

eNewsletter 1-December 2007-Conference Summaries

Trainee: Lindsay Campbell

Training Site: Brock University

Conference: Annual Convention of the International Association for Behavior Analysis

I had the privilege to attend the Applied Behaviour Analysis International conference in San Diego, CA, in May 2007. This international conference carries a prestigious reputation for hosting a vast number of prominent researchers in the field of ABA and related disciplines. Consistent with my current research experiences, many of the panel and poster presentations I attended were in the area of autism research.

One particular presentation I attended involved teaching choice making to young children with autism. What struck me the most about this particular presentation was how, despite the apparent simplicity of the topic, the complexity of teaching children the ability to make choices can be immensely difficult. For many children with autism, the choice of 'and' or 'or' can be complex, and can be particularly difficult for children who are echolalic in language, and will often select only the last choice presented to them. However, a skill such as choice making is something that is often taken for granted.

This presentation is memorable to me due to the implications that it can have for so many individuals. The ability to make a choice is a skill necessary in a variety of contexts, including, but not limited to, education and leisure. A skill such as choice making is also immersed in so many areas of curriculum designed to teach other skills to young children with autism. For example, the ability of a child to participate in a preference assessment to choose an item to be used as a reinforcer in teaching scenarios can be important to ensure the strength and value of the reinforcer being used.

I look forward to the opportunity to attend the ABA International conference again this coming May in Chicago, IL, and have the chance to interact with some prominent researchers and preview some current and up and coming research in the field of autism.

Trainee: Julie Kudys

Training Site: York University

Conference: 2007 Annual Conference of the Association of Applied Behaviour Analysis

Poster Title: “Small Diet Coke Please: Assessing the Functionality and Social Validity of Assistive Communication”

Authors: Laura J. Tolve, Melissa M. Anglesea, Hannah E. Hoch, Bridget A. Taylor (Alpine Learning Group)

Purpose: Investigate the functionality and social validity of varied modes of communication when ordering at a fast food restaurant. The four augmentative systems assessed were: American Sign Language, Text exchange, Voice output device, Picture Exchange Communication System.

Participants & Settings: 7 neurotypical female teachers, ran four trials (per communication system) requesting items in varied fast food restaurants using PECS, Augmentative Device, Sign Language, Text ; 2 adolescents with autism, ran five trials (per communication system) requesting items in varied fast food restaurants using PECS, Augmentative Device, Sign Language, Text

Procedure: Adults and students were trained to use each communication system, then entered fast food venue, did not speak upon entering, ordered “diet coke” using the appropriate mode of communication, if served – paid, took the diet coke and left, if not served – repeated the request up to three times, if no service, walked away

Results: Percentage of time students with autism served in various modalities of communication: Text- 100%, Talker – 100%, Sign – 0%, PECS – 100%; Percentage of time neurotypical adults served in various modalities of communication: Text – 96%, Talker – 75%, Sign – 0%, PECS – 71%

Personal Interest: Although many studies examine the ability of the speaker (the individual delivering the message) to effectively use augmentative/alternative communication systems, few studies have examined the effectiveness of a communication system from the perspective of the listener (the individual receiving the message). Clearly, the ability of a communication system to be understood, and honoured, by individuals in the community is essential to the success of the system. As I intend to explore the use of the Picture Exchange Communication System as part of my dissertation, this study helps shed light on yet another important variable to consider when assessing the effectiveness of the system. Clinically, this study also provides information that may be used to help match the most appropriate communication system to the listener.

Trainee: Patrick Malenfant

Training Site: Queen's University

Conference: International Meeting for Autism Research 2006

Scientific progress is based on the rapid sharing of findings and novel ideas among researchers. Scientific conferences include two types of presentations. First, the poster sessions, where researchers and trainees present their findings and discuss one-on-one with people interested in their research. Second, there are the platform presentations which are, for me, the most exciting part of the meeting. Many of the speakers are very well known scientists, but a few students get the chance to live this experience at every conference. At the 2006 IMFAR (International Meeting for Autism Research), I had the honor of being one of those students. It was an amazing experience to get to present my work in front of such a knowledgeable crowd. I received very valuable comments from many who took the time to comment on my research and ask questions. It was an unforgettable experience. Since my PhD thesis is on the genetics of autism, I am summarizing a few of the presentations that I thought were very exciting and informative:

Increased Prevalence of Maternal Autoantibodies Against Fetal Brain in Autism.

Dr Braunschweig presented findings that suggest that serum antibodies from mothers of children with autism react against fetal brain proteins, and may have negative effects during development. If replicable by others, detection of such antibodies may serve as an early indicator of autism risk. For geneticists, this is a good demonstration that not only should we be investigating the genes of individuals with autism, but also those of their parents, in this case, the mothers.

Identification of Autosomal Recessive Genes for Familial Autism and Mental Retardation

The results presented by Dr Morrow showed that linkage mapping in large, multiplex families who share common ancestors (i.e. with cousin-cousin marriages) was an efficient way of identifying autism-linked genes. Their approach was different from the classical statistical methods used in genetics research, and demonstrated the importance of having access to extended-family data.

Reduced MECP2 Expression is Frequent in Autism Frontal Cortex and Correlates with Aberrant MECP2 Promoter Methylation.

Raman P. Nagarajan from Dr Lasalle's laboratory at U.C. Davis School of Medicine presented evidence that although mutations were only found in the MECP2 gene (causes Rett syndrome) in rare cases, aberrant expression of MECP2 in a group of individuals with autism resulted from an epigenetic change (i.e. not depending on changes in DNA sequence). Taking into consideration these types of results should make genetics studies more complete.

Pharmacogenetic Testing in Children with ASD

Pharmacogenomics examines the influence of genetic variation on drug response in patients. Dr Manning-Courtney presented a study on the effect of variations in two genes (CYP2D6 and CYP2C19), which control how the body metabolizes several types of drugs. In a group of individuals with autism, it was possible to predict the correct dosage of Risperdal based on the information provided by these sequence variants as the effects of the variations were similar to those observed in the general population. Given the high heterogeneity of ASDs, and increasingly important role of pharmacogenomics in the pharmaceutical industry, it was suggested that such studies may help to select and manage medications.

Trainee: Duong Nguyen

Training Site: University of Manitoba

Conference: Annual Convention of the International Association for Behavior Analysis

I attended the 33rd Annual Convention of the International Association for Behavior Analysis held in San Diego in May 2007. The convention is one of the most important annual conferences in the fields of behavioral psychology and developmental disabilities. The Association currently has close to 4,000 members from 41 countries, and its last annual conference was attended by close to 3,000 delegates. It is an excellent place for students, scientists, and professionals in the area to communicate with and learn from one another.

One of the presentations I attended was chaired by Tristram Smith from the University of Rochester Medical Center, entitled "Early Behavioral Intervention: Main Findings from the Multi-site Young Autism Project". The topics discussed included independent replications of outcomes of children receiving behavioral intervention from various sites, specifically identifying the various child variables that were evaluated pre and post-treatment, as well as a discussion on predictions of outcomes that resulted from a meta-analysis of all the outcome studies that have been published.

I find these presentations to be highly relevant to the longitudinal evaluation of early intensive behavioral intervention that I am working on with Dr. Yu.

Trainee: Noemie Riendeau

Training Site: University of British Columbia

Conference: American Society of Human Genetics Annual Conference

A couple of weeks ago I had the privilege of attending the American Society of Human Genetics (ASHG) annual conference in San Diego, California. During a workshop hosted by Nimblegen, Dr. Jonathan Sebat from the Cold Spring Harbor Laboratory gave a very interesting talk about the association of Copy Number Variants (CNVs) with Autism Spectrum Disorders (ASDs), a finding that he and his group had previously reported earlier this year in *Science* [*Science*, 2007 Apr; 20: 316(5823): 445-449]. After briefly summarizing the results of their genome-wide study, he went on to discuss how many of the proteins encoded by candidate genes contained within CNVs interact with each other within known protein interaction networks, and how this can lead us to the biological pathways likely involved in the pathophysiology of ASDs. Below is a brief summary of the data presented during the workshop. For a more complete discussion, please refer to the above-mentioned paper.

As some of you might know, copy number changes, also known as microdeletions and microduplications, are common in the human population, involving more than 15% of the genome, with any 2 individuals differing on average by about 4Mb of CNVs. Using the array Comparative Genomic Hybridization technology and DNA from 118 affected individuals from simplex families (with only one affected individual) and 77 individuals from multiplex families (with more than one affected member), Sebat's group found a significantly increased frequency of de novo (not inherited from the parents) copy number changes in ASD patients compared with controls. The frequency of de novo CNVs in simplex cases was 10% (12/118), 3% in multiplex cases (2/77) and 1% in controls (2/196), suggesting a strong association of de novo CNVs and sporadic autism. The lower percentage of deletions and duplications found in multiplex families is not surprising, since heritable factors are expected to play a more significant role in those families where recurrence of the phenotype is observed. Also of note is the fact that most changes in the ASD group were deletions (11/14) while both changes found in controls were duplications, which are much less frequently associated with clinical phenotypes.

In the second part of his presentation, Dr. Sebat talked about the common themes that are emerging among the set of gene candidates, encoding proteins notably involved in signalling, metabolism and neurotransmission. By looking at networks of known protein interactions, they noticed that many of the genes contained within these de novo CNVs interact either directly or indirectly with each other and with the small number of genes known to cause the rare monogenic, or syndromic forms of autism (e.g. MECP2 in Rett syndrome). These networks of proteins highlight certain biological pathways that could be involved in the pathophysiology of ASDs, and provide us with additional clues as to what possible genes (neighbouring proteins in the network) might also be good candidates.

This is very encouraging news for me and for our group here in Vancouver that studies copy number changes in ASD patients, much the same way that Jonathan Sebat's group does. The fact that we can now see connections at the biological level between candidate genes within CNVs reported by several groups around the world, and other candidate genes suggested by other genetic studies, further validates our approach and gives us the feeling that we are gathering very meaningful information, and getting closer to understanding the biological basis of ASDs.

Trainee: Danielle Savona

Training Site: Brock University

Conference: 33rd Annual ABA International Convention in San Diego

I presented my poster at the ABA International conference in San Diego this year and I had a wonderful time personally and academically. I presented my poster on Teaching Monetary Skills to Children with Autism using Stimulus Equivalence. Stimulus equivalence is a tool used to teach a number of different relations and skills. The main premise of stimulus equivalence is that if an individual is taught that $A=B$, and $B=C$, the individual will automatically know that $A=C$, without any direct instruction. Stimulus equivalence has incredible potential for teaching many skills to children, without teaching them every different possibility.

The poster session gave me a great opportunity to receive feedback and answer questions from many people in the field, including some authors who I referenced in my thesis. During an earlier poster session, I especially enjoyed the opportunity to discuss my thesis with other students who were doing similar research, and even using similar methodologies.

One of the presentations I attended was particularly interesting. The presenter was looking at Language for Learning, which is a direct instruction program designed to teach pre-academic skills as well as skills in areas such as problem-solving, classification, and description of objects. Language for learning can also be incorporated into a discrete trial teaching program. She then discussed Relational Frame Theory and how it is linked with effective instructional practices in language development. Relational Frame theory is especially relevant for my area of research as relational frame theory encompasses stimulus equivalence (the technology I am using for my thesis).

In addition, I attended a particularly interesting symposium, which examined research using match-to-sample procedures to teach spelling, handwriting, and word-processing skills to children with developmental disabilities (including autism). This work was especially relevant to me as it has important implications for instructional practices and prerequisite skills needed for these skills. I found myself constantly comparing my research to the presentations I attended. This gave me the opportunity to reflect on my research and how I can improve on my methods and approach. I found that I learned a great deal from this process of reflection and I was very inspired after leaving the conference a few days later.

Trainee: Jessica Schroeder

Training Site: York University

Conference: International Meeting for Autism Research 2007

I must confess that I was a bit star-struck when I first arrived at IMFAR. After spending several years reading articles and books written by the biggest names in autism research, it was surreal to be sitting beside them, meeting them, and listening to them present their latest research. It is one thing to read about research, it is another thing to hear someone actually describe it.

The most notable moment for me was attending the presentation by Uta Frith, who was honoured with a lifetime achievement award. She is truly a central figure in autism research and theory. She was one of the researchers who developed the weak central coherence theory to describe the core deficits of autism. This theory purports that the primary deficit in autism is a failure to integrate information across multiple contexts into a meaningful whole.

Uta Frith is also a key figure in the research on the challenges that individuals with autism face when trying to understand that inner states cause actions in other people—a result of their deficits in developing theory of mind. At the conference she talked about some of the highlights of the research that she is currently working on in this domain. She described an implicit theory of mind task that she uses to assess these skills. It involves inanimate objects moving in patterns that suggest intention. This is a brilliant and creative way to tap into theory of mind ability without requiring that the participant be equipped with extensive verbal abilities, one of the major challenges in theory of mind research with individuals with autism.

I particularly enjoyed her reminder to also focus on the strengths of individuals with autism that occur as a result of their deficits in theory of mind: they can be less manipulative, less deceptive, and less focussed on reputation than their peers. It is important that clinicians, researchers, and parents remember that it isn't always about the deficits that individuals with autism face, we should also focus on their strengths.

In addition to meeting many notable researchers it was also wonderful to meet parents of individuals with autism to learn about their stories of what works and what does not work and, more importantly, to hear their recommendations for future research. It was really inspiring to be surrounded by so many people with a common goal: to better understand and assist individuals and families with autism.

Trainee: Jessica Schroeder
Training Site: York University
Conference: RSIG-OADD Conference

The RSIG-OADD conference, held in Barrie Ontario, is an opportunity for researchers who focus on developmental disabilities to exchange information with each other. I attended many fascinating presentations during the conference, however one presentation was of particular interest to me. A major challenge in service delivery is the ability to help all individuals who need it, including residents of remote locations. Valerie Temple from Surrey Place Centre described a pilot study that explored the efficacy of using videoconferencing technology to conduct psychological assessment for individuals living in remote locations. This pilot study compared the outcome of live psychological assessments and psychological assessments using videoconferencing technology. Results from this preliminary study suggest that videoconferencing may be an effective method to conduct psychological assessments with individuals in remote locations.

Trainee: Leslie Thorne
Training Site: University of Manitoba
Conference: St. Amant Conference

The 16th Annual St. Amant Conference on took place October 4th and 5th in Winnipeg, Manitoba. This year's conference on Developmental Disabilities and Autism consisted of several main themes, including Innovative Practices, Wellness, Practical Training, Self-Advocacy, and Autism.

At the conference, there were a number of symposia and poster presentations directly related to autism. Of interest was a presentation on teaching verbal behavior to children with autism. The symposia began with a description of basic learning concepts, principles and procedures based on Skinner's (1957) Verbal Behavior. The symposia then gave specific examples of how two children were taught to make requests. The two children were non-vocal and were taught to point to items to make their requests. Children were also taught to exchange items and pictures to make requests. By teaching children with autism to make requests, they are able to functionally use their communication in a meaningful way.

During the poster sessions, several researchers presented posters in a variety of areas. Poster topics included teaching students to conduct discrete-trials teaching, an evaluation of a parent information booklet, anxiety in high-functioning adults with autism, and preferences. The St. Amant Conference on Developmental Disabilities and Autism continues to provide an impressive group of speakers. Each year the presentations continue to be high-quality, diverse, and informative.

Trainee: Kerri Walters

Training Site: University of Manitoba

Conference: Annual Convention of the International Association for Behavior Analysis

In May of 2007 I attended the International Association for Behavior Analysis' Annual Convention in San Diego California. This organization has about 4000 members, representing over 40 countries on five continents. The annual convention is the premiere conference in experimental and applied behavior analysis (ABA). The printed program for the 4-day conference program is about 2.5 cm thick.

While there, I presented the findings of my MA research project, which looked at the role of expressive language in perspective taking among children with autism spectrum disorders (ASDs). During the poster session a number of researchers and instructors stopped by to ask questions and to provide valuable suggestions for future research needs. It was beneficial to have the opportunity to discuss my research with other students and instructors within the area of ABA. These interactions highlighted a need for future research in this area and confirmed the importance of extending my research.

In addition to my presentation, I attended many talks delivered by some of the leading ABA researchers. During these presentations I learned about current research evaluating effective teaching strategies for children with autism who are receiving IBI/ABA interventions, techniques to promote joint attention skills among children with an ASD, and suggestions for transferring skills learned in one setting to others.

The talk that was of particular interest to me was delivered by Dr. Connie Kasari of the University of California Los Angeles. Her research evaluated joint attention and symbolic play skills among children with ASD. Joint attention involves a shared interaction with another individual (e.g., if a parent points to something of interest the child would look to where the parent is pointing). Symbolic play requires a child to engage in a play activity in the absence of the related materials (e.g., playing drums using pots, pans, and wooden spoons). Kasari's research demonstrated a systematic procedure for teaching a joint attention skill which involved a coordinated joint look between the child and the instructor. They were also able to teach symbolic play skills by starting with functional play and gradually moving towards symbolic play. Kasari reported improved expressive language among the children in their study at six and twelve months following intervention. Unfortunately, the children were unable to maintain the joint attention skills at these post-treatment follow-up measures. The author indicated that variability in language and nonverbal measures prior to receiving treatment, may have been a factor associated with performance on the language measure at post-treatment. The results of this research offer a promising starting point for teaching joint attention and symbolic play skills to young children with ASD.

It is always an exciting experience to attend this annual convention and to take with me cutting edge research findings that can be implemented in both my research and applied work.