



# **PARENTAL INVOLVEMENT AND INFLUENCE IN THE DEVELOPMENT OF TALENTS FOR INDIVIDUALS WITH AUTISM SPECTRUM DISORDER. THREE MODERN CASE STUDIES**

**Eunice Meng Yin Tan (PhD) Singapore**  
**Kenneth Kin-Loong Poon (PhD) Singapore**

Article DOI: <https://doi.org/10.36713/epra12193>

DOI No: 10.36713/epra12193

## **ABSTRACT**

*Individuals with ASD who display savant skills are a paradox. How can individuals with ASD, who appear to be intellectually challenged in their general independence skills, display savant skills that are far more developed than those of individuals with higher intelligence? What is it about ASD that predisposes individuals with ASD to savant skills? This paper examines the lives of three famous individuals who have autism spectrum disorder (ASD) and possess a diverse set of well-documented savant abilities. These individuals are Kim Peek, Leslie Lemke, and Matt Savage. Apart from Matt Savage, the other two individuals who display savant skills have low cognitive abilities and are unable to perform simple daily skills. Kim Peek, for example, was unable to perform general self-care tasks, such as combing his hair or dressing.*

## **INTRODUCTION**

Due to improved diagnostic tools and the expanded definition of ASD, the number of individuals diagnosed with ASD has increased over the past years (Hansen, Schendel, & Parner, 2015; Kroncke, Willard, & Huckabee, 2016; Rudra et al., 2014). Researchers (Bennett & Heaton, 2017; Finocchiaro, 2015; Hughes, 2012; Meilleur et al., 2015; Quirici, 2015; Simner et al., 2017 and Treffert, 2014) have implied that there is a higher incidence of savant skills among individuals with ASD.

There is no single theoretical framework that offers any logical explanation concerning individuals with ASD who display savant skills. A framework that attempts to explain this phenomenon is the weak central coherence theory, which suggests that a specific perceptual-cognitive style, loosely described as a limited ability to understand context, underlies the central disturbance in ASD (Happe, 2013; Riches, Loucas, Baird, Charman, & Simonoff, 2016; Vanegas & Davidson, 2015). One explanation offered by the weak central coherence theory is that for many individuals with ASD who exhibit savant skills, the manner in which they achieved their savant skill could be from preliminary and initial attention to certain details and segments. This initial attention would lead to the subsequent construction and assembly of integrated pictures, music, calendar structure and the attainment of foreign languages (Happe, 2013; Skorich et al., 2016; Vanegas & Davidson, 2015).

## **Case studies of individuals with ASD where parental support has played an important role in the development of their skills**

Three famous individuals who possess a diverse set of well-documented savant abilities will be introduced. These individuals are Kim Peek, Leslie Lemke, and Matt Savage. Apart from Matt Savage, the other two individuals who display savant skills have low cognitive abilities and are unable to perform simple daily skills. Kim Peek, for example, was unable to perform general self-care tasks, such as combing his hair or dressing (Arnold, 2013; Gururangan, 2012; Hutchinson, 2013; Moran, 2010; Skuse, 2011; Treffert 2014; Wilson, 2016).

### **Kim Peek**

Kim was a savant who had extraordinary abilities. The next few paragraphs describe Kim's life and savant skills (Arnold, 2013; Gururangan, 2012; Hutchinson, 2013; Moran, 2010; Skuse, 2011; Treffert 2014; Wilson, 2016).

Kim was the inspiration to the movie, 'Rain Man'. In the movie, the main character Raymond Babbitt was an individual with ASD who displayed savant skills. Kim was born on November 11th, 1951. When he was nine months old, the doctors who



examined Kim Peek diagnosed him with severe intellectual disability. One doctor recommended that Kim's parents place him in an institution meant for individuals with special needs. Another doctor suggested that he undergo a lobotomy. Both suggestions were rejected by Kim's parents. Instead, Kim's parents placed him in their family home, where they took great care of him, while showering him with lots of love and attention (Treffert 2012; Wilson 2016).

Kim was taught to read by his parents. They spent many hours reading to Kim and would get him to track words with his finger. It was reported that when Kim was 18 months old, he was able to memorise books and stories from a single reading. Once Kim had memorised a book, he would proceed to place the book upside down on the bookshelf so that no one would try to read the book to him again as he had already memorized all the words (Broggart, 2014; Treffert 2012; Wilson 2016).

When Kim was six years old, he was able to recite entire paragraphs. At that age, he was also capable of memorising whole sets of encyclopaedias. Kim's parents attempted to enrol him in a mainstream school, but it was not a successful placement. Kim was unable to sustain his attention in class. His parents were informed by the school that his hyperactivity was disruptive and unsettling to others, and they were advised that Kim would not benefit from a formal school setting. Therefore, his parents decided to home-school Kim, engaging two retired schoolteachers to tutor and instruct him. Kim succeeded in completing his high school certification at the age of fourteen (Hutchinson, 2013; Treffert, 2012; Treffert, 2014; Wilson 2016).

Kim Peek memorised every word of nearly 12 000 books, including the Bible and the Book of the Mormons. He was able to read and memorize a full page in eight to ten seconds. Kim was so competent at calculations that he could sum a column of numbers in a telephone book. He was also capable of computing the mean of those numbers in seconds. He possessed a prodigious memory. Some of Kim's interests included history and world facts. He was also fascinated by movie trivia, sports facts, geography, the space programme, actors and actresses, the bible, church history, classical music and literature (Hutchinson, 2013; Van Leeuwen, 2015).

As an adult, Kim Peek attended a sheltered workshop meant for persons with special needs. In this sheltered workshop, Kim assisted with the payroll calculations. He was able to calculate and analyse the daily production earnings for each client in the sheltered workshop. Kim was able to achieve this feat without any reliance on calculators or computers (Babbitt, 2016; Treffert & Wilson, 2016; Wilson, 2016).

In 1984, while attending a conference organized by the National Association for Retarded Citizens (The ARC) in Arlington, Texas, Kim met a screenwriter by the name of Barry Morrow. Barry Morrow was captivated by Kim's savant skills and his meeting with Kim gave him the idea to produce the movie Rain Man where the main character was based on Kim. Due to the popularity of the movie Rain Man, Kim travelled to many conferences, made television appearances and was featured in documentaries and talks (Puchta, 2011; Treffert, 2011). Due to this publicity, Kim became more outgoing, animated and comfortable with personal interactions with others in the community (Peek & Hanson, 2007; Weber 2009; Wilson, 2016). Kim Peek passed away at the age of 58 on December 19th, 2009, from a heart attack (Hutchinson, 2013; Weber, 2009; Wilson, 2016).

Despite Kim's incredible abilities, he never learned simple self-help skills, such as brushing his teeth, combing his hair or buttoning his shirt, and was unable to manage everyday chores. His father assisted him in many of his self-help independence skills. As an adult, Kim Peek continued having trouble with hand-eye coordination and balance (Babbitt, 2016; Hutchinson, 2013; Kodjapashi & Baloyannist, 2011; Treffert & Wilson, 2016; Weber, 2009; Wilson, 2016).

### **Matt Savage**

Born in 1992, Matt Savage is an individual with ASD who displays extraordinary musical abilities. The next few paragraphs will describe Matt's life and savant skills. When Matt Savage was a child, he could not tolerate being touched or hearing loud noises. At three years old, he was diagnosed with ASD. Matt's mother described Matt as a child who was dissimilar to other children in the community in terms of mannerisms and play skills (Bieber, 2007; Rogers, 2011). According to his mother, Matt was a difficult baby to care for as he slept very little compared to other babies. He was reported as having very strange and abnormal play habits. For example, Matt enjoyed lining up his toys in a specific arrangement. He was also repetitive in many of his play rituals. As a child, Matt had no friends as he had difficulties forming meaningful interpersonal relationships with his peers. His mother tried sending him for formal schooling when he was a preschooler but that proved unsuccessful. After spending two days at the preschool, Matt's mother was informed that the school could not manage or cope with Matt's behaviour and idiosyncrasies. She was encouraged to take him home (Bergmann, 2016; Christopher, 2013; Rogers, 2011; Solomon, 2013).

When Matt Savage was six and a half years old, he had already mastered playing the piano. He produced his first jazz CD when he was eight years old. When he was nine years old, he formed a music band called the Matt Savage Trio which performed in different places around the world. At that time, Matt had already recorded his seventh music CD. He even performed at the famous Blue Note jazz club in Manhattan, USA. (Bergmann, 2016; Christopher, 2013; Rogers, 2011; Solomon, 2013; Treffert, 2009). Matt was the youngest musician to have ever performed at this prestigious venue. When Matt was 11 years old, he was signed up as a Bosendorfer Artist. He was the youngest pianist to have received this honour in the history of the Bosendorfer Piano Company (Bieber, 2007; Rogers, 2011; Treffert, 2010).

Matt is a prolific musician and has a good memory. He is gifted with the art of calendar calculations and is able to predict the day that the person is born purely based on the date of that person's birthday. Like Kim Peek, Matt also has a fascination for



certain topics, one of which was the subject of roller coasters. He is able to name the longest, fastest and highest roller coasters from around the world and is also able to state the different incline angles of the roller coasters (Solomon, 2013; Treffert, 2010).

Although most savants have IQs below 70, Matt's IQ is above average. In 2009, Matt was asked to pen the theme song for the Aid 4 Autism concert held in Atlanta, Georgia. Matt titled his song, I'm not afraid. While the musical expertise of savants is usually confined to playing thousands of songs from memory in a stiff and mechanical fashion, Matt is a prolific composer and skilled improviser (Bergmann, 2016; Christopher, 2013; Rogers, 2011; Solomon, 2013; Treffert, 2010).

Matt has become an accomplished musician and as an adult, he is acknowledged as the "Mozart of Jazz", a title that was given to him by the world-famous jazz musician Dave Brubeck (Christopher, 2013). Currently, Matt performs in the United States at concerts and jazz festivals. Much of his earnings from the sales of his music and appearances go into ASD-related research and organisations that support special needs. His reputation as a jazz musician continues to grow worldwide, with many of his performances available for viewing on YouTube (Rogers, 2011; Solomon, 2013; Treffert, 2010). In the summer of 2009, Matt attended the Stanford (University) Jazz Residency in California. Matt also attended Berklee College of Music in Boston in 2009, being the second music savant to attend this institution (Christopher, 2013; Savage, Edelson, & Rimland, 2003; Solomon, 2013; Treffert, 2010).

### Leslie Lemke

Leslie is a music savant who has extraordinary abilities despite being blind and cognitively challenged. The next few paragraphs describe Leslie's life and savant skills. Leslie was raised by his foster mother, May Lemke. Leslie was born prematurely on January 31st, 1952. He developed an eye condition called retrolental fibroplasia, a type of blindness that is often associated with premature babies. In this condition, the retina grows quickly and in Leslie's case, it started to block the drainage in the eye, resulting in glaucoma. There was increasing worry that Leslie's left eye was going to burst because of the added pressure from the retina. It was recommended that his left eye be removed. Six weeks later, the right eye was also surgically removed due to the same condition. Leslie has difficulties with his gross and fine motor skills, and also suffers from cerebral palsy (Grandin & Panek, 2013; Strauss, 2014; Treffert, 2009; Treffert, 2014; Wilson 2016). Through much patience and effort, May Lemke taught Leslie how to walk. She also taught him to eat and swallow his food by placing small amounts of food in his mouth and massaging his throat to induce the swallowing action (Strauss, 2014, Treffert, 2014; Wilson 2016).

Despite all his physical and cognitive impairment, Leslie was able to play Tchaikovsky's Piano Concert No. 1 flawlessly after hearing it for the first time when he was just fourteen years old. Leslie is a musical virtuoso despite never having had a formal music lesson in his life (Strauss, 2014; Treffert, 2009; Treffert, 2014; Wilson, 2016). He plays and sings thousands of music pieces and is also able to improvise and compose music (Darius, 2010; Treffert, 2004; Treffert, 2014; Wilson, 2016). When Leslie was seven years old, he was given a piano. May painstakingly taught him to play the piano by putting her hands over his. She initially taught him some simple tunes. By the age of eight, he was able to play the bongo drums, ukulele, concertina, xylophone and accordion. At nine years old, he mastered the chord organ (Christopher, 2013; Strauss, 2014; Treffert, 2014; Wilson, 2016).

As much as Leslie was becoming a prolific musician, he is still not able to hold a conversation and his speech consists of mainly echolalia. Till today, Leslie requires assistance with his self-help skills and because of the cerebral palsy in his hands, he never mastered the ability to dress independently. However, the spasticity in his hands ceases when he plays the piano or other musical instruments. Leslie shows no emotions except when he is playing the piano (Darius, 2010; Strauss, 2014; Treffert, 2014; Wilson, 2016). He is able to reproduce any piece of music, regardless of its length or complexity (Christopher, 2013; Strauss, 2014; Treffert, 2014; Wilson, 2016).

As he grew older, Leslie became more verbal and musically accomplished. He became progressively more creative, imaginative and entertaining (Strauss, 2014; Treffert, 2014; Wilson, 2016). On several occasions, after performing a musical piece he had heard, he would launch into an improvisation of the piece. He is known to have composed songs on the spot and sings with a baritone type of voice. His verbal IQ has been rated at 58 (Darius, 2007; Strauss, 2014; Treffert 2014; Wilson, 2016).

By 1980, Leslie was regularly giving concerts in Fond du Lac, Wisconsin. His newfound fame drew invitations to television shows such as CBC's Man Alive, the CBS Evening News, 60 Minutes, and That's Incredible! In 1983, ABC broadcasted the movie called The Woman Who Willed a Miracle. It was a family drama about Leslie and his adoptive mother, starring Cloris Leachman as May Lemke. Leslie is also the subject of Fred Small's song, Leslie is Different. Leslie continues to tour around the world and has given free concerts (Christopher, 2013; Strauss, 2014; Treffert, 2014; Wilson, 2016).

Leslie now lives with May's daughter, Mary Parker, in Arpin, Wisconsin. There was some apprehension and anxiety that Leslie may stop playing or performing with the passing of his foster mother, an occurrence which has happened to some savants in the past. This did not happen to Leslie and he continues to play and perform in concerts. In a way, music is Leslie's language and a conduit toward normalization for him (Strauss, 2014; Treffert 2014). With his music Leslie appears more animated and energetic. He will smile and talk when he is asked about his music. His sense of humour appears when the topic of music is discussed and when he is asked to play different pieces of music. On some occasions, Leslie has composed new songs with his own words, lyrics and sound effects. His repertoire and collection of musical talents seem unlimited and his ability to remember



all the songs or music pieces that he had performed seems limitless. Many professional musicians marvel at his innate and inborn knowledge of music.

## CONCLUSION

Savant skills are talents worth nurturing. Learning more about individuals with ASD who have savant skills will broaden our understanding of how we can help them with language acquisition, social skills, as well as self-help and independence skills. Drawing on their areas of interests and talents, the school curriculum and instructional methods could be tailored to suit their learning needs.

For experts in the field of ASD, savant talents amongst individuals with ASD are a fascinating yet challenging phenomenon (Bennett, & Heaton, 2017; Biever, 2009; Clark, 2016; Crow, 2010; Treffert, 2014). There are individuals with ASD who have challenges in their mental ability and self-help skills, where they need to be assisted by others, and yet these individuals have demonstrated specific skills in a particular domain that surpass many individuals of normal intelligence (Bennett, & Heaton, 2017; Clark, 2016; Treffert, 2014). According to studies, there are individuals with ASD who possess extraordinary areas of brilliance that is above the general population (Bennett, & Heaton, 2017; Treffert, 2014). These areas of brilliance could be displayed through their savant skills in mental calculations, calendrical calculations, art, music and exceptional memory (Bennett, & Heaton, 2017; Treffert, 2014).

## REFERENCES

1. Arnold, L. (2013). *The social construction of the savant*. *Autonomy, the Critical Journal of Interdisciplinary Autism Studies*, 1(2), 1-8.
2. Babbitt, R. (2016). *Rain Man directed by Peter Guber and Jon Peters. The Silent Appalachian: Wordless Mountaineers in Fiction, Film and Television*, 42, 27.
3. Bennett, E., & Heaton, P. (2012). *Is talent in autism spectrum disorders associated with a specific cognitive and behavioural phenotype?* *Journal of Autism Developmental Disorder*, 42, 2739–2753.
4. Bennett, E., & Heaton, P. (2017). *Defining the clinical and cognitive phenotype of child savants with autism spectrum disorder*. *Current Paediatric Research*, 21(1), 140-147.
5. Bergmann, T. (2016). *Music therapy for people with autism spectrum disorder. The Oxford Handbook of Music Therapy* (pp. 186). Retrieved from <http://www.oxfordhandbooks.com/view/10.1093/oxfordhb/9780199639755.001.0001/oxfordhb-9780199639755-e-35>
6. Biever, C. (2009). *The makings of a savant*. *New Scientist*, 202(2711), 30-33.
7. Christopher, T. (2013). *Premodern transcendental perspectives on the missing heritability problem and some intelligence conundrums*. *Cureus*, 5(8), 1. doi: 10.7759/cureus.13516
8. Clark, T. (2016). *Exploring giftedness and autism: A study of a differentiated educational program for autistic savants*. London: Routledge.
9. Crow, K. (2010). *The autistic savant: When a disabled child has extraordinary gifts*. Retrieved from <https://www.families.com/the-autistic-savant-when-a-disabled-child-has-extraordinary-gifts>
10. Darius, H. (2007). *Savant syndrome-theories and empirical findings*. Retrieved from <http://www.diva-portal.org/smash/record.jsf?pid=diva2%3A2901&dsid=9543>
11. Gururangan, P. (2012). *Savant syndrome: Growth of empathy and emotion*. *Berkeley Scientific Journal*, 15(1), 1-9.
12. Happé, F. (2013). *Weak central coherence*. In *Encyclopaedia of Autism Spectrum Disorders* (pp. 3344-3346). New York: Springer.
13. Hutchinson, I. (2013). *Islands of genius: The bountiful mind of the autistic, acquired, and sudden savant*. *Good Autism Practice (GAP)*, 14(1), 92-92.
14. Kodjapashi, T., & Balayannis, S.J. (2011). *Savant syndrome: Islands of genius in a sea of low intelligence*. *Encephalos Journal*, 48(3), 93-102.
15. Moran, M. (2010). *Autistic savant made famous by 'Rain Man' dies - What is new in understanding of syndrome?* *Neurology Today*, 4(10), 14-15. doi: 10.1097/01.NT.0000368614.59951.d
16. Peek, F., & Hanson, L. (2007). *The Life and message of the real Rain Man: The journey of a mega-savant*. Florida: National Professional Resources Inc./Dude Publishing.
17. Puchta, H. (2011). *American English in mind level 4 student's book with DVD-ROM*. Cambridge: Cambridge University Press.
18. Riches, N. G., Loucas, T., & Baird, G. (2016). *Elephants in pyjamas: Testing the weak central coherence account of autism spectrum disorders using a syntactic disambiguation task*. *Journal of Autism and Developmental Disorders*, 46(1), 155-163.
19. Rogers, S.J. (2011). *Islands of genius: The bountiful mind of the autistic acquired, and sudden savant*. *American Journal of Psychiatry*, 168(8), 860-861.
20. Skorich, D.P., May, A. R., Talipski, L.A. (2016). *Is social categorization the missing link between weak central coherence and mental state inference abilities in autism? Preliminary evidence from a general population sample*. *Journal of Autism and Developmental Disorders*, 46(3), 862-881.
21. Skuse, D.H. (2011). *The extraordinary political world of autism*. *Brain*, 134(8), 2436-2439. doi: 10.1093/brain/awr111
22. Solomon, O. (2013). *Autism and Affordances of Achievement. The social life of achievement*, 2, 120.
23. Strauss, J. (2014). *Idiot savants, retarded savants, talented aments, mono-savants, autistic Savants, just plain savants, people with savant syndrome and Autistic people who are good at things: A view from disability studies*. *Disability Studies Quarterly*, 34(3), 4.
24. Treffert, D.A. (2010). *Islands of genius (electric resource): The bountiful mind of the autistic, acquired, and sudden savant*. New York: Kingsley.





25. Treffert, D. A. (2010). *The savant syndrome: An extraordinary condition. A synopsis: Past, present, future. Autism and Talent, 1-12.*
26. Treffert, D. (2011). *Rain Man, the Movie/Rain Man, Real Life. Wisconsin Medical Society. Retrieved from <https://www.wisconsinmedicalsociety.org/professional/savant-syndrome/resources/articles/rain-man-the-movie-rain-man-real-life/>*
27. Treffert, D.A. (2012). *Islands of genius: The bountiful mind of the autistic, acquired, and sudden savant. London: Jessica Kingsley Publishers.*
28. Treffert, D.A. (2014). *Accidental Genius. Scientific American, 311(2), 52-57.*
29. Treffert, D.A. (2014). *Savant Syndrome: Realities, myths and misconceptions. Journal of Autism and Developmental Disorders 44(3), 564-571. doi:10.1007/s10803-013-1906-8*
30. Treffert, D.A., & Wilson, C. (2016). *There's a savant in you. New Scientist 229(3056), 28-29.*
31. Vanegas, S. B., & Davidson, D. (2015). *Investigating distinct and related contributions of weak central coherence, executive dysfunction, and systemizing theories to the cognitive profiles of children with autism spectrum disorders and typically developing children. Research in Autism Spectrum Disorders, 11, 77-92. doi: 10.1016/j.rasd.2014.12.005*
32. van Leeuwen C. *What makes you think you are conscious? An agnosticist manifesto. Front Hum Neurosci. 2015 Apr 7;9:170. doi: 10.3389/fnhum.2015.00170.*
33. Weber, B. (2009). *Kim Peek, inspiration for 'Rain Man,' dies at 58. New York Times, 26.*
34. Wilson, C. (2016). *There's a savant in you. New Scientist, 229 (3056), 28-30.*