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Dr. Carnahan

Project #3

1. Give a brief description of your study.

In this mixed methods study, the researcher will attempt to (a) examine teachers of students classified as preschool disabled experiences of using robotics during regular class instruction; and (b) to determine preschool teachers' perceptions of robotics as instructional tools for students with disabilities. A survey and semi-structured interviews will be used in this study.

2. Who will be the participants, how will you select them, how will you contact them, do you see any potential issues?

Teachers of students classified as preschool disabled will be asked to participate in this study. A convenience sample of preschool disabled teachers working in inclusive and self-contained settings will be selected. The participants for this study will be selected from a population of preschool disabled teachers who work in one school district in Hudson County, New Jersey. The researcher will contact the supervisor of The Program for Preschool Students with Disabilities for permission to conduct the study and compile a list of preschool teachers. The researcher will then send an email to each teacher asking them if they would like to participate in the survey. The number of participants will be dependent on the number of teachers in the program who consent to completing the survey. Potential issues include too few participants willing to participate.

3. What are your research questions?
  1. What are the experiences of teachers of students classified as preschool disabled regarding the use of robotics as an instructional tool?
    - a. Sub question 1: Is there a significant difference of usage of robotics between teachers of students classified as preschool disabled who have taught fewer than 5 years and teachers who have taught more than 10 years?
    - b. Sub question 2: To what extent are teachers of students classified as preschool disabled using robotics for engagement, time-on task and skill acquisition?
  2. How do teachers of students classified as preschool disabled perceive the use of robotics?
    - a. Sub question 1: What is the relationship between the number of years teaching students classified as preschool disabled and teacher perception of robotics?
    - b. Sub question 2: Is there a significant difference of robotics usage between inclusive classrooms and self-contained classrooms?
  3. What knowledge and skills do teachers of students classified as preschool disabled perceive would facilitate their use of robotics as an instructional tool?
    - a. Sub question: What are the factors that influence a teacher's knowledge and skill of robotics implementation?
  4. What do teachers of students classified as preschool disabled perceive as constraints that affect robotics implementation?
    - a. Sub question: What are the factors that influence robotics use in preschool disabled classrooms?

4. What is the need of this study?

There is a growing number of studies on the use of humanoid robots and students classified as Autistic to increase socially acceptable behavior and eye contact. However, the researcher found few studies which focus on using robots to increase engagement, time-on task and skill acquisition in students with other cognitive disabilities, especially in preschool-aged children. This mixed-method study will contribute to the body of knowledge needed to address the use of robotics to increase engagement, time-on task and skill acquisition in students classified as preschool disabled.

The purpose of this mixed methods study will be to evaluate teacher knowledge, experiences and perceptions of the use of robotics to increase skill acquisition, engagement and time-on task for students classified as preschool disabled in both inclusive and self-contained classroom settings. The results of this study should contribute to the understanding of how robotics can be incorporated into preschool disabled classrooms to increase skill acquisition, time-on task and student engagement.

5. Will your research be quantitative, qualitative, or mixed methods? Give details why.

For this study, the researcher will use a mixed methods design. As defined by Creswell (2014), mixed method research combines the strengths of both qualitative and quantitative studies “to develop a better understanding of the research problem or questions” (p. 215). Mixed method designs allow the researcher to solve problems both descriptively and numerically by providing more comprehensive evidence.

6. Give a brief description of the types of questions that you will ask.

The survey question responses will be based on a Likert-type scale ranging from *Strongly agree, Agree, Neutral, Disagree, Strongly disagree and Not applicable.*

For example, “I understand how to implement robotics into my lessons” and “robotics usage during lessons engages students for longer periods of time than non-robotics usage.”

The semi-structured interviews will be used to provide useful and detailed personal accounts of robotics usage that cannot be ascertained from the survey alone (Creswell, 2014). For example, “Please describe the development you have received on the implementation of robotics in classrooms and how they can be adapted for students classified as preschool disabled.”