“COOLABILITIES” - ENHANCED ABILITIES IN DISABLING CONDITIONS

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Keywords: enhanced abilities, disabilities, talent management, ASD, Dyslexia, ADHD.

Abstract:

“Coolabilities” is a proposed concept for the enhanced abilities in disabling conditions. Individuals labeled as disabled are defined by what they cannot do, while “coolabled” people are defined by their strengths. The Coolabilities concept can be useful in any context that aims to increase the value of people, with a large impact on the labor market. The validity and relevance of the concept is discussed and future research is suggested.

1. Introduction

We suggest “coolabilities” as an overall name for enhanced abilities in disabling conditions. Coolabilities are widely supported by anecdotal evidence but research has confirmed and explained them only for a handful of conditions. We suggest that coolabilities are not isolated phenomena, but a general principle that may apply to a variable extent across a wider range of conditions. Research into when, how and why coolabilities occur is essential for providing a wider lens to understanding of human potential, developing therapeutic approaches and how

coolabilities are applicable for increased inclusion in the labor market. This paper discusses the validity and relevance of the concept.

Other important terms in this context are neurodiversity and diffabilities. The term neurodiversity was first used to describe ASD as a neurological difference rather than a cognitive disability and was expanded to other neurological differences such as Dyslexia, Dyspraxia and ADHD (Armstrong, 2012). “Diffabilities” is short for “different abilities”, and is meant to replace the word “disabilities”, sometimes is used in the context of ASD to describe a “difference in ability that may not have a functional impact on an individual’s potential and/or wellbeing” (Brignell, Morgan, Woolfenden, & Williams, 2014) “Coolabilities”, on the other hand, comes to describe the competencies, gifts and enhanced abilities that counterparts the word disabilities.

Definition: Coolabilities are enhanced abilities in disabling conditions.

For “coolabilities” to be a useful concept, it must be valid, relevant and applicable, that it can be studied by research and that it comes with a language that helps gain further insights. .

2. Validating the Concept

Researchers have studied enhanced abilities in a number of disabling conditions. Grigorenko, Klin and Volkmar (2003) suggested that hyperlexia is a ‘superability’ appearing in individuals with developmental disorders. People with High Functioning Autism Spectrum Disorder (in this paper ASD) have well documented coolabilities; For example, strong sense for detail (Austin, Wareham and Busquets, 2008; Barron-Cohen, Wheelwright, Skinner, Martin, & Cluble., 2001; Barron-Cohen, 2009; Gal, Selanikyo, Erez & Katz, 2015; [Jacob 2015](#); Robertson, 2010). Research is showing that children with Down Syndrome are generally more empathetic than the average when witnessing signs of distress.(Kasari, Freeman, Bass, 1990; [Kasari, 2003](#)). Dyslexia is often linked to original thinking and creativity (Cancer, Mazoli, and Antonietti, 2015, Eide & Eide 2011; [Everatt, Steffert, and Smythe, 1999](#); Kapoula, Ruiz, Spector, Mocerovi, Gaertner et al. 2016). Further examples and references are listed in Table 1. There can be several causalities linking the enhanced ability to the disabling condition

- ‘Contextual Coolabilities’: a trait that is disabling in one context (environment) becomes non-significant in another, such as people with ASD who have very specific (“limited”) interests, and extreme attention to detail, can become experts where the specific knowledge is valued, an attention to details is an asset (Austin et al., 2008; Austin & Sonne, 2014; Gal et al., 2015; [Jacob 2015](#); Robertson 2010).
- ‘Compensational Coolabilities’: When one or more abilities are strengthened at the loss of another. For example a person who lost one limb and trains the remaining ones to compensate for the loss (Chinnery and Thompson, 2015)

- ‘Singular Coolabilities’: abilities that do not exist in other people, such as when blind people reorganizes and reassign neural pathways in the visual cortex (Amedi, Raz, Pianka, Malach, Zohary 2003) giving rise to coolabilities such echolocation(Thinus-Blanc and Gaunet, 1997; Chinnery and Thompson, 2015). People with such abilities perceive and act in ways unimaginable to others (Kupers, Pietrini, Ricciardi, and Ptito, 2011).

3. Relevance and Applicability

People with disabilities are often undervalued by society, the education system and the job market. Using the term coolabilities to describe the strength and talents which are present in their conditions can be very useful. Such a term does not exist so far. For example in the field of counseling, psychology, social work and education, when discussing a condition of a child with her parents, the professional can use an empowering approach which discusses the coolabilities, and at the same time acknowledge the challenges. At the workplace for example, a HR professional who interviews a person with ASD, can disregard “lack of eye contact” factor, as well as “repetitive movement”, knowing that they accompany the desired coolabilities relevant for the job, or in a job application a person with disabilities, can describe their coolabilities as a legitimate asset.

There are successful initiatives harnessing the coolabilities of people with ASD. Increasingly more non-profit organizations advocate, train, coach and employ adults with ASD (Chen, Leader, Sung and Leahy, 2015). While the challenges are very far from being resolved, we are beginning to witness a positive shift in regards to the abilities and talents of people with ASD ([Armstrong 2010](#); Armstrong, 2012; Austin et al., 2008; Austin & Sonne, 2014; Baron-Cohen et al 2001, Baron-Cohen 2009; Benton, Vasalou, Khaled, and Gooch, 2014; Happe and Vital, 2009, McKinney 2016, Pisano & Austin 2016, Robertson, 2010, Wei 2014). Project “Roim Rachok” (Israel) includes young adults with ASD in a special intelligence unit of the Israeli Army. The group is trained in QA, deciphering of aerial and satellite pictures and data collections and advanced optical systems. Research shows that the well-being and sense of self worth of the individuals in the Israeli group increased when measured towards the end of the training and beginning of employment (Gal. et al. 2015).

Several OECD countries enforce disability employment quotas. It happens that large companies prefer paying the penalties instead of adhering to the quotas, which can be cumbersome and costly (Mont, 2004). In 2013 the U.S. government decided to procure services only from companies with at least 7% employees with disabilities (section 503 of the Rehabilitation act, September 2013), increasing incentives.

Several large corporations now have C-suite officers, for example SAP's Chief Diversity and Inclusion Officer, Anka Wittenberg, heading "Autism at Work", in partnership with Thorkil Sonne's company Specialisterne, aiming that one percent of all employees will have ASD.(Wittenberg, 2015) The value is doubled: (1) compliance with policy and (2) tapping into coolabilities. Another example of "double value" is IBM, offering US government solutions according to section 508 § 794d of the Rehabilitation Act (U.S Government, 1998), requiring all parts of government to make data and services accessible to people with disabilities. Frances West (2013), former IBM Chief Accessibility Officer, says that such solutions help IBM increase their proportion of employees with disabilities. West is of the opinion that "extreme personalized accessibility" will in due time make the concept of disabilities irrelevant in worklife (private communication, 2016).

The Science, Technology, Engineering and Mathematic (STEM) industry programs are seminal, opening the door for an inclusive labor market, but they still ignore the many unique talents and interests that people with ASD have besides programming. Coolabilities vary among conditions, individuals, are diverse in presentation and capability. They are broadly applicable to multiple jobs and scenarios, spanning multiple conditions, in a variety of contexts.

Attention Deficit/ Hyperactive Disorder (ADHD) is a lifelong neurological disorder characterized by impulsivity, hyperactivity and problems with attention span (DSM 5). Recent research suggests that ADHD traits can have contextual coolabilities; Innovative thinking, novelty seeking and risk taking are all valuable abilities for entrepreneurial initiatives and in the startup world ([Shaw, 1992](#); Tan, Hughes, and Foster, 2016; Thurik, Khedhaouria, Torrès, and Verheul, 2016; Verheul, Block, Burmeister-Lamp and Thurik, .201; White and Shah. 2006; White and Shah 2011; Wiklund, 2015). With about 11% of children between 5-17, and approximately 4% of the adult population at some point in their lives diagnosed with ADHD (CDC), the concept of coolabilities can help what is being seen as a widespread disabling condition to be understood as a considerable demographic resource for innovation and entrepreneurship.

Dyslexia is neurologically-based and creates difficulties in spelling, reading, decoding words and comprehension of texts (Brunswick 2012; Shaywitz 1998; S.E. Shaywitz, Mody, and A.B. Shaywitz, 2006; Siegel, 2006). Recognized coolabilities of people with dyslexia are creativity, original problem solving strategies, visual perception, innovative thinking, and understanding the big picture ([Armstrong 2010](#); Armstrong; Brunswick 2012; [Cancer et al. 2016](#); Eide and Eide, 2011; [Everatt et al., 1999](#); [Kapoula at al. 2016](#); [Logan, 2009](#)). Highly successful individuals with Dyslexia increasingly disclosing how they leveraged on their coolabilities. (Cortiella & Horowitz, 2014). With as much as 20% of the population struggling with dyslexia, whereof many remain undiagnosed, the concept of coolabilities will be both relevant and applicable both

in the education system and the work force. Meanwhile, many children and adults with Dyslexia remain stigmatized as unintelligent and slow. Standardized tests, usually based on reading comprehension, work to their disadvantage ([Shaywitz et al 2006](#)). They are underrepresented in STEM higher education, despite having the same talent and interest. Only 17% of the students with dyslexia receive accommodations in higher education, as compared to 99% in high school (Cortiella & Horowitz, 2014). There is no lack of knowledge, merely a lack of action in accommodating to their needs. The valuable coolabilities accompanying Dyslexia can provide sufficient incentive to change the situation.

4. Suggested Research

Mapping Coolabilities

Systematically identifying and mapping correlations between disabilities and coolabilities, understanding underlying causalities will be the basis for a wide range of research and practice.

Enhancing Diagnostics

Coolabilities can be additional indicators enabling increased accuracy in diagnosing conditions. Disabling conditions may be viewed in a broader perspective when described by both accompanying weaknesses and strengths.

Psychology and Counseling

Coolabilities can open new horizons for positive psychology. Examples are increasing the resolution of the diagnosis among parents of children with autism spectrum disorder (Milshtein, Yirmiya, Koern-Karie and Levi, 2010; Yirmiya, Seidman, Koren-Karie, Oppenheim and Dolev, 2015). The knowledge that a child with ASD may have valuable, exceptional coolabilities moderates the otherwise uniformly negative picture conveyed when a diagnosis is associated with disadvantages alone. When developing a child's talents becomes a purpose, overcoming challenges gains meaning in being the means.

Cognitive Behavioral Therapy (CBT) is often used for treating depression. Beck, Rush, Shaw, and Emery (1979) suggest that core beliefs developed in early childhood are the root of depression and anxiety. They are most often deep-rooted, rigid and are the lense through which new experiences are seen through, such that they confirm and retain the core belief. Hassiotis, Serfaty, Azam, Martin, Strydom and King (2012) have developed CBT for people with learning disorders, conditions that previously were contraindications. When a person with a disability thinks "people look at me in a funny way", it can resonate with a core belief like "it is because I am disabled and not as good as they are". Making coolabilities a part of diagnosis, or at least establishing them as a scientific concept, may provide more mind-tools for treating such core-beliefs and fighting internalized stigma.

The term coolabilities can be easily applied to person centered approaches to psychotherapy as well as positive psychology. It can be added to all interventions for enhancing hope, optimism and life satisfaction of people with disabling conditions and their families ([Seligman, 2004](#)).

Socio-Economics, Innovation and Entrepreneurship

Innovation can make it more cost-efficient to tailor jobs than to fit people to job slots, as is usually done today, thereby increasing the value that people create for each other in the economy. ([Nordfors 2016](#)) In such a “people-centered economy”, entrepreneurs have an incentive to identify groups of under-valued people and raise their value by leveraging on their under-utilized abilities, (Cerf and Nordfors, 2016). Innovation leveraging on coolabilities without touching the disabilities may be seen as “low-hanging fruit” offering high returns on investment, and acting as a lead market in the transition to a people-centered economy that strives to tailor jobs for all people.

Human Resources and Career Management

Corporate world is in constant search for new talents, specifically within the STEM profession. The coolability model, opens the field to people who traditionally do reach interviews, or do not pass the interview stage due to lack of awareness to the special perspective and knowledge which people with coolabilities can add to the workforce. Sumner and [Brown \(2015\)](#) write about the human resource challenges, and opportunities for inclusion of neuro-diverse populations in the workforce, specifically in the tech industry . More research into ways in which the individual competencies of people with coolabilities can be discovered and integrated into the workforce is needed.

Participatory Design, Human Computer Interaction (HCI), and Augmented Reality (AR)

In recent years researches have been successfully involving children with learning differences in creating accessible educational tools by participatory design (Benton & Johnson 2014, Benton et.al, 2014, Börjesson 2015) . Most of the technology created for children in “focused on how to overcome their difficulties”, it makes sense that technology designed for strengths would be much more attractive and rewarding (Benton et al 2014). Naturally this is true for adults too. More research is needed in creating HCI and AR which takes into consideration the user interface perceptions of people with disabling conditions ([Dalton, 2013](#)). This cannot happen without including people with coolabilities in the design process of any product meant for use of humans.

Table 1 offers a starting point for research on human resources and career management. The labor market potential for coolabilities accompanying ASD, Dyslexia and ADHD is shown by mapping them onto established professions.

Table 1. Disabilities and Coolabilities: an overview of how coolabilities and disabilities may be correlated and includes generalizations about characteristics and attributes that may apply to any individual with these listed diagnosis.			
	AUTISM SPECTRUM DISORDER (ASD) (High Functioning)	ADHD (Attention Deficit Hyperactivity Disorder)	Dyslexia
Disabilities	Difficulties in social interaction, understanding social nuances and reduced self awareness. Narrow focus. Difficulty filtering sensory stimulation ie. (sound, light, touch, smell) and high sensitivity to sensory stimulation. Resistance to change and routine. Repetitive behaviour. Challenged in planning tasks for daily living	Hyperactive; Distractible Can't maintain attention; Restless; Impulsive; Disruptive (Risk taker); Decreased inhibition Preservation (Negative hyperfocus)	Difficulties in reading, spelling correctly, decoding words, and in comprehension of text
Coolabilities	Attention to detail. Extraordinary observation skills. Deep interest in specific fields. Intense focus. Expansive long term memory. Comfort with rules and guidance. Affinity to analyzing complex patterns in the social and physical worlds. Creative in specific areas of interest. Original thinkers (more time devoted to talent than socializing). Honest. Visual-spatial skills. Exceptional talent in very specific areas. Success at repetitive tasks. Strong systemizing skills.	Risk taking; Spontaneous; Imaginative; Energetic; Creative; High precision; Multi-tasking; Novelty seeker; Connecting multiple ideas; Creating surprising solutions; Idea generating; Innovative; Proactive; High tolerance for uncertainty, "Flow" (Can utilize hyperfocus productively).	Creativity. Original problem solving. Different perspective. Connecting tasks and realities. Divergent or innovative thinker. High focus in fields of interest. Persistence. Motivation Visual spatial skills (not in reading). Ability to see the big picture
Careers	Computer programmers, software design, communications and networking, engineering design, equipment design, fine mechanics, research, mechanics repair, fine advanced machines assembly, lab technicians, web design,, video game design, app designs, accounting, chemistry. Engineering, statistics, computational art and animation.	Entrepreneurs, CEO's, Educators Inventors With these strengths can contribute to many STEM careers.	Any STEM related careers in Science, Math, engineering, medicine, architecture, interior design, graphic design, education, VC etc. when accommodations and assistive tech are present.

Reference	Armstrong (2010 & 2012) Austin et al (2008) Austin & Sonne. (2014) Baron-Cohen et al (2001) Baron-Cohen (2009) Benton & Johnson (2015) Benton et al. (2014) Burger-Veltmeijer (2014) Happe F. and Vital P. (2009) Mckinney (2016) Montgomery (2015) Pisano & Austin (2016) Robertson S.M. (2010) Roux et al (2013)	Armstrong (2010, 2012) Benton et al (2014) Montgomery (2015) Nadeau K. G. (1997) Rinn & Raynolds (2012) Shaw G.A (1992) Tan et al (2016) Thurik et al (2016) Verhuel et al (2015) White, and Shah. (2006) White and Shah. (2011) Wiklund (2015)	Armstrong (2010, 2012) Benton L., et al (2015) Cancer et al (2016) Cortiella & Horowitz (2014) Eide & Eide (2011) Everatt et al. (1999) Kapoula et al. (2016) Logan, J. (2009) Montgomery (2015) Siegel (2006) Tan et al (2016)
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5. *Semantics*

Any discourse requires a language. “Disability” is a problematic denomination because it automatically frames the discourse in the context of what people with disabling conditions are not good at doing. “Coolability” frames the discourse in the context of competency, what they may do better than others, without ignoring their disability. “Coolabilities” is an idea for looking at problems through the lens of opportunities.

As for semantics, we need an antithesis for “disabilities” within the context of special conditions. “Coolabilities” fills that purpose, providing the missing language for discussing special conditions without applying a negative bias. The word has the root “ability”, applying a prefix “Cool-” with positive connotations opposing the negative “Dis-”. “Cool” is popularly used as an adjective for something better, different, and often novel. “Cool” is also used as an exclamation expressing pleasant surprise and appraisal. “Coolability” is therefore intuitively understood and applies to vernacular and professional jargon.

6. *Acknowledgments*

We wish to acknowledge the i4j Innovation for Jobs Leadership Forum, its participants and its organizer, the IIIJ Foundation, for providing the context, venues and discussions behind this paper. We are particularly indebted to Vint Cerf and Anders Flodström, co-founders of i4j, who supported this effort, to Jay van Zyl, who was part in conceptualizing and naming coolabilities, to Pradeep Khosla, Jeannie Kim-Han, Michelle Camacho and Moshe Vardi, together with whom we are exploring the research potential of coolabilities, and to the funders of i4j and the IIIJ Foundation, Monique Morrow and Cisco and the Kauffman Foundation.

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