Experimental Design: Asperger Syndrome and Learning

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EP582

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We have a very good group for this assignment and we were able to meet and assign tasks very easily. Lisa Helma did the research for the proposal, David Parrish designed the proposed experiment and Jeff Beard helped by bringing everything together so we could communicate easily among ourselves. He established the URL site and put our presentation together in a very graphic and easily understood format.

Introduction

Experimental designs are generally considered the "gold standard" among various research methods. The standards for conducting an experiment are usually very strict and because of these rigorous standards, “internal validity” is probably the strongest in the experiment research design. This is very important when a researcher wants to know whether one or more actions have an effect on another action or whether there is a cause-effect relationship (www.socialresearchmethods.net/kb/desexper.php).

Problem Statement and Literature review: Asperger's Syndrome (AS) is a milder variant of Autistic Disorder. Depending on where you are, it is considered either a subgroup of Autistic Spectrum Disorders or Pervasive Developmental Disorders. Individuals with AS are characterized by social isolation, eccentric behavior and impairments in two-sided social interaction and non-verbal communication. Their speech may have abnormalities of inflection and exhibit a repetitive pattern. Motor skills are usually affected and the individual may appear clumsy (www.aspergers.com/aspclin). Although the previously mentioned impairments are usually characteristic of individuals with AS and Autistic Disorder, there are differences. People with AS usually have more developed language skills and higher IQ’s. There is more tendency
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to have impairment with both gross and fine motor skills whereas those with Autistic Disorder usually have better fine motor skills (Kugler, 1998).

Teaching strategies are very critical when educating those with special needs. It is necessary to determine the most appropriate teaching modality for those with AS. More and more people with AS and other subgroups within the Autistic Spectrum are being educated in the public and private school systems. The trend now is education in a non-institutional program (Garcia-Villamisar and Hughes, 2007). One previous study indicated that people with AS experienced several problems during their whole educational experience and that none of the group studied pursued education past high school (Jennes-Coussens, Magill-Evans and Koning, 2006). It is felt that there has been very little research to determine what method of teaching presentation is best suited to those with AS and that this study could definitely add to the knowledge base.

Purpose Statement: The purpose of this study is to determine whether the method of presentation of material will have an effect on learning as indicated by test scores for students with Asperger Syndrome age 13 to 19 in the local school system.

Null Hypothesis: There is no difference between video presentation, audio presentation and face-to-face presentation in terms of the test scores for people with Asperger Syndrome at the local school site.

Methods

Study Design: This study will involve presenting a lesson to each subject through three means of presentation: video, audio and face-to-face. The subject will then complete a test based on what had been presented. The lessons will have to be very similar. Research will be
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conducted to find an instrument that would meet this need and has tested reliability and validity. If no instrument can be found, then it would be necessary to develop an instrument and go through a rigorous process to determine its reliability and validity. The instruments used will need to be presented by the same person to try and avoid results that could differ because of the unique teaching styles of each individual. The location would also need to be as consistent as possible to reduce any variance that might result from distractions or climate conditions. For each subject there should be a sufficient time interval between lessons to avoid the subject possibly confusing the lessons.

Sample and Site: This study will consist of 15 people that have been diagnosed with Asperger's Syndrome between the age of 13 and 19. We will go to the local school system and see if we can get enough subjects there. The population of available and willing subjects will determine the type of sampling that will be. If there are more than 15 subjects available, a random sampling will probably be used. Since this disorder occurs more frequently in males, some consideration will be give to stratified sampling so a proportional number of females will be included in the study. A lower population of available subjects may force the study to utilize convenience sampling. It is hoped that the school system will allow us to use a quiet place for the study so it would not be too disruptive to the students.

Access and Permission: Access has already been discussed under sample and site. As to permission we will use an informed consent form that gives the title and purpose of the study, information about the researcher, the procedures to be used, the rights of the subject to withdraw and/or ask questions at any time and the fact that they have volunteered for the study. Any risks, which we don’t see any at this time, will be addressed, and the benefit that we hope to receive
from this study will be explained. Since most of the subjects will probably be minors, we will need the consent of the parent also. A copy will be given to the subject and a copy given for school records. The consent form will also be explained verbally to the subject and parents.

**Procedures of Data Collection:** The plan is to present the instrument chosen in each format by the same person to each subject. There will then be a test taken on the material and scored for accuracy. All questions not answered will be considered incorrect. The test will be given at the same site as the presentation and efforts will be made to keep this site as free of distractions as possible. The subject will have all the time needed to complete the test.

**Instruments, Reliability and Validity:** The instruments chosen will be reviewed for reliability and validity. Finding an instrument might prove to be difficult and it might be necessary to create an instrument. If an instrument is created, there will be sufficient time given to reviewing it for errors and running pilot tests.

**Data Analysis:** The independent variable for this experiment, which is the method of presenting instruction, will be done at three levels and will be on a categorical scale of measurement. The dependent variable, which is the number right on the test, is on a continuous scale of measure. One acceptable test for a data analysis is the Analysis of Variance.

**Anticipated Results**

Because of the impairments in social isolation and two-sided social interaction, we expect that performance may not be as good in the face-to-face presentation as opposed the audio or video presentations. We do not expect there to be any significant differences overall in the
performance when using the audio and video presentations, however individual performance
differences may be used as a guide to help an educator form an individual education plan.

Potential Ethical Problems: At this point we do not see any ethical problems. As stated
earlier, each participant will sign an informed consent form that spells out all critical issues. Also
these issues will be conveyed to the participant and parents, if appropriate, verbally.

Conclusion

Limitations of the Study: The plan for this study is only to use an instrument that is very
brief and the ability of the person to maintain attention over longer periods will not be tested.
Also the site for the testing will be rigorously controlled and that is not the case in classrooms
where distractions are more frequent. The material is being presented to one person at a time and
this should be tested with several subjects at once.

Implications for Further Study: We believe further studies should be conducted that
lengthens the amount of information given to the subjects which will bring into play other
variables. Also this needs to be tested with larger groups in less structured environments similar
to a school setting.

Overall Significance: Should one method of presentation prove to be more beneficial to
people with Asperger Syndrome, it could be used as guidance for developing educational
programs for people with this disability. However, should one presentation method not prove to
be significantly better overall, there could still be some differences noted for individuals, which
could help educators develop individual programs.
References

