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A Clinician's Perspective on the Communicative Intention in Autism: Call to Reconsider our Understanding of Non-Verbal Behaviours, Private and Inner Speech and Echolalia in Children with Autism Spectrum Disorder

Point de vue d'un clinicien sur l'intention de communication en autisme : Un appel à revoir notre compréhension des comportements non-verbaux, du discours privé et intérieur et de l'écholalie chez les enfants ayant un trouble du spectre de l'autisme

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Abstract

Researchers' understanding of the meaning of non-verbal behaviours in autism determines, to varying degrees, what practitioners, educators and family members do about these behaviours. There is a lack of consensus in our current understanding of non-verbal behaviours, private and inner speech, and echolalia in children with autism spectrum disorder, as well as a lack of consistency and rigour in terminological use. Even more importantly, there is a lack of rigorous multidimensional lines of evidence to support current views of the meaning of non-verbal behaviours or private and inner speech in autistics. This position paper supports recommendations from a growing number of autism experts for behavioural phenomenological analyses of these complex behaviours, in order to explore the potential communicative intent underlying non-verbal behaviours in children with autism spectrum disorder.

Résumé

La compréhension qu'ont les chercheurs concernant la signification des comportements non-verbaux en l'autisme détermine, à des degrés divers, ce que les praticiens, les éducateurs et les membres de la famille font de ces comportements. Il y a un manque de consensus dans la compréhension actuelle des comportements non-verbaux, du discours privé et intérieur et de l'écholalie chez les enfants ayant un trouble du spectre de l'autisme, ainsi qu'un manque de

cohérence et de rigueur dans l'utilisation terminologique. Plus important encore, il y a un manque de preuves multidimensionnelles rigoureuses pour soutenir les opinions actuelles sur la signification des comportements non-verbaux ou du discours privé et intérieur chez les personnes ayant un trouble du spectre de l'autisme. La présente prise de position soutient les recommandations d'un nombre grandissant d'experts en autisme pour des analyses phénoménologiques comportementales de ces comportements complexes, de façon à explorer l'intention communicative potentielle sous-jacente aux comportements non-verbaux chez les enfants ayant un trouble du spectre de l'autisme.

Mots-clés : Autisme, comportement non-verbal, discours privé, discours intérieur, écholalie

Introduction

Controversy in any field is closely tied to theory (Milton, 2014). This has been recently observed in the field of autism (Fasulo, 2019). How researchers talk or think about autism determines, to varying degrees, how we study it, and how we propose to interact and intervene with children with autism spectrum disorder (ASD), as practitioners, educators and family members (DePape & Lindsay, 2015; Howard et al., 2019). Notably, the scientific and professional communities have developed a tendency to accept observable behaviours in autism as exemplars of certain functions or motivations, despite the current lack of rigorous multidimensional lines of evidence that would be required to support such a view (Lawlor & Solomon, 2017). For example, autism has been closely connected to and described in terms that include a wide range of autistic non-verbal behaviours, such as repetitive behaviours including stereotypies, rituals, compulsions, obsessions, echolalia, self-injury, tics, alexithymia (inability to identify and describe emotions experienced by oneself), catatonia (lack of movement and communication, agitation, confusion and restlessness) (American Psychiatric Association (APA), 2013; Bouvet et al., 2019; García Villamisar & Rojahn, 2015; Golysheva, 2019; Huisman-van Dijk et al., 2016; Jinks, 2019; Mannion et al., 2014; O'Connell et al., 2018; Poquérusse et al., 2018). In addition, synesthesia is an involuntary, neurological condition that occurs in people with autism and in the general population. This phenomenon occurs when the stimulation of one sensory modality automatically evokes a perception in another unstimulated modality. For example, looking at something may produce sensation in the skin (Bogdashina, 2016). These autistic non-verbal behaviours have routinely been attributed to underlying constructs that suggest a non-verbal communication function or motivation for the child with autism spectrum disorder (Mason et al., 2016).

Such behaviours are observed with some consistency among children with autism. However, the relationships between seemingly related non-verbal behaviours – relationships that are of critical importance – remain largely unaddressed (Li & Koenig, 2019). Although a number of mechanisms have been advanced to explain function superficially – for example, escape, attention, arousal modulation, sensory reinforcement, and stress reduction (Lambert et al., 2015; Newcomb & Hagopian, 2018; Roane et al., 2016; Tiura et al., 2017) – the deeper underlying motivation or significance behind these non-verbal behaviours remains relatively unexplored and rarely determined. There is also a lack of consensus and consistent terminology, with respect to

non-verbal behaviours associated with autism. For example: different researchers refer to the single act of hand-flapping as stereotypy, self-stimulatory behaviour, ritualistic behaviour, perseverative behaviour or gesturing. Similarly, terms such as abnormal preoccupation, circumscribed interest patterns, abnormal object attachment and idiosyncratic responses to sensory stimuli often lack specific behavioural referents.

Professionals working with children with autism often propose that these types of behaviours serve a communicative function. However, the available body of research on this topic contributes little to our understanding of whether this is indeed the case. Moreover, if in fact it is the case that these behaviours serve a communication purpose, we, professionals and researchers alike, remain unskilled at identifying not only which specific behaviours represent meaning for children with autism, but also which cognitive, social or socio-emotional processes are salient in constructing that meaning. Yet, answers to these questions could have profound implications, in particular for pedagogical interventions.

Different types of research about non-verbal behaviours have been published in a variety of journals. The experts involved all seem to have different perceptions, or even a different understanding, of the role of non-verbal behaviours in development. Furthermore, the majority of studies used different definitions of non-verbal behaviours and private speech, which makes it challenging to compare and understand their roles in the communicative abilities of children with autism. It is hoped that this position paper will provide a clearer understanding of the meaning of non-verbal behaviours, echolalia, private speech, and inner speech, while exploring the continuum in language development in children with autism.

The fundamental purpose of this article was to write a carefully informed analysis of prominent studies of non-verbal behaviours, echolalia, and private and inner speech in children with autism spectrum disorder - from a developmental perspective. Following the recommendations of previous studies, the author sought to define the continuum associated with language development - including that of non-verbal behaviours, echolalia and private speech - as well as to understand their respective roles in the development of children with autism. This article therefore focuses on articles which specifically addressed these key components in language development.

This critical analysis is divided into five parts: (1) Autism from a neurodevelopmental perspective: What are we referring to exactly? 2) Understanding the phenomenology of non-verbal behaviours in autism, (3) Non-verbal behaviours as a form of communication in children with autism, (4) Developmental pathway leading from private to inner speech, and (5) Conclusion.

Autism from a Neurodevelopmental Perspective: What are we Referring to Exactly?

ASD is a neurodevelopmental disorder characterized by patterns of under-reactivity to sensory stimuli or events (Johnson, 2017). Repetitive mannerisms including finger movements and hand-flapping may be present, as well as a lack of interest in initiating social interactions with peers (Dornelas & Pascual, 2016; Gillespie-Smith et al., 2018). The DSM-5 criteria for ASD include restricted and repetitive behaviours (RRB) as a core diagnostic feature, together with social communication and social interaction deficits. RRBs include: (a) stereotyped or repetitive speech, motor movements or use of objects; (b) excessive adherence to routines, ritualized

patterns of verbal or non-verbal behaviour, or excessive resistance to change; (c) highly restricted, fixated interests that are abnormal in intensity or focus; and (d) hypo- or hyperactivity to sensory input, or unusual interest in sensory aspects of the environment (APA, 2013). Studies of RRBs have identified two sub-groups: one comprising repetitive sensory and motor behaviours such as repetitive hand or finger movements and rocking, and the other consisting of behaviours such as narrow interests, rigid routines, and rituals, which are collectively referred to as insistence on sameness (Bishop et al., 2013; Bishop et al., 2006; Richler et al., 2010).

Research indicates that repetitive behaviours may be among the earliest-emerging signs of autism (Wolff et al., 2014). There is also evidence to suggest that different types of RRBs may predict co-occurring mental health problems (Brown & Whiten, 2000; Gepner, 2001; Mazurek et al., 2013; Rieffe et al., 2011; Waters & Healy, 2012; Wing & Shah, 2000). For example, children with autism who demonstrate high levels of ritualistic behaviours have been found to show more severe symptoms of anxiety and depression (Stratis & Lecavalier, 2013). Parents of children and teens also report that RRBs are one of the most challenging features of autism due to their interference with daily life (DePape & Lindsay, 2015). RRBs can significantly impede learning and socialization by decreasing the likelihood of positive interactions with peers and adults. Given the importance of RRBs as a core feature of ASD, professionals should give increased attention to the presence and assessment of these behaviours, and to their impact on the adaptability and psychological well-being of children with autism spectrum disorder (Stratis & Lecavalier, 2013).

Children with autism who exhibit restricted and repetitive behaviours tend to have persistent deficits in social communication and social interaction across multiple contexts. These include: (1) deficits in social-emotional reciprocity, ranging, for example, from abnormal social approach and failure of normal back-and-forth conversation, to reduced sharing of interests, emotions, or affect; to failure to initiate or respond to social interactions; (2) deficits in non-verbal communicative behaviours used for social interaction, ranging, for example, from poorly integrated verbal and non-verbal communication, to abnormalities in eye contact and body language or deficits in understanding and use of gestures, to a total lack of facial expressions and non-verbal communication; (3) deficits in developing, maintaining, and understanding relationships, ranging, for example, from difficulties adjusting behaviour to suit various social contexts, to difficulties in sharing imaginative play or in making friends, to absence of interest in peers (Basilio & Rodríguez, 2017; Gladfelter & VanZuiden, 2020; Jinks, 2019).

Although the severity of these deficits has been acknowledged for a long time, it is only in the last 15 to 20 years that the field of autism as a whole has begun to examine the language development of children with autism more closely (Gladfelter & VanZuiden, 2020; Lee & Schertz, 2019). For example, joint attention delays are frequently observed in infants with autism as young as 12 months of age (Franchini et al., 2019). From a developmental perspective, by the age of 12 months, the majority of children look in the direction that a parent points to with prompts, and then look back to the parent with a shared expression. By 15 months, most children point to request a desired object, and soon thereafter, they point to share a joint object of interest (Fantasia et al., 2014). While pointing, children typically look back and forth between the object of interest and the parent, showing a shared social experience (Mulvihill et al., 2020). However, this sharing is often absent in autistic children (Maciejewska, 2019), which can influence language development and the sharing of positive affect and social connectedness. Early forms of interaction in which children's attention is coordinated with others', referred to as joint

attention, are the foundations (pivotal skills) on which the later use of words is based (Gernsbacher et al., 2016; Chohan & Jones, 2019; Koegel et al., 2020).

A child may first express a desire for an object with a proto-imperative pointing (pointing to request or command) gesture. Such requesting may be facilitated because of the problem space that children encounter; that is, they are relatively helpless unless they are in a social context where they are cared for by an adult (Nagai et al., 2017). Children acquire competence in engaging with others in situations of shared or joint attention where they develop expectations about others' attentiveness or directedness toward aspects of the world (Manfra et al., 2016). Children learn to follow others' gaze and to use proto-declarative pointing (pointing to show or share interest) gestures to direct others' attention. The pointing gesture is among the last communicative gestures to appear in early infancy. Some argue that the correlation between pointing and naming might be a by-product of social mediation – the more a child points, the more the adult provides this child with opportunities to learn new words (Siposova & Carpenter, 2019). A socio-pragmatic view is that language acquisition first requires that children understand that others have communicative intentions and are trying to direct children's attention toward certain targets (Dindar et al., 2017). Hence, the relation between preverbal gestures and language could be due to the fact that both abilities are based upon the same socio-cognitive capacities (Young, 2019). The pointing gesture is a versatile preverbal gesture that can be used to convey different communicative intentions (Mulvihill et al., 2020). For example, children can point to either (a) make someone attend to something (declarative use) or (b) ask for an action (imperative use). In autistic children, a dissociation has been discovered between proto-declarative pointing (absent) and proto-imperative pointing (present) (Nagai et al., 2017). It has been posited that proto-declarative pointing could be a precursor to sophisticated theory of mind skills (those pivotal skills have to be developed in autistic children) (Lee & Schertz, 2019).

Some children with autism, by preschool, may exhibit inappropriate peer and social interactions. For example, shared pleasure is lacking, as are the qualitative patterns of non-verbal communication (Vivanti et al., 2017). Others have difficulty understanding the context of situations and events, as well as the perspective of others (Basilio & Rodríguez, 2017). This can make it challenging to understand and make sense of the meaning of the language utterances and to engage in appropriate social interactions (De Guerrero, 2018). These difficulties can lead to limitations in the ability to perceive the intent, purpose and meaning of others, as well as in the ability to sense and respond appropriately to humorous situations or comments (Carpendale et al., 2009).

About forty percent of preschool-aged children with autism generally display a delay in language, although some children with autism spectrum disorder do reach the normal early language milestones (Sterponi & de Kirby, 2017). Language reciprocity is typically lacking in terms of joint attention (pointing or looking at an object in order direct another person to look at it) and turn-taking (Vivanti et al., 2017). Often, gaze will be distant and appear as though the child is looking through people and not looking at the face and eyes of the person the child is interacting with (Krstovska-Guerrero & Jones, 2016). Gaze may be peculiar in the angles chosen to look at objects as well as in the monitoring of gaze, with certain objects being stared at for extended periods (Siposova & Carpenter, 2019).

In the case of school-aged children with autism, patterns of repetitive behaviours are often evident. Transition and change may lead to discomfort and result in these children acting unsettled. Some autistic children have difficulty joining into play routines with others and may

appear frustrated when peers do not want to engage in an activity (Vandervert, 2017). Limited awareness of the behaviours that are expected in the classroom or on the playground can make some children appear uncooperative or unwilling to listen to the directions of others. The characteristics of some school-aged children with autism may also include an unusual vocabulary for their age (deferred echolalia, for example) as well as strong or extensive interests or knowledge about specific topics (hyperlexia and restricted interests) (Sterponi et al., 2015). Knowing this reality about language development in autism, one could question the scarcity of research on non-verbal behaviours in autism (Vivanti et al., 2018). Do we really understand the meaning behind these behaviours from the children with autism spectrum disorder perspective? In an attempt to provide answers to this question, the following section explores non-verbal behaviours in autism from a phenomenological perspective.

Understanding the Phenomenology of Non-Verbal Behaviours in Autism

Phenomenology is concerned with wholeness or with understanding a behaviour, an event, a situation, a person or an experience from multiple angles and perspectives, until a unified vision of the essence of the experience is achieved (van Manen, 2017). Phenomenology seeks meaning in the way phenomena appear or are experienced, and become essence through an integration of our perceptions, intuitions, feelings, and reflections on conscious acts of experience, leading to ideas, concepts, and understandings (Brier, 2000; Cairns, 2002; Croteau, 1981; Martin, 2017).

To describe the meaning which non-verbal behaviours may have for children with autism spectrum disorder requires that we try to understand the reasons for these behaviours, particularly for gestures, and more importantly, that we identify the potential intentionality or consciousness behind each respective sequence of behaviours or movements (Dib, 2018; Dindar et al., 2017). Consciousness needs to be understood as not only a description of experiences that would make it psychological, but also in terms of essential componential constructs such as intentionality, temporality, spatiality, corporeality, perception, cognition and intersubjectivity (Harré, 1980; Johnson, 2000; Lanigan, 1988; Lawlor & Solomon, 2017; Lingis, 2017; 2017; Lock, 1978, 1980; Martin, 2017; Mead, 1938, 1972; Peters et al., 2017; Shotter, 1984, 2017, 2019). This means that each experience has to be considered in its singularity, in and of itself, and bracketed or contextualized as the individual revisits each phenomenon from a fresh and pure vantage point. Within the brackets, the phenomenon has to be perceived and described in its totality (Sokolowski, 2000; van Manen, 2017). Thus, if we are to understand the potential intentionality behind non-verbal behaviours in autism, we have to understand that intentionality implies the correlation of noema (that which is perceived or thought about) to the noesis (the intentional acts by which we intend things: perception, signifying acts, empty intentions, filled intentions, judging, remembering), a theoretical framework proposed by Boldsen (2018).

In other words, the experience has to be considered holistically: specific moments or aspects of the experience cannot be considered apart from the whole to which they belong (Treweek et al., 2019). This is an intrinsic belief often advanced through the idiom (the whole is greater than the sum of its parts). Yet, in research and practice, we continue to dissect the minute gestures and behaviours of the child with autism spectrum disorder, assigning or construing meaning of the whole from the meaning we attribute to these parts (Grossi et al., 2013).

In a phenomenological framework, every moment of an experience is interrelated and depends upon the others that provide the observer with the whole of the experience. One cannot detach a

moment without first recognizing the moment in its whole, or its "concretum, something that can exist and present itself and be experienced as a concrete individual" (Sokolowski, 2000, p. 24). As such, in order to even begin to understand the potential function behind the non-verbal behaviours of children with autism spectrum disorder, we must first begin to understand body language such as body movements, gestures and expressions in holistic terms (Jinks, 2019; Grohmann, 2017). For example, how are seeing and touching integrated as moments of a holistic experience that involves a gesture or an expression – and in turn, how are these conditioned or informed by other sensory modalities such as hearing and smelling?

This integration of parts requires the understanding that *consciousness of* starts with one's own ideas, a reduction that leads us back to meaning and intentionality as experienced by the autistic child (Lingis, 2017). Based on anecdotal evidence as a clinician, I suggest that differential messages may be conveyed by similar gestures that vary only subtly. I recently had the opportunity to observe two young children with autism spectrum disorder interact – a girl and a boy – by using a form of symbolic system (gestures) to communicate. The boy, the younger of the two, followed every movement (mannerism, stereotyped behaviour) used by the girl. They used eye contact and accepted each other's touch without negative reaction. The boy began to use mannerisms that he had not previously displayed, and the girl imitated these mannerisms, which similarly were not observed to be part of her original repertoire. This interaction lasted a few minutes, and at the end, the young boy got up and hugged the girl without any aversive reaction in response. Arguably, even this limited repertoire of gestures (mannerisms, stereotyped behaviours) could offer us a wealth of information if explored or researched through a holistic lens (as also argues Maciejewska, 2019).

Our focus, then, would be on ascertaining and describing meaning in the everyday experiences of children with autism spectrum disorder. As researchers, we would have to recalibrate our efforts from simply pursuing the essential, invariant structure of the child's or adult's experience to also concentrating on the meaning and consciousness behind a seemingly simple non-verbal behaviour (Sipowicz et al., 2019). As is being argued by a growing number of experts, we cannot continue to assume that common underlying functions or motivations are always represented through similar behaviours (Mason et al., 2016). Instead, it is essential that researchers and practitioners realize that similar meanings can be expressed in many ways and through interrelated mechanisms, such as other languages, sign languages, or through gestures and other symbols that cannot be verbally coded, translated, or expressed like idiosyncratic language (Bonvillian et al., 2001; Fine et al., 1991; Ogletree, 1995; Sipowicz et al., 2019).

Engaging in the phenomenological processing of an experience helps to preserve the reality and distinctiveness of each experience (Boldsen, 2018). It avoids, and perhaps introduces a challenge to, the intentional reductionism that is the modus operandi of much of the literature in the field of autism (and is indeed intrinsically linked to empirical approaches) (Singh & Bunyak, 2019). It allows us to bring out what is proper to each kind of being; not only in its independent existence, but also in its power of presentation (Shotter, 2019). "When we introduce the presence of other persons, when we include the dimension of intersubjectivity, a much richer array of manifolds comes into play" (Sokolowski, 2000, p. 31), and it is these in their entirety that should be examined. While, at face value, certain phenomena seem to readily grab our understanding, many others remain well beyond our comprehension, and this is likely the case for the repertoire of non-verbal behaviours (Stirling et al., 2014). In our attempt to understand, we inevitably reduce the whole to its parts, and offer simplistic explanations that reside in perceptual features

of an experience rather than in the experience of the person. We need to begin to grasp the wholes, the identities, the manifolds, and the blends of absences and presences that are at work for the issues or behaviours in question, and ultimately for the person. Indeed, if we are to make a difference in the development of children with autism spectrum disorder, we cannot rely merely on our perceptions of these children in order to fully understand them (Treweek et al., 2019).

Furthermore, the study of autistic non-verbal behaviours through a behavioural phenomenological lens allows for competing interpretations about these phenomena, enabling us to challenge our – as of yet – poorly supported theories about these non-verbal behaviours (Sterponi & de Kirby, 2017; Sterponi et al., 2015). In other words, studying non-verbal behaviours in children with autism spectrum disorder requires a methodology that will give the researcher the capacity to understand fully the complexity of the phenomenon (Stirling et al., 2014). This type of qualitative study uses direct participant observation, which represents a valid choice for assessing non-verbal behaviours in children with autism spectrum disorder (Dewalt & Dewalt, 2002; Dindar et al., 2017; Patton, 2002), since it gives the researcher a closer and more comprehensive look at the phenomenon in question (Murphy, 1990; Seery, 1998; Seery, Kretschmer & Elgas, 1998). This is achieved without judgment about whether the behaviour was good or bad, appropriate or inappropriate (Morgan et al., 2017).

The researcher should not attempt to manipulate the phenomenon being analyzed, however s/he does need direct contact with the participant, as the researcher's personal experiences and insights play an important role in the study of the phenomenon (Treweek et al., 2019). This process limits any manipulation of the setting, and places constraints on how widely the outcomes of the research could be generalized (Peters et al., 2017). However, observation would help capture the meaning behind non-verbal behaviours in a specific context (Shah, 2017; Seery, 1998; Seery, Kretschmer, & Elgas, 1998) and for the specific child. Observing represents the opportunity to see what there is to be seen without the blinders of hypotheses and other preconceptions (Singh & Bunyak, 2019). Observers need to be disciplined in not assuming that they know the meaning of what they observe without being able to confirm or refute it (Dewalt & Dewalt, 2002; Patton, 2002; Sterponi & de Kirby, 2017). Patterns and the frequency of non-verbal behaviours, and changes in these patterns, will provide insights to us about this phenomenon (Aagaard & Matthiesen, 2016). Non-verbal behaviours are easily misinterpreted; therefore, every effort should be made to follow up with those involved to further explore the meaning behind the behaviour (Beranek, 1999; Guess et al., 2000; Johnson, 2000; Sipowicz et al., 2019; Toomey & Adams, 1995).

In particular some individuals – including those with autism – may behave in relatively atypical ways when they know that they are being observed (Fasulo, 2019). This may be more of an influence in the case of children with autism who have a more developed sense of self and of others, or a more developed theory of mind (Williams et al., 2016). In addition, the researcher may distort the reality of the experience by using selective perception to describe the phenomenon (Shotter, 2017). The process of observing itself influences what is observed. The effects of observation vary depending on the nature of the observation, the type of setting being studied, the procedures used, and the personality of the observer (Niebuhr et al., 1982; Shotter, 2017; Singh & Bunyak, 2019). The challenge, of course, is that observations are limited to a focus on external behaviour only (Heasman & Gillespie, 2019; Patton, 2002). However, a behavioural phenomenological lens may enable a more exploratory analysis, and perhaps greater

convergence between our own constructed reality of what we observe and the truth of the experience for the autistic child (Grohmann, 2017).

Observational analysis of non-verbal behaviours allows us to enter the child's perception of the world, and to examine how the child communicates through body movements or gestures (Grohmann, 2017; Jinks, 2019). This approach is anchored in the assumption that, as humans, we act to create and react to existing situations non-verbally (Danesi, 1998; Feyereinsen & de Lannoy, 1991; Kendon, 1981; Lock, 1978, 1980; Luria & Vygotsky, 1992; Morgan et al., 2017). While our actions and reactions have underlying meaning, we may be largely unaware of what this meaning is. Indeed, our impetus in studying this type of phenomenon using this method is based on our desire to understand the autistic child's gestures, how the child makes sense of her/his experience and transforms this experience into consciousness, both individually and as an experience with shared meaning (Aagaard & Matthiesen, 2016).

Non-Verbal Behaviours as the Initial Form of Communication for Children with ASD

According to Nagai et al., (2017), children with autism are restricted in what they can intelligibly express verbally (or communicate) by the framework of concepts implicit within language. Applying the behavioural phenomenological analysis to autism, it would stand to reason that we cannot assume to know the meaning behind the child's gestures unless we already know in some sense what the child is doing, saying, or thinking, as all such activities presuppose conceptual activities and meanings (Mason et al., 2016). This intentionality is intrinsically linked to gesture as defined by socio-cultural influences (Shotter, 1984, 2017, 2019). In other words, one has to find the meaning behind one or more gestures or body movements during related or independent actions in everyday life (Grohmann, 2017). This is where the answer to the question of intentionality or meaning is likely to be found, but to date, research in the holistic study of the autistic child's gestures or movements has not been explored through such a framework (Howard et al., 2019).

In other words, we have to construct or reconstruct a larger whole into which the child's gestures can be further specified or understood, thus rendering what may be seen as strange, or unfamiliar, as something familiar, or as something that has a comprehensible part to play in the whole to which it belongs (Koegel et al., 2020). We would have to contextualize the postures and gestures before we could understand their intentionality and/or meaning. For example, children with ASD are prone to using basic symbolic forms of communication (e.g., tantrums, aggression), which in fact can interfere with the development of higher order, more functional communication strategies (Carr & Durand, 1985; Gillespie-Smith et al., 2018). Furthermore, it is often observed that these children may make all of the known speech sounds, but yet be unable to use language for communication purposes. While they can use gestures for simple imitation purposes in childhood, by adolescence they do not use gestures to expressively communicate. Others may be able to communicate using conventional sentences in monotonous speech patterns, an indication of disturbances in both executive function and socio-communicative processes (Pennington & Ozonoff, 1996). These deficits have been noted widely, for example, in studies of imitation and executive function with children with autism spectrum disorder (Dawson et al., 1998), and in studies of emotional contagion in older, higher-functioning individuals with autism (Hatfield et al., 1994).

Overall, the findings of these studies indicate that knowledge or awareness of conversational rules or parameters (e.g., knowing how to begin and end a conversation, when to change topic, when to interrupt, how to interpret, and so on) present difficulties for children with autism, as has been observed in numerous studies (Koegel et al., 2020; Sipowicz et al., 2019; Sterponi et al., 2013). These particular difficulties may in part be due to a lack of awareness and understanding of the mental representations of others – or theory of mind (Baron-Cohen et al., 1997) or may indicate a problem with intersubjectivity such as that which can be seen in the joint attention difficulties of young children with autism (Rogers & Pennington, 1991). Even if a communication partner could organize the child with autism spectrum disorder non-verbal signing into a system of communication, this may still not be useful, given our limited ability to understand, respond to, or engage with this system in a meaningful way. Certainly, the success of shared communication depends not only on learning to use conventional (or unconventional) symbols in ways in which others use them, but also on the ability to perceive and understand the behaviours of others, to perceive and understand the intentionality or motivation of others, and on a desire to identify with others.

So, how do we go about teaching communication skills to children with autism? More importantly, how do we adequately and expertly evaluate communicative intent – often expressed through behaviours – in order to teach practical skills about the reality in which they live? Certainly, for children with autism to become independent, we need to consider the importance of other factors beyond their merely behaving in ways that we, and others, can recognize (Krstovska-Guerrero & Jones, 2016). Children with autism must be able to recognize what they are doing separately from their recognition of the reactions elicited from others. In keeping with the behavioural phenomenological analysis framework (Mason et al., 2016), under appropriate conditions, children with autism have to be able to continuously re-create their world in the course of their active involvement with the things and people they meet within it, until they arrive at a place (a world) in which they can coordinate their actions with those of all others in their society (Lawlor & Solomon, 2017). Cognitive structure is one thing, but the use a person makes of it is quite separate (Carpendale et al., 2009). Referring to the child with autism gestures, one would assume that the encoded meaning is idiosyncratic, because it only reflects oneself (Gillespie-Smith et al., 2018). A particular act has idiosyncratic meaning if there is some regularity in the information associated with its occurrence, but only if that association is peculiar to a single individual (Heasman & Gillespie, 2019; Kendon, 1981; Treweek et al., 2019). The study of the child with autism spectrum disorder gesture involves at least two processes: encoding, by which signals are sent from an initial state, and decoding, by which the signals are received and interpreted. Autistic gestures would have to convey particular pieces or items of information to a single receiver, but not to others (Fasulo, 2019). In actuality, however, multiple gestures tend to be expressed (encoded) as the same repetitive stereotypic movements, and perceived (decoded) as similar by multiple receivers. Moreover, in a discursive context, we are often faced with differentiating behaviour in terms of what is a sign and what is a tool, the basis of this divergence relying on the way in which each orients human behaviour (Dindar et al., 2017). Given that a sign is anything that stands for something other than itself (be it vocal, visual, olfactory, gustatory, or tactile in form), one could propose that the autistic child's gestures represent iconic signs (Dornelas & Pascual, 2016; Franchini et al., 2019; Gladfelter & VanZuiden, 2020; Grohmann, 2017; Jinks, 2019).

Iconicity is a primary modeling strategy that allows for the creation of signs that refer to something or someone through replication, simulation, imitation, or resemblances (see Danesi,

1998, in his referencing of Sebeok). This seems particularly pertinent to the child with autism spectrum disorder gestures, especially given their sameness, repetitive and stereotypic nature. One cannot deny that these gestures exist, but at controversy is their meaning, or their value as a sign or symbol (Maciejewska, 2019). The value of these symbols or signs rests on their ability to promote or support internally oriented activity aimed at mastering ourselves or understanding others or our environments (Lingis, 2017).

Indeed, through a process of repeated activation or through each new interpretation, a new sign is generated, and the sign becomes something other than what it originally was. Arguably, this could also be the case with stereotypic autistic behaviours; however, this case could be supported only through a holistic, phenomenological analysis of their meaning for the person concerned (Higashida, 2013; Shotter, 2017, 2017). Given the fact that in children with autism spectrum disorder these repetitive behaviours are not always repetitive in the same environment within the same time frame, they merit study as independent movements in a specific environment, influenced by either inner or outer activities. Undoubtedly, how we use, and in particular define, consciousness will influence the meaning we assign to spontaneous movement (Howard et al., 2019; Shotter, 1984). It is the position of this paper that the relationship between autism and non-verbal behaviours needs to be understood in the context of children with autism spectrum disorder gestures; how they understand these gestures, make sense of their context and experience, and transform this experience into conscious, meaningful, and purposeful behaviour, both on a personal level and as a shared experience with another (as similarly argued by Sipowicz et al., 2019 or Sterponi & de Kirby, 2017, for example). It is critical that we begin to apply fundamental concepts of communication science and semiosis (any action or process which involves the relationship between an actual sign and its object and meaning) to the field of autism, and view communication not only as the process of verbally sharing information and ideas from one person to another (i.e., speech), but as a process that depends largely on non-verbal elements (Sterponi et al., 2015). Furthermore, as more and more experts have recently argued, it is essential that we, as a society, learn to decipher non-symbolic communication – including gestures, eye gaze, or touch – and focus on decoding intended messages in order to better understand and support autistic children (Vivanti et al., 2017). The next section examines the role of private and inner speech in language development. One of the questions addressed is: When is it pertinent to no longer refer to children with autism spectrum disorder repetitive speech as a form of echolalia, and to instead analyze their echoic behaviours as a potential transition from private speech to inner speech?

Developmental Pathway Leading from Private to Inner speech and Echolalia

Private Speech

Private speech is typically defined as overt, audible speech that is not addressed to another person (Nelson, 2015). Private speech originates from the social world of children in their interactions with others (Sawyer & Stetsenko, 2018). Private speech is not a mere moment-to-moment articulation of ongoing thought processes during task-specific problem-solving, but instead is a coherent set of verbal self-regulatory strategies that develop over time into an organized way of guiding one's behaviour. Private speech behaviours typically reflect a child's developmental level – children express thoughts that are in their heads, that is, private speech is the outward version of thinking that is going on inside a child's head. Many researchers and

educators have reported that private speech is a behaviour that is typical of young children: it's just what they typically do at this age (Woodward et al., 2017).

From a cognitive perspective, private speech is frequently associated with problem- solving – children often engage in private speech in order to help themselves solve problems. Mulvihill et al. (2020), for example, noted that the talking aloud the different steps of the task helps them do it. Interestingly, it has been documented that autistic children often use private speech for avoidance purposes – to avoid a task, for example. Children with autism spectrum disorder have been observed talking to themselves during academic task: especially if they don't understand it, they tend to use echo utterance to avoid concentrating on the actual task. Feigenbaum (1992) suggested that a child consciously masters the communicative process by taking advantage of the instrumental functions of private speech. At first, private speech is an end in itself (fantasy play), but it later becomes the means to another end – planning, problem-solving, and self-regulation. Children adapt these very same conversational exchanges to question themselves in order to become conscious of their own implicit knowledge about conversations, communications, and themselves. With the help of private speech, young children are able to distance themselves from the immediate environment and stimuli, and to guide their behaviour and attention; this way, they can reflect better on their own thinking and behaviour and reach greater levels of control and mastery over their own behaviour (Martínez et al., 2011).

Martinez et al. (2011) believe that the instigation for progressively transforming private speech into inner speech comes from the inadequacy of a child's attempts to use private speech dialogue as a tool for self-regulation. Some view self-regulation as one of the executive functions. As Smith and colleagues (2015) pointed out, executive function problems in children include difficulties with attention, following directions and rules, organizing the self, self-soothing when stressed, self-regulation, and impulse control (White et al., 2013). Impulse control and following directions require an ability to hold information in working memory and to consider alternatives and consequences, as well as an ability to resist distractions (Carpendale et al., 2009).

Childhood difficulties connected to problems in executive function are those listed under neurodevelopmental disorders, including fetal alcohol spectrum disorders, autism spectrum disorders, conduct disorders, oppositional disorders, and attention deficit/hyperactivity disorders (ADHD) (Gholami et al., 2016; Huisman-van Dijk et al., 2016; Mulvihill et al., 2020). In general, children may have good executive skills in some situations and not in others. White, Jarrett and Ollendick (2013) strongly suggest that deficits in self-regulation – be they in behavioural self-regulation (modulating behaviours and emotions and shifting cognitive set in a flexible manner) or in metacognition (planning, organizing, initiating, and sustaining future-oriented problem-solving in memory) – account for the relationships observed between certain aggressive behaviours and externalization and internalization adjustment problems (Gholami et al., 2016).

Something different might be happening with respect to the private speech of children with autism spectrum disorder. From a neurodevelopmental perspective, private speech represents what children take from their history of social interactions with others to become part of their own mental world, and what they then use to mediate and regulate their own cognition and behaviour (Martínez et al., 2011). The social speech of children with autism is known to be difficult to interpret, especially when it comes to pragmatic, functional uses of language for achieving social goals (Basilio & Rodríguez, 2017). For example, their speech tends to be less

relevant to the content of ongoing conversations and situations, and less effective in meeting their own interpersonal social goals (Mulvihill et al., 2020).

Inner Speech

Inner speech refers to fully internal, silent verbal thoughts; that is, to the speech fully inside one's head (Luria, 1982, p. 153). The development of inner speech passes through several stages, including external speech, fragmented external speech, whispered speech, and finally abbreviated speech for oneself (McCarthy-Jones & Fernyhough, 2011). Inner speech is understood as the fundamental basis for appropriating our inner voice, and is represented not in single form, but rather in a multiplicity of social voices (Roessler, 2016). Self-talk, intra-personally administered feedback, egocentric speech, self-statements, attributions, inner dialogue and intrapersonal verbal mediation are all terms that have been used in various cognitive and motivational models of development to refer to overt and covert forms of inner speech (Mulvihill et al., 2020).

Children with autism are delayed in their internalization of speech, but perhaps for good reason (Mason et al., 2016). Children with autism may have a specific problem, not in overt private speech, but instead in their inner speech (silent verbal thinking) while working on tasks (Higahida, 2013). For example, many children with autism cannot solve a problem by abstracting the common feature and including it in a hierarchy of categories. Instead of a response based on abstraction and generalization, children with autism spectrum disorder typically answer either by indicating the difference or by including the objects in a practical situation (Gillespie-Smith et al., 2018). The transition of word meaning to the stage of abstract concepts not only ensures improvement in the processing of information, but it also gives rise to a certain freedom in human perceptual processes (Russo, 2019). For example, a child with autism may arrange items into groups only on the basis of a sensory characteristic or on the basis of their inclusion in a single concrete situation (Grohmann, 2017; Jinks, 2019). A child with autism cannot make the transition from concretely based thinking to abstract thinking (Fasulo, 2019).

Many experts have argued that it is indispensable that researchers and clinicians gain a better understanding of the use of private speech and inner speech in children with autism spectrum disorder, in order to better interpret their language development and to better guide interventions (De Guerrero, 2018; Gernsbacher et al., 2016; Jinks, 2019; Li & Koenig, 2019; Williams et al., 2016). For example, during early childhood, the initial emergence and internalization of private speech is transformative – the appropriation or interiorization of language is a critical step in language development leading to reorganization of mental activity and new functional links between language, cognition, and behaviour that allow for uniquely human higher-order psychological functions and self-regulation (Gholami et al., 2016).

Based on these crucial findings, it seems clear that one should question current definitions and concepts of echolalia in children with autism spectrum disorder (Golysheva, 2019; Lheureux-Davidse, 2018). Researchers refer to echolalia to explain the lack of language abilities manifested by autistic children (Gladfelter & VanZuiden, 2020). Echolalia is a developmental phase when the child learns words by echoing others' use of words in different contexts (Dornelas & Pascual, 2016). Most children use echolalia to learn language. The majority of children babble in a rhythmic way, which is actually mimicking the cadence of the language(s) they are exposed to. Later, children typically copy sounds, words, and eventually phrases and sentences that they hear adults use in specific, repetitive contexts (Carpendale et al., 2009; De

Guerrero, 2018). Lovaas and Taubman (1981) explained that echolalia peaks at around 30 months of age in neurotypical children, and then decreases. Echolalia was once thought of as just another inappropriate behaviour to eliminate in children with autism spectrum disorder; however, more and more researchers currently consider it as a developmental phenomenon that occurs within the child's normal cognitive and linguistic maturation, and which then leads to private speech followed by inner speech. Therefore, unless one considers that the development of language in autism reaches a plateau early on, one cannot always refer to echoic behaviours as a form of echolalia (Dib, 2018).

Echolalia

Two types of echolalia have been described: immediate echolalia and delayed echolalia (Dornelas & Pascual, 2016; Grossi et al., 2013). A growing number of researchers (Dib, 2018; Dornelas & Pascual, 2016; Golysheva, 2019; Grossi et al., 2013; Prizant & Duchan, 1981) consider that, far from it being *meaningless* as was conventionally thought, echolalia may serve many crucial functions for autistic children. Researchers have determined that immediate and delayed echolalia are often used with clear evidence of purposeful communication. They have also identified some functional meaning to immediate echolalia. To be considered functional, interactive immediate echolalia involves: 1) turn-taking (utterances used as turn-fillers in an alternating verbal exchange); 2) declarative utterances (utterances labelling objects, actions, or location accompanied by demonstrative gestures); 3) yes answers (utterances used to indicate affirmation of a prior utterance); and 4) requests (utterances used to request objects or others' actions) (Lee & Schertz, 2019; Sterponi & de Kirby, 2017; Vivanti et al., 2017). The functional use of echolalia seems to reflect more private speech, especially from a developmental perspective (Williams et al., 2016). It reflects more a form of dialogue with oneself. Dialogue is a precursor and product, a mediator and tool of self-system functioning. Dialogue becomes one's own as it is appropriated from dialogue with others; the voice of self is taken from other social voices (Higashida, 2013).

Delayed echolalia has been defined as speech that repeats what has been said or heard after some delay or lapse of time (Simon, 1975). Delayed echolalia appears to tap into long-term auditory memory, and for this reason, may be a different phenomenon from immediate echolalia. Because it can involve the recitation of entire scripts, delayed echolalia is often thought to denote evidence of near-genius intellect (Grossi et al., 2013). This may or may not be the case. Wolff and Chess (1965) found that delayed echolalia can serve as a communicative function for the autistic person but is not always indicative of high intelligence. These researchers described two categories of delayed echolalia: non-communicative repetition and communicative repetition (Lheureux-Davidse, 2018). Prizant (1983) listed possible interactive functions of delayed echolalia which include: 1) turn-taking (utterances used as turn- fillers in alternating verbal exchanges); 2) verbal completion (utterances which complete familiar verbal routines initiated by others); 3) providing information (utterances offering new information not apparent from the situational context which may be initiated or formulated in response); 4) labelling (utterances labelling objects or actions in the environment); 5) protest (utterances protesting actions of others that may be used to prohibit others' actions); 6) request (utterances used to request objects); 7) calling (utterances used to call attention to oneself or to establish/maintain interaction); 8) affirmation (utterances used to indicate affirmation of previous utterance); 9) directive

(utterances – often imperatives –- used to direct others' actions) (Russo, 2019; Treweek et al., 2019; Williams et al., 2016).

The functional use of delayed echolalia refers more to a monologue. Monologue is a more effective form of discourse than dialogue for developing an analysis by oneself, but it requires that a child stop alternating speaking turns and, instead, adopt a single viewpoint and persona to guide the activity, manifested objectively by a single voice (Williams et al., 2016). The transition from dialogue to monologue consists of three stages: 1) fantasy-play dialogues – conversational exchanges of several turns at talk in which multiple voices are displayed; 2) partially formed monologues – a single turn talk consisting of a linguistic response to a non-linguistic initiation in which only one voice is displayed; and 3) fully formed monologues – a single but lengthy turn at talk, consisting of multiple sentences unified by a common topic in which only one voice is displayed (Sipowicz et al., 2019; Sterponi & de Kirby, 2017; Williams et al., 2016).

As these explanations of echoic behaviours illustrate, immediate and delayed echolalia may be interactive, and can be used with intent or purpose, or may have a very specific purpose for the autistic child (Dornelas & Pascual, 2016). Consequently, there appears to be more potential functions for delayed echolalia as compared to immediate echolalia (Lheureux-Davidse, 2018). A key to understanding the specific use of delayed echolalia in any individual is a keen awareness of the individual's daily behaviour, and familiarity with their verbalizations (Dib, 2018). Echolalia is one of those easily identified behaviours which are so strangely different from what is termed *neurotypical* that it seems to support the stereotype (Gladfelter & VanZuiden, 2020). However, when one looks at the communicative nature of echolalia, the stereotype begins to lose credence (Martínez et al., 2011). Children with autism spectrum disorder do interact and do communicate; however, they do so in different ways. The acquisition of language is not a clear-cut changeover from gestalt to analytic learning, or from echolalia to spontaneous language, but rather is a continuum, which reflects not just the choice of words, but the evolution in the way the person thinks and looks at the world consciously (Roessler, 2016).

If one thinks of echolalia as one of the phases of normal language development, it would appear that continued echolalia indicates that the child with autism spectrum disorder has plateaued at that level of development for a time, but then seems to overcome it and develop more normal speech patterns. Lovaas (1981) found that children who were once mute and later developed good speech inevitably passed through an echolalic stage in their speech development. That being said, one should question the use of the concept *echolalia*, especially when the echoic behaviours are defined as functional. Should echolalia refer only to non-functional behaviours used by non-verbal children with autism spectrum disorder? How does one refer to echolalia as a developmental milestone, when using it to explain all the echoic behaviours without any distinction between functional and non-functional?

Behavioural Approach to Echolalia

Could we postulate that behaviour modification involves teaching artificial behaviours? If so, then we could argue that we are facing a case of complex forms of the artificial development of conditioned behavioural responses which resemble human behaviours in their external characteristics (Carr & Firth, 2005). For example, the motive of an utterance may be either a demand - termed *mand* (demand) by Skinner (1957) – or some informational communication, which Skinner labeled “tact” (contact). In addition, we can identify a third motivating factor,

connected with the desire to formulate one's thoughts more clearly, which we shall provisionally call *cept* (concept). These, then, are the three types of motives that may lie behind a speech utterance (Forbes et al., 2020). Regardless of the utility of echolalia for the child with autism spectrum disorder, the habit can interfere with social interaction and learning. Therefore, most researchers focus on helping the child move to a more creative form of language. Schreibman and Carr (1978) had noted that children with autism spectrum disorder are more likely to use echolalia when they have not learned an appropriate response to the question or command. Behaviourists limited themselves to analyzing the external phenomenology of behaviour, which they explained in an oversimplified manner (Meindl et al., 2018). They tried to approach all human behaviour in the same way as they approached animal behaviour. A positive characteristic of their work was that they tried not only to describe, but also to explain, psychological phenomena. The weaknesses of their approach lay in their reductionism (e.g., in their narrow concept of the development of verbal behaviour and in their attempts to reduce the highest forms of neurological processes with all their complex nature to elementary operations) (LaFrance & Tarbox, 2020). They did not recognize the specific nature of the highly complex types of conscious verbal behaviours (Fienup, 2018; Petursdottir & Devine, 2017).

More and more researchers now argue that it is incorrect to think that speech production always entails the same structure, or that motives play the same roles in the production of every utterance (Ardila et al., 2020). Extremely simple utterances (e.g., exclamations or verbal responses to some sudden stimulus, require no special motive, and in the proper sense of the term) should not be called *speech utterances* (Barker et al., 2020; Luria, 1982).

Children's language is always initially connected with their actions and with their interactions with adults (Barker et al., 2020; Ford et al., 2020). The answer, then, may be teaching children with autism spectrum disorder another and more efficient way to fulfill the function that is served by the echolalia. Having said that, the answer seems to refer back to non-verbal behaviours including pointing, gesturing, and eye gaze leading to joint attention. Without these prerequisites, echolalia refers more to self-talk without any real communicative intent.

Conclusion

Many researchers have sought to carefully and thoroughly document and describe how children with autism experience various social situations This critical analysis of our knowledge and understanding of non-verbal behaviours, private and inner speech, and echolalia in children with autism reveals that these particular phenomena clearly require further study from a more comprehensive lens. In particular, in-depth qualitative studies of the phenomenon of non-verbal behaviours in children with autism could fill a serious void in the existing literature. Behavioural phenomenological analyses of autistic children's non-verbal behaviours could provide crucial new insights which, in turn, could prove extremely useful for pedagogical interventions and to help foster language development.

This paper emphasizes the fact that we should never lose sight of the fact that we do not study these phenomena simply to find a relationship between variables, with the intent of establishing an association, relationship, or cause-and-effect; but rather because the phenomena need to be explored in a way that can reveal what is meaningful for the individual. Studying highly complex

phenomena such as non-verbal behaviours in children with autism ought to be based on the need to present a comprehensive and holistic view of these non-verbal behaviours specific to children with autism spectrum disorder and should avoid borrowing inappropriate and inaccurate concepts or terminology from distinct disorders such as attention deficit disorder, obsessive-compulsive behaviour, or social communication disorder.

We currently need to gain a better understanding of children with autism spectrum disorder communicative intent, and of the purpose of their attempts at social communication, so that we may effectively support their strengths and address their needs in pedagogical interventions. Identifying the communicative intent requires a careful, in-depth evaluation of the child with autism spectrum disorder behavior (joint attention, eye gaze, pointing, sharing), of the social situation, and of the events that preceded and caused the behaviour, all of which allow a better understanding of any intended message. To study the phenomenon of communicative intent in children with autism spectrum disorder non-verbal behaviours requires a return to the social construction of reality concerning human activity, and an exploration of the central issue of the essential structure of non-verbal behaviour as a form of communication. The purpose must be to build a complex holistic picture of the behavioural phenomenon. That said, the main question that has yet to be answered is whether all non-verbal behaviours in children with autism spectrum disorder convey a meaningful message.

In summary, a growing number of researchers consider that private speech and inner speech play a crucial role in the ability of children with ASD to control their behaviour. Numerous studies have also shown that private speech and inner speech are excellent predictors of future social and academic achievement. Empirical research has established that both private and inner speech are indispensable for children to successfully manage situations that are difficult for them. It has also been established that the ability to control their thoughts and emotions can have highly positive effects on children's behaviour and can reduce the percentage of time which school staff has to spend dealing with discipline problems, while increasing children's chances of personal and academic success.

To maximize the effectiveness of private and inner speech in autism, and to explore its full potential for fostering language development and academic achievement in the context of pedagogical interventions, the author recommends that a sufficient proportion of research be assigned to this phenomenon, and that in children with autism spectrum disorder use of private and inner speech be systematically studied. Research has indeed shown that private speech and inner speech can be highly effective in reducing aggressive behaviours, increasing social and self-control skills, as well as improving interpersonal problem-solving, on-task behaviour, and overall behaviour related to communication.

Key Messages from this Article

People with Disabilities. You deserve to have a voice just like everyone around you, and to contribute to your community without any prejudice.

Professionals. Understanding the communication intention of individuals with autism spectrum disorder needs to be a priority for all professionals working with them.

Policymakers. Policy to promote self-management and independence for social inclusion should be authentic.

Messages clés de cet article

Personnes ayant une incapacité : Vous méritez d'avoir une voix comme tout le monde autour de vous et de contribuer à votre communauté sans aucun préjugé.

Professionnels : Comprendre l'intention de communication des personnes ayant un trouble du spectre de l'autisme doit être une priorité pour tous les professionnels qui travaillent avec elles.

Décideurs : La politique visant à promouvoir l'autogestion et l'indépendance pour l'inclusion sociale devrait être authentique.

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