COMP 7036

Defining the problem – Class exercises *(Individual)*

In each item below, you are given a brief description of participants (P), and two other components of a research project. For each item, write a possible research hypothesis.

Question 1:

- At-risk eighth-graders (P)
- Self-esteem course
- Grade point average

Hypothesis:

Question 2:

- College-level introductory psychology students (P)
- Type of testing (short answer vs. multiple choice)
- Retention of psychological concepts and principles

Hypothesis:

Question 3:

- Public school students (P)
- High-school graduation
- Income at age 25

Hypothesis:

Question 4:

- Third-grade students (P)
- Use of manipulative materials
- Mathematical achievement

Hypothesis:

Question 5:

- College freshman-level biology students (P)
- Type of lab (hands-on dissection vs. computer modeling)
- Attitudes toward biology

Hypothesis:

COMP 7036

Defining the problem – Class exercises *(Group)*

Below is an example taken from a sample student draft research proposal. The proposal was later modified based on content covered later in the course, increased knowledge and experience, and the instructor's feedback. Although the full proposal is not provided, consider the portions of the proposal as you answer the questions. Given the introduction to the proposal, answer the following questions.

Group Question 1: Restate the research topic in your own words.

Group Question 2: Is this topic a "good" research topic? Is it interesting, or at least is it likely interesting to the researcher and potential others? Answer Yes or No and explain your reasoning.

Group Question 3: Can the topic be addressed through data collection? Answer Yes or No and explain your reasoning.

Group Question 4: Is the topic significant to theory, research, or practice? Answer Yes or No and explain your reasoning.

Group Question 5: Does the project appear to be manageable to a novice researcher? Answer Yes or No and explain your reasoning.

[SAMPLE PROPOSAL]

Treating Autism: An Investigation of the Young Autism and TEACCH Projects

Introduction

Autism is classified by the American Psychiatric Association's *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV) as a pervasive developmental disorder, a term meant to indicate, "severe and pervasive impairment in several areas of development: reciprocal social interaction skills, communication skills, or the presence of stereotyped behavior, interests, and activities" (APA 1994, 65). The Autism Society of America estimates that there about 400,000 people in the United States with some form of autism. Once considered a low-incidence disorder, autism is now referred to as one of the most common childhood conditions within the category of childhood disorders. However, this may be due in part to children being misdiagnosed as something other than autistic in the past. Unlike Down's syndrome, the cause of autism is still unknown, making the battle to treat the afflicted an uphill one. As of yet, there is no cure.

Autism is usually present within the first year of life, but about one-third of the time it appears to have its onset within the second or third year. Around the age of three, the parents of a child who is still, "lacking in meaningful speech," and the child's pediatrician usually agree upon the need for a diagnostic evaluation by a specialist in childhood disorders (Cohen, 1998). Once a child is determined to exhibit symptoms of autism, extensive research (Lovaas, 1987; Smith, Eikeseth, Klevstrand, and Lovaas, 1997; Sheinkopf and Siegel, 1998; Smith and Lovaas, 1998; Cattell-Gordon and Cattell-Gordon, 1998) has proven early and intensive educational intervention invaluable. "Intensive" refers to the number of hours a day and week of intervention, the amount of time directly focused on the individual child's learning during those hours, and the duration of weeks, months, or years during which the intervention continues (Cohen, 1998).

While researchers agree upon early and extensive intervention for autistic children, the exact nature of this intervention varies greatly depending upon whom one talks to. There are two major approaches to treatment, the behavioral approach and the developmental approach. While there are a multitude of intervention programs that can be classified as falling into one of these two categories, addressing all of these programs is beyond the scope of this study. Therefore, this study will attempt to evaluate two of these intervention techniques, the first following a behavioral approach and the second a developmental approach to treatment. These are the Lovaas method, also known as the Young Autism Project, and TEACCH, or Treatment and Education of Autistic and Related Communication-Handicapped Children.

The Lovaas Method

In 1970, O. Ivar Lovaas began to conduct a study whose method was later to become known as the Young Autism Project. It was a behavioral-intervention project that sought to maximize behavioral treatment gains by treating autistic children, "during most of their waking hours for many years" (Lovaas, 1987). Treatment included all, "significant" people involved in the very young (below the age of 4 years) autistic child's environment. The treatment consisted of an average of 40 hours per week of instruction conducted by an outside therapist for 2 or more years (Smith and Lovaas, 1998). Lovaas hypothesized that construction of a,

"special, intense, and comprehensive learning environment" for very young autistic children would allow some of them to catch up with their normal peers by first grade (1987).

The Young Autism Project followed the process of Applied Behavioral Analysis (ABA) (Cattell-Gordon and Cattell-Gordon, 1998). ABA is a method of teaching that focuses on the systematic development of skills by breaking down each desired skill or goal into small parts and then teaching each part individually using a precise cue. The parts are then chained together to produce the whole, and each correct response to each cue receives positive and functional (i.e., serve the intent of increasing behavior) reinforcement. Examples of reinforcers are small bites of food, sensory and perceptual reinforcers, play, access to favorite activities, and social praise involving verbal praise, kisses, and hugs (Smith and Lovaas, 1998). The emphasis is on teaching the child to learn in a normal environment and, "acting on that environment to produce successful outcomes for the child" (Cattell-Gordon and Cattell-Gordon, 1998).

In 1987, Lovaas reported that at the start of his study, there were no significant differences between the experimental group and the control groups. Following the study, Lovaas stated that 47% (9 of the 19 children) were "recovered," a statement he based on their improved IQ scores and placement in regular education first grade classrooms (1987). Studies done by the May Institute in Massachusetts, the Princeton Child Development institute in New Jersey, the Douglass Developmental Center at Rutgers University, the Early Intervention Program at Murdoch University in Australia, and the Pervasive Developmental Disorders Clinic at the University of California, San Francisco have also found that early intervention that is intensive, one to one, precise, and behavioral (the Lovaas' method) can significantly help children who are diagnosed with autism (Cattell-Gordon and Cattell-Gordon, 1998).

The main criticism of the Young Autism Project is of its financial burden. Smith and Lovaas (1998) estimated the cost of treatment to be between $40,000 and $60,000 per year, or an average of $120,000 to $180,000 for the 2 to 3 years of treatment that the project entails. The caregivers may be able to convince their school district to cover part of the cost if they are persistent in their efforts. Smith and Lovaas justify the cost by claiming that the long-term benefits of reducing the need for services in the children they help will more than compensate for the initial financial investment (1998).

TEACCH-based home program

TEACCH is a statewide comprehensive intervention system that provides a variety of services to autistic individuals and their families across age periods. Since 1972 the system has operated out of the department of psychiatry of the University of North Carolina, Chapel Hill, with state funding. It has an extensive training program for professionals and is also in use in other areas of the country as well as other parts of the world. The TEACCH model is mostly used in classroom settings, but there is a home intervention component as well.

The primary educational goal of TEACCH is to increase the student's level of skill. Recovery is not a term used in this system, and while the Lovaas program is based on the premise that the child must overcome his autistic characteristics so as to adapt to the world around him, in TEACCH the child is provided with an environment designed to accommodate the characteristics of autistic children (Cohen, 1998).

TEACCH makes use of many visual organizers or cues because, "visual processing is a strength of many autistic children" (Cohen, 1998). Spontaneous functional communication is the language goal of TEACCH, and alternative modes of communication such as pictures, manual signs, and written words are used when speech is

particularly difficult for the child. "Such strategies neutralize or deemphasize deficits common in children with autism and minimize behavioral problems" (Cohen, 1998).

In their 1998 study, Ozonoff and Cathcart evaluated the effectiveness of using the TEACCH intervention model of home programming, in which parents are taught to serve as their child's "co-therapist," implementing treatment in the home setting. The typical home program lasted 10 weeks, during which therapists first trained the parents once a week for an hour and then sent the caregivers home with specific activities, materials, and techniques. The development of the home program was unique to each child, however, most interventions shared the same components of structured teaching, capitalization on visual strengths to teach more difficult skills, a schedule to help the child anticipate future events, a communication system of some type (gestures, pictures, signs, or words), and preacademic-prevocational activities that helped prepare the child for entry into the public school system (e.g., colors, numbers, shapes, drawing, writing, assembly, and packaging tasks). Therapists observed the parents administering the treatment once during the course of the study, but outside of the modeling done by the therapist with the child to instruct the parents in the clinic, the treatment was administered by the parents alone. Ozonoff and Cathcart found that the children in the treatment group demonstrated significant improvement in the areas of cognitive and developmental skills over the control group.

The main criticism of the TEACCH project is of its lack of published outcome data. While its creators have published several books documenting their data on the project, journal publications regarding the project are scarce.

Hypothesis

It is hypothesized that use of the TEACCH home intervention program will yield the same results as those of the Lovaas Young Autism Project with Young at a fraction of the financial cost.