Paradigm Shifts in the History of Autism: A School Psychology Perspective

Dianne L. Ballance

University of Calgary

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Autism was first described as a separate syndrome 67 years ago by Leo Kanner (1943). Since that time remarkable research and progress have been made in the understanding of this unique disability (Mesibov, Adams, & Schopler, 2000). Current views of autistic disorder (autism, or autism spectrum disorder) have evolved over the years in terms of refining classification and diagnosis, and the theoretical framework contributing to both research and the quality of care and effectiveness of interventions for these children and their families. Current knowledge is supported by substantial data that has included both misconceptions mixed with progress (Mesibov et al., 2000). This paper discusses how the understanding of autistic disorder has changed in classification and theory since its first description from a historical and contemporary school psychological perspective, and the resulting effects on practice and research. Biological, genetic, and neurological research and information is not included within the scope of this paper, although significant contributions to autism research is acknowledged in these fast changing and evolving fields of science.

**Historical Considerations**

The term ‘autism’ was first coined by Eugen Bleuler in 1911 to describe individuals with schizophrenia who experienced a loss of contact with reality (Klinger, Dawson, & Renner, 2003). The terms ‘autistic’ and ‘autism’ are derived the term from the greek word ‘autos’ meaning ‘self’, and in the context of autism as a disorder it is meant to convey an apparent disconnect from the social world outside themselves (Sanders, 2009). In 1934, Leo Kanner, a child psychiatrist at Johns Hopkins University, first identified autism as a separate syndrome in his seminal article *Autistic Disturbances of Affective Contact*. Kanner (1943) presented the case studies of 11 children whom he described as having “extreme autistic aloneness” that he believed
had a loss of contact with reality similar to that described by Bleuler (p.242). However, Kanner distinguishes autism from schizophrenia in that these children had difficulties relating and forming relationships with others from birth, which is different from the experience of schizophrenia where children or adults depart from initially present relationships. Kanner concluded that the children provided examples of “inborn autistic disturbances of affective contact” (p. 250). In 1957, Kanner noted that by that time “early infantile autism has been fully established as a clinical syndrome” that is distinguished from childhood schizophrenia by history, early onset, and clinical course (p. 63). Kanner’s (1943) description was also somewhat of an exception in that he set forth the diagnostic criteria in terms of specific child behaviours rather than in terms of modifications to adult criteria (Rutter & Schopler, 1987). It is from this point forward that the study of autistic disorder in children was enthusiastically undertaken to solve the riddles associated with this unique disorder. Kanner was a leading contributor to the identification of autistic disorder and the resulting years of research and practice.

**Classification of Autistic Disorder**

Ever since Kanner’s first description in 1943, there has been agreement on the core symptoms of autistic disorder that include social isolation, language impairments, and insistence on sameness; and they remain today as the defining characteristics of the disorder (Happe, Ronald, & Plomin, 2006; Mesibov et al., 2000; Sanders, 2009; Sponheim, 1996). Specifically Kanner (1943) described social isolation as the “inability to relate themselves in the ordinary way to people and situations from the beginning of life” (p. 242). He noted that whenever possible outside influences are shut out, disregarded, or ignored, and that a “profound aloneness dominates all behaviour” (Kanner, 1943, p. 247). Language impairments noted by Kanner emphasized echolalia, extreme literalness, pronominal reversals, and a failure to use language for
the purpose of communication (1943, 1957). According to Kanner, these peculiarities of language separated autistic children from children diagnosed with schizophrenia (Mesibov et al., 2000). Kanner’s third defining characteristic of insistence of sameness was demonstrated in his case studies noting obsessiveness and the compulsive following of routines, rituals, sequence of events, fascination with for objects, and a lack of spontaneous activity; and that changes in environments caused great upheaval (Kanner, 1943; Kanner, 1957; Mesibov et al., 2000). Intrusions from people, food, loud noises and moving objects resulted in children becoming greatly disturbed. Kanner also included in his original description the exclusion of hallucinations and delusions, as well as areas of strength including excellent rote memory and good cognitive potential as symptoms of autism. Kanner revised his views on age of onset after additional clinical experience to acknowledge that a period of normal development (18 to 20 months) may occur prior to a regression or withdrawal of affect, loss of language, a failure to progress socially, and the gradual giving up of interest in normal activities (1957). In 1957, Kanner concluded that “extreme self-isolation and obsessive insistence on the preservation of sameness” were the two primary features of the disorder (p.57).

**Early Misconceptions**

Given the times and the amount of information available, Kanner’s description of autism was remarkably accurate, thorough, and perceptive. Although he is credited with his pioneering efforts, several of his observations and hypotheses have proved to be inaccurate over time with additional research (Mesibov et al., 2000). One of the largest misconceptions following Kanner’s early description that autism was related to or caused by inadequate parenting, especially mothers. Kanner noted common characteristics among the parents from his original sample: perfectionism, obsessiveness, lack of humour, and emotional aloofness. Although he
acknowledged that it would be difficult to attribute the whole picture exclusively to parent relations, he did conclude that the emotional configuration in the home played a dynamic role in the genesis of autism (Kanner, 1943; Kanner, 1957). Given the view in psychiatry at the time regarding emotional deprivation and its consequences on development it is understandable how Kanner would reach this conclusion. Research in autism has conclusively refuted this suggestion and do not support this early hypothesis (Bristol, McIlvane, & Alexander, 1998; Klinger et al., 2003; Mesibov et al., 2000). Accumulating research to date indicates that autism is a biological disorder that originates during brain development (Bristol et al., 1998).

Another factor noted by Kanner may have contributed to further misinterpretation of intelligence, education, and social status of the parents. The professions of the parents (both mothers and fathers) of the children in Kanner’s study included; physicians, psychologists, lawyers, professors, and engineers. In retrospect, their education and drive may have motivated them to find and select Kanner’s clinic working with children with severe difficulties, rather than their behaviour and parenting of their children. Studies have demonstrated that the prevalence of autism to be proportionately distributed throughout education levels and social classes, although the predominately male to female ratio (4:1) still exists today (Mesibov et al., 2000). Recent studies show a disproportionate number of children diagnosed with autism; where ethnically diverse children are underrepresented and Caucasian children are overrepresented (Mandell et al., 2009). Further research investigating this disproportionality will need to be conducted as it has implications for screening, diagnosis, and interventions for these children.

The belief that most children with autism are of average or above-average intelligence and have the potential for normal language development identified by Kanner has not been supported in the research over the years (Mesibov et al., 2000; Rutter & Schopler, 1987).
Although all children on the autistic spectrum demonstrate the same core deficits there is marked variability in the severity of the symptomatology, complex communication impairments, aetiology, and level of intellectual functioning can range from mental retardation to the superior range on conventional intelligence tests (Baron-Cohen, 2004; Baron-Cohen, Leslie, & Frith, 1985; Filipeck et al., 1999; Waterhouse et al., 1996). Today, it is a widely held view that heterogeneity characterizes autistic disorders, and that there are no two identical profiles. Across the core features there are significant differences in the extent and quality of symptoms, differences in treatment responsiveness, and different developmental trajectories (Geschwind & Levitt, 2007). Current research efforts have the multiple goals of explaining the aetiology, understanding syndrome and non-syndrome specific factors that influence relative risk, in developmental course of symptom expression, treatment response, and co-occurrence of medical and mental health dysfunctions in autistic disorder (Geschwind & Levitt, 2007).

The earliest epidemiology studies noted a prevalence of autism of 1 in every 2000 people. With improved classification and recognition the prevalence estimates increased to 1 in 1000, after time was followed up with 1 in 500, and recent study suggests that as many as 1 in 100 children have some form of autism spectrum disorder (Filipek et al., 1999; Rajendran & Mitchell, 2007). Whether these rates demonstrate a true increase or rather improved awareness and better diagnostic tools continues to be debated (Klinger et al., 2003). Regardless, autism is clearly not as rare as previously believed, and is now considered to be among the most common of the developmental disorders (Bristol et al., 1998). An implication resulting from increased prevalence rates for contemporary psychology is that every educational service or school for children can expect to see children with autism. Screening and early diagnosis are necessary for educational planning and treatment, and improved prognosis of outcomes for children with
autism. Kanner originally noted the success of a sympathetic and tolerant reception of schools contributing to children’s improvement, as opposed to the detrimental effects of institutional care as seen in his follow-up study of the individuals in his case studies (Kanner, 1943; Kanner 1971).

**Evolution of Diagnostic Criteria**

Even though autism was rather commonly accepted, it was not included in the Diagnostic and Statistical Manual of Mental Disorders (DSM) in either first two editions (Sanders, 2009; Volkmar, Cohen, & Paul, 1986). During that time, children with autistic disorder had to be classified under the umbrella of ‘schizophrenia, childhood type’ (Kanner, 1971). During the 1970’s there came a growing recognition that it was necessary to differentiate between severe mental disorders that arise during infancy as in the case of autism; and those that arise in later childhood or adolescence as in the case of schizophrenia (Rutter & Schopler, 1987). The DSM-III included for the first time the term *infantile autism* which was clearly differentiated from childhood schizophrenia (Filipek et al., 1999). The term was later changed in the DSM-III-R to *autism* (Sanders, 2009).

As autistic disorder came to be considered an ‘abnormality’ present early in life and in the developmental process itself, the adoption of the term *pervasive developmental disorders* (PDD) was adopted to emphasize the wide-range of developmental processes that may be impacted in autism in the DSM-III (Rutter & Schopler, 1987; Rutter & Schopler, 1992; Volkmar et al., 1986). The DSM-III-R broadened the PDD spectrum to autistic disorder (reserved for children with symptoms prior to 30 months of age) and PDD Not Otherwise Specified (Filipek et al., 1999). Another important advance in the DSM-III-R was the acceptance that criteria must concern abnormalities that are deviant in relation to the person’s mental age (Rutter & Schopler, 1992). Developmental research has suggested an autistic continuum rather than a sharp
boundary between core autism and sub-groups (Waterhouse et al., 1996). The concept of a broader clinical phenomenon or ‘spectrum’ was acknowledged by the DSM-III with the label of PDD. In his 1971 follow-up, Kanner suggested the idea of different degrees of severity, and clinical consensus has grown over the years that the umbrella of PDD does represent an autistic spectrum (Filipek et al., 1999).

Changes to criteria in the DSM-IV included the term qualitative to describe a range of impairments. This important distinction implies a range of impairments rather than the absolute presence or absence of a particular behaviour to meet criteria for diagnosis (Filipek et al., 1999). In addition the DSM-IV changed the cut off age from 30 months to 3 years to account for difficulties experienced with age of onset in cases where impairments occur after normal development, when information on early development is inadequate, variety in the severity of the syndrome, and parental denial (Rutter & Schopler, 1987; Volkmar et al., 1986). The current DSM-IV-TR criteria include qualitative impairments social interaction and communication, restricted repetitive and stereotyped patterns of behaviour, interests and activities, delays or abnormal functioning are present prior to 3 years, and the disturbance is not better accounted by Rett’s Disorder or Childhood Disintegrative Disorder (American Psychiatric Association, 2000). The only diagnostic criteria that cannot be related back to Kanner’s landmark article involve the one regarding differential diagnosis (Sanders, 2009).

Refinements to the contemporary description have evolved through further research of the criteria. Gains in knowledge regarding normal social development have led to better specification of the social abnormalities that characterize autism include: deficits in social cues and signals, socioemotional reciprocity, and lack of modulation of behaviours according to social contexts (Rutter & Schopler, 1987). Language impairment has been refined to assess both
deviance and delay in linguistic features, and the use of language for social communication as seen in conversational interchanges, flexibility in expression, variances in speech, and the lack of creativity and spontaneity of social language (Rutter & Schopler, 1987). Restricted, repetitive, and stereotyped patterns of behaviour have a tendency to impose rigidity and routine on a wide range of aspects of day to day functioning as well as novel activities, and appears to apply widely to children with autism (Rutter & Schopler, 1987).

The diagnostic criterion has varied in emphasis over the years as concepts have varied in their focus. When autism was viewed as infantile psychosis attention was given to bizarre behaviours, and as clinicians and researchers began to appreciate the importance of cognitive deficits the focus shifted to impairments in language and social development (Rutter & Schopler, 1987). More recently it has become recognized that what differentiates autism from other disorders of development is the deviance rather than the delay in the developmental process (Rutter & Schopler, 1987). These shifts in concept have not meant that autism has applied to different conditions; rather that research has refined our understanding of autism. The particular pattern of deviance found in autism (in the three core areas) is what is distinctive to the autistic syndrome (Rutter & Schopler, 1987). Even so, it must be recognized that Kanner’s contributions to the modern view of autism are relevant and insightful, and have provided a framework for developing and understanding the disorder. Consensus of clinical experts on autistic criteria has generated core paradigms shared by clinicians (Waterhouse et al., 1996). In consideration of variability among clinicians and researchers to diagnostic and classification issues it is highly desirable that current classifications have a firm scientific base (Rutter & Schopler, 1992). Future research that provides more precise guidelines and exclusionary criteria will prevent variability in diagnostic practice (Sponheim, 1996).
Sub Categorization

Formal diagnostic systems have assumed there is a core autistic syndrome, and efforts to limit heterogeneity have included the evolution and creation of sub-groups through clinical consensus and field trials (Waterhouse et al., 1996). There has been much debate regarding the boundaries and the sub-division of the pervasive developmental disorders and the core disorder of autism. Disagreements largely concern matters of subdivision or sub categorization, and the breadth or narrowness of the autism diagnosis (Rutter & Schopler, 1992). Significant behavioural overlap between sub-groups contributes to difficulties in the refinement of sub-categories, and current studies suggest that developmental disorders may be overlapping (Rajendran & Mitchell, 2007; Waterhouse et al., 1996). Current concerns surrounding sub-classification include the effects of fragmentation of the status of autism as a spectrum disorder, and continued confusion regarding valid diagnosis and cases of misdiagnosis (Rajendran & Mitchell, 2007). Probably the most controversial debate continues to be the validity of asperger disorder as a discrete diagnostic identity distinct from autism and questions if they are just different severity grades on a dimensional range (Filipek et al.; Kamp-Becker et al., 2010; Sanders, 2009). A detailed description of these arguments can be found in Kamp-Becker et al., 2010, and Sanders, 2009.

There are several reasons why attempts at sub categorization are made; better fit between research and subgroups, unique aetologies, intervention, prognosis, and the validity of current classification systems (Kamp-Becker et al., 2010; Sanders, 2009). Sub categorization emphasizes diversity of needs which may be helpful in service development (Rutter & Schopler, 1992). The concept of the “broader autism phenotype” has been introduced to support the continuum of autistic traits (Happe et al., 2006). Research demonstrating single symptoms of autism in relatives of those with autism supports this hypothesis (Kamp-Becker et al., 2010). It
is interesting to note that Kanner also commented on the presence of symptoms in parents of autistic children in consideration of their personalities and behaviours in the family background (obsessive tendencies) that may be considered an earlier view of the broader autism phenotype (Kanner, 1943; Kanner, 1957). Implications regarding diagnosis and access to services will be influenced by further classification efforts. The current view in psychology supporting a dimensional approach supports the hypothesis of a spectrum of autism, although future research is needed to clarify this distinction and influences of intelligence, age, behavioural aspects, special skills, and emotional aspects to develop a comprehensive understanding of the autism spectrum (Kamp-Becker et al., 2010).

**Theoretical Framework**

Kanner’s findings generated considerable debate about the causes of autism (Mesibov et al., 2000). Since autism was first described, many theories have been proposed to account for this unique condition (Rajendran & Mitchell, 2007). Theories of autism have tended to mirror the paradigm of their times, and have shifted or evolved as research and theories developed in the field.

**Psychoanalytic Theories**

Kanner in his original description suggested that parenting style influenced the development of autism (Kanner, 1943). The behaviours of autism which were unusual and often dramatic resembled symptoms of mental illness which was familiar to analysts and considered to be an emotional disability which was consistent with most childhood disorders of that time (Mesibov et al., 2000). Bettelheim proposed a ‘refrigerator mother’ theory stating that an emotionless parenting style caused a child to develop autism (Klinger et al., 2003; Rajendran & Mitchell, 2007). Bettelheim argued the absence of early emotional stimulation damaged the
central nervous system, ego development, and intellectual functioning, and that treatment for
autism involved removing children from their parents to nurture children with positive
experiences so they could abandon autistic tendencies (Mesibov et al., 2000). These theories are
now completely discredited. Research into biological theories investigated family dynamics
further and demonstrated that many autistic children had normal siblings and that parents with
characteristics similar to those of autistic children often had normal children. Research in the
1970’s refuted these early psychoanalytic theories, and in 1969 Kanner retracted claims of
parental cause and restated his views that autism was an innate disorder (Mesibov et al., 2000).

Cognitive Theories

Three cognitive theories have dominated psychological research into autism: the Theory
of Mind deficit, Executive Dysfunction, and the Weak Central Coherence theory (Rajendran &
Mitchell, 2007). Early work in the cognitive era examined cognitive abilities including
perception, auditory and visual memory, and disordered language (Rajendran & Mitchell, 2007).
Research in these areas had mixed results, and did not account for variations or establish
boundaries of the disorder. In order to attempt to explain the specific impairments of autism
consideration of underlying cognitive mechanisms independent of IQ were considered (Baron-
Cohen et al., 1985). During the 1980’s theories of cognitive deficits were proposed that imposed
a developmental psychological perspective and became influential in research and in practice
(Rajendran & Mitchell, 2007).

Theory of Mind. In essence this theory states that individuals with autism fail to
conceive mental states to themselves and others, and that this deficit manifests as inability to
mentalize or fail to take into account others’ mental states (Baron-Cohen et al., 1985; Rajendran
& Mitchell, 2007). This model specifies a mechanism which underlies crucial aspects of social
skills (Baron-Cohen et al., 1985). Initially this theory proved promising results as the majority of autistic children as a group failed to employ a theory of mind during the tests and experiments resulting in encouragement to continue with the theoretical framework and triggered an explosion of research interest in the social impairments of autism (Baron-Cohen et al., 1985; Frith & Happe, 1994; Rajendran & Mitchell, 2007). Success in making specific predictions about impairments in socialization, imagination, and communication was accounted to the theory of mind hypothesis and was useful in the study of child development (Frith & Happe, 1994). However, the smaller subgroup of children with autism who succeeded on theory of mind tasks required further study. In addition theory of mind could not explain the other core deficits or assets of autism (Frith & Happe, 1994). By scientific standards theory of mind did not provide a full account of autistic disorder even after refinements were made to theory of mind tests.

However, the essential idea that individuals with autism have difficulties understanding both their own and others’ mind seems unquestionable, and in historical terms theory of mind brought developmental psychologists into mainstream autism research (Rajendran & Mitchell, 2007). A recent reconceptualization of theory of mind has been the enactive mind hypothesis that argues the autistic mind from the outset is not attuned to the social world (Rajendran & Mitchell, 2007).

It has been hypothesized that impairments in joint attention skills and imitation skills may lead to difficulties in solving theory of mind tasks (Klinger et al., 2003). Future research into this evolving theory will continue the investigation into social impairments of autistic disorder.

**Executive Dysfunction.** Interest in executive function deficits (EF) in autism can be seen as springing from some of the limitations of the theory of mind view (Frith & Happe, 1994). An important difference between theory of mind and EF accounts of autism is that executive functions are intrinsically domain-general, whereas the theory of mind is domain-specific.
(Rajendran & Mitchell, 2007). Executive function is defined as the ability to maintain appropriate problem-solving for attainment of a future goal (Rajendran & Mitchell, 2007). Essentially EF refers to preference for local detail over global processing (Baron-Cohen, 2004). EF is an umbrella term for functions including: planning, impulse control, initiating, sustaining, shifting, inhibition/ stopping, organized searching, and flexibility of thought and action (Rajendran & Mitchell, 2007). EF is a function, an operation, not a mechanism or structure. EF tasks include assessment of inhibition, intentionality, and executive memory (Rajendran & Mitchell, 2007). Initial findings suggested that executive function impairments are a primary causal factor in autism, and explained certain features of autism (impulsiveness, failure to plan, stereotypies) (Frith & Happe, 1994). However, once again it was not clear how it could explain all the specific deficits and skills associated with autism, and it appeared that executive deficits themselves are not unique to autism (Frith & Happe, 1994; Rajendran & Mitchell, 2007). Difficulties replicating results of earlier studies, and inconsistent findings have limited the EF hypothesis.

**Weak Central Coherence.** Continued motivation by the belief that both assets and deficits of autism resulted from a single cognitive cause, weak central coherence theory was proposed (Frith & Happe, 1994). Weak central coherence theory (WCC) is a domain general process that suggests that autism is characterized by weak or absent drive for global coherence (Rajendran & Mitchell, 2007). Essentially, WCC states that individuals with autism process things in a detail-focused way, processing parts rather than the global whole. WCC resulted in a reintroduction of research into the perceptual abilities of individuals with autism. The hypothesis that individuals with autism process unique features relatively well and common features relatively poorly, argues that perceptual processes in autism are better explained in terms of
reduced generalization. It is commonly accepted that individuals with autism have difficulties generalizing newly learned behaviour to novel environments. WCC theory addresses these difficulties in generalization. WCC theory has evolved from the initial conception as a deficit in global processing towards superior local processing as a cognitive style (Rajendran & Mitchell, 2007). Currently WCC theory does not seek to explain all aspects of autism, rather only one part of cognition in autism.

**Multiple-deficit accounts**

It is recognized that autistic disorder is heterogeneous and may entail multiple causal influences (Bristol et al., 1998). Multiple-deficit accounts lie at the opposite end of the theoretical continuum to accounts that propose that autism can be explained by a single specific deficit. Recent proposals suggest that autism is a complex of cognitive disorders that includes theory of mind, executive dysfunction, and WCC, and provide the argument that individuals with autism can be affected differently in these three domains (Rajendran & Mitchell, 2007). Multiple-deficit accounts are appealing given the heterogeneity of autism, and implication for individualized treatment. Recent research suggests that it is time to give up on the search for one cause or explanation for the three core aspects of autism (Happe et al., 2006).

**Role of Contemporary School Psychology**

Autism can be diagnosed in children reliably by the age of three years (Filipek et al., 1999). Studies demonstrate that symptoms of autism are measurable and that they are relatively stable through the preschool years (Filipek et al., 1999). The school system has been reported by parents to provide the major source of assistance over time, rather than the medical health care community. School psychologists may be involved in various levels of the screening and diagnosis of autism, and in the delivery of services and interventions typically for children three
years and older. Screening of behaviour and assessment of functioning are areas in which school psychologists can contribute on a multidisciplinary team specializing in the assessment of autism.

Profiles of strengths and weaknesses in the three core areas of social interactions, communication and language functioning, and repetitive and stereotyped patterns of behaviour can be investigated through diagnostic interviews, observation, behavioural analysis, the use of diagnostic tools designed for autism, and a cognitive evaluation that includes intellectual assessment. Results of cognitive assessments are important in determining overall levels of functioning, mental age, and individual profiles that assist in planning educational intervention, evaluating its effects, and projecting long-term prognosis (Filipek, 1999). It needs to be noted that although research has studied various cognitive profiles examining particular patterns characteristics of autism (higher performance IQ, high performance on block design, lower verbal IQ and comprehension), there is substantial variability in the intellectual profiles of children with autism (Filipek, 1999). Although patterns may be typical, they are not universal and should not be used for diagnostic purposes. No cognitive pattern confirms or excludes a diagnosis of autism (Filipek, 1999). Rather, the School psychologists may address issues related to curriculum planning and school performance issues. Standardized measures are used to establish baseline function in many domains of learning, performance, and socialization (Filipek, 1999). Behavioural assessment can address specific behaviour problems; identify appropriate behaviours, track progress, and document effectiveness of interventions. One of the successes in the field has been the development of effective behavioural training methods that encourage development of communication skills and improved social functioning (Bristol et al., 1998). In addition, psychologists may be able to assess family dynamics in relation to parenting and
behaviour management strategies as they specifically relate to the autistic child, facilitate parent support groups or seminars, provide access to additional resources, and provide ongoing consultation, education, and support to educators (Filipek, 1999). Psychologists trained in evaluating autistic children can play a critical role in intervention planning, outcome assessment, and the diagnosis and treatment of the disorder.

All professionals involved should be familiar with the signs and symptoms of autism to recognize possible indicators and the need for further diagnostic evaluation (Filipek et al., 1999). School psychologists will need to be familiar with diagnostic criteria, current research, and theoretical frameworks that influence assessment, intervention, and the provision of psychological services for children with autism. Experience in the diagnosis of developmental disorders and autism in particular would increase the reliability and validity of the diagnosis, and obtaining accurate information for treatment planning. The differentiation of autism from other developmental disorders includes the consideration of mental retardation, developmental language disorders, and other psychiatric conditions (Filipek, 1999). A challenge will be to coordinate work with other professionals to avoid duplication of effort, maximize efficient use of time, and enhanced communication and direct service (Filipek, 1999).

**Future Research Directions**

Future priorities in the psychological study of autism are: to detail the actual course of development in autism, to compare and contrast autism to brain injuries and other developmental disorders, to advance beyond current group methodologies that do not address the heterogeneity of the disorder, developing and refining effective behavioural treatments, and to define more clearly the boundaries between autism and other disorders (Bristol et al., 1998; Rajendran &
Mitchell, 2007; Volkmar et al., 1986). A developmental and dynamic account is one direction in which theories might develop (Rajendran & Mitchell, 2007).

The increase in prevalence rates of autism will continue to put pressure on services, and consequently researchers will need to come up with theories that can be used in practice, development of screening instruments for milder variants of the disorder, and design interventions that work (Filipek et al., 1999; Rajendran & Mitchell, 2007). In addition there is an increased demand for interventions designed for toddlers and preschoolers identified in early screening (Klinger et al., 2003).

As yet, there is no fully integrated account which manages to describe and explain every aspect of autism. Any new theory would have to integrate the various aspects of the disorder. Researchers have been searching for the causes and cures of autism as a whole. Given the heterogeneity and differing developmental trajectories of autism theoreticians may have to reign in any grand claims about accounts that seek to explain autism in its entirety (Rajendran & Mitchell, 2007). The challenge presented by the heterogeneity within the autism spectrum will need to be addressed in current research. Each element of the triad of impairments should be studied as distinct entities given their independent operation and association with each other (Happe et al., 2006; Rajendran & Mitchell, 2007). Multiple-deficit accounts may be the only ones that cover the diversity of autism. A challenge will be the coordination of the multidisciplinary scientists that can be represented in consideration of the three core characteristics; from psychology to biology, genetics, and neurology.

**Conclusion**

Starting with Kanner’s description in 1943, research and clinical practice have dramatically increased our knowledge and understanding of autistic disorder. Current research is
expanding our understanding by refining the nature of problems associated with autism and their impact on behaviour (Mesibov et al., 2000). Theories of autism have historically mimicked psychology trends. As such, theories of autism must be viewed within the context of its own time to build a historical perspective (Rajendran & Mitchell, 2007). Current concepts of autism embrace a multi-dimensional framework. In terms of psychology, autism can be investigated on cognitive, perceptual, developmental, social, linguistic, and behavioural levels. In the quest to understand and help children with this unique disorder we must gain insight into psychological functioning while appreciating the complexity and multi-dimensionality of the disorder and human development in general (Rajendran & Mitchell, 2007). Different types of treatment will need to be developed to address heterogeneity within autism and the variety of treatment responses. Exciting new advances in the field will be brought about through continued research and practice.


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