms of both inattention and hyperactivity-impulsivity for at least a six-month period. The other two subtypes are ADHD: Predominantly Inattentive Type, and Predominantly Hyperactive-Impulsive Type. In addition, the symptoms persist for more than six months.

### *Comorbidity*

ADHD has a high comorbidity rate with other disorders that can often add to the difficulty of treating target behaviors or symptoms. The most common comorbid disorder with ADHD is oppositional defiant disorder (ODD), occurring in 35% of the population, followed by conduct disorder (CD) and anxiety disorders tying at 26% each, and depression with 18% (Brook & Boaz, 2005). This high level of comorbidity makes recognizing ADHD more difficult and can complicate both assessment and treatment planning for children and adolescents with maladaptive behaviors. If a comorbid

disorder exists, a parent or teacher may be more likely to notice and prioritize the disruptive symptoms of CD or ODD behaviors due to the high rate of defiance or the pressing difficulties it may cause at home or at school (Goldstein & Goldstein, 1998). In addition, many children between three and five years of age during normal development can be inattentive, hyperactive, and impulsive at times which can lead to a misdiagnosis due to normal developmental variation (Loughran, 2003). Essentially, the ADHD symptoms may not be addressed or may be overlooked, only to cause more difficulties with school work and social development (Biederman, Newcorn, & Sprich, 1991). It can prove difficult to decide which symptoms to treat first if the child has ADHD with a comorbid disorder.

In addition to difficulties presented by comorbidity, there are several key controversies surrounding the ADHD diagnostic category, how well it is understood, and whether the criteria are applied accurately by members of the public, parents, and paraprofessionals. It is common for the media to provide information on ADHD. Many television programs have devoted time to explaining the nature of ADHD (e.g. *Dateline*, PBS specials, *60 Minutes*), while online news sites have posted specials on how to “spot” ADHD (e.g., MSN, Yahoo, etc.). Pharmaceutical companies and other health industry members devote entire websites to the disorder. The term, ADHD or derivatives of it, are also often used casually to describe people, children, and adults who seem to be over active or unable to pay attention. With the exposure provided to the public through online sites, commercials, and media, it is reasonable to ask what the public has really learned about ADHD.

## *Empirically Based Assessments and Treatments for ADHD*

Achenbach (2005) noted that there is a general lack of agreement concerning which assessment methods should be used to assess childhood disorders. Currently, psychology professionals use a variety of methods to assess, diagnose, and manage ADHD behaviors. Several considerations must be made when assessing a child for ADHD. Although currently there is no exhaustive, step-by-step list for assessing and diagnosing a child for ADHD, there are several basic considerations. Tobin, Schneider, Reck, & Landau (2008) outlined what are currently considered the best practices for the assessment of children with ADHD and which interventions are most useful.

Assessment should include an analysis of the child's impairment (e.g., in what areas of daily life is the child impaired), consideration of the child's functioning in school, within peer relationships, and within the family. In addition to this information, direct observations should always be included when making an assessment. Two commonly used forms for direct observations are the Direct Observation Form (McConaughty & Achenbach, 2004) and the Student Observation Form (Reynolds & Kamphaus, 2004). In addition, one of the most valid tools during this process involves using a functional behavioral assessment (FBA) to identify the function of the problematic behaviors (Gresham, Watson, & Skinner, 2001).

One promising assessment and intervention for ADHD may come from the Response to Intervention, or RTI, process (Gresham, 2005). This process is not specific to ADHD, or any other childhood disorders, but uses assessments and intervention strategies that can be applied to any child within the school system. Although there is currently no extensive literature base supporting the use of RTI with the assessment of

behavior disorders, the field of school psychology is currently moving toward adopting the RTI model.

### *Public Perception of ADHD and Related Controversies*

Different opinions and knowledge levels about ADHD could be formed due to which media outlet an individual experiences. For example, one substantial controversy constantly explored in the media is whether ADHD is a real disorder. Dr. Fred A. Baughman, an adult and child neurologist for 35 years, claims that ADHD is a myth and does not exist. His base for this claim hinges on the absence of physical or chemical abnormalities in ADHD individuals that can be used to identify a disease. In 2000, Dr. Baughman sent a letter to the Surgeon General in response to a report on mental illnesses regarding the content which specifically refers to these illnesses being physical and due to chemical abnormalities. Dr. Baughman has taken steps to educate the public that they are victimized and deceived through the ADHD myths perpetuated by pharmaceutical companies, physicians, and others in the “ADHD industry.” He is not alone in his views and many other noted physicians and others agree.

In addition, popular magazines, such as Newsweek and Time, have published articles asking if ADHD is a hoax and calling for further review of evidence for its existence. Some skeptics conclude ADHD-related health dollars are so significant that professionals are too invested in ADHD to abandon it. However, for every expert skeptical of ADHD, there are experts and groups willing to take the stance that ADHD does exist and is affecting millions of people every day.

One example of a group advocating for greater public awareness of ADHD is CHADD, or Children and Adults with Attention-Deficit/Hyperactivity Disorder. They are the nation's leading non-profit organization helping both those with ADHD and their families. This organization's sole purpose is to "provide resources and encouragement to parents, educators, and professionals" for those with, or interested in helping those with, ADHD. They take the stance that not only is it real, but that millions suffer from it and that ADHD has severe, lifelong consequences if unrecognized and untreated. Given the Baughman campaign to eliminate the disorder and the CHADD effort to expand awareness of ADHD, it is very easy to see how a member of the public could form two very different opinions based on easily accessible media information.

Another controversy concerning ADHD is whether it is too frequently diagnosed and treated, and whether there are significantly negative "side-effects" due to the labeling or treatment of affected children. Research supports a variety of perspectives thus far. It appears that under certain circumstances children suspected of having ADHD may have inadequate assessments and evaluations which could lead to misdiagnosis and inappropriate treatment, such as prescribing medication when it is not necessary (Jensen, et al., 1999). In other cases, it appears that medication is not used as often as it should be due to a lack of education involving parents and others regarding ADHD (Jensen, Kettle, Roper, Sloan, Dulcan, Hoven, et al., 1999).

#### *Medication Issues*

Perhaps the most intense controversy surrounding ADHD revolves around issues of medication. Specifically, a controversy exists about whether to medicate first and then



try behavioral treatment later or vice-versa. Most researchers appear to agree that parents of children diagnosed with ADHD would find a combined medication/behavioral treatment plan to be most useful because the long-term effects of medication alone are not demonstrated in existing research (National Institutes of Health; NIH, 1998).

Whatever the case, millions of dollars are spent by pharmaceutical companies every year in the production and advertisement of ADHD medications. Many ADHD-related websites are often sponsored, in some part, by pharmaceutical companies and often promote a certain type of medication.

Increased advertising appears to be working. The U.S. Drug Enforcement Agency in 2002 reported a nine hundred percent increase in methylphenidate (i.e., Ritalin and Concerta) production from 1990 to 2001 attributing ninety percent to the treatment of ADHD. During this same time frame, amphetamine (e.g., Adderall) production increased by 5,767%. Amphetamines accounted for forty-four percent of stimulants (prescription) used in the United States. These stimulants are primarily used in the treatment of ADHD (Snider, Busch, & Arrowood, 2003).

In addition to increases in the use of prescribed ADHD medications, the nonprescription abuse of the methylphenidate and amphetamines also is increasing at an alarming rate. Recently, Ritalin was named as one of the top recreational drugs of teenagers (U.S. Drug Enforcement Agency, 2002).

The media has also covered the growing knowledge of the health risks involved with taking psychostimulant medications even, in prescribed doses and formulations. In 2005, the Food and Drug Administration (FDA), along with Abbott Laboratories, Inc, took Cylert (also known as Pemoline) off the market due to hepatic failure leading to

liver transplant or death. The rate of occurrence for these side effects was ten to twenty five percent higher than for the regular population. The side effects can also cause concern for parents and are often long-term. The short-term effects for Ritalin include nervousness and insomnia, loss of appetite, nausea and vomiting, dizziness, palpitations, headaches, changes in heart rate and blood pressure (usually elevation of both, but occasionally depression), skin rashes and itching, abdominal pain, weight loss, and digestive problems, toxic psychosis, psychotic episodes, drug dependence syndrome, and severe depression upon withdrawal. The long-term effects are also considerable including loss of appetite (may cause serious malnutrition), tremors and muscle twitching, fevers, convulsions, and headaches (may be severe), irregular heartbeat and respirations (may be profound and life threatening), anxiety, restlessness, paranoia, hallucinations and delusions, excessive repetition of movements, and meaningless tasks.

With the publicly available laundry list of problems a medication could potentially cause, it is easy to see the concern a parent might have for medicating their child. Many sources in the media are available to either stoke the fires of concern or assuage the fears parents and other individuals may have over the safety of ADHD medications. Yet, despite publicized complications, ADHD medications remain widely prescribed to date.

#### *NIH Consensus Statement and Diagnoses*

The National Institutes of Health released a consensus statement in 1998 stating that while ADHD “is a valid diagnosis.....there is no definite neurological cause for it.” In addition, the Agency for Health Care Policy and Research in 1999 also stated that

there are currently “no valid neurological or physiological tests” that can be used in making a diagnosis of ADHD. When all of the controversies are considered and researched, many questions are left unanswered. Perhaps the most important of the remaining controversies is, if there are no tests to conclusively demonstrate that an individual, child or adult has ADHD, how will one recognize “it” when we see it?

Since this statement was made, many advances have been made to properly identify and diagnose children with ADHD. Among psychology professionals, an ADHD diagnosis is a multi-model and multi-informant process. The multi-model process can include, but is not limited to, interviews, rating scales, psychometric assessments, direct observations, and peer comparisons. The multi-informant process simply implies that many people (i.e., parents, teachers, caregivers) are involved in the assessment and intervention processes. See the *Empirically Based Assessments and Treatments for ADHD* section for more information regarding these processes.

### *Labeling Effects*

Another existing controversy has to do with the prognosis for treated and untreated children and adolescents diagnosed with ADHD. Several authors (Barkley, 1990; Barkley, Anastopoulos, Guevremont, & Fletcher, 1991) have researched the long-term outcome for adolescents diagnosed with ADHD. Not only did he find that they performed differently in school, but he also discovered that their home life, relationship with family members, and social relationships were all affected by their diagnosis. Specifically, in a study by Stormont (2001), it stated that “children with AD/HD are less popular among their peers, and are more often rejected by their peers.”

Many authors have made similar statements regarding how the ADHD label can affect peer relationships (Gaub & Carlson, 1997; Hinshaw, Zupan, Simmel, Nigg, & Melnick, 1997; Hodgens, Cole, & Boldizar, 2000). In addition, the social problems that these children encounter are visible by their teachers, parents, and social group (Bagwell, Molina, Pelham, & Hoza, 2001). It becomes clear that children and adolescents, upon observed academic or social difficulties and/or having received a diagnosis, need assistance in adjusting their lives in many different ways.

In addition to the negative social outcomes that children with ADHD often endure, there are also other negative impacts due to labeling. Poor academic and occupational outcomes also exist for those labeled as ADHD. There is a large literature base examining the negative impacts an ADHD diagnosis has on a student's academics (Barkley et al., 1991; Cunningham & Barkley, 1978; Faraone, Biederman, Lehman, & Keenan, 1993; Fischer, Barkley, Edelbrock, & Smallish, 1990) and occupational outcomes for young adults (Garber, 2001; Nadeau, 2005). Overall, students diagnosed with ADHD during childhood continue to struggle into young adulthood with social, academic, and occupational struggles which can hinder their ability to ascertain certain employment, continue their education at higher learning universities, and make meaningful social relationships.

#### *Source of Referrals*

Concern revolves around who makes the first suggestion that a child may have ADHD. In a study that looked at parents as informants about their child's ADHD symptoms at school and teachers as informant about their student's ADHD symptoms at

home, the study found that the parents and teachers were limited in their knowledge of the child's ADHD symptoms past their own observations (Nijis, Ferdinand, de Bruin, Dekker, van Duijn, & Verhuist, 2004). In this study, the authors used a structured respondent-based interview from the National Institute of Mental Health (NIMH). The interview is named the NIMH Diagnostic Interview Schedule for Children-Parent, or DISC-IV-P and was given via telephone to teachers and parents. The interview results indicated that parents did not give accurate information regarding their child's ADHD symptoms while at school and teachers did not give accurate information regarding their student's ADHD symptoms while at home.

If neither the parent nor teacher were found to be knowledgeable in *both* situations, then who was more likely to make a referral? In an article by Sax and Kautz (2003), school teachers were described as being the "most likely to be the first to suggest the diagnosis of ADHD followed by parents, primary care physicians, school personnel other than teachers, MD consultants, paid caregivers other than relatives, relatives other than parents, neighbors, and others." Physicians who responded to Sax and Kautz's survey reported that teachers, in 46.4 % of the responses, were the first to suggest a diagnosis of ADHD to a physician followed by parents at 30.2%, or in one-third of the cases. In addition, in a study by Loeber, Green, and Lahey (1990), teachers were found to be the best informant, regarding their students' ADHD symptom behavior, to physicians. Snider, Frankenberger, and Aspensen (2000) found that 40% of the time teachers made the initial referral; however only three years later in 2003, that rate was reported to be 92% (Snider, Busch, & Arrowood, 2003). Phares (1997) found that mothers suggested

that they valued a teacher's opinion and felt as though their judgments were the most accurate when it came to making a referral about their child exhibiting ADHD symptoms.

In regards to whose opinion is the best, teacher rating scales tend to be more accepted than that of a parent or other family member. Three such rating scales include, but are not limited to, the ADHD Rating Scale (Guevremont, DuPaul, & Barkley, 1990), the Child Behavior Checklist Teacher Report Form (Edelbrock & Achenbach, 1984), and the CTRS-28 (Goyette, Conners, & Ulrich, 1978). Loughran (2003) reported that “teacher rating scales provide a valuable piece of information needed to evaluate and diagnose a child presenting the symptoms of ADHD in the preschool setting and in the elementary setting” (p. 252). In addition, Danforth, Barkley, & Stokes (1991) reported that physicians frequently used teacher rating scales in the initial assessments of children presenting symptoms of ADHD as well as in the assessment of medication efficacy for these children. If this research is accurate, it is important to explore how comfortable and confident teachers are in making a referral for a child they suspect may have ADHD.

#### *Lack of ADHD Knowledge by Teachers*

Although teachers are often the first to suggest ADHD as a possible diagnosis, 89% of elementary school teachers have little or no education during college regarding how to identify ADHD symptoms in their future students and only 92 % have any training after college (Jerome, Gordon, & Hustler, 1994). Literature suggests that many individuals (e.g., parents and physicians) regard a teachers' knowledge to their child's symptoms to be the best information; however, if they have not received proper education on how to recognize ADHD, how accurate can their perception be? Also, previous

literature has reported that teachers in the past have provided inaccurate and inappropriate information to parents who have gone on to follow their recommendations (DiBattista & Shepherd, 1993). Unfortunately, not much research to date has investigated teacher knowledge and perceptions about ADHD symptoms in children and adolescents; this is surprising because so many seem to concur that teachers often make the first referral for a diagnosis.

If teachers make the first referral, then what can they do in the classroom to intervene with behaviors often associated with ADHD? In a recent dissertation by Graves (2007), teacher acceptability was rated for different interventions ranging from least intrusive (differential reinforcement procedures) to most intrusive (aversive procedures such as overcorrection). Overall, teacher's perceptions were that less intrusive interventions were more acceptable for Conduct Disorder (CD) and Major Depressive Disorder (MDD) with one exception. Teachers rated psychotropic medications, a more intrusive intervention according to the study, to also be acceptable.

A study in 2004 reported that 60.7% of teachers correctly answered items on a teacher knowledge questionnaire about ADHD (Kos, Richdale, & Jackson, 2004); however, in a similar study in 1994 the percentage was 77.5% (Jerome et al., 1994) and in yet another study in 2000 it was 47.8% (Sciutto, Terjesen, & Bender-Frank, 2000). Jerome et al. (1994) also reported that teachers had significant knowledge regarding referring ADHD when asked to identify symptomology. Clearly, more research needs to be done in this area. Kos and colleagues also found that in-service teachers (i.e., teachers that currently hold a teaching position) scored higher on knowledge scales than pre-service teachers (i.e., teachers that have not yet graduated with a degree to teach yet).

These results could be due to in-service teachers having more experience in recognizing ADHD symptoms because they have seen students demonstrate hyperactive and impulsive behaviors in a class setting. Snider et al. (2003) found that teachers were less knowledgeable about ADHD symptoms and medications concerning their students than teachers in a previous study (Jerome, 1994). It would be accurate to state that since 2000, literature, what little there may be, suggests that teachers have less knowledge about ADHD and its accompanying treatments and medications than previously thought by psychology professionals.

Limited research studies suggest that teachers, although once thought the most reliable referral source by parents and physicians, may not be sufficiently knowledgeable or capable of making an accurate referral for a child exhibiting signs of ADHD. In addition, many colleges have cut psychology curriculum from education programs which might have included a more in-depth examination of disorders such as ADHD and ways to recognize symptoms. Since teachers' opinions are valued, research should explore the different avenues of information available to an educator about ADHD and what teachers form their opinion from. One such method of information that would be interesting to look at is media influence. At any given time, one can look on the internet or see a special on television about ADHD. From where do teachers form their opinions and where do they receive their information if they do not receive it during college education?

#### *Purpose of Study*

In the present study, groups of college students were shown two different videos; one video regarding ADHD as a useful diagnosis that leads to reasonable interventions



while the other video focused on the negatives of the ADHD research and conceptual base, keying in on the many controversies surrounding ADHD. In addition to looking at pre-service teacher knowledge and perceptions about ADHD as previous literature has done, the study examined attitudes, opinions and knowledge of college students, including preservice teachers, regarding ADHD, and investigated the effects of professionally developed educational videos on these factors as well as whether participants exposed to the videos will be more or less likely to perceive ADHD symptomology in a case vignette. It was hypothesized that students who viewed the Pro-ADHD video would change their initial views in a more positive direction that was congruent with the opinions of the video. Conversely, students who viewed the Anti-ADHD video would change their views in a more negative direction that was congruent with the opinions of the video. In addition, the current study examined if this would change the likelihood of recommending a referral for a child described in a vignette as having ADHD.

## CHAPTER II

### METHOD

#### *Participants*

Participants were 131 undergraduate students at Mississippi State University. Students were recruited from an online experiment sign-up system. All participants completed an informed consent procedure as approved the Mississippi State University Human Subjects Institutional Review Board (see Appendix A).

In the present study, 68 (51.9%) participants were female and 63 (48.1%) participants were male. The mean age was 19 and the range was 18 to 27 years. The majority of participants' ethnicity was White, not of Hispanic origin at (67%), followed by Black/African American (AA), not of Hispanic Origin (29%). Remaining ethnicity tabulations of participants were; Southeast Asian (1.5%), Hispanic (.8%), Other Asian/Pacific Islander (.8%), and Other at (.8%). Participants' classification was primarily Freshman (49%), followed by Sophomore (24%), Senior (13.7%), and Junior (13%). The mean for years in college was 2 years with a range of .5 to 6 years. When asked, 50% of participants' reported that their anticipated graduation date was 2010 followed by 21% in 2009. The participants' mean self-reported Grade Point Average (GPA) was a 2.87 with a range of 1.50 to 4.00, on a 4.00 scale, and a standard deviation of 0.59. Most participants indicated that they were in the College of Arts and Sciences (35.1%), followed by the College of Education (18%), Undeclared (13.7%), and the

College of Engineering (13.0%). When asked to indicate the number of hours of class time they have had thus far devoted to ADHD, 61.1% indicated that they have had 0 hours. The mean number of hours of class time was 4.33 with a range of 0 to 420 hours, a median of 0, and a standard deviation of 38.15. Only one participant indicated that they had 420 hours worth of experience with ADHD. The majority, 99.2% reported a range of 0 to 9 hours.

### *Materials*

*Demographics Survey.* All participants were asked to provide their gender, age, ethnicity, classification, years in college, anticipated graduation date, grade point average, college and concentration. Participants were also asked to estimate the total hours of undergraduate class time devoted to children's behavioral disorders so far in their undergraduate coursework (see Appendix B).

*Prior Exposure to ADHD.* This 14-item true or false questionnaire asked the participants to indicate their previous exposure to ADHD through media sources and everyday experience. Additionally, participants were asked to identify if either they, an immediate family member or close friend, or another person they knew had ever been diagnosed with Attention Deficit/Hyperactivity Disorder (AD/HD) and whether these individuals had been treated with medication. Finally, participants were asked to identify either if the ADHD individuals they were referring to in the previous questions had any negative side-effects from the medication and if treatment was largely considered successful (see Appendix C). This scale was designed by the author for this study.

*Knowledge Regarding ADHD.* This 10 cm line scale was developed to indicate participants' perceived knowledge of ADHD (Kos, Richdale, & Jackson, 2004). The scale was anchored so that 0 cm indicates "Very Little" and 10cm indicated "A Lot." Participants were asked to place a cross on the part of the line that best represents how much they think they know about ADHD (see Appendix D).

*Specific Knowledge Items Regarding ADHD.* The scale (Snider, et al., 2003; Kos et al., 2004) contained 40 items to test the students' knowledge regarding ADHD using a five point Likert-type scale (1 = strongly disagree; 3 = neutral/don't know; 5 = strongly agree) and a true and false section. Part A includes 27 rated items that could be answered true or false and Part B includes 13 rated items that were developed based on conclusions offered following the 1998 National Institutes of Health Consensus Statement concerning Attention Deficit/Hyperactivity Disorder. Scores for section B were designed to be translated to true and false (answering a 4 or 5 = true and 1 or 2 = false) for scoring purposes. Currently, there are no psychometric data or norms for this scale from previous studies. The percentage correct for each respondent was calculated based on the true/false recodes (see Appendix E for scales with correct answers).

*Opinions Regarding ADHD.* This 23-item scale (Snider et al., 2003) measures participants' opinions regarding ADHD using a Likert-type scale (1 = strongly disagree to 5 = strongly agree) (see Appendix F).

*Videos.* Two videos were used as the primary experimental stimuli). Video 1 was the "Pro-ADHD" video (American Academy of Family Physicians, 2002; Middleton &

Wolraich, 2005) sponsored by the McNeil Pharmaceutical Company and distributed through the online continuing education section of the Association of Family Practitioners' web site. The video was hosted by two family practitioners, Dr. Mark Wolraich and Dr. Donald B. Middleton. The video stated other credentials for Dr. Wolraich as a CMRI (Children's Medical Research Institute)/Shaun Walters Professor of Pediatrics and the Director of the Child Study Center at the University of Oklahoma Health Science Center in Oklahoma City, Oklahoma and for Dr. Middleton as the Professor of Family Medicine at the University of Pittsburgh Medical Center, UPMC at St. Margaret and the Vice President of Family Practice Education in Pittsburgh, Pennsylvania.

Video 2 (Baughman, 1999) was titled "ADHD: 100% Total Fraud" and was produced and narrated by neurologist Fred Baughman. Dr. Baughman has been an adult and child neurologist in private practice for 35 years. Although he has kept a private practice, he was also funded by the national foundation March of Dimes as the director of the Western Michigan Birth Defects Clinic. For this study, Video 2 will be referred to as the "Anti-ADHD" video.

Each video is accessible from the Internet. Information pages and ordering information are provided in Appendix G.

*Video Quizzes.* Quizzes were initially designed as a manipulation check to ensure that participants comprehended key points from the videos. However, due to the difficulty of one quiz, the authors did not use criteria to exclude any data (see limitations). The quizzes were also used as an outcome measure. A quiz was given after

the participant viewed a video. Each quiz had ten questions (see Appendix H). The Pro ADHD quiz was designed by the American Academy of Family Physicians ( 2002) and the Anti ADHD quiz was designed by the author for this study.

*Vignettes.* Four short vignettes, loosely based on pre-existing case studies, (Kearney, 2006; Oltmanns, 2007) were used that describe two fictional children’s symptomology. Each child was described in two different vignettes for a total of four vignettes. For each child, one unambiguously worded vignette used language directly from the American Psychiatric Association’s Diagnostic and Statistical Manual for Mental Disorders (APA, 2000) in describing ADHD symptoms clearly sufficient to meet diagnostic thresholds for an ADHD diagnosis (i.e., “Ken” presents with 7 symptoms for ADHD Predominately Hyperactive-Impulsive subtype and “Ricky” presents with 7 symptoms for ADHD Predominately Inattentive subtype). A second ambiguously worded version described the same behaviors for each boy but used synonyms for words appearing in the ADHD diagnostic language so that identification of the ADHD criteria would require more effort (e.g., substitute “moving around” for “fidgeting”). Administration of the vignettes was counter-balanced across the 2 videos so that each participant received both boys’ vignettes. Approximately half received the ambiguously worded vignette first and the rest received the unambiguously worded vignette (see Appendix I). This permitted assessment of potential order effects and equivalency of group issues.

*Vignette Evaluation.* After reading the vignettes, participants were asked to complete a response form specifically designed for this study. To ensure that participants read the vignettes, four initial non-ADHD related questions were developed about the vignettes for this study (see Appendix J). All participants had approximately 75% or greater in accuracy in answering these questions; therefore, no data was excluded. Then, participants answered four questions designed to assess the students' perceptions of the child's ADHD symptoms, the potential value of making a referral for an ADHD assessment, and possible medication treatment for the child.

#### *Design and Procedure*

Participants received only one level of the independent variable (i.e., the Pro-ADHD video or the Anti-ADHD video) and one of four vignette presentations. Participants were randomly assigned to one of two groups. The groups differed based on which video was presented and which vignette was given. The design permitted an analysis of preexisting attitudes and knowledge, analysis of main effects of the videos, and analysis of order effects of the videos. Dependent measures included scores obtained from pre and post video knowledge measures, pre and post opinion measures, and post video ability to recognize ADHD diagnostic criteria in the vignettes after viewing one video.

In each group, the participants entered the room and completed the informed consent process. A brief announcement was made to announce the length of the study, approximately two hours or less, prior to students signing informed consent. Also, participants were provided instructions on how to fill out the questionnaires after consent

was obtained. After the instructions were given, participants filled out the demographics questionnaire, Prior Exposure to ADHD, Knowledge Regarding ADHD, Specific Knowledge Items Regarding ADHD, and Opinions Regarding ADHD. After these were completed, either the Anti-ADHD video or the Pro-ADHD video was shown. During the video, the participants were asked to complete a short quiz to ensure that they were paying attention to the material. The participants were then given two of the four vignettes (counterbalanced for ADHD language across groups randomly) and asked to answer the questions accompanying them. Following the vignettes, they were once again asked to complete the Specific Knowledge Items Regarding ADHD, and Opinions Regarding ADHD surveys. Finally, the participants were debriefed (See Appendix K for debriefing script) and their participation was complete.



## CHAPTER III

### RESULTS

A 2 Video type (Pro-ADHD, Anti-ADHD) x 4 Vignette type (according to language variation: Straightforward H/I Ken - Straightforward Inattentive Ricky and Ambiguous H/I Ken - Ambiguous Inattentive Ricky,) x 2 (form of presentation either straightforward or ambiguous language) between-subjects factorial design was used. Each participant received one level of the between groups measure (Video type) and one level of the within groups measure (Vignette type). Participants were randomly assigned to one of these sixteen groups (e.g. participant viewed Pro-ADHD video and received the Straightforward H/I Ken - Straightforward Inattentive Ricky vignette presentation). The groups differed based on which video was presented and which of the vignettes was presented for evaluation. Dependent measures were pre and post video scores from knowledge measures, opinion measures, and responses to the Vignette Evaluation Form.

### *Manipulation Checks*

*Video Quizzes.* Initially, the video quizzes were to be used to exclude participants that were not actively paying attention to the videos. If the participants received a score of 80% or below, then their data were going to be excluded; however, the Pro-ADHD video quiz yielded extremely low scores. For the Anti-ADHD video, all participants reached a score of at least 60%; however, 84.1% received a score of 100% overall. Scores on this video ranged from 60% to 100% with a mean of 97.30% and a standard deviation of 7.45. The Anti-ADHD video quiz was constructed by the author and was considerably easier than the Pro-ADHD video quiz. The quiz for the Pro-ADHD video was taken directly from the website from which the video was obtained and was considerably more difficult for participants. In addition, this quiz was used by physicians to receive continuing education credits. Scores for this video ranged from a score of 7% to 87% with a mean of 61.24% and a standard deviation of 16.83. Originally, data were to be excluded if a score of 80% or higher was not obtained. However due to the author's conclusion that the quiz score criterion was overly stringent, all data were kept for analysis. For more details, see the limitations section.

In addition, quiz scores were intended to serve as a covariate for the analysis of data for knowledge and opinions measures. However, there were no significant correlations between knowledge and opinion total scores. Therefore, the covariate selected was the pretest scores for each measure.

*Vignette Evaluation Form items 1-4.* The Vignette Evaluation Form was intended to measure if the college students read the vignettes used in the referral portion of the

study. The first four items were designed to test whether participants carefully read the vignette. The vast majority of participants, 90% or greater, did answer items 1-3 correctly. Upon looking at responses, the data indicated that only eight participants (per question pre and post) answered incorrectly on each question. These participants' records were individually reviewed for signs of random responding or to discover if the same individual was making the mistakes. The data indicated that random responding was not occurring and could not be attributed to one participant. Each of these eight participant's data was looked at individually to make the determination that random responding was not occurring. For this study, these participants were kept in the study in the interest of external validity. Data were kept for generalizability across other college students and their opinions.

### *Demographics*

The current study is a 2 x 4 x 2 factorial design. This design indicates 16 total cells used for comparisons. To illustrate and further clarify cell membership, each cell is defined by which video was used and the corresponding vignette presentation. See Tables 1 through 3 for clarification of cell breakdowns. With the definitions of the cells and their corresponding membership criteria, demographics information will be provided for each cell. A chi-square test showed that there were no significant gender differences across cell membership,  $\chi^2 = 11.70, p = .111$ , classification across cell membership,  $\chi^2 = 22.23, p = .386$ , and ethnicity across cell membership,  $\chi^2 = 38.37, p = .319$ .

Table 1

*Gender across Cell Membership*

Language	Video 1		Video 2	
	Female	Male	Female	Male
Straightforward H/I Ken Straightforward Inattentive Ricky	19.1% (n = 13)	5.9% (n = 4)		
Ambiguous H/I Ken Ambiguous Inattentive Ricky	11.8% (n = 8)	13.2% (n = 9)		
Ambiguous H/I Ken Straightforward Inattentive Ricky	14.7% (n = 10)	10.3% (n = 7)		
Straightforward H/I Ken Ambiguous Inattentive Ricky	8.8% (n = 6)	16.2% (n = 11)		
Straightforward H/I Ricky Straightforward Inattentive Ken			11.1% (n = 7)	15.9% (n = 10)
Ambiguous H/I Ricky Ambiguous Inattentive Ken			7.9% (n = 5)	17.5% (n = 11)
Ambiguous H/I Ricky Straightforward Inattentive Ken			15.9% (n = 10)	7.9% (n = 5)
Straightforward H/I Ricky Ambiguous Inattentive Ken			14.3% (n = 9)	9.5% (n = 6)
Total	(n = 37)	(n = 31)	(n = 31)	(n = 32)

Table 2

*Classification across Cell Membership*

Language	Video 1		Video 2	
	Freshman	Sophomore	Freshman	Sophomore
Straightforward H/I Ken	11.8%	5.9%		
Straightforward Inattentive Ricky	(n = 8)	(n = 4)		
Ambiguous H/I Ken	10.3%	2.9%		
Ambiguous Inattentive Ricky	(n = 7)	(n = 2)		
Ambiguous H/I Ken	10.3%	7.4%		
Straightforward Inattentive Ricky	(n = 7)	(n = 5)		
Straightforward H/I Ken	14.7%	4.4%		
Ambiguous Inattentive Ricky	(n = 10)	(n = 3)		
Straightforward H/I Ricky			14.3%	7.9%
Straightforward Inattentive Ken			(n = 9)	(n = 5)
Ambiguous H/I Ricky			15.9%	4.8%
Ambiguous Inattentive Ken			(n = 10)	(n = 3)
Ambiguous H/I Ricky			12.7%	3.2%
Straightforward Inattentive Ken			(n = 8)	(n = 2)
Straightforward H/I Ricky			7.9%	12.7%
Ambiguous Inattentive Ken			(n = 5)	(n = 8)
Total	(n = 32)	(n = 14)	(n = 32)	(n = 18)

\*Note. Represents 73% of students

Table 3

*Ethnicity across Cell Membership*

Language	Video 1		Video 2	
	White	A.A.	White	A.A.
Straightforward H/I Ken	20.6%	4.4%		
Straightforward Inattentive Ricky	(n = 14)	(n = 3)		
Ambiguous H/I Ken	20.6%	2.9%		
Ambiguous Inattentive Ricky	(n = 14)	(n = 2)		
Ambiguous H/I Ken	19.1%	5.9%		
Straightforward Inattentive Ricky	(n = 13)	(n = 4)		
Straightforward H/I Ken	17.6%	7.4%		
Ambiguous Inattentive Ricky	(n = 12)	(n = 5)		
Straightforward H/I Ricky			17.5%	7.9%
Straightforward Inattentive Ken			(n = 11)	(n = 5)
Ambiguous H/I Ricky			15.9%	6.3%
Ambiguous Inattentive Ken			(n = 10)	(n = 4)
Ambiguous H/I Ricky			11.1%	11.1%
Straightforward Inattentive Ken			(n = 7)	(n = 7)
Straightforward H/I Ricky			11.1%	12.7%
Ambiguous Inattentive Ken			(n = 7)	(n = 8)
Total	(n = 53)	(n = 14)	(n = 35)	(n = 24)

\*Note. A.A. stands for African American

### *Prior Exposure to ADHD*

Overall, participants indicated that they have had previous exposure to ADHD. Over 50% of participants indicated that they have experienced all of the following: watched one or more television specials regarding ADHD, currently have a close friend or family member diagnosed with ADHD are currently diagnosed with ADHD, had contact with one or more people (children or adults) diagnosed with ADHD other than a family member or friend, had contact with one or more people (children or adults) being treated with stimulant medication for ADHD other than a family member or friend, and personally knew someone who has had a positive response to stimulant medication treatment for ADHD. In addition, 7% of participants, or 9 out of 129 responders, indicated that they currently were taking stimulant medication for ADHD. For complete results see Table 4.

Table 4

*Percentage of True Responses by Participants to Prior Knowledge of ADHD Survey*

Question	% True
I have had contact with one or more people (children or adults) diagnosed with ADHD, other than family members or friends.	73 %
I have had contact with one or more people (children or adults) being treated with stimulant medication for ADHD, other than family members or friends.	59 %
I currently have a close friend or family member diagnosed with ADHD, or I am currently diagnosed with ADHD.	54 %
I personally know someone who has had a positive response to stimulant medication treatment for ADHD.	51 %
I have watched one or more television specials regarding ADHD.	50 %
I currently have a close friend or family member who is taking stimulant medication for ADHD.	44 %
I have read one or more magazines articles (other than professional journal articles) regarding ADHD.	40 %
Prior to today I have had more than one college class period(s) that addressed ADHD.	34 %
I have read one or more articles written for education professionals regarding ADHD.	30 %
As part of my training I have been in a classroom setting with one or more ADHD children.	29 %
I have watched one or more educational videos in which ADHD was the primary focus.	26 %
I personally know someone who has had a negative response to stimulant medication treatment for ADHD.	24 %
I am currently taking stimulant medication for ADHD.	7 %
I have attended a professional development workshop where ADHD was the primary focus.	1 %



### *Perceived Knowledge Regarding ADHD*

Participants indicated an increase in perceived knowledge from the pre to post test situation. Average pre-test perceived knowledge scores were 3.6 out of 10 with a range from 0 to 10 and a standard deviation of 2.5. In addition, the mean after a video was presented was 5.77 out of 10 with a range of 0 to 10 and a standard deviation of 2.11.

When participants were divided by video, the pretest mean for perceived knowledge for Video 1 was 3.91 out of 10 with a range of 0 to 9.29 and a standard deviation of 2.52 and the posttest mean was 5.89 out of 10 with a range of 1.43 to 10 and a standard deviation of 2.00. For Video 2 the pretest mean for perceived knowledge for Video 2 was 3.27 out of 10 with a range of 0 to 10 and a standard deviation of 2.47 and the posttest mean was 5.64 out of 10 with a range of 0 to 10 and a standard deviation of 2.23.

### *Specific Knowledge Items Regarding ADHD*

*Section A.* A one-way analysis of covariance between subjects (ANCOVA) was conducted with the 27 items within the *Specific Knowledge Regarding ADHD Section A* (see Appendix E) serving as the independent variable and participant's ratings of knowledge (true and false) as the dependant variable. The participant's ratings of knowledge score was computed by summing the total number of correct responses from the 27 items in *Specific Knowledge Regarding ADHD Section A*. Initial correlations were run on the data between the video percentage correct and total specific knowledge for section A at pretest and posttest. No correlations were found between these two variables at the  $p = .001$  level. Therefore, the covariate used was the participants pretest

scores on the same items. The overall ANOVA was significant,  $F(1, 131) = 19.58$ ,  $MSE = 4.91$ ,  $p < .001$ . The covariate, the pretest rating, showed a significant linear regression relationship with the posttest ratings,  $F(1, 131) = 31.20$ ,  $p < .001$ , partial  $\eta^2 = .20$ ,  $\beta = .41$ . There was a significant main effect for video type,  $F(1, 131) = 4.19$ ,  $p = .043$ . Tables include the individual significance for each item. For complete results see Table 6.

Table 5

*Percentage Correct for Specific Knowledge Regarding ADHD Section A Pre and Post*

Question	Video 1		Video 2	
	Pre	Post	Pre	Post
There are a greater number of boys than girls with ADHD.	73.5	58.8	76.2	49.2
There is approximately 1 child in every classroom with a diagnosis of ADHD.	75.0	83.8	82.5	69.8
If medication is prescribed, educational interventions are often unnecessary.	73.5	70.6	73.0	77.8
ADHD children are born with biological vulnerabilities toward inattention and poor self-control.	38.2	19.1	28.6	65.1
If a child responds to stimulant medication (e.g., Ritalin) then they probably have ADHD.	82.4	58.8	71.4	74.6
A child who is not overactive, but fails to pay attention, may have ADHD.	51.5	80.9	50.8	55.6
ADHD is often caused by food additives.	79.4	91.2	84.1	90.5
ADHD can be diagnosed in the doctor's office most of the time.	55.9	11.8	33.3	54.0
Children with ADHD always need a quiet environment to concentrate.	51.5	57.4	44.4	61.9

Approximately 5% of United States school children have ADHD.	72.1	77.9	79.4	61.9
ADHD children are usually from single-parent families.	85.3	91.2	84.1	77.8
Diets are usually not helpful in treating most children with ADHD.	41.2	51.5	41.3	44.4
ADHD can be inherited.	76.5	94.1	66.7	27.0
Medication is a cure for ADHD.	80.9	66.2	81.0	87.3
All children with ADHD are overactive.	85.3	89.7	84.1	77.8
There are subtypes of ADHD.	92.6	97.1	93.7	87.3
ADHD affects male children only.	95.6	98.5	98.4	98.4
The cause of ADHD is unknown.	58.5	41.2	69.8	95.2
ADHD is the result of poor parenting practices.	91.2	95.6	96.8	88.9
If a child can play Nintendo for hours, then s/he probably doesn't have ADHD.	86.8	77.9	74.6	61.9
Children with ADHD cannot sit still long enough to pay attention.	39.7	29.4	23.8	23.8
ADHD is caused by too much sugar in the diet.	92.6	94.1	93.7	95.2
Family dysfunction may increase the likelihood that a child will be diagnosed with ADHD.	63.2	77.9	50.8	66.7

Children from any walk of life can have ADHD.	100	97.1	96.8	95.2
Children with ADHD usually have good peer relations because of their outgoing nature.	70.6	89.7	60.3	66.7
Research has shown that prolonged use of stimulant medications leads to increased addiction (i.e., drug, alcohol) in adulthood.	32.4	60.3	38.1	12.7
Children with ADHD generally display an inflexible adherence to specific routines and rituals.	35.3	41.2	31.7	34.9

*Section B.* A one-way analysis of covariance between subjects (ANCOVA) was conducted with the 13 items contained in *Specific Knowledge Regarding ADHD Section B* (see Appendix E) serving as the independent variable and participant's ratings of knowledge (using a 5-point scale) as the dependant variable. The score for the participant's ratings of knowledge was computed by summing the total number of correct responses from the 13 items contained in *Specific Knowledge Regarding ADHD Section B*. Initial correlations were run on the data between the video percentage correct and total specific knowledge for section B at pretest and posttest. No correlations were found between these two variables at the  $p = .001$  level. Therefore, the covariate used was the participants pretest scores on the same items. The overall ANOVA was significant,  $F(1, 131) = 15.65, MSE = 3.42, p < .001$ . The covariate, the pretest rating, showed a significant linear regression relationship with the posttest ratings,  $F(1, 131) = 31.30, p < .001, \text{partial } \eta^2 = .20, \beta = .39$ . There was not a significant main effect for video type,  $F(1, 131) = 2.78, p = .098$ . Included in the tables is the individual significance for each item. For complete results see Tables 6, 7, 8.

Table 6

*Percentage Correct for Specific Knowledge Regarding ADHD Section B Pre and Post*

Question	Video 1		Video 2	
	Pre	Post	Pre	Post
ADHD is the most commonly diagnosed psychiatric disorder of childhood.	64.7	82.4	68.3	74.6
There are data to indicate that ADHD is caused by a brain malfunction.	13.2	16.2	12.7	22.2
ADHD symptoms (e.g., fidgets, does not follow through instruction, easily) may be caused by academic deficits.	42.6	52.9	41.3	47.6
Stress and conflict in the student's home life can cause ADHD symptoms.	67.6	80.9	54.0	66.7
Diagnosis of ADHD can be confirmed if stimulant medication improves the child's attention.	35.3	25.0	23.8	22.2
Stimulant medication use may decrease the physical growth rate (i.e., height) of students.	41.2	36.8	23.8	36.5
Stimulant medication use may produce tics in students.	36.8	25.0	20.6	34.9
Adderall, Ritalin, and Dexedrine have abuse potential similar to Demerol, cocaine, and morphine.	66.2	54.4	47.6	77.8
The long-term side effects of stimulant medication are well understood.	36.8	26.5	14.3	31.7

Over time, stimulant medication loses its effectiveness.	61.8	47.1	42.9	46.0
While on stimulant medication, students exhibit similar amounts of problem behaviors as their normally developing peers.	17.6	4.4	9.5	11.1
Short-term studies show that stimulant medication improves the behaviors associated with ADHD.	73.5	86.8	57.1	61.9
Studies show that stimulant medication has a possible effect on academic achievement in the long run.	8.8	5.9	4.8	11.1



Table 7

*ANCOVA Means and Standard Deviations for Knowledge (Section B) Regarding ADHD*

Question	Video 1				Video 2			
	<u>Mean</u>	<u>SD</u>	<u>Mean</u>	<u>SD</u>	<u>Mean</u>	<u>SD</u>	<u>Mean</u>	<u>SD</u>
ADHD is the most commonly diagnosed psychiatric disorder of childhood.	3.57	.968	3.89	1.058	3.69	.807	3.86	1.206
There are data to indicate that ADHD is caused by a brain malfunction.	2.98	.820	3.44	1.298	3.03	.682	2.71	1.611
ADHD symptoms (e.g., fidgets, does not follow through instruction, easily) may be caused by academic deficits.	3.12	.944	3.22	1.003	3.05	.973	3.09	1.393
Stress and conflict in the student's home life can cause ADHD symptoms.	3.71	.824	3.81	.992	3.39	.900	3.60	1.310
Diagnosis of ADHD can be confirmed if stimulant medication improves the child's attention.	2.77	1.183	3.41	1.073	2.95	1.056	2.81	1.456

Stimulant medication use may decrease the physical growth rate (i.e., height) of students.	2.89	.970	2.80	1.035	3.00	.730	3.16	1.211
Stimulant medication use may produce tics in students.	3.02	.875	2.78	.945	2.84	.778	3.19	1.191
Adderall, Ritalin, and Dexedrine have abuse potential similar to Demerol, cocaine, and morphine.	3.71	1.011	3.02	1.189	3.36	1.049	4.07	1.212
The long-term side effects of stimulant medication are well understood.	2.74	1.020	3.22	1.058	2.70	1.022	2.59	1.556
Over time, stimulant medication loses its effectiveness.	3.71	.805	3.31	.987	3.33	.995	3.34	1.236
While on stimulant medication, students exhibit similar amounts of problem behaviors as their normally developing peers.	3.18	.917	3.56	.816	3.33	.701	3.26	1.101
Short-term studies show that stimulant medication improves the behaviors associated with ADHD.	3.66	.853	3.96	.726	3.57	.694	3.38	1.211
Studies show that stimulant medication has a possible effect on academic achievement in the long run.	3.37	.894	3.93	.887	3.23	1.023	3.38	1.226

Table 8

*ANCOVA Significance for Effects of Video on Post test Knowledge Section B*

Question	<i>F</i> (1, 109)	<i>p</i>
ADHD is the most commonly diagnosed psychiatric disorder of childhood.	.094	.760
There are data to indicate that ADHD is caused by a brain malfunction.	7.42	.008*
ADHD symptoms (e.g., fidgets, does not follow through instruction, easily) may be caused by academic deficits.	.330	.567
Stress and conflict in the student's home life can cause ADHD symptoms.	.492	.485
Diagnosis of ADHD can be confirmed if stimulant medication improves the child's attention.	6.57	.012*
Stimulant medication use may decrease the physical growth rate (i.e., height) of students.	2.88	.092
Stimulant medication use may produce tics in students.	5.86	.017*
Adderall, Ritalin, and Dexedrine have abuse potential similar to Demerol, cocaine, and morphine.	31.12	.000*
The long-term side effects of stimulant medication are well understood.	7.37	.008*
Over time, stimulant medication loses its effectiveness.	.777	.380
While on stimulant medication, students exhibit similar amounts of problem behaviors as their normally developing peers.	2.71	.103
Short-term studies show that stimulant medication improves the behaviors associated with ADHD.	8.98	.003*
Studies show that stimulant medication has a possible effect on academic achievement in the long run.	6.68	.011*

*Note:* \* Indicates significant effect at .05 level

### *Opinions Regarding ADHD*

A one-way analysis of covariance between subjects (ANCOVA) was conducted with the 23 items within the *Opinions Regarding ADHD* (see Appendix F) serving as the independent variable and participant's opinion ratings (using a 5-point scale) as the dependant variable. Initial correlations were run on the data between the videos percentage correct and all individual items for opinions at pretest and posttest. No correlations were found between these two variables at the  $p = .001$  level. Therefore, the covariate used was the participants pretest scores on the same items. The overall ANOVA was significant,  $F(1, 120) = 43.64, MSE = 42.00, p < .001$ . The covariate, the pretest rating, showed a significant linear regression relationship with the posttest ratings,  $F(1, 131) = 56.45, p < .001, \text{partial } \eta^2 = .33, \beta = .65$ . There was a significant main effect for video type,  $F(1, 131) = 32.12, p = .000$ . Tables include individual significance for each item. See Table 10, 11, 12, and 13 for results.

Table 9

*Means and Standard Deviations for Opinions Regarding ADHD*

<u>Question</u> <i>SD</i>	Video 1			Video 2				
	<u>Pre</u> <i>Mean</i>	<u>SD</u> <i>SD</i>	<u>Post</u> <i>Mean</i>	<u>Pre</u> <i>Mean</i>	<u>SD</u> <i>SD</i>	<u>Post</u> <i>Mean</i>		
Taking stimulant medication helps students diagnosed with ADHD behave better in the classroom.	3.65	1.05	4.08	0.74	3.79	0.94	3.51	1.01
Taking stimulant medication helps students diagnosed with ADHD do better on seatwork and homework assignments.	3.68	0.84	4.08	0.8	3.73	0.98	3.44	1.01
Taking stimulant medication help students diagnosed with ADHD improve the cognitive and language functioning in the long run.	3.13	0.81	3.69	0.94	3.39	0.88	2.82	1.01
Taking stimulant medication helps students diagnosed with ADHD improve their grades.	3.49	0.91	4.16	0.69	3.23	1.05	3.15	1.12
Taking stimulant medication helps students diagnosed with ADHD improve their test performance.	3.51	0.95	4.16	0.69	3.42	0.97	3.26	1.05
Taking stimulant medication helps students diagnosed with ADHD improve their organizational skills.	3.29	0.92	3.74	0.96	3.10	1.02	3.15	1.10
Taking stimulant medication helps students diagnosed with ADHD improve their relationships with their peers.	3.04	0.97	3.90	0.87	2.97	0.91	2.90	1.06
Taking stimulant medication helps students diagnosed with ADHD improve their relationships with their parents.	2.97	0.99	3.98	0.74	3.03	0.91	3.05	0.99
Taking stimulant medication helps students diagnosed with ADHD improve their relationships with their teachers.	3.41	0.85	3.97	0.82	3.23	0.88	3.16	1.07

Taking stimulant medication helps students diagnosed with ADHD improve their attention at school.	3.90	0.87	4.16	0.88	3.89	0.90	3.44	1.06
Taking stimulant medication helps students diagnosed with ADHD learn more in school.	3.40	0.90	3.89	0.88	3.30	1.07	3.20	1.17
Too many students receive stimulant medication for ADHD.	3.79	0.94	3.23	1.15	3.61	1.13	4.15	1.06
Abuse of stimulant medication in schools is common.	3.68	1.09	3.15	1.05	3.7	1.05	4.08	1.04
If a student is receiving stimulant medication, other methods of interventions are unnecessary.	2.25	0.98	2.34	1.20	2.54	1.15	2.38	1.29
Students on stimulant medication should remain on medication into adulthood.	2.49	1.00	3.02	1.03	2.65	1.02	2.1	1.13
Most students with ADHD want to continue taking their stimulant medication.	3.13	0.91	3.18	1.04	3.12	0.98	3.11	1.09
ADHD is underdiagnosed in the school-age population.	2.44	1.04	2.77	1.15	2.73	1.12	2.27	1.19
Professionals(school psychologists, speech-language pathologists, school nurses, teachers, etc.) need more information about stimulant medications and their side effects.	4.00	0.90	3.89	1.03	3.80	0.97	4.26	0.90
I can accurately identify students with ADHD prior to formal assessment.	2.29	1.02	2.98	1.04	2.67	1.10	2.73	1.31
I can tell the difference between ADHD hyperactive-impulsive and inattentive types.	2.51	1.11	2.98	1.04	2.72	0.99	2.60	1.09
Stimulant medication works equally well for ADHD hyperactive-impulsive and inattentive types.	2.81	0.72	3.13	0.96	3.02	0.60	2.71	1.18
High doses of stimulant medication can improve behavior but may impair creative thinking or learning.	3.24	0.81	2.79	0.90	3.25	0.90	3.02	1.19
High doses of stimulant medication can improve both behavior and creative thinking or learning.	2.85	0.90	2.92	0.90	2.88	0.87	2.74	1.12

Table 10

*Percentages of Agree, Neutral, and Disagree Responses for Opinions Regarding ADHD Pre and Post*

Question	Video 1						Video 2					
	Pre		Post		Pre		Post		Pre		Post	
	A	N	D	A	N	D	A	N	D	A	N	D
Taking stimulant medication helps students diagnosed with ADHD behave better in the classroom.	72.1	16.2	11.8	82.4	2.9	4.4	65.1	20.6	12.7	58.7	19.0	19.0
Taking stimulant medication helps students diagnosed with ADHD do better on seatwork and homework assignments.	73.5	11.8	14.7	82.4	2.9	4.4	68.3	22.2	7.9	61.9	17.5	17.5
Taking stimulant medication help students diagnosed with ADHD improve the cognitive and language functioning in the long run.	29.4	51.5	19.1	55.9	26.5	7.4	36.5	52.4	9.5	25.4	34.9	36.5
Taking stimulant medication helps students diagnosed with ADHD improve their grades.	57.4	26.5	16.2	85.3	1.5	2.9	41.3	34.9	22.2	47.6	22.2	27.0
Taking stimulant medication helps students diagnosed with ADHD improve their test performance.	57.4	27.9	14.7	82.4	5.9	1.5	50.8	33.3	14.3	49.2	23.8	23.8
Taking stimulant medication helps students diagnosed with ADHD improve their organizational skills.	48.5	30.9	20.6	63.2	16.2	10.3	34.9	39.7	23.8	44.4	23.8	28.6
Taking stimulant medication helps students diagnosed with ADHD improve their relationships with their peers.	35.3	38.2	26.5	73.5	7.4	8.8	28.6	42.9	27.0	34.9	27.0	34.9
Taking stimulant medication helps students diagnosed with ADHD improve their relationships with their parents.	30.9	38.2	30.9	75.0	11.8	2.9	30.2	42.9	25.4	34.9	36.5	25.4
Taking stimulant medication helps students diagnosed with ADHD improve their relationships with their teachers.	52.9	33.8	13.2	75.0	8.8	5.9	39.7	41.3	15.9	38.1	33.3	25.4

Taking stimulant medication helps students diagnosed with ADHD improve their attention at school.	77.9	16.2	5.9	83.8	1.5	4.4	74.6	15.9	6.3	63.5	14.3	19.0
Taking stimulant medication helps students diagnosed with ADHD learn more in school.	50.0	35.3	14.7	70.6	13.2	5.9	44.4	31.7	20.6	42.9	25.4	28.6
Too many students receive stimulant medication for ADHD.	60.3	33.8	5.9	35.3	26.5	27.9	46.0	39.7	11.1	76.2	14.3	6.3
Abuse of stimulant medication in schools is common.	60.3	26.5	13.2	38.2	22.1	29.4	47.6	42.9	6.3	74.6	14.3	7.9
If a student is receiving stimulant medication, other methods of interventions are unnecessary.	8.8	27.9	63.2	14.7	17.6	57.4	12.7	41.3	42.9	19.0	23.8	54.0
Students on stimulant medication should remain on medication into adulthood.	14.7	27.9	57.4	35.3	23.5	30.9	12.7	47.6	34.9	12.7	19.0	66.7
Most students with ADHD want to continue taking their stimulant medication.	33.8	42.6	23.5	33.8	35.5	20.6	28.6	42.9	23.8	31.7	44.4	22.2
ADHD is underdiagnosed in the school-age population.	11.8	41.2	47.1	27.9	22.1	39.7	20.6	42.9	31.7	14.3	28.6	55.6
Professionals(school psychologists, speech-language pathologists, school nurses, teachers, etc.) need more information about stimulant medications and their side effects.	76.5	17.6	5.9	64.7	17.6	7.4	58.7	31.7	4.8	84.1	11.1	3.2
I can accurately identify students with ADHD prior to formal assessment.	11.8	30.9	57.4	29.4	29.4	30.9	17.5	38.1	39.7	28.6	30.2	39.7
I can tell the difference between ADHD hyperactive-impulsive and inattentive types.	20.6	25.0	54.4	32.4	29.4	27.9	22.2	33.3	39.7	15.9	42.9	39.7
Stimulant medication works equally well for ADHD hyperactive-impulsive and inattentive types.	10.3	63.2	26.5	33.8	38.2	17.6	14.3	71.4	9.5	25.4	36.5	36.5
High doses of stimulant medication can improve behavior but may impair creative thinking or learning.	38.2	51.5	10.3	16.2	45.6	27.9	33.3	47.6	14.3	31.7	41.3	25.4
High doses of stimulant medication can improve both behavior and creative thinking or learning.	16.2	52.9	30.9	22.1	44.1	23.5	15.9	57.1	22.2	25.4	38.1	34.9

Note. A stands for Agree, N stands for Neutral, and D stands for Disagree



Table 11

*ANCOVA Means and Standard Deviations for Opinions Regarding ADHD*

Question SD	Video 1				Video 2			
	<u>Pre</u> Mean	<u>SD</u>	<u>Mean</u>	<u>SD</u>	<u>Pre</u> Mean	<u>SD</u>	<u>Mean</u>	<u>SD</u>
Taking stimulant medication helps students diagnosed with ADHD behave better in the classroom.	3.65	1.048	4.08	.737	3.79	.943	3.50	1.017
Taking stimulant medication helps students diagnosed with ADHD do better on seatwork and homework assignments.	3.68	.837	4.08	.802	3.73	.978	3.43	1.015
Taking stimulant medication help students diagnosed with ADHD improve the cognitive and language functioning in the long run.	3.13	.809	3.69	.941	3.39	.875	2.80	1.005
Taking stimulant medication helps students diagnosed with ADHD improve their grades.	3.49	.906	4.16	.688	3.23	1.047	3.13	1.127
Taking stimulant medication helps students diagnosed with ADHD improve their test performance.	3.51	.954	4.16	.688	3.42	.967	3.25	1.052
Taking stimulant medication helps students diagnosed with ADHD improve their organizational skills.	3.29	.951	3.74	.964	3.10	1.020	3.13	1.096
Taking stimulant medication helps students diagnosed with ADHD improve their relationships with their peers.	3.04	.969	3.90	.870	2.97	.905	2.88	1.059
Taking stimulant medication helps students diagnosed with ADHD improve their relationships with their parents.	2.97	.992	3.98	.741	3.03	.905	3.03	.991

Taking stimulant medication helps students diagnosed with ADHD improve their relationships with their teachers.	3.41	.851	3.97	.816	3.23	.883	3.15	1.080
Taking stimulant medication helps students diagnosed with ADHD improve their attention at school.	3.90	.866	4.61	.879	3.89	.896	3.44	1.071
Taking stimulant medication helps students diagnosed with ADHD learn more in school.	3.40	.900	3.89	.877	3.30	1.070	3.19	1.181
Too many students receive stimulant medication for ADHD.	3.79	.939	3.23	1.146	3.61	1.130	4.20	.996
Abuse of stimulant medication in schools is common.	3.68	1.085	3.15	1.046	3.70	1.054	4.14	1.008
If a student is receiving stimulant medication, other methods of interventions are unnecessary.	2.25	.983	2.34	1.196	2.54	1.149	2.39	1.300
Students on stimulant medication should remain on medication into adulthood.	2.49	1.000	3.02	1.025	2.65	1.022	2.07	1.143
Most students with ADHD want to continue taking their stimulant medication.	3.13	.913	3.18	1.041	3.12	.976	3.12	1.115
ADHD is underdiagnosed in the school-age population.	2.44	1.042	2.77	1.146	2.73	1.118	2.27	1.187
Professionals (school psychologists, speech-language pathologists, school nurses, teachers, etc.) need more information about stimulant medications and their side effects.	4.00	.898	3.89	1.034	3.80	.971	4.24	.916
I can accurately identify students with ADHD prior to formal assessment.	2.29	1.023	2.98	1.041	2.69	1.100	2.71	1.327
I can tell the difference between ADHD hyperactive-impulsive and inattentive types.	2.51	1.113	2.98	1.041	2.72	.993	2.56	1.103

Stimulant medication works equally well for ADHD hyperactive-impulsive and inattentive types.	2.81	.718	3.13	.957	3.02	.596	2.68	1.195
High doses of stimulant medication can improve behavior but may impair creative thinking or learning.	3.24	.813	2.79	.897	3.25	.895	3.02	1.225
High doses of stimulant medication can improve both behavior and creative thinking or learning.	2.85	.902	2.92	.900	2.88	.865	2.73	1.142

Table 12

*ANCOVA Significance for Effects of Video on Post Opinions Regarding ADHD*

Question	<i>F</i> (1, 109)	<i>p</i>
Taking stimulant medication helps students diagnosed with ADHD behave better in the classroom.	18.270	.000*
Taking stimulant medication helps students diagnosed with ADHD do better on seatwork and homework assignments.	19.770	.000*
Taking stimulant medication help students diagnosed with ADHD improve the cognitive and language functioning in the long run.	32.630	.000*
Taking stimulant medication helps students diagnosed with ADHD improve their grades.	36.253	.000*
Taking stimulant medication helps students diagnosed with ADHD improve their test performance.	39.485	.000*
Taking stimulant medication helps students diagnosed with ADHD improve their organizational skills.	9.899	.002*
Taking stimulant medication helps students diagnosed with ADHD improve their relationships with their peers.	40.348	.000*
Taking stimulant medication helps students diagnosed with ADHD improve their relationships with their parents.	48.780	.000*
Taking stimulant medication helps students diagnosed with ADHD improve their relationships with their teachers.	22.879	.000*
Taking stimulant medication helps students diagnosed with ADHD improve their attention at school.	22.370	.000*
Taking stimulant medication helps students diagnosed with ADHD learn more in school.	13.998	.000*
Too many students receive stimulant medication for ADHD.	39.701	.000*
Abuse of stimulant medication in schools is common.	34.571	.000*

If a student is receiving stimulant medication, other methods of interventions are unnecessary.	.259	.612
Students on stimulant medication should remain on medication into adulthood.	29.136	.000*
Most students with ADHD want to continue taking their stimulant medication.	.072	.789
ADHD is underdiagnosed in the school-age population.	10.196	.002*
Professionals (school psychologists, speech-language pathologists, school nurses, teachers, etc.) need more information about stimulant medications and their side effects.	9.968	.002*
I can accurately identify students with ADHD prior to formal assessment.	4.646	.033*
I can tell the difference between ADHD hyperactive-impulsive and inattentive types.	8.121	.005*
Stimulant medication works equally well for ADHD hyperactive-impulsive and inattentive types.	6.436	.012*
High doses of stimulant medication can improve behavior but may impair creative thinking or learning.	1.448	.231
High doses of stimulant medication can improve both behavior and creative thinking or learning.	1.519	.220

*Note:* \* Indicates significant effect at .05 level

### *Vignette Evaluation Form Items 6-11*

A series of one-way analyses of covariance (ANCOVA) were conducted. In each ANCOVA presented below, the independent variable was the video viewed. The video viewed was either the Anti-ADHD (i.e., Baughman, 1999) video or the Pro-ADHD (American Academy of Family Physicians, 2002). The dependent variable was the participant's posttest rating of items from the Vignette Evaluation Form (VEF). The covariate used was the participant's pretest ratings of each critical item from the VEF.

*Vignette Evaluation item 6 – “Do you feel as though this child has ADHD?”* The first item analyzed from the VEF was item 6 which addressed the whether the participant thought the child described in the vignette does have ADHD. The ANCOVA was significant,  $F(1, 131) = 11.12$ ,  $MSE = 2.60$ ,  $p < .001$ . The covariate, the pretest rating, showed a significant linear regression relationship with the posttest ratings,  $F(1, 131) = 22.11$ ,  $p < .001$ , partial  $\eta^2 = .15$ ,  $\beta = .51$ . There was a not a significant main effect for video type,  $F(1, 131) = 1.37$ ,  $p = .47$ .

*Vignette Evaluation item 7 – “Would you suggest the parents seek a referral for a formal ADHD evaluation?”* The next item analyzed from the VEF was item 7 which addressed the participant's willingness to refer parents to seek a referral for their child, described in the vignette, for a formal ADHD evaluation. The ANCOVA was significant,  $F(1, 131) = 21.09$ ,  $MSE = 2.05$ ,  $p < .001$ . The covariate, the pretest rating, showed a significant linear regression relationship with the posttest ratings,  $F(1, 131) = 40.13$ ,  $p <$

.001, partial  $\eta^2 = .24$ ,  $\beta = .55$ . There was not a significant main effect for video type,  $F(1, 131) = 1.94$ ,  $p = .166$ .

*Vignette Evaluation item 8 – “Would you suggest a referral for a formal psychoeducational evaluation for possible learning disabilities?”* The next item analyzed from the VEF was item 8 which addressed the participant’s willingness to suggest a psychoeducational evaluation for a possible learning disorder. The ANCOVA was significant,  $F(1, 131) = 14.01$ ,  $MSE = 2.09$ ,  $p < .001$ . The covariate, the pretest rating, showed a significant linear regression relationship with the posttest ratings,  $F(1, 131) = 27.91$ ,  $p < .001$ , partial  $\eta^2 = .18$ ,  $\beta = .44$ . There was a significant main effect for video type,  $F(3, 113) = 4.12$ ,  $p = .045$ . Additionally, an interaction between video type and vignette type was not significant,  $F(1,131) = .10$ ,  $p = .75$ .

*Vignette Evaluation item 9 – “How strongly would you suggest the parents seek evaluation from a physician who might prescribe stimulant medications for the child?”* The next item analyzed from the VEF was item 9 which address the willingness of the participants to refer the child described in the vignette to a physician for a medication consultation and possible treatment. The ANCOVA was significant,  $F(1, 131) = 24.29$ ,  $MSE = 2.76$ ,  $p < .001$ . The covariate, the pretest rating, showed a significant linear regression relationship with the posttest ratings,  $F(1.131) = 40.76$ ,  $p < .001$ , partial  $\eta^2 = .24$ ,  $\beta = .55$ . There was a significant main effect for video type,  $F(1, 131) = 10.26$ ,  $p < .001$ .

*Vignette Evaluation item 10 – “How strongly would you suggest the parents seek evaluation from a psychologist who might suggest classroom changes or individual/family therapy for the child?”* The next item analyzed from the VEF was item 10 which addressed the willingness of the participants to refer the child to a psychologist for individual/family therapy and or possible environmental changes in the child’s settings (e.g., classroom). The ANCOVA was significant,  $F(1,131) = 20.26$ ,  $MSE = 1.41$ ,  $p < .001$ . The covariate, the pretest rating, showed a significant linear regression relationship with the posttest ratings,  $F(1,131) = 40.52$ ,  $p < .001$ , partial  $\eta^2 = .24$ ,  $\beta = .49$ . There was not a significant main effect for video type,  $F(1, 131) = .21$ ,  $p < .001$ .

*Vignette Evaluation item 11 – “How strongly would you suggest the parents seek evaluation from a physician AND a psychologist?”* The next item analyzed from the VEF was item 11 which addressed the participant’s willingness to refer the child to both a physician and a psychologist. The ANCOVA was significant,  $F(1,131) = 31.94$ ,  $MSE = 1.81$ ,  $p < .001$ . The covariate, the pretest rating, showed a significant linear regression relationship with the posttest ratings,  $F(1,131) = 63.74$ ,  $p < .001$ , partial  $\eta^2 = .33$ ,  $\beta = .69$ . There was not a significant main effect for video type,  $F(1,131) = .000$ ,  $p = .993$ .



## CHAPTER IV

### DISCUSSION

The aims of the current study were to (a) investigate college student opinions and knowledge regarding ADHD, (b) investigate the effects of videos on these measures, and (c) investigate whether participants exposed to the videos would be more or less likely to recognize ADHD symptomology in a vignette and subsequently endorse different types of referrals for the child described in the vignette.

#### *College Student Specific Knowledge Regarding ADHD*

The results support the hypothesis that participants' knowledge changed in the direction of the video viewed. The present study found results similar to those of Kos et al. (2004). Kos et al. found that teachers were able to correctly answer 60.7% of the knowledge items. The present study found that, students correctly answered 68.5% of the items during pre and posttest scenarios. No data were taken regarding the durability of any knowledge gains obtained from watching these videos so it is impossible to say whether the college students in this sample really knew more about ADHD than the teachers in the Kos et al. sample or if their scores reflected short term gains in knowledge.

Video 1 results were specifically significant towards items 6 (A child who is not overactive, but fails to pay attention, may have ADHD), 8 (ADHD can be diagnosed in

the doctor's office most of the time), 13 (ADHD can be inherited), 23 (Family dysfunction may increase the likelihood that a child will be diagnosed with ADHD), and 25 (Children with ADHD usually have good peer relations because of their outgoing nature). Participants were able to correctly answer true to all of these questions with the exception of Item 8. Video 1 teaches that ADHD can be diagnosed by your family physician and it appears that participants agreed whereas; Video 2 participants disagreed by an overwhelming 92%.

Both videos addressed items 10 (Approximately 5% of United States school children have ADHD), 16 (There are subtypes of ADHD), 18 (The cause of ADHD is unknown), and 26 (Research has shown that prolonged use of stimulant medications leads to increased addiction (i.e., drug, alcohol) in adulthood). Those who viewed Video 1 were more likely to be "taught" to answer true to items 10, 16, and 26 and false to item 18. Most interestingly, Video 1 participants would have believed that Item 18 is false because the Video teaches that there are maladaptive brain functions to suggest ADHD has a known cause. Those who viewed Video 2 were more likely to be "taught" to answer false to items 10, 16, and 26 and true to item 18. These results are interesting because the basis of Video 2 centers on ADHD being a completely fictitious disorder "cooked up" as a fraudulent scheme between pharmaceutical companies and health care professionals - therefore some participants "bought into this idea" and answered accordingly.

Overall, it appears that many participants did change their opinions regarding knowledge of ADHD depending on which video they viewed. The video, in essence,

taught a certain view point and participants “bought into the ideas” and opinions that the video presented. Although it cannot be said how strongly they changed their minds or opinions, there was a significant change that participants reported indicating that the video did, in fact, change how they viewed certain items before and after viewing a video that was supportive of or very negative towards ADHD.

The results support hypotheses that there were significant differences between pre and posttest Specific Knowledge B on certain items depending on which video was viewed. Of the 13 items, 7 were significant depending on which video was viewed.

#### *College Student Opinions Regarding ADHD*

Overall, students overwhelmingly changed their opinions due to which video they viewed. Out of 23 questions, 19 showed a significant change at posttest. A few of the questions that had the largest change included: taking stimulant medication helps students diagnosed with ADHD improve relationships with their parents, taking stimulant medication helps students diagnosed with ADHD improve their relationship with their peers, too many students receive medication for ADHD, and taking stimulant medication helps student diagnosed with ADHD improve their test performance.

In addition, only 4 questions did not show a significant effect. These included: If a student is receiving stimulant medication other methods of intervention are unnecessary, most students with ADHD want to continue taking their stimulant medication, high doses of stimulant medication can improve behavior but may impair creative thinking or learning, and high doses of stimulant medication can improve both behavior and creative thinking or learning.

The findings from the current study indicated that students were willing to change their opinions regarding ADHD and stimulant medications after watching a specific video. Students indicated that they believe that stimulant medications can aid a student to have better relationships with family and others, improve academic work, and many are able to properly identify ADHD.

#### *Possible Mediating Variables for Video Effects*

The current study looked at whether knowing a person who had responded negatively to a stimulant medication for ADHD would be less likely to make a referral for ADHD. Conversely, we looked whether knowing a person who had a positive response would be more likely to make a referral. When ignoring whether the video was consistent with current held views, 70.8 % of participants who watched Video 1 would refer for stimulant medication whether they knew an individual who had a negative/positive response or not. Only 46.7 % of Video 2 participants would refer for stimulant medication whether they knew an individual who had a negative/positive response. As expected, those who viewed Video 1 were more likely to endorse a referral to a physician for possible medications; however, knowing someone who had a negative/positive response to stimulant medications did not result in lower/higher endorsements of referrals regardless of video watched.

In addition to these findings, the current study also looked at who was the most likely to refer for stimulant medications and who was the least likely. The current study found that 74.3% of the participants who viewed Video 1 and knew a person that was currently taking stimulant medications were the most likely to make a referral for

stimulant medications and 39.5% participants who viewed Video 2 and did not know an individual taking stimulant medication were the least likely to make a referral.

### *College Student Referrals Regardless of Video Viewed*

Overall, over half of the participants watching the videos did not result in endorsing symptoms less and, in fact, they endorsed the right kinds of diagnoses for the symptoms they checked off. Participants often had more or fewer items checked (mostly indicating a combined subtype) but still were able to diagnose the correct subtype of ADHD. In addition, although opinions and knowledge may have changed to be consistent with the videos, over half of the participants still were willing to diagnose ADHD and the correct subtype. It is unclear why, if students were willing to change their opinions regarding ADHD, they would then still suggest a diagnosis for ADHD if they felt strongly against ADHD as a diagnosis.

### *Future Research*

The current study had many limitations that could be improved upon for another study focusing on opinions, knowledge, and video effects regarding ADHD. One suggestion would be to have an entire population of preservice teachers complete the study. Because this is the population that would be working with children within a few semesters, it would be interesting to view their thoughts as opposed to college students in general who may or may not become educators one day.

Another improvement would be to drop the straightforward and ambiguous wording of the vignette presentations. While looking at whether or not the wording

effected how participants answered, it was found that wording, in fact, did not make a difference on how participants answered questions. This would also help future researcher to replicate the study since the current study counterbalanced for wording rather than presentation due to lack of participants. Future studies would be able to counterbalance which vignette would be presented and not compromise small cell/group sizes.

In addition, Davis (2008) replicated these findings with a group of preservice teachers and eliminated many of the limitations of the current study. It revealed results similar to the current study and indicated that preservice teachers' knowledge and opinions often changed based on the Pro and Anti ADHD videos. This kind of study with such an important population is a valuable extension of the current study and more research is certainly needed to continue to better understand what factors drive the opinions and knowledge that influence adult endorsement of children being referred for ADHD evaluations.

Lastly, it would be interesting to see how participants respond if they were able to view both videos. Although this would be time consuming, and participant fatigue would be an issue, it would be interesting to see how participants viewed one video as opposed to another. Also, a qualitative measure about views regarding both videos would glean interesting information about how participants form their opinions regarding ADHD. In addition, a third video, taking a more neutral view on ADHD, may also reveal interesting data Overall, the implications to practicing psychologist and education professions may be that more stringent methods to identify ADHD may be needed (e.g., using

observations, multiinformant rating scales, etc.) and more training within education classes (e.g., specialized childhood disorder classes) may be needed to help properly identify children at risk.

### *Limitations*

The first limitation to the current study was population. The current study was limited to college students from undergraduate psychology courses, this narrow participant pool limits generalizability of the results. Although this study helps identify how potential parents respond to the experimental materials, older adults and educational professionals were not represented in this sample.

The study lasted an hour and a half to two hours in length with the average time being one hour and fifteen minutes. Due to the length of this study, participant fatigue may have been a limitation to this study. The participants were offered a brief restroom break after the video was presented; however most groups declined the break to finish earlier. While observing participants, it should be noted that attention span differed by group. Although no statistical data were taken on attention span or participant fatigue, the researcher and assistant sat in the back of the room during the movie and made observations during testing. It was observed that group members who were more attentive appeared to influence the group in a positive manner; however, it was also observed that some group members who were not attentive (e.g., talked during the movie or slept) appeared to influence their groups in a negative manner and those groups may have been less attentive.

Yet another limitation was that the present study had no “untreated” control group due to the fact that a research pool was used and there were a limited number of participants available for the study. In addition, the present study utilized a within subjects design with regard to the measures but a between subjects design regarding the videos. Therefore, participants did not view both videos or have an opportunity to report different opinions regarding the different videos. Additionally, the current study did not have enough participants to counterbalance the vignette presentations. Thus, Video 1 participants always responded to the “Ken” vignette first and Video 2 participants always responded to the “Ricky” vignette first.

Previous research and related to the present study was limited. There were some studies addressing teacher knowledge and opinions regarding ADHD; however, it was difficult to find literature that investigates how and where teachers gather their information regarding ADHD.

In some instances, typical analyses of the measures had limitations. The present study used a Likert-scale measure several times and when analyzing the means of these measures, it appeared that the respondents were neutral overall (i.e., a mean near the middle of the scale). However, when the data were regrouped into “agree,” “neutral” or “disagree” based on their responses, participants more often fell into the agree or disagree domains. Previous literature reported similar results (Snider et al., 2003). In addition Snider et. al. (2003) reported that some of the items “may have been ambiguous or misleading.” One example is the question “There are data to indicate that ADHD is caused by a brain malfunction” which was intended to be a false statement because there



is no single set of data suggesting that it is a brain malfunction; however, there is research suggesting neurological involvement which could make this question true to some participants. In addition, the Specific Knowledge Section B measure asked participants to answer on a Likert scale; however, a small number of participants answered with true and false (continuing a response set established by the measure they had received prior to answering the Specific Knowledge Section B instrument) and therefore their data had to be excluded from analysis.

On the measure Knowledge Regarding ADHD which asked a participant to “indicate how they thought they knew about ADHD by placing a cross on the part of the line that best represented their knowledge” the line was mismeasured. The line was to be set at 10cm long. After participants had received the measure it was later identified that the line on the current study was only 7cm long; therefore, all participants’ measurements (in cms) were multiplied by 1.429 to make up for this difference. This figure, 1.429, was used because this number multiplied by 7 would equal 10 which was the cm length that the line should have been.

Finally, the present study was limited by not having an effective manipulation check on whether participants understood the video content. Video quizzes had been created with the intention that they provide evidence of the participants’ understanding of the video, but it became obvious that the quiz for the video, intended for physicians, was just too hard for our participants. Future studies would benefit from a manipulation check that yielded a more valid estimate of the participation’s attention to the independent variable.

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APPENDIX A  
INFORMED CONSENT

## Informed Consent

**Title of Study:** Development of Experimental Materials for an ADHD Media Effects Study

**Researchers:** Nichol Pritchard & Brandon Davis (Graduate Students in Clinical Psychology), & Dr. Kevin Armstrong (Faculty member in Department of Psychology)

The current research project is designed to explore College Student Knowledge and Opinions regarding Attention-Deficit/Hyperactivity Disorder (ADHD) symptoms as well as the impact of educational videos developed to teach about ADHD. Your participation may benefit those who want to know more about understanding college students' current knowledge and opinions about ADHD and the ability of educational videos to teach college students about professionals' perspectives on ADHD.

All students will be asked to complete an informed consent procedure. Then, participants will complete a demographics questionnaire, and various measures and questionnaires that inquire about ADHD knowledge and perceptions. Participants will be asked to watch a video and then repeat the measures along with reading vignettes and answering questions about the vignette. This study should take no longer than two hours to complete. There are no anticipated physical risks or other risks or discomforts associated with participation in the present study. However, should you become distressed either during or after completing the session, you should tell the experimenter and then go across the street to the Student Counseling & Testing Center in Lee Hall Room 103 - or call them at 325-2091.

Your participation is strictly voluntary and you can withdraw at any time, even after filling out the questionnaires, without penalty. We ask that you separate the consent form from the questionnaire package so there will be no identifying marks or names on the completed surveys. By doing this, confidentiality will be preserved during, as well as after the study. Although you will not receive immediate benefit by completing the proceeding study, the research will help to develop a better understanding of college students' familiarity with ADHD. ***\*Also, please note that these records will be held by a state entity and therefore are subject to disclosure if required by law.\****

Participants who wish to receive more information about the experiment may contact Dr. Kevin Armstrong at 325-7657/[kevin.armstrong@msstate.edu](mailto:kevin.armstrong@msstate.edu) or Nichol Pritchard at 325-3682/ [nfp7@msstate.edu](mailto:nfp7@msstate.edu). For additional information regarding your rights as a research subject, please feel free to contact the MSU Regulatory Compliance Office at 662-325-5220.

You will be given a copy of this form for your records.

-----  
*I have read the above description of the project and the researcher has answered my questions to my satisfaction. I \_\_\_\_\_ agree to participate in the experiment.*

*(Participant – Please Print)*

\_\_\_\_\_  
Participant Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Investigator Signature

\_\_\_\_\_  
Date

Participants who wish to receive a summary report upon completion of this research project on Development of Experimental Materials for an ADHD Media Effects Study can do so by contacting Dr. Kevin Armstrong at [kevin.armstrong@msstate.edu](mailto:kevin.armstrong@msstate.edu) or 662-325-7657.



APPENDIX B  
DEMOGRAPHICS SURVEY

## Questionnaire

Instructions: Please answer the following questions as accurately as possible.

### Part I. Demographics.

1. Gender (Please circle one)                      M                      F
2. Age \_\_\_\_\_
3. Ethnicity (Check the group with which you most closely identify)  
\_\_\_\_\_ Southeast Asian  
\_\_\_\_\_ Other Asian / Pacific Islander  
\_\_\_\_\_ Black / African American, not of Hispanic origin  
\_\_\_\_\_ Hispanic  
\_\_\_\_\_ Native American (American Indian or Alaskan Native)  
\_\_\_\_\_ White, not of Hispanic origin  
\_\_\_\_\_ Other, please explain: \_\_\_\_\_
4. Classification (e.g., Freshman, Sophomore, etc. - pick closest category) Please check one:  
\_\_\_\_\_ Freshman  
\_\_\_\_\_ Sophomore  
\_\_\_\_\_ Junior  
\_\_\_\_\_ Senior
5. Years in college \_\_\_\_\_
6. Anticipated graduation date \_\_\_\_\_
7. Cumulative Grade Point Average (GPA - estimate, if not known) \_\_\_\_\_

8. College and Concentrations (Please Check One and write Major beside it)

\_\_\_\_\_ College of Agriculture and Life Sciences \_\_\_\_\_

\_\_\_\_\_ College of Architecture, Art and Design \_\_\_\_\_

\_\_\_\_\_ College of Arts and Sciences \_\_\_\_\_

\_\_\_\_\_ College of Business and Industry \_\_\_\_\_

\_\_\_\_\_ College of Education \_\_\_\_\_

\_\_\_\_\_ College of Engineering \_\_\_\_\_

\_\_\_\_\_ College of Forest Resource \_\_\_\_\_

\_\_\_\_\_ College of Veterinarian Medicine

\_\_\_\_\_ Undeclared

9. Approximate total hours of undergraduate class time (note 50 min = 1 hour; 75 min = 1.5 hours) devoted to children's behavioral disorders SO FAR in your undergraduate coursework \_\_\_\_\_

APPENDIX C  
PRIOR EXPOSURE TO ADHD

Part II. Prior Exposure to Attention Deficit Hyperactivity Disorder (ADHD)

Instructions: Please indicate on the line provided a **T** for true or **F** for false

- \_\_\_\_\_ 1. Prior to today I have had one or more college class period(s) that addressed ADHD.
- \_\_\_\_\_ 2. As part of my training I have been in a classroom setting with one or more ADHD children.
- \_\_\_\_\_ 3. I have attended a professional development workshop where ADHD was the primary focus.
- \_\_\_\_\_ 4. I have read one or more articles written for education professionals regarding ADHD.
- \_\_\_\_\_ 5. I have watched one or more television specials regarding ADHD.
- \_\_\_\_\_ 6. I have watched one or more educational videos in which ADHD was the primary focus.
- \_\_\_\_\_ 7. I have read one or more magazines articles (other than professional journal articles) regarding ADHD.
- \_\_\_\_\_ 8. I currently have a close friend or family member diagnosed with ADHD, or I am currently diagnosed with ADHD.
- \_\_\_\_\_ 9. I currently have a close friend or family member who is taking stimulant medication for ADHD.
- \_\_\_\_\_ 10. I am currently taking stimulant medication for ADHD.
- \_\_\_\_\_ 11. I have had contact with one or more people (children or adults) diagnosed with ADHD, other than family members or friends.
- \_\_\_\_\_ 12. I have had contact with one or more people (children or adults) being treated with stimulant medication for ADHD, other than family members or friends.
- \_\_\_\_\_ 13. I personally know someone who has had a positive response to stimulant medication treatment for ADHD.
- \_\_\_\_\_ 14. I personally know someone who has had a negative response to stimulant medication treatment for ADHD.

APPENDIX D  
KNOWLEDGE REGARDING ADHD



APPENDIX E  
SPECIFIC KNOWLEDGE ITEMS REGARDING ADHD



## Part IV. Specific Knowledge Items Regarding ADHD

### Section A.

Instructions: Please indicate on the line provided a **T** for true or **F** for false

- T   1. There are a greater number of boys than girls with ADHD.
- T   2. There is approximately 1 child in every classroom with a diagnosis of ADHD.
- F   3. If medication is prescribed, educational interventions are often unnecessary.
- F   4. ADHD children are born with biological vulnerabilities toward inattention and poor self-control.
- F   5. If a child responds to stimulant medication (e.g., Ritalin) then they probably have ADHD.
- T   6. A child who is not overactive, but fails to pay attention, may have ADHD.
- F   7. ADHD is often caused by food additives.
- F   8. ADHD can be diagnosed in the doctor's office most of the time.
- F   9. Children with ADHD always need a quiet environment to concentrate.
- T   10. Approximately 5% of United States school children have ADHD.
- F   11. ADHD children are usually from single-parent families.
- T   12. Diets are usually not helpful in treating most children with ADHD.
- T   13. ADHD can be inherited.
- F   14. Medication is a cure for ADHD.
- F   15. All children with ADHD are overactive.
- T   16. There are subtypes of ADHD.
- F   17. ADHD affects male children only.
- T   18. The cause of ADHD is unknown.

- F   19. ADHD is the result of poor parenting practices.
- F   20. If a child can play Nintendo for hours, then s/he probably doesn't have ADHD.
- F   21. Children with ADHD cannot sit still long enough to pay attention.
- F   22. ADHD is caused by too much sugar in the diet.
- T   23. Family dysfunction may increase the likelihood that a child will be diagnosed with ADHD.
- T   24. Children from any walk of life can have ADHD.
- F   25. Children with ADHD usually have good peer relations because of their outgoing nature.
- F   26. Research has shown that prolonged use of stimulant medications leads to increased addiction (i.e., drug, alcohol) in adulthood.
- F   27. Children with ADHD generally display an inflexible adherence to specific routines and rituals.

\_\_\_\_\_ [LEAVE BLANK UNLESS YOU HAVE JUST SEEN A VIDEO]  
How consistent is this video with your previously held views on ADHD?

                  1                  2                  3                  4                  5                  6                  7  
(1 Definitely NOT consistent      4 No opinion      7 Definitely consistent)

## Section B

Instructions: Indicate on the line provided a **1** for strongly disagree, **2** for disagree, **3** for I don't know, **4** for agree, and **5** for strongly agree.

- T   1. ADHD is the most commonly diagnosed psychiatric disorder of childhood.
- F   2. There are data to indicate that ADHD is caused by a brain malfunction.
- T   3. ADHD symptoms (e.g., fidgets, does not follow through instruction, easily) may be caused by academic deficits.
- T   4. Stress and conflict in the student's home life can cause ADHD symptoms.
- F   5. Diagnosis of ADHD can be confirmed if stimulant medication improves the child's attention.
- T   6. Stimulant medication use may decrease the physical growth rate (i.e., height) of students.
- T   7. Stimulant medication use may produce tics in students.
- T   8. Adderall, Ritalin, and Dexedrine have abuse potential similar to Demerol, cocaine, and morphine.
- F   9. The long-term side effects of stimulant medication are well understood.
- T   10. Over time, stimulant medication loses its effectiveness.
- F   11. While on stimulant medication, students exhibit similar amounts of problem behaviors as their normally developing peers.
- T   12. Short-term studies show that stimulant medication improves the behaviors associated with ADHD.
- F   13. Studies show that stimulant medication has a possible effect on academic achievement in the long run.

APPENDIX F  
OPINIONS REGARDING ADHD

## Part V. Opinions Regarding ADHD

Instructions: Indicate on the line provided a **1** for strongly disagree, **2** for disagree, **3** for I don't know, **4** for agree, and **5** for strongly agree.

- \_\_\_\_\_ 1. Taking stimulant medication helps students diagnosed with ADHD behave better in the classroom.
- \_\_\_\_\_ 2. Taking stimulant medication helps students diagnosed with ADHD do better on seatwork and homework assignments.
- \_\_\_\_\_ 3. Taking stimulant medication help students diagnosed with ADHD improve their cognitive and language functioning in the long run.
- \_\_\_\_\_ 4. Taking stimulant medication helps students diagnosed with ADHD improve their grades.
- \_\_\_\_\_ 5. Taking stimulant medication helps students diagnosed with ADHD improve their test performance.
- \_\_\_\_\_ 6. Taking stimulant medication helps students diagnosed with ADHD improve their organizational skills.
- \_\_\_\_\_ 7. Taking stimulant medication helps students diagnosed with ADHD improve their relationships with their peers.
- \_\_\_\_\_ 8. Taking stimulant medication helps students diagnosed with ADHD improve their relationships with their parents.
- \_\_\_\_\_ 9. Taking stimulant medication helps students diagnosed with ADHD improve their relationships with their teachers.
- \_\_\_\_\_ 10. Taking stimulant medication helps students diagnosed with ADHD improve their attention at school.
- \_\_\_\_\_ 11. Taking stimulant medication helps students diagnosed with ADHD learn more in school.
- \_\_\_\_\_ 12. Too many students receive stimulant medication for ADHD.
- \_\_\_\_\_ 13. Abuse of stimulant medication in schools is common.

- \_\_\_\_\_ 14. If a student is receiving stimulant medication, other methods of interventions are unnecessary.
- \_\_\_\_\_ 15. Students on stimulant medication should remain on medication into adulthood.
- \_\_\_\_\_ 16. Most students with ADHD want to continue taking their stimulant medication.
- \_\_\_\_\_ 17. ADHD is underdiagnosed in the school-age population.
- \_\_\_\_\_ 18. Professionals(school psychologists, speech-language pathologists, school nurses, teachers, etc.) need more information about stimulant medications and their side effects.
- \_\_\_\_\_ 19. I can accurately identify students with ADHD prior to formal assessment.
- \_\_\_\_\_ 20. I can tell the difference between ADHD hyperactive-impulsive and inattentive types.
- \_\_\_\_\_ 21. Stimulant medication works equally well for ADHD hyperactive-impulsive and inattentive types.
- \_\_\_\_\_ 22. High doses of stimulant medication can improve behavior but may impair creative thinking or learning.
- \_\_\_\_\_ 23. High doses of stimulant medication can improve both behavior and creative thinking or learning.

APPENDIX G  
VIDEO INFORMATION

Video 1 – “Diagnosis and Management of Childhood ADHD in the Family Practice Setting”

<http://www.aafp.org/online/en/home/cme/selfstudy/videocme/childhoodadhd/cmecredit.html>

Video 2 - “ADHD: 100% Total Fraud”

<http://www.adhdfraud.org/> OR

<http://www.adhdfraud.org/frameit.asp?src=http://www.adhdvideo.org>



APPENDIX H  
VIDEO QUIZZES

Video 1 - “Diagnosis and Management of Childhood ADHD in the Family Practice Setting”

1. A common belief about the prevalence of attention deficit/hyperactivity disorder (ADHD) among boys and girls is:
  - A. Girls are about as likely as boys to have ADHD, but boys may be more likely to be diagnosed.
  - B. Boys are about as likely as girls to have ADHD, but girls may be more likely to be diagnosed.
  - C. Boys are significantly more likely than girls to have ADHD.
  - D. Girls are significantly more likely than boys to have ADHD.
  
2. In order to meet Diagnostic and Statistical Manual of Mental Disorders — Fourth Edition (DSM-IV) criteria for inattention, how many of the nine criterion symptoms must be present?
  - A. Two.
  - B. Four.
  - C. Six.
  - D. Nine.
  
3. According to DSM-IV diagnostic criteria, a pattern of deliberately annoying people is symptomatic of:
  - A. Hyperactivity.
  - B. Impulsivity.
  - C. Oppositional-defiant disorder.
  - D. Anxiety Disorder.
  
4. Which of the following is not among the disadvantages associated with rapid-onset, short-duration agents in the treatment of ADHD?
  - A. Possibility of waning of effect prior to noontime dose.
  - B. Less tolerability.
  - C. Stigma associated with midday dosing at school.
  - D. Possibility that school may not be properly staffed for safe medication administration.
  
5. Which of the following nonpharma-cotherapeutic interventions is not effective in the treatment of ADHD?
  - A. Play therapy.
  - B. Positive Reinforcement.

- C. Parent Training.
  - D. Classroom Management
6. Learning disorder is diagnosed in a child who:
- A. Performs below the level expected for his or her age on intelligence quotient tests.
  - B. On achievement tests, performs substantially below the expected level given measured intelligence.
  - C. Does both of the above.
  - D. Does neither of the above.
7. Mike, a 13-year-old boy whom you have previously diagnosed with ADHD, has recently vandalized a car and shoplifted a pair of sneakers from a local store. Which common comorbidity of ADHD does this behavior suggest?
- A. Oppositional-defiant disorder.
  - B. Conduct Disorder.
  - C. Hyperactivity.
  - D. Anxiety Disorder.
8. During the initial stimulant titration period, whose observations of behavior should the family physician generally consider most instructive?
- A. The classroom teacher's.
  - B. The parent's.
  - C. The child's.
  - D. The school principal's.
9. Children with comorbid ADHD and anxiety are more likely than those without anxiety to:
- A. Refuse to comply with classroom rules.
  - B. Appear inefficient or lethargic.
  - C. Have a significant weight loss or gain.
  - D. All of the above.
10. The law that requires schools to obtain parental consent for testing and invite parental involvement in educational planning is:
- A. Section 504.
  - B. Individuals with Disabilities Education Act.
  - C. The Families and Advocates Partnership for Education.
  - D. Children and Adults With Attention Deficit Disorders.

11. Which one of the following is a risk factor associated with ADHD?
- A. Depression.
  - B. School failure.
  - C. Conduct disorder.
  - D. All of the above.
12. The catecholamine(s) thought to be involved in the etiology of ADHD is (are)?
- A. Serotonin
  - B. Dopamine.
  - C. Norepinephrine.
  - D. b and c.
13. Which one of the following is not a comorbid condition generally associated with ADHD?
- A. Learning and language disabilities.
  - B. Psychotic episodes.
  - C. Disruptive behavior disorders.
  - D. Internalizing conditions.
14. Stimulants are among the most effective psychotropic medications in use today for treating ADHD.
- A. True.
  - B. False.
15. Which one of the following is not a stimulant used to treat ADHD?
- A. Methylphenidate.
  - B. Dextroamphetamine.
  - C. Bupropion.
  - D. Dexmethylphenidate.

*\*Note:* All correct answers underlined

Video 2 - 100% Total Fraud

1. Attention Deficit Disorder was said to affect \_\_\_\_\_ *thousand* children in 1970 and \_\_\_\_\_ *million* today.
  - A. 150 & 5
  - B. 5 & 150
  - C. 200 & 10
  - D. 10 & 200
  
2. The Drug Enforcement Administration and International Narcotics Control Board state that the addictive potential of Ritalin is
  - A. Low
  - B. High
  - C. Moderate
  - D. There are no addictive potentials
  
3. William B. Carrey challenges four current basic assumptions of ADHD. Which one of these is NOT an assumption he challenges?
  - A. It is a distinguishable abnormality
  - B. It is a brain disease
  - C. Environment is not a factor
  - D. If the parents have ADHD so will the child
  
4. Steven E. Hyman, NIMH, states that one reason the consensus conference is important is due to rates of diagnosis. He states that in rate of prescription of Ritalin ranges from \_\_\_\_\_ to \_\_\_\_\_ % in some school systems and well above 40 % in other school systems.
  - A. 0 to 3
  - B. 10 to 20
  - C. 25 to 30
  - D. Greater than 30
  
5. Dr. Baughman states that DSM IV (Diagnostic and Statistical Methods 4th edition) ADHD fails to distinguish normal behaviors from ADHD behaviors and ignores:
  - A. child's past medical history
  - B. environmental factors such as from home and community
  - C. DNA research
  - D. medication research

6. William B. Carrey states in his presentation that there can be possible harm from the ADHD label in that it offers no articulation of the child's problems and strengths and no:
- A. indication for management except medication
  - B. course of action for parents
  - C. course of action for teachers
  - D. help to physicians
7. David J. Kupfer, M.D, states that at this time:
- A. there are many diagnostic tests available to test for ADHD
  - B. there are few diagnostic tests for ADHD
  - C. there are no diagnostic tests to test for ADHD
  - D. there are few diagnostic tests for ADHD but are not currently being used
8. Shelia Anderson, from CHADD, was concerned that the consensus panel's final report questioned the \_\_\_\_\_ of the ADHD diagnosis.
- A. reliability
  - B. cost
  - C. moderation
  - D. validity
9. David J. Kupfer, M.D, states that after years of clinical research and experience with ADHD our knowledge about the cause or causes of ADHD remains:
- A. hopeful
  - B. speculative
  - C. discouraging
  - D. advanced
10. A panel member states, when asked if ADHD medications are overprescribed or underprescribed, that :
- A. it is difficult to answer since there is no golden standard from which to judge prescription rates
  - B. yes it is overprescribed
  - C. yes it is underprescribed
  - D. it is neither overprescribed or underprescribed

\*Note: All correct answers underlined

APPENDIX I  
VIGNETTES

## Straightforward Ken Vignette #1 (417 words)

Ken Jacobs is a seven year old in a first grade class. During class time, Ken is often on the go, has a tendency to be moody when asked to complete assignments, is aggressive towards his classmates, and has exhibited multiple discipline issues. During Ken's daily activities, which often result in reports to the parents, he is often leaving his seat, seldom sits still, that is, he is constantly squirming around, does not complete his assignments, and has poor relationships with the other children in the classroom. He is also experiencing difficulties in Math and Reading and, by looking at his reports from kindergarten, it appears that he was having these difficulties last year as well. Any attempt to discipline Ken seems not to work and his behavior seems to be getting worse.

Ken's parents were sent a record of what a typical morning's activities with their son is like. On a recording form it was noted that Ken often left his seat in the classroom or in other situations in which remaining seated is expected. On one occasion he jumped up to look out of a window when a noise, probably a garbage truck backing up, was heard outside. He walked over to other children often talking excessively to the point of interrupting or intruding on others, that is, "butting into their conversations". When the teacher was asking the class a question, Ken would often blurt out the answer before the question was completed. Ken often fidgeted with his hands and feet in class or squirmed in his seat, acting as if "driven by a motor". When he was seated, he often was not working, but was fidgeting or attempting to talk to the other children around him doing their work. Any noise, even a pencil dropping, distracted him from his work. Ken often had difficulty playing or engaging in leisure activities quietly. Upon conclusion of this report, Ken's parents were asked to have a meeting with his teacher at the school to discuss his behavior.

While talking to Ken's parents, the teacher described Ken's typical behavior at school. Ken's parents, Mr. and Mrs. Jacobs, described that these problems seemed to start in kindergarten, and they received many notes the previous year regarding discipline problems. Ken's parents also added that they were having many difficulties with him at home including temper tantrums, not eating and sleeping well, and trouble with his neighborhood peers such as, fighting and complaints from parents about Ken picking on their child.



### Ambiguous Ken Vignette # 1 (419 words)

Ken Jacobs is a seven year old in a first grade class. During class time, Ken is always moving about, has a tendency to be moody when asked to complete assignments, is aggressive towards his classmates, and has exhibited multiple discipline issues. During Ken's daily activities, which often result in reports to the parents, he is constantly leaving his seat during work, talks too much when he is supposed to be doing work, does not finish work, and has poor relationships with the other children in the classroom. He is also experiencing difficulties in Math and Reading and, by looking at his reports from kindergarten, it appears that he was having these difficulties last year as well. Any attempt to discipline Ken seems not to work and his behavior seems to be getting worse.

Ken's parents were sent a record of what a typical morning's activities with their son is like. On a recording form it was noted that Ken got up and walked around during seat time on six occasions. On one occasion he jumped up to look out of a window when a noise, probably a garbage truck backing up, was heard outside. He walked over to other children and talked too much, to the point of imposing on his classmates who were already engaged in an activity. When asking the class a question, Ken would not let the teacher finish questions before answering out loud. Ken also seemed to move around almost nonstop by walking quickly around the classroom several times. When he was seated, he often was not working, but was moving around or attempting to talk to the other children around him doing their work. Any noise, even a pencil dropping, seemed to distract him from his work. Ken was unable to play or work quietly even when asked to do so several times. Upon conclusion of this report, Ken's parents were asked to attend a meeting with his teacher at the school to discuss his behavior.

While talking to Ken's parents, the teacher described Ken's typical behavior at school. Ken's parents, Mr. and Mrs. Jacobs, described that these problems seemed to start in kindergarten. They had received many notes the previous year regarding discipline problems similar to what Ken's current discipline problems. Ken's parents also added that they were having many difficulties with him at home including: temper tantrums, not eating and sleeping well, and trouble with his neighborhood peers such as, fighting and complaints from parents about Ken picking on their child.

## Straightforward Ricky Vignette # 2 (411 words)

Ricky Smith, a seven year old second grader, has been having difficulties in his classroom. He is extremely inattentive and often does not follow through on instructions and fails to finish schoolwork. In addition, he is averaging about three severe temper tantrums a week, each followed by a thirty minute rant about his classmates who constantly pick on him. His academic performance is below average, but not failing. He often appears to understand his assignments, but his inattention leads to sporadic results with his work because he often has difficulty organizing his tasks. When spoken to, Ricky often does not seem to listen when spoken to directly. He often avoids or is reluctant to engage in tasks that require sustained mental effort such as his schoolwork. Ricky often fails to give close attention to details or makes careless mistakes in his schoolwork or other activities. It seems that he pays closer attention when the material is new; however, he often has difficulty sustaining attention in his tasks or play activities. Also, he often loses things necessary for tasks such as, his pencil or paper. Although withdrawn from his peers at times, he does appear to have friends, and is most well adjusted in his gym class.

In particular, Ricky is having problems with following rules. He is frequently “on red” in the classroom’s discipline system, where student name cards change from green to yellow to orange to red for each time a rule is broken. A red card also means that the child’s parents are to be automatically contacted. In the past month, Rick has been “on red” five times and “on orange” seven times. After several notes home to Ricky’s mother with no improvement in his behavior, the teacher requested a meeting at school to discuss his behavior.

After describing behavior seen in a typical school day to Ricky’s mother, the teacher inquired about his behavior at home. Mrs. Smith explains that Ricky has always been a “fussy” child, but since her separation with her husband a year ago things have become even worse. She goes on to mention that he is frequently “out of control” at home, and tends to run around the house until he gets what he wants. She mentions that he often does not seem to be listening to her. He has been sent home in the past for fighting, and has been disciplined for taunting other children. They often argue about homework, chores, and misbehavior.

## Ambiguous Ricky Vignette #2 (423 words)

Ricky Smith, a seven year old second grader, has been having difficulties in his classroom. He is extremely inattentive and does not seem to get work done even though it seems he knows what he is supposed to do. It also does not seem as though he is trying to be defiant. In addition, he is averaging about three severe temper tantrums a week, each followed by a thirty minute rant about his classmates who constantly pick on him. His academic performance is below average, but not failing. He often appears to understand his assignments, but his inattention leads to sporadic results with his work because he seems to have trouble beginning his work. When spoken to, Ricky does not appear to hear the teacher even when she is talking right to him. He looks like he does not want to start tasks that might be demanding. Ricky disregards details or instructions and makes silly mistakes on his assignments. It seems that he pays closer attention when the material is new; however, he does not maintain concentration in schoolwork or in play. Also, he seems to misplace his work materials such as his pencil and paper. Although withdrawn from his peers at times; he does appear to have friends, and is most well adjusted in his gym class.

In particular, Ricky is having problems with the rules. He is frequently “on red” in the classroom’s discipline system, where student name cards change from green to yellow to orange to red for each time a rule is broken. A red card also means that the child’s parents are to be automatically contacted. In the past month, Rick has been “on red” five times and “on orange” seven times. After several notes home to Ricky’s mother with no improvement in his behavior, the teacher requested a meeting at school to discuss his behavior.

After describing behavior seen in a typical school day to Ricky’s mother, the teacher inquired about his behavior at home. Mrs. Smith explains that Ricky has always been a “fussy” child, but since her separation with her husband a year ago things have become even worse. She goes on to mention that he is frequently “out of control” at home, and tends to run around the house until he gets what he wants. She mentions that he often does not seem to be listening to her. He has been sent home in the past for fighting, and has been disciplined for taunting other children. They often argue about homework, chores, and misbehavior.

APPENDIX J  
VIGNETTE EVALUATION

### Vignette Evaluation

1. The child in this vignette was a boy/girl (circle one).
2. The child was \_\_\_\_\_ years old.  
A. 5                      B. 7                      C. 9                      D. 11
3. The child was receiving schooling from  
A. home                                      C. inpatient setting  
B. traditional classroom                      D. correctional facility
4. The child is in \_\_\_\_\_ grade  
A. 1<sup>st</sup>                      B. 2<sup>nd</sup>                      C. 3<sup>rd</sup>                      D. 4<sup>th</sup>
5. Indicate symptoms this child is having significant difficulties with. Check all that apply:  
 Often fails to give close attention to details or makes careless mistakes in schoolwork, work, or other activities  
 Often has difficulty sustaining attention in tasks or play activities  
 Often does not seem to listen when spoken to directly  
 Often does not follow through on instructions or fails to finish schoolwork, chores, or duties in the workplace (not due to oppositional behavior or failure to understand instructions)  
 Often has difficulty organizing tasks and activities  
 Often avoids, dislikes, or is reluctant to engage in tasks that require sustained mental effort (such as schoolwork or homework)  
 Often loses things necessary for tasks or activities (e.g., toys, school assignments, pencils, books, or tools)  
 Is often easily distracted by extraneous stimuli  
 Is often forgetful in daily activities  
 Often fidgets with hands or feet or squirms in seat  
 Often leaves seat in classroom or in other situations in which remaining seated is expected  
 Often runs about excessively in situations in which it is inappropriate (in adolescents or adults, may be limited to subjective feelings of restlessness)  
 Often has difficulty playing or engaging in leisure activities quietly  
 Is often “on the go” or often acts as if “driven by a motor”  
 Often talks excessively  
 Often blurts out answers before questions have been completed  
 Often has difficulty awaiting turn  
 Often interrupts or intrudes on others (e.g., butts into conversations or games)

6. Do you feel as though this child has ADHD? Please circle one:

1            2            3            4            5            6            7  
(1 Definitely doesn't have it            4 Not sure/Don't know            7 Definitely has it)

7. Would you suggest the parents seek a referral for a formal ADHD evaluation?

1            2            3            4            5            6            7  
1 Definitely NO            4 Not sure/Don't know            7 Definitely YES

8. Would you suggest a referral for a formal psychoeducational evaluation for possible learning disabilities?

1            2            3            4            5            6            7  
1 Definitely NO            4 Not sure/Don't know            7 Definitely YES

9. How strongly would you suggest the parents seek evaluation from a physician who might prescribe stimulant medications for the child?

1            2            3            4            5            6            7  
1 Definitely NO            4 Not sure/Don't know            7 Definitely YES

10. How strongly would you suggest the parents seek evaluation from a psychologist who might suggest classroom changes or individual/family therapy for the child?

1            2            3            4            5            6            7  
1 Definitely NO            4 Not sure/Don't know            7 Definitely YES

11. How strongly would you suggest the parents seek evaluation from a physician AND a psychologist?

1            2            3            4            5            6            7  
1 Definitely NO            4 Not sure/Don't know            7 Definitely YES

12. If you think the child may have ADHD, what subtype do you think is most appropriate? (Check only one)

- ADHD would NOT be an appropriate diagnosis to consider for the child  
 Primarily Inattentive  
 Primarily Hyperactive/Impulsive  
 Combined Type (Features of both Inattentive and Hyperactive/Impulsive)

APPENDIX K  
DEBRIEFING SCRIPT

## Debriefing Script

The purpose of the study you just completed is to examine the effects of educational videos on participants' knowledge and opinions concerning Attention Deficit/Hyperactivity Disorder. Others participating in this study may have seen a different video than the one presented to your group.

If you are concerned about ADHD symptoms in either yourself or someone you know, please contact Student Counseling Services at 662-325-2091 for advice about pursuing further assessment or possible treatment. Student Counseling Services is located in room 100 in Lee Hall.

Thank you for your participation. If you have any questions about this research, you may contact Nichol Pritchard at 731-446-9408 or Dr. Kevin Armstrong at 662-325-7657.



APPENDIX L  
IRB APPROVAL LETTER



February 16, 2007

Nichol Pritchard  
1112 N. Montgomery Apt. 2  
Starkville, MS 39759

RE: IRB Study #07-025: Development of Experimental Materials for an ADHD Media Effects Study

Dear Ms. Pritchard:

The above referenced project was reviewed and approved via expedited review for a period of 2/16/2007 through 2/15/2008 in accordance with 45 CFR 46.110 #7. Please note the expiration date for approval of this project is 2/15/2008. If additional time is needed to complete the project, you will need to submit a Continuing Review Request form 90 days prior to the date of expiration. Any modifications made to this project must be submitted for approval prior to implementation. Forms for both Continuing Review and Modifications are located on our website at <http://www.msstate.edu/dept/compliance>.

Any failure to adhere to the approved protocol could result in suspension or termination of your project. Please note that the IRB reserves the right, at anytime, to observe you and any associated researchers as they conduct the project and audit research records associated with this project.

Please refer to your docket number (#07-025) when contacting our office regarding this project.

We wish you the very best of luck in your research and look forward to working with you again. If you have questions or concerns, please contact me at [cwilliams@research.msstate.edu](mailto:cwilliams@research.msstate.edu) or by phone at 662-326-6220.

Sincerely,

Christine Williams  
IRB Administrator

cc: Kevin Armstrong  
Kristine Jacquin

**Office for Regulatory Compliance**

P. O. Box 6263 • 3A Jacquin Street • Mailstop 0563 • Starkville, MS 39762 • (662) 325-3291 • Ext. 3602 325-8775