Reviews and shortly reports

Autism is the future: the evolution of a different type of intelligence

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Thurman, Marlo, Payne. *Autism is the Future: The Evolution of a Different Type of Intelligence*. Arlington, TX: Future Horizons Inc., 2019. 207 pages. ISBN 9781935567172.

In Autism is the Future: The Evolution of a Different Type of Intelligence, Marlo Thurman proposes a new angle to understand autism through an alternative theory of sensory cognitive difference. Based on actual and first-person accounts from individuals with autism, Marlo reveals the specific sensory processing and cognitive differences among individuals with autism and explains how these sensory and cognitive differences lead to deeper understanding of the intelligence of those with autism. The book answers the question of why autism should be regarded as a condition of neurodiversity which should be respected and appreciated by neurotypical groups in consideration of their potential contributions.

The author Marlo Thurman began her work with children diagnosed with ASD (autistic spectrum disorder) in 1986 as a behavioural therapist. With advanced degrees in both educational psychology and special education, she accumulated abundant experience in the area of ASD and developed a special interest in working with individuals who were regarded as "ASD savants". Recently, she has held board position in the US Autism and Asperger's Association and has taught at the university of Northern Colorado. Her specific interest in cognitive neurodiversity started from her personal experience of inner change of cognition after her traumatic brain injury from an accident and finally drove her to finish her PhD degree in special education on this topic in 2016. This book is based on her doctoral dissertation "First Person Perceptions: Intelligence, Cognition, and Sensory Processing in Autism". It was qualitative research which explored

the life experience of 17 adults with ASD in depth. Coincidentally, neurodiversity was identified as the topic for World Autism Awareness Day by the United Nations in the same year, which symbolized a paradigm shift from pathology to neurodiversity. This is aligned with the universal trend of ensuring inclusive and quality education for individuals with special needs.

Since autism was reported in clinical literature, there has long been a heavy focus on abnormal performance and deficits in behaviours and cognition among individuals with autism. According to DSM-5, ASD is defined as a full continuum of developmental disorders that manifests with communication deficits, over dependence on routines, high sensitivity to changes in the environment, and an intensive focus that is often inappropriate(Thurman, M. P.,2016). In other words, autism has been regarded as disability worldwide and the main task for teaching programmes is aimed at finding various ways to "fix" or address the difference in those who are diagnosed.

On the one hand, this kind of "difference-as-deficit" mindset commonly leads to unilateral perspectives of ASD from the "normal" neurotypical group and might be limited or give false understandings of the autism continuum; on the other hand, deficit-based perspectives of ASD easily result in overlooking of the strengths and potential contribution of individuals with ASD. Undoubtedly, it is harmful for the development of society and also for the construction of inclusive environments for persons with diverse special needs.

Hence, the value of this book is important and far-reaching, not only in providing deeper and holistic understanding of the deficits, potential and needs of those who are diagnosed with ASD, but also in contributing to appropriate service delivery in educational settings and workplaces based on their differences and strengths in sensory processing and cognition. In consideration of the prevailing views of autism, Marlo Thurman is a pioneer exploring the path for a better understanding of individuals with ASD from the standpoint of neurodiversity and sensory-cognitive differences with this remarkable and revolutionary work.

As neurodiversity is a key word and marker in the theory of sensory-cognitive difference, the book starts with an introduction of Marlo Thurman's journey to neurodiversity based on her personal experience of cognitive change after a traumatic brain injury and her decision for in-depth exploration of cognitive neurodiversity in her doctoral dissertation research in the PhD programme of special education. This book is based on her doctoral dissertation, so she introduces the research in chapter one regarding the rich background information of 17 research participants, research procedures and 52 different sets of original topics from multiple, lengthy, in-depth interviews via telephone, computer conference technologies, on-line chats or email exchanges.

Afterwards, another seven chapters have been used to construct the alternative theory of sensory-cognitive difference based on challenging the understanding of autism from the cognitive behavioural tradition and proposing new approaches to under-

standing sensory processing, cognition and the intelligence of individuals diagnosed with ASD. In the last two chapters, various topics related to ASD have been discussed on the basis of the theory of sensory-cognitive difference, including thoughts about the rise of autism diagnosis, intellectual disability in autism, limitations of existing cognitive theories, the extreme nature of sensory difference, hyper-and hypo-responding, the need to address sensory differences first, cognitive differences, alignment and difference to neuro-diversity theory, along with challenging assumption and implications for future research.

As the purpose of this book is to establish a theory which could effectively challenge existing assumptions and supply a replacement for deeper understanding of ASD, the main body of this book is from chapter two to eight in the middle part. This part begins with the introduction of emphasis on normal development and the equation of differences as abnormalities and deficits, which completely ignores having a prodigious memory, uncanny visual skills, processing speed and so on. On this worldview, four primary cognitive-behavioural theories had been applied to explain autism by early behaviourists and cognitive-behaviourists, including mind blindness, executive functioning theory, Hybrid theory and Hyper-systemizing theory. But neither of them could fully reveal the comprehensive cognition of individuals with ASD.

Therefore, along with the cognitive neuroscience taking the spotlight to try to explain autism, there had been a movement to neurodiversity to explain autism which failed to improve diagnostic accuracy and support for individuals and families affected by severe or disabling aspects of autism. Eventually, a theory of sensory-cognitive difference was proposed to understand autism mainly based on the theory of sensory processing by Dr. Jane Ayers.

According to Ayres's theory, sensory processing system is complex, and all learning and performance will be negatively affected if inability of information integration and regulation emerges in the sensory processing period. In considering the estimated data that over 90 % of diagnosed ASD demonstrate sensory abnormalities (Marco, E. J., Hinkley, L. B., Hill, S. S., & Nagarajan, S. S.,2011; Kilroy E., Aziz-Zadeh L., & Cermak S.,2019), sensory difference could be regarded as an "autism-specific" trait. Furthermore, specific sensory processing differences including lighting, sound and pitch, taste and smell, touch and texture, and synaesthesia, are presented in chapter four based on detailed accounts from persons with ASD. Based on differences in sensory processing in ASD and good cognitive potentialities among those diagnosed with ASD, thoughts on intelligence, cognition, learning styles and the emotional effects of these difference are also presented from the ASD perspective in the book.

Since autism was first mentioned in 1940s by Leo Kanner, the prevailing knowledge of autism has been articulated by neurotypical people who have not been affected with ASD (Kanner L., 1949; Parisi A.& Parisi S., 2019). Initially knowledge related to autism is about how they are abnormal and defective in behaviours, cognition, communica-

tion, social interaction and so on when comparing to the "normal" developed group. In recent years, some voices from persons diagnosed with ASD started to be heard, taking Dr. Temple Grandin as an example. She, as someone diagnosed with ASD, has attempted to show the public how individuals with ASD are different in visual thinking, brain functioning and showing what the potential could be from these differences(Baker D., 2014). However, the voices from those affected by ASD are still relatively weak compared to the mainstream traditional understanding of autism. Hence, the large amount of first-person accounts from individuals who were diagnosed with ASD are extremely necessary and meaningful for the society to build a true, objective and effective picture of the effects of ASD in an individual's everyday life.

Meanwhile, thanks to these first-person descriptions about how individuals with ASD work differently in sensory processing and cognitive functioning, it should be accepted that those with ASD have specific intelligence traits (Thurman, M. P.,2016). Even though these specific intelligence traits are not aligned with common intelligence standards, they present the ways that those affected by ASD work with the world and the potential for benefitting society. These findings could lead to dramatic changes in understanding of the differences of ASD among parents, teachers, researchers and the whole society and the approaches for service delivery in childcare, education settings, workplaces and in the public/social environment. The understanding and service provided for individuals with ASD should be strength-based and more focused on finding what is different and how to support them from their differences in sensory processing and intelligence traits. From this, a more inclusive society for individuals with ASD could be expected.

As a book based on true accounts from 17 adults diagnosed with ASD, the value of this book is remarkable for revealing the real situation of how ASD affects persons. But according to the introduction in chapter one, the 17 participants are generally higher functioning, with abilities for independent life and the ability of self-advocacy (Thurman, M. P., 2016). Taking into consideration ASD's definition, ASD is a continuum varying from the higher functioning example of Temple Grandin to lower functioning individuals. For those who are lower functioning, how do their differences in sensory processing, cognition and intelligence compared to those who are higher functioning? Regarding their difficult situation in life, is it possible that the potential of ASD has somehow been exaggerated in this book along with omissions of the situation of the other end of the ASD continuum? Moreover, as is realized by the author in the book, the alternative theory of sensory cognitive differences is based on numerous accounts from those affected by ASD and the author's rich experience of working with individuals with ASD and her in-depth thinking. Empirical research needs to be undertaken for verifying and refuting the theory among a broader autism spectrum group.

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