

LAB NEWS

Fall 2013

ABC
Aptitudes cognitives
Bilan
Cerveau
Socialisation

Laboratoire de neuropsychologie développementale

Fall already!

...and it's already time to go back to school! Since for many of you September is synonym of the new school year for young and older children, here is an article about the work we've done in a school. Charlotte Gagner and Mathilde Neugnot-Cérioli, doctoral students in neuropsychology who work in our laboratory, explain how research in neuropsychology can help youth with learning difficulties.

...and it'll soon be Halloween! Since Halloween is just around the corner, we will reveal a magic trick. Mathieu Garon, who studies neuropsychological magic and works in our laboratory, will reveal how you can read people's minds with the help of science!



About the newsletter...

This newsletter has been sent to you as part of or following your participation in one of the studies conducted by the ABCs lab. Its goal is to inform you of studies conducted at the ABCs laboratory and of currently known facts concerning child and adolescent development. For more information, visit us at abcs.umontreal.ca!

GAME : Using games to combine business with pleasure!

By Mathilde Neugnot-Cerioli and Charlotte Gagner,
doctoral students in neuropsychology

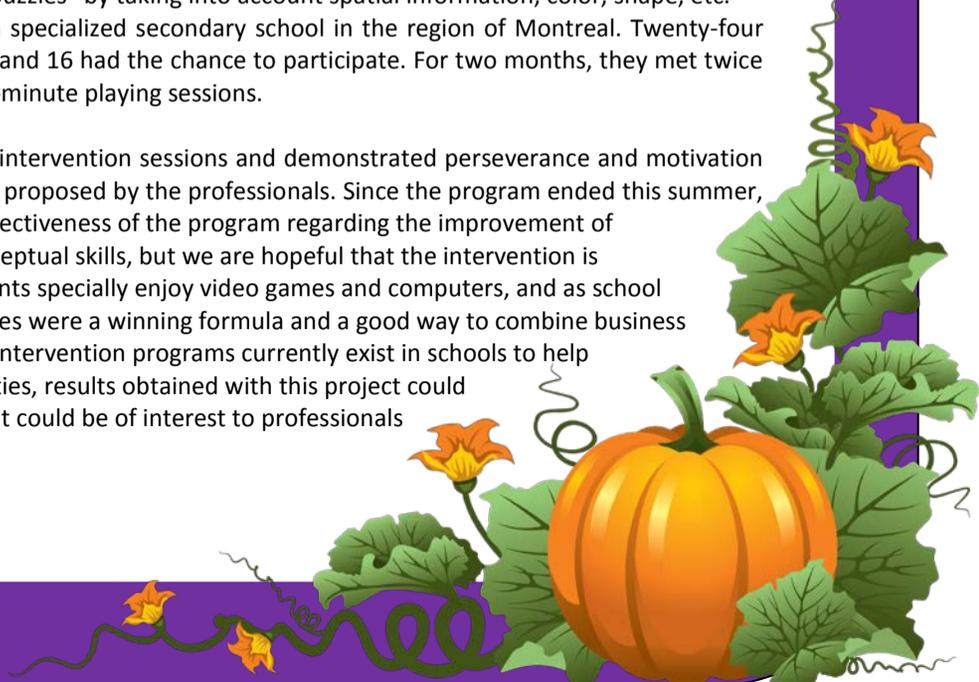


In the ABCs laboratory, we wanted to create an original and fun program to help improve academic success of secondary students experiencing learning difficulties. More specifically, the objective was to implement two cognitive interventions; the first aimed at improving verbal skills while the second aimed at improving visuoperceptual skills. Both skills are necessary to develop one's critical



thinking. To do so, 10 games found on the market (6 board games, 2 computer games and 2 Nintendo 3DS games) were selected. The idea is to use material that is motivating for adolescents and that would be accessible to all. The games selected for the verbal program were chosen to improve the ability to generate words, to enrich one's vocabulary, and to develop grammar, conjugation and syntax concepts. As for the games selected for the visuoperceptual program, they involved, for example, the manipulation of pieces to solve "puzzles" by taking into account spatial information, color, shape, etc. The interventions took place in a specialized secondary school in the region of Montreal. Twenty-four students between the ages of 12 and 16 had the chance to participate. For two months, they met twice a week with a professional for 60-minute playing sessions.

The adolescents appreciated the intervention sessions and demonstrated perseverance and motivation when solving different challenges proposed by the professionals. Since the program ended this summer, we have not yet evaluated the effectiveness of the program regarding the improvement of participants' verbal and visuoperceptual skills, but we are hopeful that the intervention is beneficial. Knowing that adolescents specially enjoy video games and computers, and as school often rhymes with boredom, games were a winning formula and a good way to combine business with pleasure! Moreover, as few intervention programs currently exist in schools to help adolescents with learning disabilities, results obtained with this project could provide intervention methods that could be of interest to professionals working in schools.



Let your eyes speak so I can read your mind

By Mathieu Garon, doctoral student in neuropsychology



Eye movements tell us a great deal more about what's going on in your head than you could possibly imagine. The laboratory uses a technique called « eye-tracking » to observe eye movements. This technique helps, for example, to understand how we use information around us to make a decision.

Physically, the eye-tracking system simply resembles a computer monitor. You could be using one without even knowing. However, there is much more happening behind this most ordinary-looking screen than meets the eye. Indeed, the device has infrared lights (like those in a remote control for a television) as well as cameras capable of capturing this type of light. When the light emitted by the device reaches the retina (found at the back of one's eye), it is reflected and captured by the cameras. The eye-tracking system then uses this information to calculate where you are looking.

This technique is very useful for research as it allows us to obtain a great deal of information on your perception of the world. For example, by having you look at photographs or even film excerpts, we are able to determine what attracts your attention the most, as it will be where you look first and for the longest period of time. The device even allows us to measure your emotional response: when you react upon looking at something (that frightens, disgusts, astonishes you, etc.), your pupils dilate. This can tell us, for example, what makes you react and how this reaction influences your decisions.



For the above-mentioned reasons, eye-tracking is a key technique when it comes to research with babies. But there is an even more important reason: Babies don't talk! In the early stages of their development, babies are capable of effectively controlling their eye movements to explore the world around them. However, we must wait several months before they can pronounce their first words. This is in fact why this technique is so useful with young children and babies. It allows us to know what's important for the baby without even asking. In the same way as for adults, the baby's eye movements indicate, among other things, what attracts his attention the most, what arouses his interest or how he reacts to objects or people he sees for the first time.

Currently, our laboratory uses eye-tracking technology to study how adolescents understand day-to-day situations. While we are measuring their eye movements, we have them look at photographs illustrating these situations and ask them what their decision would be should they find themselves in such a situation. This study will determine how we use surrounding information to make decisions. We believe, for example, that by paying particular attention to certain elements, adolescents will better understand situations and respond more appropriately.

Young magicians wanted!

We are still looking for young magicians to help us conjure up new information on child and adolescent development! If you or someone you know is interested in volunteering some time for research in neuropsychology, and if you have a child between the ages of 2 and 17, please contact us! 514-343-6111, extension 36027 or beaudoincindy@recherche-ste-justine.qc.ca



Members of the ABCs laboratory

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