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Autism Spectrum Disorder and the Criminal Justice System: An Interdisciplinary Study

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Autism Spectrum Disorder and the Criminal Justice System:

An Interdisciplinary Study

Erin Brown

A thesis submitted to the University Honors Program in partial fulfillment of the requirements for the Honors Diploma

Southern Illinois University

4 April 2016
Abstract

The purpose of this study was to advocate and raise awareness of individuals with autism spectrum disorder (ASD) to SIU law students and to inform communication disorders and science (CDS) students of some basic facts about the criminal justice system in the United States. To accomplish this, an interdisciplinary session was conducted in which three CDS students taught ten law students about characteristics of ASD and three law teacher assistants taught thirteen CDS students about disability law and other intricacies of the justice system. Fifteen question pre-surveys were distributed to the participants upon arrival. CDS students answered questions about court proceedings and defendant rights and law students answered questions about various ASD characteristics. Each group of students were divided into three groups (six groups total) and were taught information pertaining to the questions in the surveys in a collaborative manner. Afterwards, all participants took a post-survey identical to the pre-survey. Post-survey results of the law students increased in accuracy by 19.35% (average 4.7 question increase). Post-survey results of the CDS students increased in accuracy by 15.9% (average 2.38 question increase). The interdisciplinary session succeeded in raising law students’ awareness of autism spectrum disorder and in increasing CDS students’ knowledge of the criminal justice system.

Introduction

Autism spectrum disorder (ASD) is defined by the American Psychiatric Association as “a group of developmental disabilities that can cause significant social, communication and behavioral challenges” (American Psychiatric Association, 2013). According to current research, enforcers of the United States’ justice system are unaware of the prevalence and signs and
symptoms of autism spectrum disorder (Laan, J. M., Ingram, R. V., & Glidden, M. D., 2013). This problem leads to an overrepresentation of individuals with ASD in prison facilities located around the country (Browning, A. & Caulfield, L., 2011). If awareness were to be raised concerning knowledge of ASD, who it affects, and how it manifests in the common population, then the representation and treatment of individuals with ASD during arrests, during trials, and in prisons may improve drastically.

In order to begin breaking this cycle, members of the justice system, individuals that will soon be entering this system to some extent, and students who work with individuals who are autistic on a daily basis need to collaborate in order to share knowledge and awareness with each other. Special education teachers, speech-language pathologists, and other professionals in related services work with children who are autistic and have a fundamental understanding of the signs, symptoms, and accommodations required for a child with ASD. These children, when they do not encounter early intervention as a result of poor public school funding, poor identification methods or other unknown reasons, may never learn to cope with their developmental disability in a manner that will properly allow them to function in society. Therefore, when these individuals encounter law enforcement, he or she is often misinterpreted as being hostile, resistant to arrest, distant or uncaring.

A speech-language pathologist (SLP) plays a large role in a child’s life when he or she has been identified as autistic, and these professionals have a deep understanding of the communication capabilities and deficits individuals with ASD possess. With this understanding, SLPs can provide therapy that surpasses typical communication disorder treatment and enters into the field of pragmatics. In this therapy, SLPs have the opportunity to train these individuals
on appropriate behaviors to be conscious of in the court of law. However, without any knowledge of the justice system, this practical therapy is not possible, and further miscommunication between individuals with ASD and justice officials is at risk of occurring. In the same manner, justice system officials are trained for specific situations and encounters with the public. If a citizen’s behavior is atypical, it may be interpreted as resistant or threatening. An awareness of ASD can enable justice officials to make informed decisions on the treatment of these individuals.

At SIU, there are speech-language pathologists entering the workforce with little or no knowledge of the justice system; therefore, these individuals have no ability to educate their clients who may be diagnosed with ASD about the justice system and the necessary pragmatic knowledge they need to interact with law enforcement. Additionally, officials working in the justice system (e.g., police officers, judges, attorneys, and juries) may be unaware of the signs and symptoms of ASD, therefore these individuals may be treated unjustly or may be mistaken as resistant to arrest or authority.

As of late, the presence of individuals with autism spectrum disorder has been a rising issue in the justice system. A study performed by Fazio, Pietz, and Denney revealed that there is a disproportionate amount of individuals with ASD in prison as compared to the typical United States population (2012). Individuals with ASD struggle with social and emotional interaction and are often misidentified as uncaring, socially awkward and aloof (Freckelton, I., 2013). Many individuals with ASD have not properly developed Theory of Mind, which is the ability to understand that other individuals have mental states and to use that understanding to predict and explain another individual’s behavior (“Theory of Mind,” n.d.). Attwood further explains this
concept by stating, “A deficient theory of mind can cause the individual to miss social cues, reduce empathy, and act impulsively with no idea about the thoughts, feelings, and experiences of others, nor the implications of their own behavior toward others” (as cited in Søndenaa, E., Helverschou, S. B., Steindal, K., Rasmussen, K., & Nilson, B, Nøttestad, J. A., 2014). This automatically disadvantages an individual with ASD in encountering any figure of authority within the justice system due to the fact that there is a high probability of miscommunication to occur (Freckelton, I., 2013).

This miscommunication is a result of unfamiliarity and a misconstrued attitude toward autism spectrum disorder that is held by a large portion of the United States’ population (Savoy, M., 2014). Research was performed to investigate to what extent law enforcement training discussed and advocated for individuals with mental disorders and autism spectrum disorders and it was discovered that very little time is given to the discussion and training on this topic; additionally, many police officers have requested that more time be devoted to training in this area (Laan, J. M., Ingram, R. V., & Glidden, M. D., 2013). Raising awareness and changing the general attitude that is maintained toward ASD will improve the rate at which these individuals are incarcerated and misunderstood. Fazio et al. stated that “the interaction of those with ASD with the legal system raises important questions not only on the front end of judicial proceedings, such as issues relating to competency and criminal responsibility, but also indicates a need for mental-health professionals to address the specific treatment needs of this population to reduce criminal behavior and recidivism” (2012).

Interprofessional education is defined by the Council of Academic Programs as “when two or more professions learn about, from, and with each other to foster effective collaboration
and improve outcomes and the quality of care.” In order for interprofessional education to be defined as such and to be effective, the professionals should be collaborating with and training each other about topics within their respective fields, rather than simply learning alongside each other without personal interaction. The goal of this study was to accomplish effective interprofessional education at Southern Illinois University particularly.

Advocacy does not have to start with training at law enforcement facilities; instead, it can start at our universities. We have the opportunity to teach, train, and advocate for individuals with autism spectrums disorders to those who will most likely encounter these individuals in the future: attorneys, police officers, and judges. My hypothesis is that this project will increase awareness of ASD for students enrolled in the Law school while also training CDS students on the basics of the justice system in Illinois. The following are the research questions that were addressed over the course of this project:

1. Will collaboration between students majoring in communication disorders and sciences and students enrolled in the law school increase student knowledge of both autism spectrum disorder and the justice system?

2. Following an interdisciplinary, collaborative training, are there significant differences between pre- and post-test survey scores related to knowledge about autism spectrum disorder (ASD)?

3. Following an interdisciplinary, collaborative training, are there significant differences between pre- and post-test survey scores related to knowledge about the criminal justice system in Illinois?
Methods and Design

Using a mixed method design, the attitudes and knowledge of individuals in the law school and CDS program will be statistically evaluated with SPSS software to determine whether or not the predicted hypothesis is correct. Paired sample t-tests were used to analyze pre- and post-survey data for the combined scores of both groups, the pre- and post-survey scores of the law students, and the pre- and post-survey scores of the CDS students.

The interdisciplinary session itself took approximately 1.5 hours to complete. Ten SIU law program students participated. Thirteen SIU CDS program students participated (23 students total). Three CDS students taught rotating groups of law participants. Three law students taught rotating groups of CDS participants. Participants from both disciplines took a true/false 15-question pre-test regarding the information they would learn prior to any introduction to the study. Participants then split into three groups for each discipline (six groups total) and rotated through stations that discussed characteristics of ASD with the law students and criminal justice procedures and laws with the CDS students. Immediately following the interdisciplinary session, each participant was given a post-survey identical to the pre-survey.

Appendices A and B include the questions and answers provided in the surveys for the law and CDS students. All questions included the options True, False, and I don’t know for the students to circle as an answer. Appendix C includes the chart given to the law students at the conclusion of the interdisciplinary session. This chart listed characteristics typically associated with autism spectrum disorder and the manifestations, implications, and accommodations for those characteristics.
Results

The following section is organized by the questions that were posed at the introduction of this project.

1. Will collaboration between students majoring in communication disorders and science and students enrolled in the law school increase student knowledge of both autism spectrum disorder (ASD) and the justice system?

The raw scores for the total amount of students (n = 23) from each discipline improved by an average of 2.61 questions. SPSS analysis determined that there was a statistically significant difference (for p-value of .05) in the performance on post-tests as compared to pre-tests ($t(22) = -4.405, p = .000$).

<table>
<thead>
<tr>
<th>Both Groups</th>
<th>Mean (Raw Score Correct)</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Test</td>
<td>8.43</td>
<td>3.824</td>
</tr>
<tr>
<td>Post-Test</td>
<td>11.04</td>
<td>2.771</td>
</tr>
</tbody>
</table>

2. Following an interdisciplinary, collaborative training, are there significant differences between pre- and post-survey scores related to knowledge about ASD?

The raw scores for law students (n = 10) increased by an average of 4.7 questions. SPSS analysis determined that there was a statistically significant difference (for p-value of .05) in the performance on post-tests as compared to pre-tests ($t(9) = -2.589, p = .029$).
Law Students | Mean (Raw Score Correct) | Standard Deviation
---|---|---
Pre-Test | 10.4 | 1.147
Post-Test | 13.3 | 0.260

3. Following an interdisciplinary, collaborative training, are there significant differences between pre- and post-test survey scores related to knowledge of the criminal justice system in Illinois?

The raw scores for CDS students (n = 13) increased by an average of 2.4 questions. SPSS analysis determined that there was a statistically significant difference (for p-value of .05) in performance on post-tests as compared to pre-tests ($t(12) = -3.750, p = .003$).

<table>
<thead>
<tr>
<th>CDS Students</th>
<th>Mean (Raw Score Correct)</th>
<th>Standard Deviation</th>
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</thead>
<tbody>
<tr>
<td>Pre-Test</td>
<td>6.92</td>
<td>3.353</td>
</tr>
<tr>
<td>Post-Test</td>
<td>9.31</td>
<td>2.463</td>
</tr>
</tbody>
</table>

**Discussion**

My hypothesis was that this project would increase awareness of ASD for students enrolled in the law school while simultaneously training CDS students on the basics of the justice system in Illinois. According to the SPSS analysis, there was statistically significant improvements for the pre- and post-test scores of the groups as a whole; this indicates that the interdisciplinary session was effective for both CDS students and SIU law students in terms of knowledge gained.
There was a significant improvement in scores for the law students (the mean scores for the post-test was 13.3 out of 15 questions), indicating that the law students had a high amount of knowledge of ASD by the conclusion of the session. However, it is important to note that the average before the interdisciplinary session was 10.4 questions, indicating that there was a significant amount of knowledge before the beginning of the session. Perhaps, in future endeavors involving knowledge of autism, the information provided and the topics discussed need to be more detailed and challenging, in order to further expand current knowledge of ASD. Additionally, as this model of interdisciplinary teaching is applied to further contexts, the manner in which information is shared may be altered to fit methods, practices, and needed knowledge of other disciplines.

Although there was a significant improvement in scores for the CDS students, the mean of the post-test scores was 9.31 out of 15 questions, indicating that there is substantial potential for improvement in their knowledge of the criminal justice system. This is more than likely due to some of the limitations of the project, which are presented at the conclusion of this paper. While the significant improvement is encouraging, a higher post-survey mean score would have been preferred. This may be due to the manner in which the information was presented to the CDS students. It also may be due to the fact that the information was too difficult to digest in such a short amount of time. Perhaps, in future endeavors involving knowledge of the criminal justice system, information needs to be presented in a variety of formats (auditory and visual, rather than just auditory) and with much more time for questions and clarification afterwards.

Without focus group results, it cannot be determined if this interdisciplinary session significantly increased knowledge of ASD and the criminal justice system for an extended period
of time after the session. A focus group setting would have also allowed for further discussion of
the perceptions of ASD and the criminal justice system that individuals held prior to the
interdisciplinary session. The casual atmosphere of a focus group would have allowed for some
of the participants to voice any frustrations or confusion that they had with the format of the
session and the presentation of the information. For future interdisciplinary studies, this must be
kept in mind.

Limitations and Conclusions

Based off of the SPSS results of the pre- and post-test data, creating a space in which
both law students and CDS students were able to learn about each others’ respective disciplines
for an hour and a half was effective in increasing the knowledge of those disciplines. When the
characteristics of autism had a space to be discussed in a collaborative setting, general
knowledge of ASD improved. When facts and topics of the criminal justice system had a space to
be discussed in a collaborative settings, general knowledge was also improved. Interprofessional
education proved to be a worthwhile endeavor for both the CDS program and the SIU law
program to participate in.

Despite the positive results garnered through this study, there were several limitations to
the design and method of the interdisciplinary session. For future research endeavors concerning
interdisciplinary research, survey methods and assessing knowledge levels, the following
limitations should be kept in mind. Primarily, there was a limited sample size for each of the
groups. A higher amount of participants would have made the survey results more or less
statistically significant and more reliable. This study also failed to request demographic
information regarding previous knowledge of ASD or criminal justice system, and this would
have provided valuable information regarding the amount of experience an individual had prior to this study. It was the assumption that the pre-surveys would assess previous knowledge of ASD and the criminal justice system, but it did not appropriately assess previous experiences with ASD or the criminal justice system and where or how those experiences occurred. This would have been helpful in further analysis of the results of the surveys.

Additionally, the format of the surveys may be inherently biased. True/False surveys only allow for the two binary answers provided, and autism spectrum disorder is not a binary condition. That is to say, two individuals may each have the diagnosis of autism spectrum disorder, but the manner in which their diagnosis affects their characteristics can vary incredibly differently. Some of the questions on the survey for autism may have been too limited or not accurate enough to describe the entire scope of autism spectrum disorder. As awareness and knowledge of ASD is increased, perhaps True/False formatting of surveys questions would not be a recommendation. Short answers questions may have provided more opportunity to accurately assess each participants’ gained knowledge, but that would require more time and effort of the participants. In Appendices D and E, the answers that each participants received on both the autism survey and the criminal justice survey are provided. It is apparent that some participants performed much better on the post-survey than did others, and this could be due to a variety of factors. Perhaps the True/False format of the survey was too easy, and that affected the outcomes of the post-surveys. In further interdisciplinary studies, extended collaboration between the disciplines would assist in limiting unintended biases both in the format of the session and the format of assessment.
Due to time constraints, there was significantly limited collaboration opportunities with
the law teaching assistants that agreed to lead the three rotating groups of CDS students in
learning about the criminal justice system. This meant that I had limited opportunity to work on
the survey questions with the law students and limited opportunity to listen to their presentations
to the CDS students prior to the session. This lead to some disconnection between what the
surveys were asking for and what the law students were teaching the CDS students, which I
believe was reflected in the post-survey scores of the CDS students.

Finally, also due to time constraints, there was limited availability both from the law
students and the CDS students regarding meeting times for a focus group follow-up conversation
about the session. The focus group discussions would have provided valuable information
regarding individual feedback and opinions about the format of the study and what was learned
for a significant amount of time after the conclusion of the study.

In terms of future research, there are several questions that remain to be answered. These
questions certainly do not have to be addressed in the context of communication disorders and
science students and law students; rather, they need to be addressed simply in the context of
interdisciplinary collaboration between any variety of disciplines. Does previous knowledge of
the subjects being discussed have an effect on the increase in scores? Does the context from
which this previous knowledge is derived have an effect on the increase or variety in scores? For
instance, if an individual has worked previously in the prison system, he or she would have an
incredible amount of pertinent information regarding the communicative needs of current or
potential prisoners. Is an interdisciplinary session effective several weeks after the conclusion of
the study? How can this model of interdisciplinary teaching be improved for knowledge to be
exchanged between disciplines in the future? Should assessment of knowledge be gathered in a format other than True/False surveys?

As the field of interdisciplinary research continues to be explored, these questions will naturally be answered. But, at the conclusion of this study, it is glaringly apparent that collaboration between disciplines is essential to increasing knowledge of any subject, advocating for individuals who may not have the ability to advocate for themselves, and discovering areas of interest that were previously unknown. Studies such as these should encourage students and professors alike to be extremely critical of the areas in their fields that are lacking pertinent information that could lead to deepened knowledge and effective advocacy for disenfranchised groups. The hope for this study is that it is now obvious that some individuals with autism are not treated with the dignity and respect that they deserve, simply because they possess an inability to communicate in a pragmatically typical manner. Societal biases such as these seem incredibly overwhelming to break down, but partnering with other disciplines and gathering passionate people is statistically effective in beginning to break down these biases and stereotypes.
References


Appendix A: Survey for Law Students with Answers

1. Individuals with autism spectrum disorder typically enjoy physical touch such as hugging, a hand on the shoulder, or a kiss on the cheek. (False)

2. Individuals with autism understand idioms and figurative language. (False)

3. You encounter an individual who does not make consistent eye contact with you and keeps conversation only on their interest in trains. This individual may be on the autism spectrum. (True)

4. Autism is a disorder that negatively affects an individual’s IQ. (False)

5. There is a cure for autism spectrum disorder. (False)

6. Individuals with autism spectrum disorder often find loud noises overwhelming. (True)

7. Individuals with autism often have a flat, monotone speech in every conversational context. (False)

8. Autism spectrum disorder is characterized only by social language deficits. (False)

9. Individuals with autism spectrum disorder find it difficult to correctly interpret and react to an individual’s facial expressions. (True)

10. Autism occurs more frequently in males than in females. (True)

11. In general, individuals with autism demonstrate difficulty with changes in routine. (True)

12. All individuals with autism display the same behavioral characteristics. (False)

13. Individuals with autism outgrow the disorder by the time they are 25. (False)

14. Individuals with autism cannot function independently. (False)

15. Autism is a single disorder. (False)
Appendix B: Survey for CDS Students with Answers

1. During an arrest, the use of physical restraint or handcuffs is necessary. (False)

2. If a person’s rights are violated at anytime during the arrest, it can be deemed unlawful and the case against the arrestee can be dismissed or certain evidence can no longer be used in the case. (True)

3. After an arrest, a criminal suspect is taken into police custody and processed, where the criminal’s information is taken down, information about the crime is recorded, his or her background is checked, he or she is fingerprinted and photographed, personal property is confiscated, and he or she is placed in a cell. (True)

4. If a crime for which an element of intent must be satisfied is committed involuntarily, then it is not blameworthy, so there is no justification for punishment. (True)

5. Bail hearing procedures are the same as a trial. (True)

6. If you are told by someone with authority that you have a legal right to do something and it is reasonable to have relied upon that authority, then you may not be criminally liable for doing it. (False)

7. An officer can use whatever force, including deadly force, is required to subdue a suspect who is resisting arrest. (True)

8. If a defendant has some fundamental deficiency of mind that prevents you from being a responsible moral agent, you cannot use this as an excuse in the court of law. (True)

9. If a defendant were to plead insanity, this does not include mental disability. (False)

10. A person is protected under the Americans with Disabilities Act if he or she is considered disabled, if he or she either actually has, or is thought to have, a physical or mental impairment
that substantially limits what the ADA calls “major life activity” (e.g., walking, talking, seeing, and learning). (False)

11. During bail hearing procedures, the criminal’s physical and mental conditions are assessed. (True)

12. Police must read the Miranda Rights to the arrestee at the time of arrest. (True)

13. During a preliminary hearing, the defendant is not allowed to argue against the prosecution. (False)

14. A defendant is allowed to “plead the 5th” and not testify if he or she is a poor public speaker, seems angry, or nervous. (False)

15. If a defendant is declared incompetent by a psychological professional, it means they can go free, as long as they are under supervision. (True)

Appendix C: Autism Characteristics Chart

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Manifestation</th>
<th>Implication</th>
<th>Accommodation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Detached from feelings of others</td>
<td>Individuals may not know how to empathize with someone who is feeling angry, sad, happy, etc., and they may react inappropriately or not at all.</td>
<td>During court, the individual may come across as aloof and unfeeling during emotional aspects of the proceedings, thus creating a bias in the jury.</td>
<td>Inform the jury and other relevant members of the court of this manifestation in order for them to take it into account during proceedings.</td>
</tr>
<tr>
<td>Difficulty in reading and expressing emotions</td>
<td>If they are feeling an emotion, they cannot properly communicate it; neither can they receive emotional communication.</td>
<td>Misinterpretation of the individual's testimony and verbalizations by the jury, prosecutor, and possibly defendant's lawyer if autism is undiagnosed.</td>
<td>Provide the individual with the opportunity to say, &quot;I am feeling [an emotion] when I say/do…&quot; Additionally, request clarification of emotions from other participants of the court in order to keep communication to the individual clear.</td>
</tr>
<tr>
<td>---</td>
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</tr>
<tr>
<td>Difficulty with redirection</td>
<td>Individuals may be focused on a single topic of conversation, and no question or comment will move them away to a different subject until they have finished saying their piece.</td>
<td>During court proceedings, individual may struggle to answer the appropriate questions if he or she is fixated on a particular subject and cannot move on to another.</td>
<td>Inform the jury and other relevant members of the court of this behavior in order for them to take it into account during proceedings.</td>
</tr>
<tr>
<td>Do not like to be touched</td>
<td>Occurrence of touch may cause a sharp reaction or instigation of repetitive behaviors (see below).</td>
<td>During arrest and court (if the individual is the suspect), his or her image may be tainted by their negative reactions to previous experiences with other court officials.</td>
<td>Inform the individual ahead of time about what types of touch they should expect, at what times, and where on their person (e.g., being handcuffed and lead out of the courtroom after the conclusion of a case).</td>
</tr>
<tr>
<td>Do not tolerate loud noises</td>
<td>Occurrence of a loud noise may cause a sharp reaction or instigation of repetitive behaviors, (see below).</td>
<td>The sounds of sirens, the gavel during court proceedings, or even loud ambient noises that occur without any control, may startle or overwhelm the individual and create a negative perception of the individual by the court.</td>
<td>Inform the individual ahead of time of what types of noise they should expect, at what times, and where (e.g., being handcuffed and lead out of the courtroom after the conclusion of a case).</td>
</tr>
<tr>
<td>Literal interpretation of language</td>
<td>When approached with an idiom or an expression, they may not understand the implicit and underlying meanings.</td>
<td>The individual will misinterpret what is being said to him or her. This will lead to incorrect information received and they may react incorrectly during proceedings, damaging their credibility.</td>
<td>Avoid language that could be misinterpreted; be sure to provide clear explanations of expectations and expected events during all court proceedings and check for clarity from the individual with autism.</td>
</tr>
</tbody>
</table>
Little or no eye contact

Individuals may not make frequent or lengthened eye contact because they are overwhelmed by the direct stimulation.

During interrogation or cross-examination, the court officials or the jury may view the individual as off-putting and shifty, thus creating a suspicious image of themselves, which could be detrimental to their proceedings.

Before court, give the individual the opportunity to view the courtroom and be aware of the proceedings that will occur, so that they can find a focal point during the case sessions and be less overwhelmed by the new experience. In addition, inform the jury of the individual’s diagnosis and what those implications are.

Monotone speech

No tonal or rhythmic variation of speech, even when attempting to express varying emotions.

This lack of expressed feeling that is typical may be off-putting to members of the court, thus perpetuating a negative and suspicious image of themselves.

Inform the jury and other relevant members of the court of this manifestation in order for them to take it into account during proceedings.

Repetitive behaviors

Slapping of leg, shaking of head, or repeating certain phrases may manifest within this individual at a given time as a result of various stimulations, either internal or external.

These behaviors, because they are not typical of the majority population, may be off-putting to members of the court, casting a negative image on the individual (as mentioned above).

Inform the jury and other relevant members of the court of this manifestation in order for them to take it into account during proceedings. Additionally, perhaps create a new, more subtle repetitive behavior that the individual can practice if their original behavior is distracting or off-putting to others.

Appendix D: Results of Law Participants

<table>
<thead>
<tr>
<th>Participant</th>
<th>Pre-Test Score</th>
<th>Post-Test Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>13/15</td>
<td>13/15</td>
</tr>
<tr>
<td>2</td>
<td>8/15</td>
<td>13/15</td>
</tr>
<tr>
<td>3</td>
<td>15/15</td>
<td>15/15</td>
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<td>6</td>
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## Appendix E: Results of CDS Participants

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<th>Participant</th>
<th>Pre-Test Score</th>
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