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 a 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 social processes that are involved in the development of social competence in individuals with and without ASD. We have engaged in a variety of research that spans more basic issues such as attention and perception to cognition and interest development in the individual. However, we realize that ASD has effects beyond the individual and have begun to examine family and societal issues.

We are committed to learning more about individuals with ASD across the life-span as well as how ASD impacts relations with others and society at large. 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 lab” 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
Family Resilience in Families of Children with Autism Spectrum Disorder
by Gisella La Madrid, and Grace Iarocci

This research aimed to better understand what factors contributed to family resilience in families of children with ASD. In particular, we studied the role of child characteristics (behavioural problems and daily living skills) and systemic factors (family income, physical/material well-being and disability-related support) on family resilience. We found that physical/material well-being (e.g. financial assistance, access to transportation, dental and health care, and safe communities) was the most important contributor to family resilience. These tangible resources helped families feel more resilient to face ASD-related challenges; nonetheless, the family's perception of financial preparedness was equally important.

When we looked at the other factors, we also found that children's behaviour and daily living skills impacted family resilience. Certainly, when children present problematic behaviour and poor daily living skills, they require tangible support and continuous assistance from caregivers, and this was associated with lower ratings of family resilience. Finally, disability-related support was also identified as an important contributor to family resilience and it suggests the need for more specialized services that allow children to thrive at home, school and within their communities.

*These finding are parts of Gisella La Madrid’s Master’s thesis in Counseling Psychology at the Adler University. This research is in preparation to be published.*

Adaptive Functioning and Quality of Life in Families of Children with Autism Spectrum Disorder
by Emily Gardiner and Grace Iarocci

This research was part of a larger project examining contributors to Family Quality of Life (FQOL) among families of children with ASD. In this component, we examined how two characteristics, behaviour problems and adaptive functioning, impacted FQOL. Adaptive functioning includes social, communication and daily living (e.g., toileting, dressing, helping out at home) skills. We found that both behavior problems and adaptive functioning are important to FQOL, but that daily living skills played the most essential role in how families rated their QOL. In other words, families felt that it was their children’s difficulties with day-to-day personal, domestic and community skills that were most important.

This work is important to clinical practice because these kinds of day-to-day skills are not often addressed within intervention for children and adolescents without intellectual impairment. The results suggest that specifically targeting these kinds of skills could have beneficial effects for both individual and family well-being, and reduce family support demands.

*These findings were published in Autism Research in 2015, and presented at the Society for Research in Child Development conference in Philadelphia and at the University of British Columbia Department of Pediatrics ‘Celebrate Pediatric Research’ Day in March.*
Multidimensional Social Competence Scale Ratings are Associated with Facial Emotion Recognition in Children with ASD
by Sarah Hutchison, Elina Birmingham, Jodi Yager, and Grace Iarocci

The Multidimensional Social Competence Scale (MSCS) is a valid and reliable parent measure used to identify areas of social strength and challenge in adolescents with ASD developed by Drs. Iarocci and Yager. This study investigated the link between scores on the MSCS and a computer-based measure of facial emotion recognition, as correctly recognizing emotions is an important part of social interactions. Facial emotion recognition was measured using the Moving Window Technique (MWT), which requires participants to explore faces with a mouse controlled window. See example below.

The sample included 91 children with and without ASD. Parents completed the MSCS and children completed the MWT. Results showed that, as expected, parents of children with ASD reported lower levels of social competence compared to the report from parents of children without ASD. For the MWT, children with ASD were found to be less accurate in detecting fearful and happy faces in addition to being slower at detecting all expressions relative to TD children. As expected, performance indicators in the MWT were related to measures of social competency. In sum, these results suggest that the MSCS may be a useful tool to identify patterns of social competence and additional research to refine the measure is needed.

This study was presented to Society for Research in Child Development Biennial Meeting in March 2015 and is in preparation to be published. Data from this study was collected at SFU Social Science Camps.

The Relation between Social Communication and Executive Function in Children with and without ASD
by Sarah Hutchison, Ulrich Müller, 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 104 children with and without ASD (age 6-13 years) matched on IQ.

Results showed that EF skills observed by parents provide a unique contribution to social communication as indexed by the BASC Functional Communication subscale and the MSCS Verbal Conversation Skills subscale in children with and without ASD. This pattern of findings suggests that social communication and EF skills are highly related in children with and without ASD. Interventions targeting EF skills and/or social communication skills in children with ASD may be particularly effective and warrant further study.

This study was presented at the Jean Piaget Society 45th Annual Meeting in June 2015 and is in preparation to be published. Data from this study was collected from SFU Social Science Camps.
**Visual orientation processing in autism spectrum disorder: No sign of enhanced early cortical function**  
by Fakhri Shafai; Kimberly Armstrong; Grace Iarocci; Ipek Oruc

One focus of this study was on simple visual objects and how they are recognized by people with ASD. After focusing on "orientation" or the smallest angle a person can see in three different experiments, we found that adults with ASD are able to see orientation changes (angles) in the same way as people without ASD.

This means that at one of the most basic levels of vision, a person with ASD is seeing changes in orientation about the same as someone without ASD. These results suggest that the differences in visual perception in adults with ASD might be in areas that process more complex visual objects. We are finishing our follow-up study with the same adults from our first study. In this additional study, adults with ASD were looking at complex images like faces and houses. The overall goal with these studies is to find out how complex an image needs to be before a person with ASD will perceive it differently from someone without ASD. It is hoped that understanding what a person with ASD sees can allow researchers to make better choices when designing programs to help people with ASD improve their social skills.

Fakhri Shafai of the UBC's neuroscience program presented a poster at IMFAR of her joint study with the ADDL lab of SFU. This research with adults with ASD was also recently published in the Journal of Vision, [http://jov.arvojournals.org/article.aspx?articleid=2473619](http://jov.arvojournals.org/article.aspx?articleid=2473619)

**Identity formation and well-being in youth with and without autism spectrum disorder**  
by Theo Elfers and Grace Iarocci

This study focused on identity development, an important developmental task in the adolescent and young adult ages. Identity is the product of processes through which each individual attempts to form a sense of self and direction in their life. For this study, youth with and without high functioning autism spectrum disorder (HFASD) participated online from all across Canada. We found that youth with HFASD generally seem to form their identity in similar ways compared to their typically developing peers which speaks to the resilience of youth with HFASD. That is, they engage in similar amounts of exploration of available choices, explore more alternative choices the older they get and make commitments to particular choices with which they can identify.

However, we also found some subtle differences that suggest that older youth with HFASD seem to struggle more to commit to the choices that they explored and become more stuck in worrying about their future compared to their typical peers. Additional interview data highlighted that youth with HFASD benefitted from the emotional support from family, teachers and friends as well as mental health professionals that helped them navigate their identity formation and allowed them to gain a sense of acceptance of their unique strengths and challenges. We are very excited about the results of this study as it is the first systematic study on this topic in autism. Future research is needed to confirm these findings and explore further how best to assist youth who struggle with this important developmental task.

*Theo Elfers conducted this research for his PhD dissertation. This study is in process of being written for publication.*
Second Language Exposure in Children With ASD Associated With Parent Ratings of Functional Communication and Executive Function
by Gillian Laura O’Toole, Sarah Hutchison, & Grace Iarocci

Previous research with TD children has shown that being exposed to a second language may improve cognitive skills (executive function, EF); however, it is not known if similar results would be found in children with Autism Spectrum Disorder (ASD). One-hundred and forty-two children between the ages 6 - 18 years were matched on age and IQ, and were placed in four groups: ASD-Second Language (L2) Exposure, TD-L2 Exposure, ASD-No L2 Exposure, and TD-No L2 Exposure. Parents filled in questionnaires measuring EF skills (e.g., has trouble waiting for turn) and Functional Communication (FC) skills (e.g., responding appropriately to questions, giving one’s full name when asked).

Results showed that FC skills were significantly better when children were exposed to a second language compared to those children without second language exposure (for both TD and ASD groups). Similar results were also found for EF skills. In summary, these results suggest that second language exposure may be beneficial for both FC and EF skills in children with ASD.

This study was presented at Society for Research in Child Development in May 2015 and is in preparation to be published. Data from this study was collected from SFU Social Science Camps.

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 published in the Journal of Attention Disorders, http://www.ncbi.nlm.nih.gov/pubmed/26537893

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

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.

**If your child has an intense interest in something other than trains (e.g., dinosaurs, trucks, etc.), we would love to hear from you!**

**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.

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.

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.
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 45-60 minutes. For this study, an amazon.ca gift card will be provided.

Examining Executive Function in Young Children with Autism using Computer-Based Tasks

What do we want to know? The goal of this study is to understand how children with autism perform on computer-based executive function tasks. Executive functions are capacities that allow us to accurately evaluate a situation and develop an appropriate response. This may involve self-awareness, monitoring and planning, organization, flexibility, inhibition and working memory.

Who are we looking for? We are looking for children with autism between the age of 4 and 6 years and their parents. All children should have normal (or corrected to normal) vision.

About the study: This research will involve visiting our lab at SFU Burnaby campus. Participants will be scheduled at their convenience, and may be asked to come for 2-3 hours (including breaks). Your child will be asked to complete a variety of executive function tasks on the computer. When pictures appear on the screen, your child will be asked to provide verbal responses, to press the spacebar or to touch the screen, depending on the rules he or she is given.

To sign up for any study, email addl@sfu.ca
**ADDL Lab Manager Starting Postdoctoral Fellowship at UBC**

Dr. Sarah Hutchison successfully defended her doctoral thesis at UVic in July 2015. Sarah has received a Brain Canada and NeuroDevNet Developmental Neurosciences Research Training Award and will be starting her postdoctoral fellowship in the Department of Pediatrics (UBC) in February 2016. She will be conducting her current research out of the Child and Family Research Institute at BC Children’s Hospital with Drs. Oberlander and Masse. Sarah has enjoyed working with Dr. Iarocci, the ADDL team, and all the families she has met over the past four years. She is looking forward to continued collaboration on future research studies with the ADDL.

**New Post-Doctoral Fellow in the Lab**

Dr. Allison Brennan joined ADDL this year and she is conducting postdoctoral research with Dr. Grace Iarocci and the Autism & Developmental Disorders Lab at SFU. She received her Ph.D. in Psychology, Cognitive Science from the University of British Columbia in August 2014. Allison is interested in joint attention during social interactions. In her dissertation research she explored the influences of affiliation and communication on performance in a task that required pairs of participants to collaborate. She is now extending this work to investigate the mechanisms underlying joint attention in typically and atypically developing populations.

**Successful Thesis Defense**

Theo Elfers successfully defended his doctoral thesis in Fall 2015. The title of his dissertation was *Identity formation and well-being in youth with and without autism spectrum disorder*. Theo now works as a Psychology Consultant.

**New Masters Student**

Hilary joined ADDL this year as a first year student in the Clinical Psychology Program at SFU. She is currently pursuing a Master of Arts in Clinical Psychology (Child-Clinical specialization) under the joint supervision of Dr. Grace Iarocci and Dr. Tanya Broesch.

**Volunteers’ Success**

Congratulations to our lab volunteers for starting their respective graduate programs. Gillian O’Toole is now pursuing her M.Sc. in Speech-Language Pathology at the University of British Columbia. Adri Khalis is now working toward an MA in Clinical Psychology at the University of British Columbia. Loris Yoon also started her MA in Speech-Language Pathology the Eastern Michigan University.
Dr. Iarocci awarded grant from SSHRC

In 2015, Social Science and Humanities Research Council (SSHRC) awarded Dr. Iarocci and her colleague Dr. Slaney a Simon Fraser University – Small SSHRC Institutional Grant ($10,624.00). This grant will be used for the validation of the Multidimensional Social Competence Scale (MSCS).

New Online Facebook Group for Parents

During the morning of the 2015 SFU Social Science Camp Parent Workshop, it was proposed that a Facebook Group for parents may be a useful way for parents to stay connected outside of the annual camps. This group is for parents and professionals to share and discuss thoughts about living on or with the autism spectrum. Discussions of resources, schools, funding and other logistical concerns are welcome. Both Dr. Laszlo and Mr. Justin Fellenz have graciously offered to assist with facilitating this online Facebook group, called “Autism Workshop Parent Group” (https://www.facebook.com/groups/972413552821076/). This is a closed support group, so you must submit a request to join the group. So far the group includes over 20 members; see the group page for more information. Please note that the opinions expressed in this online group do not necessarily reflect the views of the SFU ADDL.

Past Events

SFU Social Science Camp Parent Workshops

After feedback from parents in 2014, we decided to host two workshops on the same day as the second camp on August 15th. The morning workshop was facilitated by Dr. Richard Laszlo, Instructor and Adjunct Professor in the Faculty of Education at SFU. Dr. Laszlo 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. Dr. Laszlo provided tips on developing good working relations with schools and then there was open group discussion. As part of the discussion, we also invited two parents of children with ASD, Mr. Justin Fellenz and Ms. Elizabeth Hanson, to share their experiences with the rest of the group. This workshop was attended by over 15 parents and who told us they really appreciated that the ADDL had organized a way for parents to connect with each other on this topic.

The afternoon workshop was facilitated 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 have report feeling less stressed and more effective in parenting as they see fewer behavioral problems and better social functioning in their child. The workshop demonstrated an intervention to help parents understand children’s behavioral problems. Dr. Iarocci also assisted with this workshop, which was attended by over 25 parents. As feedback from both workshops was positive, we hope to host more SFU Social Science Camp Workshops in 2016.
Past Events

4th Annual SFU Social Science Camps

The ADDL hosted our 4th Annual Social Science Camps in 2015, which were another great success! The camp for children (age 7-12) without ASD took place on Saturday, August 8th and the camp for children (age 7-12) with ASD took place on Saturday, August 15th. In total, we had over seventy campers attend and all of them went home with a cool SFU Social Science Camp t-shirt and finished art projects. Our theme for the camp was “Friendship Building”, which included a role playing activity so that campers left with skills and tools that they could apply in their day-to-day lives. Feedback from children and parents were very positive and we look hope to make our 5th annual camp even better!

Richmond 4th Annual Autism Resource Fair

On November 21st, Dr. Iarocci was invited to present her lecture on, “Family Quality of Life in Families Caring for Children with ASD in BC” as a guest speaker for the Richmond 4th Annual Autism Resource Fair. One of our lab volunteers and graduate student at SFU, Cindy, also hosted a table at this event 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

Dr. Allison Brennan accepted to the Autism Research Training Program of Life in Families of Children with ASD: From Diagnosis to Adulthood (Online Study)

Dr. Iarocci’s postdoctoral researcher, Dr. Allison Brennan, joined other research trainees and mentors from all across Canada at the annual Summer School in Montreal. Dr. Brennan enjoyed 5 days of presentations and discussions on topics that ranged from the history of Autism to recent developments in neuroimaging methods. ADDL alumna (and recent proud mom!) Dr. Emily Gardiner presented her research on family quality of life at this meeting. Drs. Brennan and Iarocci look forward to attending the upcoming 2016 Winter Institute in Banff. Dr. Hutchison will also be attending this event as part of her postdoctoral training at UBC.

Terry Fox Secondary School Student Visit

Kyla Murphy, an SFU alumna and Psychology 12 teacher at Terry Fox Secondary in Port Coquitlam, visited the Burnaby campus with 50 of her students in December. The visiting high school students participated in research about what they think it means for someone to have good social skills. SFU students have answered the same question, and comparing the answers of these two groups will provide interesting insights into how ideas of social competence change as adolescents mature. Students also enjoyed short presentations of current research being conducted by the ADDL. Thanks to Allison Brennan, Kimia Nassehi, Cindy Shi, Brittni Thompson, and Dominic Trevisan for their excellent research presentations! We also appreciate that our volunteer, Katerina Giannas, a former Terry Fox alumna, was able to assist with data collection.
Past Events

The 47th Banff International Conference on Behavioural Science: Autism in Transition, Banff, Alberta: Dr. Iarocci as Guest Speaker

In October 2015, Dr. Iarocci was invited to present her lecture on “Family quality of life and ASD: Risk and protective factors” as a guest speaker for the 47th Banff International Conference on Behavioural Science in Banff, Alberta.

Griffith University Seminar Series in Australia: Dr. Iarocci as Guest Speaker

In October 2015, Dr. Iarocci was invited to Griffith University in Australia as a guest speaker to present her lecture on The Multidimensional Social Competence Scale (MSCS): A Standardized rating scale assessing individual differences in social competence in children with and without Autism Spectrum Disorders.

Upcoming Events for 2016

Join Drs. Iarocci and Brennan to discuss “Removing the Stigma Surrounding Autism Spectrum Disorders" on April 14, 2016

Drs. Iarocci and Brennan will moderate a discussion on April 14th, 7PM at the Mount Pleasant Public Library. This is an SFU Philosophers’ Café, a series of informal public discussions that are free and open to everyone. For more information please visit this web page: https://www.sfu.ca/continuing-studies/events/2016/04/removing-the-stigma-surrounding-autism-spectrum-disorders.html

5th Annual SFU Social Science Camp - July 16 & 23, 2016

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, July 16th and the camp for individuals with ASD will take place on Saturday, July 23th. 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 still developing our camp theme and camp workshops for 2016. We will email everyone when registration is available and announce on our Facebook page!
Free Cognitive Behavioural Therapy Group for Anxiety in Children with Autism/Asperger’s Disorder

Facing Your Fears is a cognitive-behavioural therapy group for treatment of anxiety in children with high-functioning autism spectrum disorder or Asperger’s disorder. This program includes 14 weekly group sessions (large-group activities and child-only/parent-only groups). Children learn how to face fears in a supportive and fun group environment. Parents learn strategies for helping children manage their anxiety. Children 8- to 12-year-old with anxiety and high-functioning ASD who are able to participate in a group setting for at least 90 minutes can benefit from this intervention. Group sessions will take place on Tuesdays or Thursdays from 4:00-5:30 from March to June 2016 in the BC Children’s Hospital, Mental Health Building. To register, phone Julia Eng at 604-875-2345 X2719 and request an Outpatient Groups Referral Form, or ask your child’s mental health clinician, physician or other professional to fax the completed referral form to 604-875-2099.

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