Current Issues in Education
Mary Lou Fulton College of Education
Arizona State University

Volume 8, Number 2 February, 2005 ISSN 1099-839X

Elementary and Pre-Service Teachers' Strategies for Working with Students with Hyperactivity

John L. Nietfeld
North Carolina State University

Angela A. Hunt
State University of West Georgia

This study investigated the types of interventions that elementary school teachers and pre-service teachers choose to employ when working with students displaying hyperactive behavior. The extent to which beliefs systems, namely entity/incremental theories, showed relationships with the selection of particular types of interventions was also examined. Participants were presented with fictional scenarios of students that varied according to the level of ADHD-like behaviors exhibited and were then asked to provide appropriate interventions. Overwhelmingly, the teachers in this study chose behavioral interventions (e.g., reinforce appropriate behavior) over more clinical or medical options (e.g., refer for ADHD diagnosis). However, the teachers did not differentiate their interventions in a manner consistent with the qualifications of ADHD as described in the DSM-IV. In addition, entity/incremental beliefs revealed an inconsistent relationship with the choice of intervention.

Within the field of education there exists a fascination with a clinical or medical model of treatment for students who display hyperactive behavior or who have been diagnosed with attention deficit-hyperactivity disorder (ADHD). This fascination has led to a disproportionate number of studies that examine the effectiveness of clinical treatment versus behavioral techniques (Maag, 1999). A clinical model places a high degree of efficacy on the process of diagnosis and subsequent use of medicine to curb disruptive behavior whereas a behavioral approach relies upon adjustments in the learning environment or a reinforcement-based behavior management plan. Unfortunately, acceptance of this model from an educator's standpoint may lead to a general feeling of helplessness when working with a student who exhibits hyperactive behavior. This study sought to examine what regular education elementary school teachers and pre-service teachers believe to be the most effective solutions for students who exhibit hyperactive behavior. In addition, another aim of this study was to examine the relationship of pre-existing implicit beliefs with the choice of intervention strategies that are chosen.

ADHD has been estimated to affect approximately 3% to 5% of school-age children in the United States (American Psychiatric Association, 1994), although studies have shown that this estimate might be conservative (LeFever, Dawson, & Morrow, 1999; Roland, et al., 2002). Other industrialized nations such as England have not kept pace in the

number of diagnoses (less than one percent) with the United States (Barkley & Murphy, 1998). This disorder is dealt with inconsistently within and across teachers, parents, and physicians. According to many pediatricians, both schools and parents commonly over refer students for ADHD (HaileMariam, Bradley-Johnson, & Johnson, 2002). Some of the confusion associated with the disorder is that a child does not necessarily have ADHD if they display one of the behavioral symptoms. In fact, Jacobson (2002) argues that most children would be labeled as having ADHD if observed when they display their maximal ADHD-like behaviors. According to the Diagnostic and Statistical Manual-IV (DSM-IV), in order for a child to be diagnosed as having ADHD the following evidence must be present: 1) six out of nine symptoms for hyperactivity-impulsivity have to be present for at least six months at a maladaptive level, 2) maladaptive symptoms have to have been present before the age of seven and 3) some symptoms must be present in two or more settings (e.g., school and home) (APA, 2000). These guidelines, while necessary for diagnostic purposes, have little impact upon the everyday interactions and assumptions made by teachers when working with hyperactive students.

Evidence from recent studies is mixed in support of a clinical model approach versus a behavioral intervention approach. One of the largest studies conducted on the topic, the National Institute of Mental Health (NIMH) multi-modal study (Jensen, et al., 2001), found the medical approach to be superior to behavioral treatment. The study was conducted with six teams of investigators and included 579 children. For some cases the study found that a combined approach (medical and behavioral) to be slightly more effective than single treatments. The NIMH study garnered much attention yet it has not gone without criticism. Breggin (2003) points out that findings from the NIMH study are limited because of serious methodological flaws such as the failure to use a placebo-controlled, double blind clinical trial, the lack of a control group of untreated children, and the failure to emphasize that blind classroom raters found no differences between any of the treatment groups. Other research has reported advantages of a behavioral approach such as the meta-analysis conducted by DuPaul and Eckert (1997) in which they concluded that school-based interventions, particularly behavioral interventions, have significant effects in changing behavior. Reid and Maag (1998) emphasized the use of functional assessment as part of a multimodal model by teachers. The multimodal plan includes the use of behavior modification, medical management, psychological support, and educational accommodations (Barkley, 1990). In particular, physical accommodations, task-materials, and curricular-instructional adaptations are recommended. While this evidence seems practical it may be more challenging to implement in the classroom. Glass and Wegar (2000) have found that teachers and administrators find it easier to adopt an emphasis on diagnosis and the clinical model approach than to implement behavioral adjustments. As a result, they have found that teachers' perception of the incidence of ADHD is higher than the accepted 5% rate. If this is the case, an important step is to begin to find out what teachers believe to be the most appropriate interventions for curbing hyperactive behavior. Thus far, studies focused on the perspective of teachers have been limited (Glass, 2001). Limited evidence has reported that special education teachers are more successful and less resistant to accommodations for students with hyperactivity (Zental & Stormont-Spurgin, 1995). Also, a study by Stormont & Stebbins (2001) found that pre-school teachers who were presented with a list of behavioral interventions (e.g., give verbal compliments for improved behavior) viewed the interventions as important and reported that they would feel comfortable implementing the interventions.

A related issue to this problem is the individual difference factors that contribute to teachers making different judgments related to misbehavior. One area of promise might be found within the domain of implicit beliefs. Dweck and Leggett (1988) have described two major types of implicit theories of intelligence that individuals hold. The first is an incremental theory of ability that views learning and intelligence as malleable and a product of effort and effective strategy use. Subsequently, incremental theorists tend to adopt learning (Ames & Archer, 1988) or mastery goals (Elliott & Dweck, 1988) where the emphasis in the learning process is placed upon gaining competence through persistence. The second implicit theory is the entity theory of ability that views learning and intelligence as relatively fixed and unchanging and a product of stable factors such as inherited ability. Entity theorists tend to adopt performance goals where the emphasis in the learning process is in performing well relative to peers, seeking recognition, and ensuring that others view them as "intelligent." Recent research in this area has focused almost exclusively on the perspective of students and outcomes associated with holding particular implicit beliefs (Pintrich, 2000; Church, Elliot, & Gable, 2001). Little attention has been paid to the consequences associated with teachers who hold varying implicit beliefs. Teachers who make daily decisions involving misbehavior make implicit

judgments about their students' ability to change their behavior. The extent to which the teacher views themselves as having an influence over this change and the extent to which they believe change is possible at all may be determined by the implicit theory that they hold. Incremental theories may lead to the belief that misbehavior is malleable while entity theories may lead to the belief that misbehavior is a stable characteristic of the student. This pattern of beliefs has previously been found with students making judgments about other students with regard to academic performance and behavior (Heyman & Dweck, 1998; Erdley & Dweck, 1993).

In summary, there are numerous implications for educators regarding the preference of clinical versus behavioral approaches to reduce hyperactive behavior. First, it is important to get a baseline understanding of what types of interventions (clinical or behavioral) that teachers with various levels of experience prefer. Second, given the rising percentage of students label as ADHD, it is important to test whether teachers discriminate between case-based scenarios that give sufficient evidence for a student having ADHD versus those that do not. Third, it is important to develop an understanding of the various consequences associated with teachers holding either incremental or entity views as they relate to classroom practice and issues of behavior management. Variables such as beliefs that reveal important individual differences in approaches by teachers may yield important advances in understanding the likelihood of any given teacher reacting in a particular way when encountering hyperactive behavior. Finally, this research is important for educators in order to test whether documented approaches that have been shown to be effective in working with hyperactive behavior in the classroom is considered are considered as viable options by educators.

Present Study

This study was conducted in two phases. Participants in the first phase included regular education elementary school teachers with varying levels of experience, while those in the second phase included pre-service teachers. The aim of this study as a whole was to investigate 1) what strategies teachers and pre-service teachers are most likely to adopt when working with a hyperactive child given hypothetical situations 2) do intervention choices change with varied levels of ADHD-like behavior present and 3) how do implicit beliefs relate to the interventions that teachers adopt. Our research questions for the first phase of our study included the following:

- What types of interventions do elementary school teachers recommend when presented with scenarios of students who exhibit hyperactive behavior?
- Do elementary school teachers choose different actions when working with children who meet the diagnostic qualifications for ADHD versus children who do not?
- Do elementary school teachers who score high on Dweck's (1999) entity scale tend to select clinical interventions for hyperactive students?

With regard to the first question we predicted that teachers would provide a greater proportion of behavioral interventions than clinical interventions. Yet, we expected the clinical options to be represented by a significant portion of our respondents based upon the estimates over-diagnosis provided in the literature (Glass & Wegar, 2000; HaileMariam, et al., 2002). We also expected to find that the teachers in our sample would discriminate, to some extent, between the interventions they would suggest for students who displayed more versus less ADHD-like symptoms in the hypothetical situations. Finally, we expected to see a relationship between entity-based beliefs and the selection of clinical interventions. Likewise, we expected to see a relationship between incrementally-based beliefs and the selection of behavioral interventions.

Phase-I

Method

Participants. The participants in this study included 78 teachers (76 women and 2 men, mean age 44.7 years) from three different elementary schools from a large metropolitan area. Two of the schools were considered mid-level SES schools (*N* =21 & 21) and one low SES (*N* =36) based upon their placement within their county for receiving free or reduced school lunches. Sixty-eight of the teachers were White, seven were Black, and one Asian. Two teachers did not provide their race. The teachers were all regular education teachers with an average of 15.75 (*SD* =10.18) years of teaching experience. A breakdown of the number of teachers representing each grade level was as follows: kindergarten *N* =11, first grade *N* =11, second grade *N* =12, third grade *N* =18, fourth grade *N* =10, fifth grade *N* =13, and three who did not provide their grade level.

Materials. Participants were asked to complete a survey that was comprised of three parts. The first part was demographic information. The second part was an eight-item inventory comprised of two factors developed by Carol Dweck (see Dweck, 1999). Four items measured "theories of intelligence" and four items measured "the kind of person" one is (see Appendix). The items measured the extent to which a person adopts an entity-based theory versus

an incrementally-based theory. Higher scores on each scale are based upon entity theories and lower scores on incremental theories. The third part of the survey included three different fictional scenarios, developed by the authors, that described a child with hyperactivity (see Appendix). The scenarios were systematically varied according to the number of ADHD characteristics exemplified by the child. According to the DSM-IV-TR (American Psychiatric Association, 2000) a child must meet three requirements to be considered for ADHD diagnosis. They include 1) six out of nine symptoms for hyperactivity-impulsivity have to be present for at least 6 months at a maladaptive level 2) some maladaptive symptoms were present before the age of seven and 3) some symptoms present in two or more settings (ex. At school and home). According to these qualifications Scenario 1 is the only scenario presenting enough evidence to suggest the child may have ADHD. In Scenario 1 the child displays the following symptoms: fidgeting, difficulty waiting turn, talks excessively, blurts out answers before questions complete, interrupts others, and leaves seat. In addition, the child's symptoms were present before the age of 7 and are present in more than one setting. In Scenario 2 the child only displays the symptoms of fidgeting and squirming. It is unknown if the symptom occurred before the age of 7, or if the symptom occurs in other settings. In Scenario 3 the symptoms include: difficulty waiting turn, leaves seat, interrupts others, and talks incessantly. It is unknown if these symptoms occurred before the age of 7, or if the symptoms occur in other settings. Each scenario was followed by eight options that included possible actions the child's teacher could take to deal with the child's hyperactive behavior. The directions were as follows: "Please read the following scenario and then rank order ALL of the options that follow, in the order that you feel is the most appropriate, from 1 (most likely) to 8 (least likely). Please do not add any additional options or change existing options when ranking your preferences." Four of the options were behavioral options (e.g., set up a system for reinforcing the child's appropriate classroom behavior) and four were clinical options (e.g., refer the child for ADHD diagnosis). The options remained the same for each scenario.

Procedure. Survey packets were delivered to each of the schools and picked up one week later. Each teacher at the three schools received a packet and were asked to complete the survey independently within one week. An overall response rate of 72% was obtained from the three schools (21/30; 21/32; 36/46).

Results

In this section descriptive statistics will be reported followed by correlational and inferential statistics. Composite scores were used in the analysis of the rankings from each scenario that included one score for an overall behavioral ranking and one for an overall clinical ranking. The two dimensions of the Dweck scale were analyzed separately. Coefficient alpha reliability indices indicated that both the intelligence scale (alpha=.947) and kind of person scale (alpha=.894) showed a high degree of internal consistency.

Descriptive statistics. Descriptive statistics for Phase I of the study are shown in Table 1.

Table I
Descriptive Statistics for Phase I

Condition	Mean	SD
Scenario 1 Behavioral	10.36	1.07
Scenario 1 Clinical	25.72	1.20
Scenario 2 Behavioral	10.52	1.33
Scenario 2 Clinical	25.48	1.33
Scenario 3 Behavioral	10.56	1.84
Scenario 3 Clinical	25.56	2.00
Intelligence	18.33	3.66
Kind of Person	18.67	3.74
Years of Experience	15.75	10.18

Note. The means for the behavioral and clinical scales represent a composite score of the ranks (1-8) from four items. The lower the overall mean the higher the rating. Scores on the Intelligence scale and Kind of Person scale had a possible range from four to 24.

The means reported for each scenario include a composite score from both the behavioral intervention options and the clinical intervention options. Lower scores indicate a higher preference for that type of intervention. The participants overwhelmingly rated behavioral interventions higher than clinical interventions across all three scenarios. Separate mean ranks for each of the eight intervention options are shown in Table 2. Using a behavior monitoring plan was the highest rated option across all three scenarios while suggesting that the child take Ritalin was the lowest rated option across the three scenarios.

Correlational statistics. Correlational statistics are provided in Table 3. Teachers with more experience tended to report that basic attributes about a person can change as evidenced by the positive correlation between experience and kind of person. An inconsistent pattern of correlations developed between beliefs about intelligence and responses to

the scenarios. Significant correlations were found in scenario two for both the behavioral and clinical ratings revealing that teachers choosing more behavioral options tended to support a more malleable view of intelligence. For scenario 3 the tendency to select behavioral interventions was correlated with the malleable view of intelligence but the tendency to select clinical interventions did not correlate significantly with a static view of intelligence. No significant correlations were found between intelligence and behavior management strategies for scenario one. In addition, no significant correlations were revealed between the kind of person variable and strategy selection on any of the scenarios.

Table 2. Means for the eight intervention options in Phase I.

Intervention	*Scenario 1 Mean Rank*	*Scenario 2 Mean Rank*	*Scenario 3 Mean Rank*
Behavior Monitoring Plan	1.70	1.75	1.74
Reinforcing Appropriate Behavior	1.99	2.04	2.12
Refer for ADHD	5.76	5.52	5.60
Refer for Special Education	7.06	7.13	7.13
Restructure Classroom Environment	3.55	3.49	3.44
School Psychologist	5.25	5.15	5.19
Daily Report Cards	3.11	3.24	3.26
Suggest Ritalin	7.64	7.67	7.63

Table 3
Correlation matrix for Phase I variables

Variable	1	2	3	4	5	6	7	8	9
1. Years Experience	____	-.02	.24*	.09	-.16	.18	-.18	.19	-.17
2. Intelligence		____	.49**	.02	.00	-.25*	.25*	-.14	.25*
3. Kind of Person			____	-.08	.12	-.18	.18	-.06	.14
4. Scenario 1 Clinical				____	-.91**	.32**	-.32**	.38**	-.38**
5. Scenario 1 Behavioral					____	-.34**	.34**	-.41**	.41**
6. Scenario 2 Clinical						____	1.00**		.48**
7. Scenario 2 Behavioral							____	-.48**	.48**
8. Scenario 3 Clinical								____	-.88**
9. Scenario 3 Behavioral									____

Note. *p<.05; *p<.01.

Inferential statistics. In order to address our first two research questions we conducted t-tests and repeated measures ANOVA procedures to examine differences in intervention preference for each scenario and the level of consistency in the ratings across the scenarios. A comparison of the preference for behavioral interventions versus clinical interventions revealed significant differences in favor of the behavioral interventions across all three scenarios (Scenario 1: t (66)=56.62, p <.001; Scenario 2: t (66)=46.03, p <.001; Scenario 3: t (67)=33.31, p <.001). Repeated measures ANOVA revealed no differentiation between scenarios in the ratings provided by the teachers for either behavioral interventions, F (2, 132)=.514, p =.589, or clinical interventions, F (2,132)=.996, p =.369. Therefore, manipulation of ADHD-like symptoms had no effect upon teachers' selection of interventions.

Phase-II

Pre-service teachers served as participants in the second phase of the study that employed somewhat different procedures. An attempt was made in this phase to avoid influencing the participants' response by first asking for open-ended response for each scenario before ranking the intervention options. In addition, an attempt was also made to get at what interventions the pre-service teachers viewed as ultimately having the most impact on the behavior rather than what sequence the interventions should be employed, therefore the instructions were changed for the ranking process. The following research questions were investigated in this second phase:

- What types of interventions do pre-service teachers recommend when presented with scenarios of students who exhibit hyperactive behavior?
- Do pre-service teachers choose different interventions when working with children who meet the diagnostic qualifications for ADHD versus children who do not?
- Do pre-service teachers who score high on Dweck's entity scale tend to select clinical interventions for hyperactive students?

In the second phase we hypothesized that pre-service teachers would show a similar preference for behavioral interventions that the elementary-school teachers showed in the first phase. Similarly,

we hypothesized that they would differentiate between the scenarios in the interventions that they selected. With regard to our third question, we expected to see teachers with more entity-based beliefs to select clinical options more frequently than teachers with incrementally-based beliefs in both their open-ended response and in their ranking preferences from the intervention options.

Method

Participants. The participants in this study included 93 pre-service teachers (73 women and 20 men, mean age 24.4 years) from three different sections of an educational psychology course at a medium-sized university in the South. The course was taken during the junior or senior year after admission to the teacher education program and at the beginning stages of their practicum experiences. Seventy-nine of the teachers were White, 13 were Black, and one Hispanic. The students came from a mix of specialty areas within the College of Education . Participants were offered extra credit for their participation.

Materials.

Participants were asked to complete a survey that was comprised of four parts. The first part was demographic information. The second part was the eight-item inventory by Dweck used in Phase I. The third part of the survey included the same three fictional scenarios that were used in Phase I but with different requirements for participant responses.

Procedure. The participants first completed the demographic sheet and Dweck's entity scale before reading the scenarios. After the participants read each scenario they were asked to provide an open-ended response to the question, "If this student were in your classroom, what would be your initial response in dealing with their behavior. Please list only one response." Upon completion of their open-ended responses for each scenario the participants were shown a Powerpoint slide asking them to rank order the same options used in Phase I. Specifically, the instructions asked them to, " rank order ALL of the options listed below, in the order you feel ultimately will be the most successful in changing the students' behavior, from 1 (most successful) to 8 (least successful). The wording of this statement was intended to emphasize what variables the participant felt would actually be most likely to correct the misbehavior rather than asking what sequence of actions they felt they should employ. Participants then rank ordered the options for each of the three scenarios.

Results. In this section descriptive statistics will be reported followed by correlational and inferential statistics. Composite scores were used in the analysis of the rankings from each scenario that included one score for an overall behavioral ranking and one for an overall clinical ranking. The two dimensions of the Dweck scale were analyzed separately. Coefficient alpha reliability indices indicated that the intelligence scale (alpha=.902) and kind of person scale (alpha=.849) showed a high degree of internal consistency.

Descriptive statistics. Descriptive statistics for Phase II of the study are shown in Table 4. Once again, the participants overwhelmingly rated behavioral interventions higher than clinical interventions across all three scenarios. Approximately ten percent of the total responses to the open-ended question were first reviewed to examine trends in the responses and to develop an initial list of 13 categories. Both authors then independently coded all of the responses within these categories. These categories were eventually collapsed into the four categories shown in Table 4 due to overlap between the categories.

Table 4.
Descriptive Statistics for Phase II

Open-Ended Response	Behavioral Ranking		Clinical Ranking		Intelligence		Kind of Person	
Scenario 1	M	SD	M	SD	M	SD	M	SD
Behavioral	11.84	3.36	24.28	3.41	17.38	3.80	16.12	3.90
Parental	14.29	3.50	21.71	3.50	20.07	2.20	17.21	3.87
Punishment	14.33	2.31	21.67	2.31	18.33	.58	14.67	1.15
Clinical	17.89	3.64	18.00	4.23	17.28	4.65	16.39	3.74
Total	13.48	4.12	22.58	4.29	17.80	3.82	16.29	3.79
Scenario 2								
Behavioral	12.73	4.00	23.37	3.98	19.91	3.79	16.09	3.61
Parental	12.57	4.83	23.43	4.83	17.71	5.41	19.14	5.08
Punishment	10.50	.71	25.50	.71	17.50	3.54	17.50	2.12
Clinical	17.25	4.49	18.75	4.49	17.38	3.54	15.75	3.83
Total	13.46	4.43	22.62	4.43	17.80	3.82	16.29	3.79
Scenario 3								
Behavioral	12.29	3.82	23.71	3.82	17.98	3.61	16.53	4.03
Parental	12.33	3.55	23.67	3.55	16.08	3.90	16.75	3.08
Punishment	16.92	5.20	18.92	3.60	18.92	3.60	16.17	3.59
Clinical	17.95	5.13	18.35	5.45	17.70	4.32	15.50	3.85
Total	14.13	4.93	21.96	4.89	17.80	3.82	16.29	3.79

Any discrepancies were discussed until coming to agreement. Initial coding discrepancies occurred in less than four percent of the cases based upon the final categories. Behavioral responses included teacher/student interactions, changing the child's location in the classroom, adjusting classroom activities or tasks, or developing a behavior chart or reward system. Clinical responses included suggesting the child take Ritalin, referring the child to be tested for ADHD, or referring the child to a school counselor or other special services such as special education. Parental responses included anything related to parental involvement or a parental

conference. In Table 4 the means are broken down by open-ended responses for each scenario. Open-ended behavioral responses comprised 62.4% of the total responses for Scenario 1, 19.4% of the responses were clinical, 15.1% were parental, and 3.2% suggested using some form of punishment. Open-ended behavioral responses comprised 73.1% of the total responses for Scenario 2, 17.2% of the responses were clinical, 7.5% were parental, and 2.2% suggested using some form of punishment. Open-ended behavioral responses comprised 52.7% of the total responses for Scenario 3, 21.5% of the responses were clinical, 12.9% were parental, and 12.9% suggested using some form of punishment. The scenario that included the least amount of ADHD-like indicators (Scenario 2) had the highest percent of behavioral intervention responses. Scenario 3 had the lowest percent of behavioral intervention responses even though it was in the middle with regard to ADHD-like indicators. It appears likely that the participants perceived the student in this scenario to be the least controllable based upon the description given in the text even though evidence of hyperactive behavior was not described from multiple contexts or before the age of seven. Mean ranks for each of the eight intervention options are provided in Table 5 below.

Table 5. Means for the eight intervention options in Phase II.

Intervention	*Scenario 1 Mean Rank*	*Scenario 2 Mean Rank*	*Scenario 3 Mean Rank*
Behavior Monitoring Plan	2.50	2.65	2.68
Reinforcing Appropriate Behavior	2.92	2.93	3.12
Refer for ADHD	4.60	4.48	4.47
Refer for Special Education	6.87	6.96	6.84
Restructure Classroom Environment	4.32	3.86	4.57
School Psychologist	4.53	4.67	4.43
Daily Report Cards	3.74	4.01	3.76
Suggest Ritalin	6.58	6.51	6.22

The two most preferred options across scenarios by students were utilizing a behavior monitoring plan and reinforcing appropriate behavior. The two least preferred options across scenarios included referring the child for special education services and suggesting that the child take Ritalin. Not surprisingly, there was consistency between the open-ended responses and the ratings for the intervention options. As in the first phase of the study, there was no differentiation between scenarios in the ratings provided by the teachers. Paired-samples t-tests were conducted and revealed no significant differences between means for any of the scenarios. Therefore, manipulation of ADHD-like symptoms had no effect upon teachers' selection of interventions.

Correlational statistics. Correlational statistics for Phase II variables are provided in Table 6. The kind of person variable was related to responses on the third scenario. No significant correlations were found though between the kind of person variable and intervention options for scenarios two or three. Students rating behavioral interventions higher also tended to hold incremental views on a person's attributes. The intelligence variable did not show a relationship with any of the scenario variables.

Table 6. Correlation matrix for Phase II variables

	1	2	3	4	5	6	7	8
1. Intelligence		.45**	-.11	.07	.07	-.06	-.07	.07
2. Kind of Person			-.21	.17	-.16	.17	-.26*	.26*
3. Behavior Scen. 1				-.98**	.35**	-.37**	.53**	-.52**
4. Clinical Scen. 1					-.34**	.38**	-.51**	.50**
5. Behavior Scen. 2						-.98**	.52**	-.51**
6. Clinical Scen. 2							-.52**	.52**
7. Behavior Scen. 3								-.99**
8. Clinical Scen. 3								

Note: * p<.05; **p<.01

Inferential statistics. In order to address our first two research questions we conducted t-tests and repeated measures ANOVA procedures to examine differences in intervention preference for each scenario and the level of consistency in the ratings across the scenarios. A comparison of the preference for behavioral interventions versus clinical interventions revealed significant differences in favor of the behavioral interventions across all three scenarios (Scenario 1: t (91)=-10.43, p <.001; Scenario 2: t (91)=-9.98, p <.001; Scenario 3: t (91)=-7.66, p <.001. Repeated measures ANOVA revealed no differentiation between scenarios in the ratings provided by the teachers for either behavioral interventions, F (2, 182)=1.25, p =.289, or clinical interventions, F (2,182)=1.15, p =.319. Therefore, manipulation of ADHD-like symptoms had no effect upon teachers' selection of interventions. These results found with pre-service teachers replicated those found with the teachers in Phase I.

Discussion

This study sought to examine what teachers believe to be the most effective interventions when working with students who exhibit hyperactive behavior that disrupts the classroom. We investigated the extent to which 1) teachers chose behavioral versus clinical solutions when working with hyperactive children; 2) whether teachers differentiate between scenarios that have varying levels of ADHD-like behavior as reflected by their choice of different interventions; and 3) whether implicit beliefs such as entity/incremental theories show relationships with the choice of interventions.

The elementary school teachers in Phase I of the study and pre-service teachers in Phase II of the study overwhelmingly chose behavioral rather than clinical interventions as appropriate strategies to deal with the disruptive child. This is an encouraging finding from a pedagogical standpoint. The teachers in Phase I ranked the behavioral strategies as the "most appropriate" options and pre-service teachers in Phase II considered these strategies to be "ultimately the most successful" of the available options. The four most highly rated intervention options for the scenarios in both phases of the study were all behaviorally-based strategies. This indicates that teachers, in general, have efficacy for making positive environmental changes in the classroom that will curb misbehavior with hyperactive students. This finding also dispels the notion that teachers, at least from this sample, see a "quick fix" clinical or medical model option as the most appropriate means of curbing hyperactive behavior. Finally, these results show alignment with studies suggesting the need for more balanced approaches to working with hyperactive behavior (DuPaul & Eckert, 1997; Reid & Maag, 1998).

The teachers in this sample did not, however, differentiate in their suggested interventions across the scenarios despite having different levels of ADHD-like symptoms present. This finding may be due to the lack of knowledge that teachers have about the technical qualifications related to the diagnosis of ADHD. It might also be that teachers would maintain their selection of strategies regardless of the diagnosis and/or ADHD-like symptoms displayed by the student. Teachers may consider their actions as independent of the clinical diagnosis choosing instead to focus on interventions intended to alter classroom behavior.

Surprisingly, Dweck's entity/incremental scales did not show any consistent pattern of relationships with the choice of intervention selected by the teachers. We predicted that teachers adopting an incrementally-based perspective on intelligence and person attributes would tend to choose a greater proportion of behavioral to clinical strategies than their entity-based counterparts. This hypothesis was only partially supported through correlational findings. In the first phase of the study the teachers did show this pattern for the second and third scenarios. No such pattern was revealed for the intelligence variable. In the second phase of the study this hypothesized pattern was found only for the kind of person variable on the third scenario. These findings appear to only partially replicate findings from other studies in education conducted by Dweck and her colleagues (Dweck, 1999). It is possible that the teachers, including those with entity viewpoints, answered in a way that they perceived to be socially acceptable. It could also be that personal experiences in the field of education have led them to feel obligated, to some extent, to respond in a certain way (i.e., present a behavioral strategy). It is also possible that the instrument is not sensitive enough to reveal any meaningful relationships that may be present. Hyperactivity may possess enough domain-specific variance associated with it as a unique facet of behavior to warrant more specific items in the inventories.

Finally, an interesting finding in the first phase of the study was that teachers with more experience tended to report a more malleable view about the kind of person one is. It is possible that it is the more experienced teachers possess a greater reservoir of experiences seeing changes in student behavior and how individual attributes can be changed in an educational context. Also, this finding may indicate the need for teacher education programs to place a greater curricular emphasis on incremental beliefs by emphasizing evidence-based research that shows the positive benefits of specific behavioral strategies and interventions.

Limitations of the Study

The overall findings of this study are limited somewhat by the nature of the task that the teachers completed. First, the scenarios were of fictional students rather than actual students in a classroom. We cannot expect to fully approximate the intricacies of working with real-life students through case-based scenarios. In real-life contexts the teachers would most likely make decisions regarding students with hyperactive issues or ADHD-like symptoms in conjunction with a team of other teachers and administrators. This study hoped to measure the general reactions of teachers when posed simulated behaviors. Second, due to the nature of the study and time constraints the scenarios were limited in their length and amount of detail. Ideally, one would prefer to allow each teacher to get a rich description of each student with the opportunity to observe actual behavior. Future studies could make important gains

by examining the interactions of teachers with students in their natural contexts over extended periods of time.

Future Studies

This study leads to numerous questions for future research. One avenue might involve delving more fully into the tendency for teachers to adopt differential classroom strategies when working with ADHD versus non-ADHD students. In this study teachers did not suggest different interventions even when the ADHD symptoms varied by scenario but one variation to that approach might be to indicate to teachers that the student in the scenario has been professionally diagnosed as having ADHD. It would be possible to systematically vary this information to see if this leads to a different selection of interventions. If findings were to reveal that educators maintain consistent classroom strategies across ADHD students and non-ADHD students alike there would exist a schism between their beliefs and summary findings and recommendations by the National Institute of Health (1998). In their summary statements they report that a combined intervention program of behavioral treatments with medication have added little to strictly medical interventions alone. This examination of intervention selection might be furthered even more with a comparison of special education and regular education teachers.

Finally, the exploration of implicit beliefs systems and their relationship interventions and strategies for working with disruptive students is still in its infancy. This study was a first attempt to look at the basic relationships between entity/incremental theories and intervention strategies. From these preliminary findings it appears that measurement instruments need to be developed with a greater focus on the domain specific aspects of working with disruptive students. Furthermore, greater understanding might be gained by the observation of teachers holding various beliefs in their interactions with students in the classroom over extended periods of time.

References

American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders – text revision* (4 th ed.). Washington , DC .

Ames , C., & Archer, J. (1988). Achievement goals in the classroom: Student learning strategies and motivation processes. *Journal of Educational Psychology,* 80, 260-267.

Barkley, R.A. (1990). *Attention deficit hyperactivity disorder: A handbook for diagnosis and treatment* . New York : Guilford Press.

Barkley, R.A., & Murphy, K.R. (1998). *Attention Deficit Hyperactivity Disorder* . New York : Guilford Press.

Breggin, P.R. (2003). The NIMH multimodal study of treatment for attention-deficit/hyperactivity disorder: A critical analysis. *International Journal of Risk and Safety in Medicine, 13* , 15-22.

Carey, W. B. (2000). What the multimodal treatment study of children with attention-deficit/hyperactivity disorder did and did not say about the use of methylphenidate for attention deficits. *Pediatrics, 105* , 863-864.

Church, M.A., Elliot, A.J., & Gable, S.L. (2001). Perceptions of classroom environment, achievement goals, and achievement outcomes. *Journal of Educational Psychology, 93* , 43-54.

DuPaul, G.J., & Eckert, T.L. (1997). The effects of school-based interventions for attention deficit hyperactivity disorder: A meta-analysis. *School Psychology Review, 26* , 5-23.

Dweck, C.S. (1999). *Self theories: Their role in motivation, personality and development* . Philadelphia : Psychology Press.

Dweck, C.S., & Leggett, E.S. (1988). A social-cognitive approach to motivation and personality. *Psychological Review,* 95, 256-273.

Elliott, E.S., & Dweck, C.S. (1988). Goals: An approach to motivation and achievment. *Journal of Personality and Social Psychology,* 54, 5-12.

Erdley, C.S., & Dweck, C.S. (1993). Children's implicit theories as predictors of their social judgments. *Child Development, 64* , 863-878.

Glass, C. S. (2001). Factors influencing teaching strategies used with children who display attention deficit hyperactivity disorder characteristics. *Education, 122* , 70-80.

Glass, C. S. & Wegar, K. (2000). Teacher perceptions of the incidence and management of attention deficit hyperactivity disorder. *Education, 121* (2), 412-421.

HaileMariam, A, Bradley-Johnson, S, & Johnson, C. M. (2002). Pediatricians' preferences for ADHD information from schools. *School Psychology Review, 31* , 94-105.

Heyman, G.D., & Dweck, C.S. (1998). Children's thinking about traits: Implications for judgments of the self and others. *Child Development, 64* , 391-403.

Jacobsen, K. (2002). ADHD in cross-cultural perspective: Some empirical results. *American Anthropologist, 104* (1), 283-287.

Jensen, P.S., Hinshaw, S.P., Swanson, J.M., Greenhill, L.L., Conners, K.C., Arnold , E.L., et al. (2001). Findings from the NIMH multimodal treatment study of ADHD (MTA): Implications and applications for primary care providers. *Journal of Developmental and Behavioral Pediatrics, 22* , 60-73.

LaFever, G. B., Dawson , K. V., & Morrow, A. L. (1999). The extent of drug therapy for attention deficit-hyperactivity disorder among children in public schools. *American Journal in Public Health, 89* (9), 1359-1364.

Maag, J.W. (1999). Behavior management: From theoretical implications to practical applications. San Diego: Singular Publishing Group, Inc.

National Institutes of Health (1998). *Diagnosis and treatment of attention deficit hyperactivity disorder* (NIH consensus statement Nov. 16-18). *16* , (2), 1-37.

Pintrich, P.R. (2000). Multiple goals, multiple pathways: The role of goal orientation in learning and achievement. *Journal of Educational Psychology, 92*, 544-555.

Reid, R. & Maag, J. W. (1998). Functional assessment: A method for developing classroom-based accommodations and interventions. *Reading & Writing Quarterly, 14* (1), 34-43.

Roland, A. S., Umbach, D. M., Stallone, L., & Naftel, A. J., Bohlig, M., Sandler, D.P. (2002). Prevalence of medication treatment for attention-deficit-hyperactivity disorder among elementary school children in Johnston County , North Carolina . *American Journal of Public Health, 92* (2), 231.

Stormont, M., & Stebbins, M.S. (2001). Teachers' comfort and importance ratings for interventions for preschoolers with AD/HD. *Psychology in the Schools, 38* , 259-267.

Zentall, S.S., & Stormont-Spurgin, M. (1995). Educator preferences of accommodations for students with attention deficit hyperactivity disorder. *Teacher Education and Special Education, 18* , 115-123.

.

Appendix

Survey

Please respond to the following statements using the scale below:

1	2	3	4	5	6
Strongly Agree	Agree	Mostly Agree	Mostly Disagree	Disagree	Strongly Disagree

_____ 1) You have a certain amount of intelligence, and you can't really do much to change it.
_____ 2) The kind of person someone is, is something very basic about them and it can't be changed very much.
_____ 3) People can do things differently, but the important parts of who they are can't really be changed.
_____ 4) Your intelligence is something about you that you can't change very much.
_____ 5) To be honest, you can't really change how intelligent you are.
_____ 6) As much as I hate to admit it, you can't teach an old dog new tricks. People really can't change their deepest attributes.
_____ 7) Everyone is a certain kind of person, and there is not much that can be done to really change that.
_____ 8) You can learn new things, but you can't really change your basic intelligence.

SCENARIO 1
A student in your classroom is causing you some difficulties. In the past two weeks you have made note of the student's behavior to better assess the situation. You have noticed the child fidgeting in their seat during the lessons. The student has cut in line on more the one occasion. The child also has trouble staying quiet. The child either tries to engage classmates in conversation at inappropriate times or blurts out answers out of turn. As a result of the child's talkativeness you have observed the child butting into other student's conversations during recess.
Your friend and colleague was the child's first grade teacher. She stated she observed and struggled with many of the same behaviors from this student when the child was in her class.
In addition to what you have observed in your classroom you have been privy to see the child and family at the local park. You were about to approach the mother, but noticed she seemed occupied with trying to keep her child from running off.

SCENARIO 2
After returning from winter break you are still having difficulty with one particular student. You thought after the break from class the child would return more relaxed.
It still seems though; the child just cannot sit still for any length of time. It has turned into a daily routine for you to ask the child to stop fidgeting at their desk.
The child's constant squirming during lessons has become disruptive to your teaching. You are worried all the movement the child makes is, or will become, a distraction to the other students in your class. You are also concerned that all the attention you give this student to relax in their seat is taking quality education time from the class as a whole.

SCENARIO 3
A month ago a new student was placed in your classroom. The new student is full of energy. You have tried to allow the child some time to adjust, but you are getting worn out trying to keep up with the student.
Other students in the class have complained that during recess the new student cuts in line quite often. Similarly, you have noted during class activities the child has difficulty waiting for their turn.
And last week you marked down seven occasions when the child got out of their seat during a lesson. In addition, you have never observed the student to remain seated throughout lunchtime.
Finally, the most wearisome characteristic is the child's incessant talking. It seems no matter how many times you tell the child to stop talking the chatter continues.

Intervention options:
(A) A behavioral monitoring system established between the teacher and the student.
(B) Reinforce the child's appropriate classroom behavior.
(C) Refer the child for ADHD diagnosis.
(D) Request the child be placed in special education classes.

(E) Restructure the classroom environment to alter the child's behavior.
(F) Send the child to school psychologist for evaluation.
(G) Use a daily report card system for the child.
(H) The child takes Ritalin.

2005 Article Citation
Nietfeld, J. L. & Hunt, A. A.(2005, February 05). Elementary and Pre-Service Teachers' Strategies for Working with Students with Hyperactivity, *Current Issues in Education* [On-line], *8*(2). Available: http://cie.ed.asu.edu/volume8/number2/

Author Notes
John Nietfeld
North Carolina State University
602D Poe Hall, Raleigh, NC 27695
john_nietfeld@ncsu.edu

John Nietfeld is an Assistant Professor of Educational Psychology at North Carolina State University . His research interests include metacognition, motivation, and adult reading.

Angela Hunt
State University of West Georgia

Angie Hunt is a graduate student in Counseling & Educational Psychology at the State University of West Georgia. Her interests are in teacher perceptions and training related to behavior management.

Note from the 2015 Executive Editor, Constantin Schreiber
May 24, 2015. This article was first published at the original *Current Issues in Education* website, located at http://cie.asu.edu/articles/index.html. In 2009, *CIE* changed online platforms to deliver the journal at http://cie.asu.edu. The original *CIE* website was from then on only used as an archival repository for published articles prior to Volume 12. After the new *CIE* website moved to a different server in 2014, the original website and original article URLs could not be accessed anymore. Therefore, this article had to be repurposed into the published format you are viewing now.

All content from the original publication has been preserved. No content edits occurred. Spelling, grammar, and mechanical errors that may be found were present in the original publication. The *CIE* logo and publisher information in use at the time of the article's original publication is unaltered. Please direct questions about this article's repurposing to cie@asu.edu.

2015 Article Citation
Nietfeld, J. L., & Hunt, A. A. (2005). Elementary and pre-service teachers' strategies for working with students with hyperactivity. *Current Issues in Education*, *8*(2). Retrieved from http://cie.asu.edu/ojs/index.php/cieatasu/article/view/1613

Current Issues in Education
Mary Lou Fulton College of Education
Arizona State University