Simon Fraser University Autism Lab

At the Autism and Developmental Disorders Lab at Simon Fraser University we are interested in the social development of individuals with an Autism Spectrum Disorder (ASD). The goal of our research is to understand more about social development in autism and to inform treatment and intervention.

A few words from the Director, Dr. Grace Iarocci

I am an associate professor of Developmental and Clinical Psychology in the department of psychology at SFU and I work closely with the government and community agencies in BC to provide research information on Autism Spectrum Disorders (ASD).

At the ADDL, we investigate the basic processes of attention and perception that are involved in the social-cognitive development of individuals with and without ASD. More recently, we have also started to investigate issues in adolescents and adults with ASD. Specifically, we are interested in how adults with ASD view themselves and their future. The majority of research has focused on childhood; however, ASD is a life long condition that also greatly affects adolescents and adults.

We are committed to learning more about individuals with ASD across the life-span. We thank the Social Sciences and Humanities Research Council (SSHRC), the Michael Smith Foundation for Health Research (MSFHR), the Canadian Institutes for Health Research (CIHR), and the Laurel Foundation for supporting our work.

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Did you know?!?

The ADDL is now on Facebook! Be sure to “like” us on Facebook and share with your friends.

Just search for “ADDL” and you will be able to view our page. Upcoming events and news will also be posted here and on our ADDL website!

Thank You!

We would like to thank all the parents, children, adolescents and adults who have participated in research at the ADDL lab! On the following pages we outline some of the research studies and findings that were made possible by your participation. We appreciate your contribution to autism research and invite you to participate in our new studies!

Learn more about us at: 
http://autismlab.psyc.sfu.ca
Second Language Exposure in Children with ASD is Associated with Higher Parent Ratings of Functional Communication
by Gillina O’Toole, Sarah Hutchison, and Grace Iarocci

Previous research suggests exposure to a second language may have benefits for typically developing (TD) children; however, in children with ASD, the effects of exposure to a second language are not known. The aim of this study was to examine whether second language exposure was related to Functional Communication in children without and without ASD. Functional communication (FC) is defined as communication with a purpose or intent within one’s own environment (e.g., with mother, teacher). One example is the child saying “juice” while looking towards the person with the juice. Second language exposure may increase opportunities for children with ASD to improve their FC.

Twenty-four children between the ages 6-11 were categorized into four groups: ASD-second language exposure, ASD-monolingual, TD-second language exposure, or TD-monolingual. There were six children in each group. Monolingual participants were native speakers of English and participants exposed to a second language spoke a variety of languages (e.g., Mandarin, French). Parents rated children’s FC using the Behavioural Assessment System for Children (BASC-2). Results showed that the TD-second language exposure group had the highest FC score (50.1).

The ASD-second language exposure group (41.1) and TD-monolingual group (42) had almost identical scores. Finally, the ASD-monolingual group had the lowest score (34.5) falling in the at-risk classification range. The results of this study are preliminary evidence that exposure to a second language may benefit children with ASD to achieve more adaptive FC. Better FC facilitates the communicative partners (e.g., parents and teachers) understanding of the communicative intent of the child’s communication.

This study was presented at the Jean Piaget Society 44th Annual Meeting in May 2014 and is in preparation to be published.

Age-Related Changes in Parent Ratings of Executive Function in Children and Adolescents with and without Autism Spectrum Disorder
by Emily Gardiner, Sarah Hutchison, and Grace Iarocci

In this study, we used a measure of everyday executive function (EF) to examine how these abilities change with age in typically developing children as compared to those with ASD (aged 3-20 years). This measure, called the Behavior Assessment System for Children, contains an index called the Executive Function content scale, which assesses things like how well children are able to resist distraction, adjust to unexpected changes, and think before acting.

Our results indicate that everyday EF difficulties were not present in comparison to peers in the early years (3-6 years), but were in the later years (7-11, 12-15, and 16-20 years), with a particular peak in this divergence during school-age (7-11 years). This suggests that in children with ASD, EF abilities progress throughout development, but improve at a slower rate, and take a different developmental course than in their typical peers.

This study was presented as part of a symposium organized by Sarah Hutchison at the Canadian Psychological Association (CPA) Conference in June 2014, and is in preparation to be published.
Communication and Executive Function in Children with and without ASD
by Sarah Hutchison, Jodi Yager, and Grace Iarocci

Executive functions (EF) are capacities that allow one to accurately evaluate a situation and develop an appropriate response. Children with ASD have communication and EF deficits, however, the evidence is mixed with regard to if and how these difficulties are related. The aim of the current study was to examine the relations between parent rated EF and communication ability in children with and without ASD using individual and parent measures. We examined these abilities in 61 children with and without ASD (age 6-13 years) matched on IQ.

In children without ASD, parental reports of EF were correlated with functional and social communication and verbal conversation scores. However, for children with ASD, only certain components of EF were associated with specific aspects of communication. This pattern of findings suggests that EF interventions for children with ASD need to be targeted and assessed within specific domains. For example, enhancing WM through the explicit teaching of verbal strategies such as rehearsal, “think aloud” protocols may help to facilitate both EF, and functional and social communication.

This study was presented at the Jean Piaget Society 44th Annual Meeting in May 2014 and is in preparation to be published.
Sibling’s Gender Affects Peer Relationships in Boys with ASD
by Reyhane Bakhitiari, Sarah Hutchison, and Grace Iarocci

In general, sibling relationships have a unique role in social development of children, but these relationships have special importance among children with ASD. Typically developed siblings can provide the opportunity for their ASD brothers and sisters to socialize with other children in a supportive situation. Research has shown the positive effect of TD children’s engagement in their ASD sibling’s social and behavioral interventions.

The aim of this study was to examine the effect of the TD sibling’s gender on the quantity of contact and quality of peer relationships with children with ASD. We found that having a same-gender sibling is associated with better quantity of contact with peers in boys with ASD. In other words, ASD boys with a TD brother, in comparison to those with a TD sister, were more likely to participate in social groups, had more close friends, were less ignored by their peers and considered less “weird” by peers.

Having a same-gender sibling might increase the number of opportunities for social and peer relationships in children with ASD. However it does not necessarily improve the quality of social relationships such as getting along with peers and being liked by them or having a best friend to share similar interests and activities. The results highlight the importance of encouraging TD siblings, especially same-gender siblings, to develop a close relationship to children with ASD because it may increase social opportunities for them.

*This study was presented at the 44th Annual Meeting of The Jean Piaget Society (2014).*
Quality of Life in Families of Children with Autism Spectrum Disorder
by Emily Gardiner and Grace Iarocci

The goal of this research was to gain a better understanding of what contributes to Quality of Life (QOL) among families of children with ASD. Specifically, we examined the role of child characteristics (e.g., adaptive and problematic behaviour) and family factors (e.g., income). We found that family income, as well as child behaviour problems and daily living skills (e.g., toileting, dressing, helping out at home) played the most important role in how families rated their QOL. This component of the research will be published in *Autism Research* in 2015. Watch out for the publication to be posted on our website!

We also looked at how families deal with difficult circumstances, including relying on positivity, spirituality, social resources, or positive communication patterns. This aspect of the research indicated that families who demonstrate positive communication patterns and open emotional expression are most satisfied with their QOL.

Finally, a portion of families participated in a follow-up interview, in which they shared their perceptions of QOL, elaborated on their experiences with funding access and service delivery, and described sources of resilience. This research revealed important insights into ways the current service system could be improved, and we are currently preparing a paper that will synthesize these findings.

Predicting Bullying in High Functioning Children with Autism Spectrum Disorder (HFASD)
Using Both Parent and Self-Reports of Behaviour
by Adri Khalis and Grace Iarocci

Youth with Autism Spectrum Disorder (ASD) are at greater risk for being bullied than their typically developing peers. However, little is known about factors contributing to this increased risk. This study focused on self-report of children and adolescents (i.e., youth) on behaviour as a potential predictor of parent reported frequency of being bullied in high functioning (IQ>85) youth with ASD.

In the current study, thirty-nine high functioning youth with ASD between 7-18 years and their parents completed measures on social impairment, anxiety, depression, hyperactivity, and attention problems. In addition, the parents reported on frequency of their children with ASD being bullied. The hierarchical multiple regression analyses revealed that youth reported anxiety and depression symptoms accounted for an additional 14% of the variance in parent reported bullying above and beyond age, gender, IQ, autistic social impairment, attention problems, and hyperactivity symptoms. The results support the use of youth reports on behaviour to better predict bullying in high functioning youth with ASD.

*This research was presented at the Annual Convention of the Canadian Psychological Association (2014).*
Inattention, Hyperactivity, and Executive Function as Predictors of Social and Academic Adjustment in University Students
by Whitley Sheehan and Grace Iarocci

University life introduces many new and more complex demands on students. Academically, a higher quality of work is expected and the intensity of coursework increases. In the social domain, students are expected to interact proficiently with faculty, administrative staff, and a more diverse set of peers. Additionally, students experience less structure and are expected to be more independent. Adjustment to these demands has predicted drop-out rates and academic performance. As such, factors that influence how well a student adjusts academically and socially are important to uncover. Previous research has indicated that attention, hyperactivity, and executive function may play a role.

In this study, only a measure of executive function, age, and gender were predictive of academic adjustment. This means an individual with poorer skills in planning, initiating tasks, organization, monitoring their performance, and working memory would be expected to experience poorer academic adjustment. Only depressive symptoms were predictive of social adjustment, meaning higher levels of depressive symptoms predicted poorer social adjustment. Inattention in particular did not play as big a role as previous research would suggest.

This research was presented at the Annual Convention of the Canadian Psychological Association (2014) and is in preparation to be published.

Special Interests in Adults with and without ASD: A Comparison Study
by Kimberly Armstrong, Fakhri Shafai, Ipek Oruc, and Grace Iarocci

Although many people with ASD have restricted interests (such as trains or video games), only a handful of studies have been conducted on the topic, with most focusing on the content of interests. The goal of this study was to determine whether there were differences between adults with ASD and those without ASD who have special interests.

Both groups had similar interest content in areas such as computer/video gaming, animals, sports, and anime/Japanese culture. On the variables measured, there were no significant differences between the groups for the age their interest started (around 10.5 years old for both groups), the duration of their interest (around 13-14 years old), age their interest peaked (around 16-17 years old), percentage of their spare time they do or would like to spend on their interest; (about 50% for both groups), or the amount of money they spend on their interest (about $50/month). The results indicate that interests in adults with ASD are not atypical on the variables measured compared to other adults without ASD who also have special interests. Other qualitative variables such as the motivation for engaging in the interest, or the way the interest is pursued, should be explored in future research.

This research was presented at the annual International Meeting for Autism Research (2013).
Depression in Children with Autism Spectrum Disorder
by Krista Johnston and Grace Iarocci

There is an abundance of literature on depression in typically developing (TD) youth, however, very little is known about depression in youth with Autism Spectrum Disorder (ASD). Depression is one of the most common mental health conditions in youth with ASD with prevalence estimates ranging from 1.4 to 38% (Magnusen et. al, 2011). TD youth depression is often associated with social withdrawal and problems related to social interactions and friendships. However, in youth with ASD, these social difficulties are core features of ASD and, therefore, it is difficult to distinguish between the core features of ASD and the social difficulties that are part of the depression symptomatology.

This study included data from 50 youth with high functioning ASD (i.e., IQ>85) between the ages of 7 and 18. Depression symptoms were measured using the Behaviour Assessment System for Children, 2nd Edition Parent Rating Scale. An item analysis was conducted to determine which symptoms of depression were endorsed by parents. Results indicated that 55% of the sample scored in the clinically elevated range for depression. Both core features of depression (e.g., sad or cries easily) and social features (e.g., says “nobody likes me”) were endorsed by parents, thus, the high depression scores in youth with ASD were not solely based on social difficulties associated with depression.

This research was presented at the Annual Convention of the Canadian Psychological Association (2014).

Thanks to all our participants and lab volunteers for making these studies possible!
**Current Research Projects**

**Validation of the Multidimensional Social Competence Scale**

**What do we want to know:** The overall goal of the study is to validate the newly-developed Multidimensional Social Competence Scale (MSCS), to determine the reliability of the MSCS in a sample of educators, and to examine the relations between ratings on the MSCS and indicators of social competence (e.g., friendships and peer acceptance). The proposed research will focus on the measurement of social competence and its potential application to a multitude of research and educational goals in the areas of promotion of prosocial behaviour, prevention of bullying and social conflict, and intervention to address social disabilities.

**Who are we looking for?** Adults (19+ years old), caregivers, and teachers of youth (8-18 years old) with or without a diagnosis of ASD.

**About the study:** The study involves the completion of two questionnaires (the MSCS and demographics) which will take approximately 30-60 minutes to complete. Participation may be online or in person at the ADDL SFU Burnaby campus.

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**Special Interests in Trains Among Children and Youth**

**What do we want to know:** Many children with autism are fascinated by trains. The goal of this study is to understand how special interests develop in youth with and without autism. We are examining how a special interest in trains from a young age influences learning about trains vs. learning about social stimuli. For example, do children recognize trains as easily as we recognize faces?

**Who are we looking for?** Children and youth WITH and WITHOUT autism between 6-19 years of age, and their parents. We are looking both for children who have an intense interest in trains, and children who do not.

**About the study:** This research will take place at our lab at SFU, Burnaby campus. You will be asked to fill out questionnaires and your child will be involved in computer tasks.

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**SFU & UBC Study on Special Interests and Visual Perception**

**What do we want to know?** The overall goal of this study is to gain a better understanding if how visual perception and interests in people with ASD differ from people without ASD, and if so in what way. This research will help us identify areas of strengths and those in need of support for adults with ASD, which is a topic very much in need of study.

**Who are we looking for?** Adults (16+) with a diagnosis of ASD.

**About the study:** Adult participants will spend the day (about 6-7 hours) doing interactive tasks (such as defining words and solving some puzzles), and completing some questionnaires. They will also complete a brief eye exam and some computer tasks. The day will take place at Vancouver General Hospital. Participants will be paid $10/hour cash for their participation in the study.

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Current Research Projects

Quality of Life in Families of Children with ASD: From Diagnosis to Adulthood (Online Study)

What do we want to know? The overall goal of this study is to gain a better understanding of how family quality of life may change across the lifespan of individuals with autism, and to identify the domains that contribute most positively to families’ quality of life as well as those from which families derive the least satisfaction.

Who are we looking for? We are looking for any caregiver of a child with autism. The main caregiver may be a parent, a sibling, a spouse, a life partner, or other family member. Anyone in British Columbia is eligible to participate because the study will be conducted over the phone and using an online survey.

About the study: Participants will complete an online survey. The total time commitment is approximately 90-120 minutes. For this study, an amazon.ca gift card will be provided.

How do youth with Autism Explore Faces?

What do we want to know? The goal of our research is to understand how face processing might be different in people with autism. We want to know how children with and without autism explore faces.

Who are we looking for? Youth WITH and WITHOUT autism between 5-24 years of age, and their parents. Youth with autism should be high functioning (i.e. IQs in the average to above average range). All youth should have normal (or corrected to normal) vision and hearing.

About the study: The study will take place in our lab at the SFU Burnaby campus. Participants will be scheduled at their convenience and may be asked to come for 1-2 hours (including breaks). The child will take part in a computer task that involves matching faces. His or her eye movements may also be monitored so we can assess where he/she is looking while completing the task.

What do People with Autism Look at in the Real World?

What do we want to know? Much of what we know from research in autism is about how children look at stimuli displayed on a computer screen. Not as much research data is available about how children with autism explore their natural environments, such as when walking down a hallway or interacting with another person. We hope to uncover how individuals with autism behave in natural, unstructured social and non-social settings.

Who are we looking for? Youth aged 8-15 WITHOUT autism, and their parents. All youth should have normal (or corrected to normal) vision and hearing.

About the study: The study will take place in our lab at the SFU Burnaby campus. Participants will be scheduled at their convenience and may be asked to come in for 2-3 hours (including breaks). In this project, we will be asking children, adolescents, and adults with autism to wear a light-weight portable eye tracking device while they play a game with the experimenter and navigate through a real world environment.

To sign up for any study, email addl@sfu.ca
Successful Thesis Defense

Emily Gardiner successfully defended her doctoral thesis on September 19, 2014. The title of her dissertation was *Quality of Life in Families of Children with Autism Spectrum Disorder: Considerations of Risk and Resilience*. Emily is now a postdoctoral fellow in the Department of Pediatrics (University of British Columbia). She is conducting her current research out of the Child and Family Research Institute.

Another Successful Thesis Defense & Award

On October 17, 2014, doctoral student Kimberly Armstrong successfully defended her PhD thesis entitled "Interests in Adults with ASD". This year Kimberly has received a number of awards including the Social Sciences and Humanities Doctoral Fellowship, the CIHR Health Professionals Award, and the SFU Graduate Fellowship.

Clinical Residency in Disabilities

Ms. Kimberly Armstrong recently started her year-long clinical residency with the Kingston Internship Consortium. While in Kingston, Kimberly is receiving specialized training in working with and supporting individuals with both developmental and acquired disabilities across the lifespan.

New Masters Student

Kimia Nassehi, received her bachelor of arts and social sciences, majoring in psychology honours, with distinction in 2014. Kimia is the newest master’s student under the supervision of Dr. Iarocci. Her research Interests are ASD and other neurodevelopmental disorders, development and measurement of social competence.

Past Events

CIRCA Presentation: Family Quality of Life and ASD

On February 11, 2015, Dr. Emily Gardiner presented at the UBC CIRCA Colloquium Series about the Family Quality of Life (FQOL) construct and presented results of a study that examined FQOL among British Columbia families of children and adolescents with ASD.
MP Mike Lake Speaks about his Personal Experiences with ASD

On January 14, 2015, the ADDL organized a guest speaker lecture by MP Mike Lake where he spoke to Dr. Iarocci’s students in 391 Developmental Disabilities course at SFU about his family's experience with his son with autism. Of importance were his views on inclusion and contributing to society when an individual has a disability. The lecture gave a unique perspective from a parent and a politician and an interesting

ASD & Family Quality of Life Discussion Series

Throughout the winter of 2014, the ADDL and Laurel Foundation co-hosted three events that focused on different aspects of Family Quality of Life, including School, Mental Health, and Transitions. Each time, a range of stakeholders came together, including individuals with ASD and their families, researchers, government representatives, clinicians, and professionals. Participants shared their experiences regarding what worked for their families and what would help them to succeed in the future. The videos from these events are posted on our website. Please check under ‘2014 News.’

Hira Pannikar Memorial Lecture: Guest Speaker

In October 2014, Dr. Iarocci was invited to present her lecture on “Restricted Interests in children with ASD: Problem or Solution?” as a guest speaker for Hira Pannikar’s Memorial Lecture at the Children’s and Women’s Health Centre of BC Academic Lecture Series.

ASD Mental Health Blog: Canadian Researcher Interview

Research in the field of ASD is very important and almost equally important are the people who drive the research. Dr. Grace Iarocci was interviewed by Dr. Jonathan Weiss, Chair in Autism Spectrum Disorders Treatment and Care Research, for the October 2014 blog as part of their ongoing series to feature Canadian ASD researchers. The interview can be found at: http://asdmentalhealth.blog.yorku.ca/2014/10/canadian-researcher-interview-dr-grace-iarocci/

Richmond 3rd Annual Autism Resource Fair

The ADDL was able to attend this great event on Nov. 22, 2014 which included presentations from professionals and parents. We were able to share information with families on resources and research opportunities! We look forward to participating in this event next year! For more information about the Richmond Autism Interagency Committee, please visit their website: www.autismrichmond.ca
4th Annual SFU Social Science Camp - August 8 & 15, 2015

This is a FREE, fun, and educational camp for children and youth with or without Autism Spectrum Disorders (ASD). The camp for individuals without ASD will take place on Saturday, August 8th and the camp for individuals with ASD will take place on Saturday, August 15th. All campers will receive a cool SFU Social Science Camp T-shirt! Part of the camp involves research participation; the majority of the day is devoted to fun crafts and interactive game activities.

We are changing things up this year! The theme “Friendship Building” will be the main focus of some of our activities so that campers can leave with skills and tools that they can apply in their day-to-day lives.

Additionally, Dr. Richard Laszlo, Instructor and Adjunct Professor in the Faculty of Education at Simon Fraser University, will be facilitating a parent group on both camp days. Dr. Laszlo’s has worked as a special education assistant in the public school system in BC for ten years and has conducted a doctoral research in education from SFU that focused on effective inclusive practices for students with ASD in elementary schools. In his work in the school system, Dr. Laszlo has collaborated with teachers and families, extensively participated in the individual education plans of his students, implemented various effective practices in ASD such as behaviorist approaches and relationship-based models, and worked toward supporting students’ social engagement with peers in various settings in the school.

We invite all parents to attend and participate in the group discussion. We will speak about how to build effective relationships with schools to ensure inclusion and programming for individuals with ASD. An open group discussion will also be held for parents of individuals without ASD where Dr. Laszlo will provide tips on developing good working relations with schools.

The August 15th camp will feature an additional parent workshop held by Dr. Marlene Moretti, an SFU psychologist and researcher who co-developed the Connect program which focuses on the core components of secure attachment to promote children’s social, emotional, and behavioral adjustments. After participating in the Connect group, parents report feeling less stressed and more effective in parenting as they see fewer behavioral problems and better social functioning in their child. Dr. Moretti will demonstrate an intervention to help parents understand children’s behavioral problems.

All parents are welcome to join the discussion, bring your questions with you!

For more information and to sign up, please see our website at http://autismlab.psyc.sfu.ca/

** Additional events will be posted on our website and Facebook as they develop!**

We hope you have enjoyed reading our annual newsletter! We would love to hear from you so feel free to contact us with questions, comments or suggestions via phone (778-782-6746) or email: addl@sfu.ca