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Mapping the parent experience of echolalia in autism spectrum disorder onto a conceptual taxonomy

ELI G. COHN¹ , KEITH R. MCVILLY¹  & MATTHEW J. HARRISON² 

¹Faculty of Arts, School of Social and Political Sciences, The University of Melbourne, Melbourne, Australia,

²Melbourne Graduate School of Education, The University of Melbourne, Melbourne, Australia

Abstract

Purpose: Echolalia, the repetition of previously heard speech, is prevalent in a variety of neurologic and psychiatric disorders. Within the context of echolalia in autism spectrum disorder (ASD), research and intervention historically assume a clinical standpoint with two opposing paradigms: behaviourism and developmentalism. The literature is largely silent on how those other than researchers and clinicians understand echolalia. This study examined how parents experience echolalia through their children with ASD. The aim of the study was to ascertain if the parental perception of echolalia in ASD aligns with, or offers alternative perspectives to, current clinically-orientated views.

Method: We employed online semi-structured interviews to document the experiences of 126 parents, reflecting on their children with ASD aged 3 to 34 years of age, to determine if the parent experience could be mapped onto existing clinical frameworks, or if they might offer new perspectives. We used hermeneutic phenomenological data analysis in an abductive framework.

Result: Echolalia has predominantly been represented in literature through the perspectives of behaviourism or developmentalism. We found however, that echolalia is a phenomenon that is experienced by parents in a variety of different ways to that of the current clinically-orientated understandings. Such new ways of understanding echolalia that emerged from our analysis include one understanding which is dependent upon how echolalia is heard, and one in which parents are “waiting for echolalia to evolve.”

Conclusion: The traditional dichotomous clinical positions do not resonate with all parents, and reliance on these traditional perspectives alone may impact effective engagement with parents and the success of interventions and support strategies. Our findings have implications for future research, the education of clinicians and educators, and the design of support and intervention for those who have echolalia.

Keywords: echolalia; autism spectrum disorder; parents; phenomenology

Introduction

Within the field of imitative behaviours, one condition has engendered significant interest among researchers and clinicians alike—repetitious speech, sometimes referred to as echolalia. Within literature in the context of autism spectrum disorder (herein ASD), echolalia has been described as the repetition of words and phrases from a television show, movies, or songs, taken from a previous moment in time (Luyster et al., 2022; Marom et al., 2020; Ryan et al., 2022). Echolalia has been observed in a variety of different neurologic and psychiatric disorders including Gilles de la Tourette syndrome (Ganos et al., 2012), catatonia (Haroche et al., 2020), schizophrenia (Lee,

2004), Kleefstra syndrome (Mazzaggio, 2019), ASD (Ryan et al., 2022), and across various aphasia (post-stroke, global, Wernicke, transcortical motor, and classical perisylvian; Bae et al., 2019; Torres-Prioris & Berthier, 2021). It is important to note that whilst echolalia has been observed in a variety of different neurologic and psychiatric disorders, the current study focuses on echolalia as it occurs within ASD.

Echolalia in autism spectrum disorder

Examining echolalia within the context of ASD, echolalia has been predominantly conceptualised in the context of two paradigms: behaviourism and

Correspondence: Eli G. Cohn, Faculty of Arts, School of Social and Political Sciences, The University of Melbourne, Grattan Street, Parkville, 3010 Melbourne, Australia. E-mail: elic@student.unimelb.edu.au

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developmentalism. Such paradigms, typically opposing in nature, have their own conceptualisations and understandings of the functionality or otherwise of echolalia, and their own distinct therapeutic approaches arising from these differing perspectives.

The behaviourism paradigm understanding of echolalia in ASD

The behaviourism paradigm, largely born out of behavioural psychology, advances that repetitive speech should be considered as a form of stereotypy; an action that is repetitive, rigid, immutable, and contextually inappropriate (Turner, 1999). Historically, stereotypy was theorised to be functionless with its emergence a behavioural consequence of an altered (impaired) developmental pattern (Nauman & Ingersoll, 2023). The repetition of speech within this paradigm is termed “vocal stereotypy” (Ahearn et al., 2007). Some examples of vocal stereotypy include repetitive animal noises, humming, coughing, word approximations, lip smacking, nasalisations, and repeating of monologues and soliloquies. Within behaviourism such stereotypies are commonly a target for abatement or suppression intervention (Sloman et al., 2022).

Indeed, vocal stereotypy forms part of a larger classification of restrictive and repetitive behaviours, which includes other stereotypies such as hand flapping, jumping, and finger clicking, amongst others (Wang et al., 2020). Because such behaviours were assumed to be both meaningless and functionless, they were and continue to be addressed via behavioural intervention with the objective of abatement or suppression. Behaviourally-orientated clinicians generally believe that vocal stereotypy is non-communicative and therefore needs to be stopped so that functional communicative language can be taught and take its place (Sloman et al., 2022). Other behaviourally-orientated clinicians believe that vocal stereotypy may serve a non-communicative, emotional-regulation function. However they still see cause to suppress vocal stereotypy because of the perceived negative social consequences on friendship formation, social inclusion, and inclusion in the learning environment (Wang et al., 2020). Essentially, through a behaviouralist lens, if vocal stereotypy is observed then it is to be modified through abatement or suppression intervention (Sloman et al., 2022).

The developmentalism paradigm understanding of echolalia in ASD

In contrast to the behavioural paradigm is the developmental paradigm. Within the developmental paradigm, echolalia is primarily described as the repetition of lines from television shows, movies, songs, and communication partners (Cohn et al., 2022; Stiegler, 2015) and is a phenomenon that does not require abatement, but rather is something to be

leveraged as part of a developmental approach to intervention. It is worth noting, however, that echolalia within ASD may not always necessarily be responsive in nature (Sterponi & Shankey, 2014). That is, some people with echolalia may use their repetitions as initiations of interactivity and communicative exchanges. This would seem to suggest that echolalia may also be sequence initiating and not solely responsive in nature.

Within the developmentalism paradigm, echolalia is generally divided into four subtypes that are determined based on the timing of the repetition and the degree in which the repetition matches, or does not match, the original (Gladfelter & VanZuiden, 2020). Timing-based classifications include immediate or delayed echolalia, whereas verbatim (or modified) repetitions are generally classified as pure or mitigated echolalia respectively (Luyster et al., 2022; Ryan et al., 2022). Taking immediate echolalia as an example, these repetitions mostly occur instantaneously after a television line, song, or previous communication partner. Immediate echolalia can be syntactically faithful to their originals, termed immediate pure echolalia, or they might be heard with modifications between their original and the subsequent repetition; these instances are termed immediate mitigated echolalia. Whilst pure echolalia are exact repeats, mitigated echolalia might be observed as additions, removals, or substitutions of words, which make them somewhat different from their originals (Gladfelter & VanZuiden, 2020; Stiegler, 2015). Delayed echolalia by contrast has been observed as a repeat of a television line, song, or previous communication partner, at a time period removed from their originals, such as several hours, days, or weeks (Ryan et al., 2022). Like immediate echolalia, delayed echolalia can be observed as having both pure and mitigated repetitions.

Echolalia has been theorised to serve both communicative and non-communicative functions (Stiegler, 2015). For a full review of the theorised communicative functions in ASD see Cohn et al. (2022). Much attention is given to the structure of echolalia within the developmental paradigm, as research has found that different structures can aid with identifying both communicative intent and function (Cohn et al., 2022; Gladfelter & VanZuiden, 2020; Marom et al., 2018). Such scholars and practitioners, predominantly from the fields of speech-language pathology and linguistics, interpret echolalia not as being meaningless but rather as a foundational part of language development (Luyster et al., 2022). Echolalia within ASD may form part of a gestalt language processing form of language development. The theory for children who follow a gestalt language processing form is that they may begin their process of language development by repeating formulaic chunks of language (Luyster et al., 2022). It is theorised that the gestalt language processing user has challenges breaking

down language into its constituent parts; as such, a repeat of multiple words/phrases that are merged into one continuous repetition are heard (Blanc, 2012). A natural language acquisition framework approach to echolalia considers echolalia to be natural, and seeks to develop these gestalt repetitions/delayed echolalia towards spontaneous, self-generated speech through a staged therapeutic approach (Blanc, 2012).

In addition to communicative functions of echolalia, it has been theorised that echolalia also has non-communicative purposes. The non-communicative functions of echolalia are frequently reported as being for the purposes of emotional regulation and language learning (Prizant, 2015). Because these functions are understood as holding purpose for the individual, albeit sometimes a non-communicative one, they are not the focus of abatement or suppression (Cohn et al., 2022; Prizant, 2015).

Figure 1 visualises the current clinically-orientated framework, with behaviourism and developmentalism on opposing ends of a continuum. In this current conceptualisation, echolalia is split between the two previously explored and opposing paradigms, thereby creating a dichotomous literature that is primarily academic in its construction and clinical in its orientation.

Outside of this academic-constructed and clinically-orientated literature, people who frequently experience echolalia, such as parents, have been given little space in the literature to share their lived experiences, despite echolalia being a major concern to parents. Here, Herlihy et al. (2015) found that echolalia represented one of the first reasons why parents of children with ASD accessed health services. It would therefore stand to reason that the parent experience of echolalia be an essential component in furthering our understanding of this phenomena. However, there has been little to no literature that has sought to unearth the

experiences of parents of children with echolalia within the context of ASD.

Study aims and objectives

The objectives of this study were therefore four fold: (a) to understand how echolalia is experienced by parents of children with ASD; (b) to ascertain if these perspectives can be mapped onto an a-priori clinical framework; (c) to ascertain whether, if parents have perspectives of echolalia that cannot be mapped onto the clinical a-priori framework, these perspectives can form a new taxonomy; and (d) to ascertain if the parent experience of echolalia in ASD has implications for future practice, policy, and research.

To these ends, this study was guided by the following research question: How do parents’ perceptions of echolalia in ASD map onto the existing a-priori binary of behaviourism or developmentalism, and are there any additional perspectives arising from the parent experience?

Method

This study formed part of a larger program of research. The larger program of research sought to unearth how echolalia is experienced by those outside of the clinical realm. From the larger program of research, one study (Cohn et al., 2023) sought to understand how echolalia is defined and described by parents of children with ASD. That study used a grounded theory approach to data analysis, which found that not all parents define and describe echolalia in the same way as clinicians and, in-turn, proposes a parent-informed definition.

Here, it is important to note that this study uses a subset of participants from the larger group. Essentially, the larger program of inquiry had a total of 133 parents of 134 people with echolalia (one parent had two children with echolalia), with ASD and

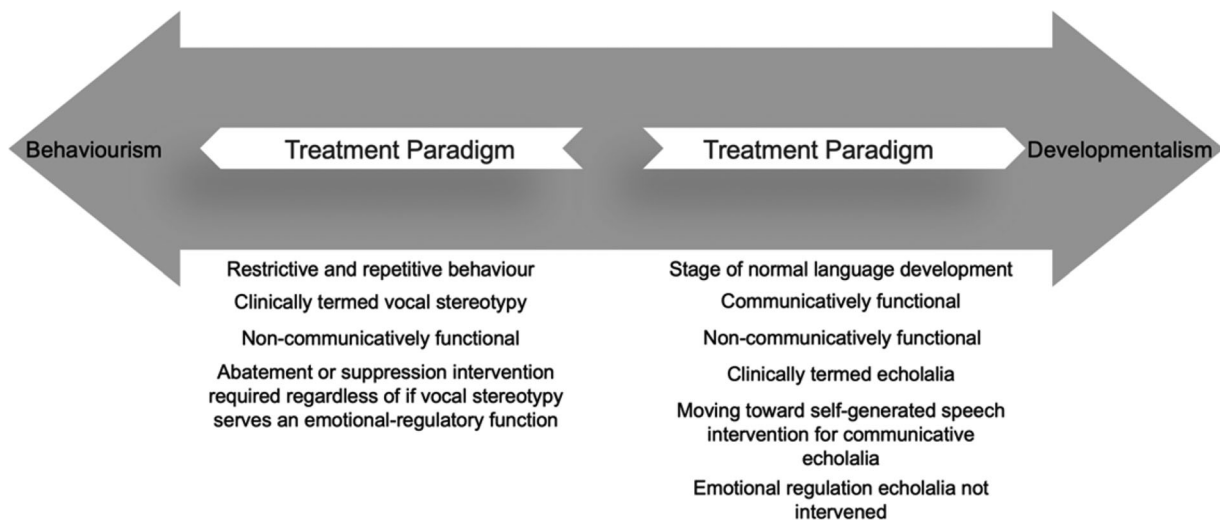


Figure 1. Current clinically orientated practice framework for understanding echolalia in ASD.

The Natural Language Aq. Approach is the
opposite
of many a behavior approaches which are
to “distinguish” the mitigations

other unreported diagnostic conditions. Recalling that this study focuses on echolalia as it occurs in ASD, this study only included the experiences of 126 parents of 127 people with echolalia who were reported as having a diagnosis of ASD. Simply stated, seven parents from the larger study did not disclose the wider diagnosis of their child with echolalia; as our aims, objectives, and research question sought to focus on echolalia in ASD, these seven participants did not form part of this study. A further study may seek to investigate the experiences of those seven parents and children that did not form part of this study.

Research design

This study adopted a phenomenological methodology and sought to explore how parents experience their child's echolalia in ASD. This approach was selected because phenomenology seeks to examine how people interact with, understand, interpret, and make sense of phenomena as they are lived and brought into consciousness (Moustakas, 1994). This study is informed by Heideggerian hermeneutic phenomenology (Heidegger, 1927/2010). Hermeneutic phenomenology is grounded in the philosophy of interpretations. That is, hermeneutic phenomenology is concerned with the interpretation of phenomenon in what is known as a "double hermeneutic." Essentially, the participant is trying to make sense of the phenomena and the researcher is trying to make sense of the participant, who is at the same time trying to make sense for themselves (Smith, 2004). Notably, hermeneutic phenomenology acknowledges the researcher, their experience, and connectedness to the process of inquiry and phenomena under investigation (Reiners, 2012). Simply, the researcher's years of practical experience and professional judgement are invited to aid the interpretation of the participants' own lived experience sensemaking.

Research team positionality

The research team comprised of: (a) a special education teacher and doctoral candidate (first author); (b) an academic, clinical psychologist, and lecturer in disability and inclusion studies (second author); and (c) an academic, special education teacher, and lecturer in special and inclusive education. The first author has experience of school-aged children with echolalia through their professional teaching practice, alongside having completed previous graduate study (master's degree and postgraduate certificate) researching echolalia. The second author has experienced echolalia through research, teaching, and community engagement in communication disorders and wider disability. The third author has experience of echolalia of school-aged children with echolalia through their professional teaching practice, alongside being a

supervisor for the first author's research master's degree.

Participant sampling

Presented here is a detailing of the participant sampling procedure from the larger research program, in which this study focuses on a subset of participants.

For participation in the wider program of research, we recruited participants through a targeted convenience sampling approach. Study advertisements were distributed in both hard-copy and online newsletters for parents of children with a disability and their associated networks. Participants were given biographical information about the facilitator and contact details of the wider research team. Interviews occurred with parents who responded to the recruitment advertisement. Participants needed to have a person in their care with echolalia. Further to this, again, little is known about the trajectory of echolalia across the lifespan; for this reason, we invited parents of people with echolalia with ASD of all ages. More specifically, it may have been that the age of the child with echolalia was an influencing factor of how echolalia is experienced. Current clinically-orientated literature assumes that either a developmental or behavioural perspective is upheld across the period of time in which echolalia is observed. Our study sought to unearth if such clinically-orientated literature assumptions prevailed or if parents offered a counter narrative, regardless of the age of the person with echolalia in their care. To that end, again, no criteria were placed on age for inclusion in the study.

Within the context of qualitative phenomenological research, there is much contention as to what might constitute as an "appropriate" sample size (Farrell, 2020). Indeed, an "appropriate" sample size is largely relative to the overall aims and objectives of each individual study. The prevailing perspectives of behaviourism and developmentalism have thoroughly propagated throughout literature in the context of echolalia and the service delivery of speech-language pathologists and behavioural psychologists. As such, and in alignment with our aims, we sought a sample size that was large enough: (a) to ascertain if the prevailing clinical perspectives of echolalia in ASD resonated with parents; and (b) to ascertain, if parents have perspectives of echolalia that cannot be mapped onto the clinical a-priori framework, could these perspectives form a new taxonomy. Data saturation was achieved when no new understandings of echolalia were brought to light by parents.

Inclusion and exclusion criteria for participants in the current study

Participants in the current study needed to have a person in their care who has echolalia and a diagnosis of ASD. As such, we searched the entire participant pool from the larger program of inquiry and extracted

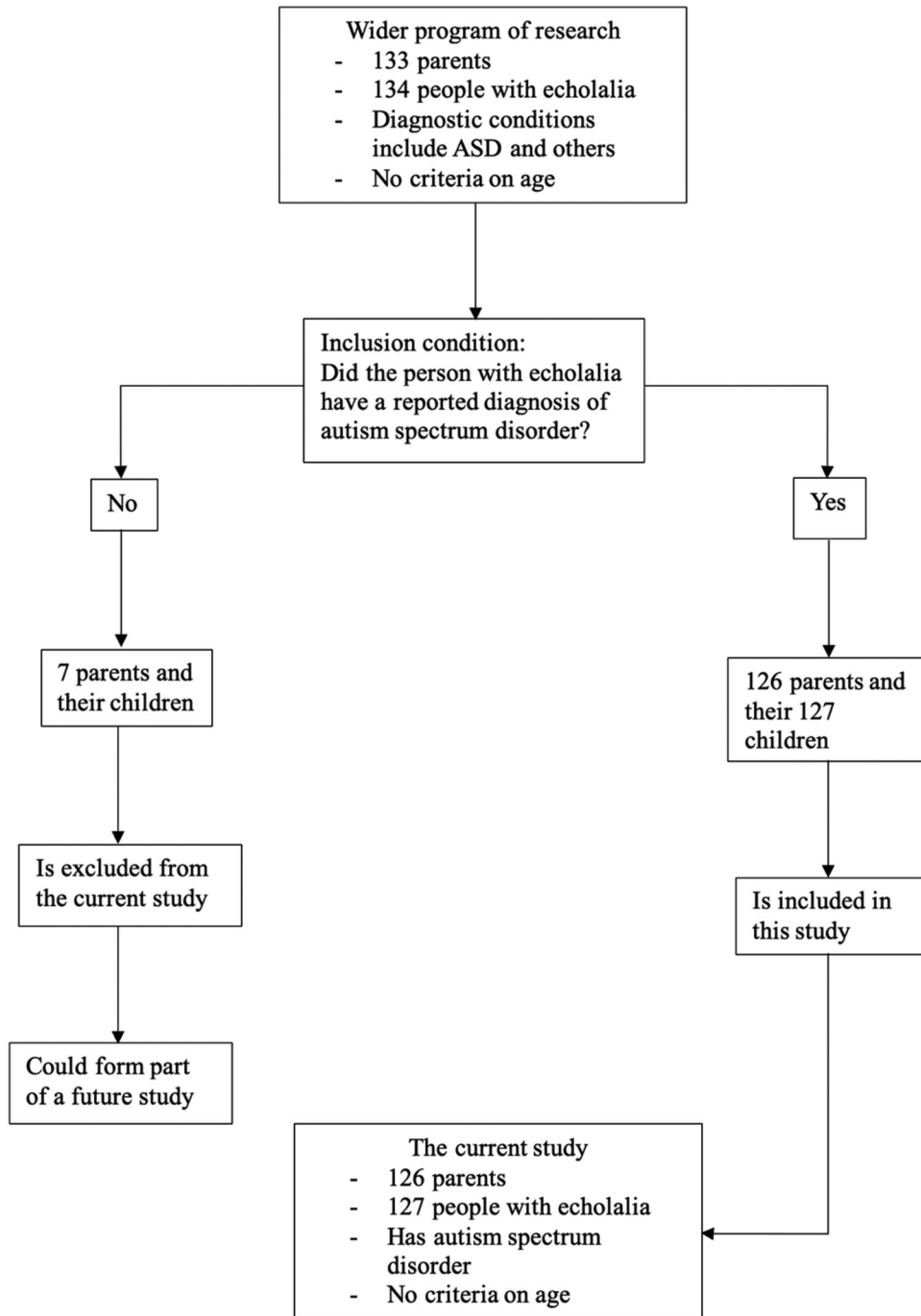


Figure 2. Flow diagram of inclusion and exclusion of participants in the current study.

the data from only those participants for whom a diagnosis of ASD was reported. Figure 2 shows a flow diagram of the inclusion/exclusion process, beginning with the larger program of inquiry and ending with the current study.

Participant demographics

In this study, 126 participants (who were parents) undertook semi-structured interviews with the first author. The 126 parents had 127 people in their care who have echolalia (one parent had two people in their care with echolalia). The interviewee participant

profile was largely that of mothers ($n = 126$). The 127 children who were discussed (who were non-participants) were largely male, English-speakers, were of school-age ($M_{\text{age}} = 8.1$, range = 31.0, $SD = 3.92$), and attended a mainstream school setting. Table I shows a modified version of the participant demographics as adapted with permission from the work of Cohn et al. (2023).

Data collection

We designed a semi-structured interview guide to examine how echolalia is experienced in the family

Table I. Summary of participant demographics.

Category	Type	Total
Caregiver participants (interviewees; $N = 126$)		
Country of residence	Australia	62 (49%)
	Canada	2 (1.5%)
	Ireland	1 (1%)
	Scotland	1 (1%)
	UK	1 (1%)
	United Arab Emirates	1 (1%)
	USA	58 (46%)
Familial role	Mother	123 (98%)
	Father	3 (2%)
Educational background	Professional certificate (diploma, certificate)	32 (25%)
	Bachelor's degree	49 (39%)
	Master's degree	35 (28%)
	Doctoral degree	5 (4%)
	No higher education training	5 (4%)
Echolalia knowledge	Professional training (Online courses, training from private speech-language pathologist, information session from school, information session from disability organisation)	23 (18%)
	Self-taught knowledge (YouTube videos, podcasts, books, online search, friendship discussion groups, online communities)	14 (11%)
	Knowledge through experience of person with echolalia	64 (51%)
	No knowledge due to recency of encountering echolalia	25 (19%)
People with echolalia (127 non-participants)		
Age	2–6 years	80 (63%)
	7–11 years	22 (17%)
	12–16 years	20 (16%)
	17–21 years	4 (3%)
	32–36 years	1 (1%)
	Youngest age of person with echolalia	3.0
	Oldest age of person with echolalia	34.0
	Mean age of person with echolalia	8.1
	Range of ages	31.0
	Standard deviation	3.92
Gender	Male	107 (84%)
	Female	20 (16%)
Education*	Mainstream school/kindergarten	83 (65%)
	Special education school/kindergarten	41 (32%)
	Home schooled	1 (1%)
	Higher education	1 (1%)
Out of school	Working	1 (1%)
Primary spoken language	English	127 (100%)

Table adapted with permission from Cohn et al. (2023).

*There is substantial variability between the educational models used in the countries in which people with echolalia reside. In this study, a mainstream school can be considered a general education setting in which children with disability receive education in the same classroom as their non-disabled peers, but these students may receive in-classroom supplemental support through an aid. A special education school is a school that specifically caters for students with disability who may receive more specialised support and instruction (Cohn et al., 2023).

environment. The interview protocol was designed by the first author and checked by the second and third authors. In addition to these checks, the questions themselves were reviewed by a practicing speech-language pathologist and a special education teacher (who were both independent from the research team). The protocol was designed in consultation with literature from phenomenological, experience-orientated research. Aside from topic-specific questions, demographic-relevant information was also asked of participants (e.g. age of child and education status, amongst others). Participants were informed of the types of questions that would be asked of them, but were not given the interview questions prior to interview.

During interview, participants were not given information as to how a pre-existing clinically-orientated perspective (behaviourism or developmentalism) might understand echolalia. All quotations used in the current study are the participants' own words. On this, it might be that during interview a participant used terminology that may suggest they have prior "clinical" knowledge of echolalia. Specifically, a participant may have used a term commonly associated with a particular pre-existing perspective. During the interviews some participants highlighted that they had some prior knowledge of echolalia, received through professional training courses and self-taught practices (i.e. podcasts and online videos, amongst others). As such,

it may occur that some participant responses reflect their prior knowledge.

An example of the interview protocol used in the current study can be found in [Supplemental Material 1](#).

The semi-structured interviews were conducted through online collaborative software (Zoom). Interviews were conducted with parents once. In total, there were 48 hours of interview recording, each up to 40 minutes in duration. The mean interview time was 21.48 minutes (*SD* 9.90 minutes).

Data analysis

All participants consented in both a written and verbal form to be video recorded. Only the facilitator and interviewee were present during each interview.

Consistent with the overarching hermeneutic phenomenological research design of this study, our analysis was informed by multiple works using the hermeneutic phenomenological data analysis approach, such as Smith et al. (2009) and Vila-Henninger et al. (2022). We used the hermeneutic phenomenological data analysis approach in an abductive framework. That is to say, we first used deductive a-priori logical reasoning to determine if parents' reported experiences could be mapped onto current clinical understandings (i.e. developmentalism or behaviourism).

Our first pass of the data sought to search for any specific reference to the clinical positions of developmentalism or behaviourism. Such references were colour highlighted and coded using their own respective titles. [Table II](#) shows the definitions of clinical behaviourism and clinical developmentalism that were used in the first data pass of a-priori analysis. The codes of behaviourism and developmentalism were then grouped together and contained within a

higher-level code, titled "pre-existing clinical perspective."

Another pass of the data sought to search for any implied, or inferred, references to clinical developmentalism or behaviourism. The a-posteriori pass at the data sought to unearth any new, emergent perspectives of echolalia by parents. To keep track of codes in the inductive a-posteriori data pass, we used a codebook. The codebook had a code label, definition, when to use and not use criteria, and an example quote from the data. [Table III](#) shows a sample extract of the codebook used during the inductive analysis.

A full articulation of the components involved in the hermeneutic phenomenological data analysis of the current study can be found in [Supplemental Material 2](#).

Consistent with the hermeneutic phenomenological practice of inviting the experience and professional judgement of the researcher to aid with interpretation (Howard et al., 2019; Smith et al., 2009), a worked example of a parent perspective that was addressed via this way can be found in [Supplemental Material 3](#).

Result

Using the pre-existing clinical framework of behaviourism and developmentalism, we found that these two ways of perceiving and subsequently experiencing echolalia existed within the parent experience. Consistent with the research questions, objectives, and steps in the data analysis, we present the perspectives of parents that aligned with the a-priori clinically-orientated framework in the first instance. Following this, perspectives emergent during the inductive a-posteriori pass of the data will be presented.

Table II. Clinically-orientated definitions of behaviourism and developmentalism used in a-priori analysis.

Term	Definition
Clinical behaviourism (of echolalia)	School of psychological thought that perceives echolalia (termed vocal stereotypy) to be a restrictive and repetitive behaviour, that should be attenuated through modification intervention (Lanovaz & Sladeczek, 2012).
Vocal stereotypy	Repetitive speech, sounds, and noises that are non-communicative and non-contextual (Ahearn et al., 2007).
Clinical developmentalism (of echolalia)	View that echolalia may form the basis of future self-generated speech, serves both a communicative and non-communicative function, and should be developed through language enhancement intervention (Prizant & Rydell, 1994).
Echolalia	The immediate or delayed repetition of previously heard speech or phrases from songs, TV shows, movies, or communication partners (Cohn et al., 2022).

Table III. Codebook example extract used in inductive a-posteriori analysis.

Criteria	Elaboration
Code label	Situation dependent.
Code definition	View that echolalia might be either developmental or behavioural, which is determined by the parent across context-specific fluctuations, dependent upon the mannerisms of the child.
When to use	Use in instances when parents note that they perceive echolalia differently across different contexts, situations, and environments.
When not to use	Do not apply when parent is sure that echolalia is developmental or behavioural, or in instances in which the parent has not yet decided upon a viewpoint.
Example quote	"Sometimes it is behavioural because my son repeats a song to a wall. But other times, he walks over to me, says something, and stands there looking at me and then I know he wants to communicate something" (PRNT011).

Parent clinically-orientated perspectives

In our first pass of the data, which used deductive a-priori reasoning, we found that the majority of parents held perspectives of their child's echolalia that seemed to align with the pre-existing categories of behaviourism and developmentalism.

Behaviourism

Within the dataset, 28 (22%) parents understood their child's echolalia to be behavioural in nature. These parents highlighted that their child's echolalia held no meaning to them as a parent and that they interpreted it as having no meaning for their child. This father identifies that when his son repeats something, he tells his son to "stop repeating" and "speak normally":

My son will just start repeating something that he heard, like, from, sometimes TV shows or his iPad or something, he will repeat that many times, its just a behaviour, this repeating stuff, it doesn't mean anything to me or to him. Whenever he repeats something, I look at him in the face and tell him to stop repeating and to speak normally (PRNT007).

Similarly, the mother of a 7-year-old child also highlighted how she experiences her daughter's echolalia to hold no meaning and that she understood repeating words is not communication. This mother further explained that she takes her daughter to a therapist who uses modification techniques:

It is completely useless this repeating thing, it means nothing. Repeating is not communication. We actually take her to a therapist who uses this blocking and interruption method to stop it. It's fantastic. We block and interrupt her repeating at home (PRNT025).

Another parent of a 9-year-old child experienced her child's echolalia as useless and forming the view that his repetitions are a learnt behaviour:

What happens is that my son will sit at or go near a table and say, "how can I eat with no fork." I mean, there is a fork on the table for him, so I tell him there is a fork and point to it. He will then say it again and again and start crying. He has learnt this completely useless thing from the TV shows he watches. I put my hand like a stop sign near his face and say "stop." It is useless this repeating (PRNT102).

Parents who hold a behavioural view of their child's echolalia spoke of how they experience echolalia as being meaningless for both their child and them. Some parents explained what techniques they use in attempts to try and stop their child repeating.

Developmentalism

Alongside experiencing echolalia as behavioural, parents held a developmental perspective of their child's echolalia. Specifically, 69 (55%) of parents in the study perceived their child's echolalia to be developmentally orientated. Parents holding a developmental perspective of echolalia experienced it as being communicatively functional. Of this, a mother of a 6-year-old child highlighted how she responds to her child's echolalia to encourage him to engage with them more frequently:

My son uses his echolalia to communicate with us. He walks over to me or my husband and repeats something that means something to him and us. Like, he has a different line repeat for different things like when he wants to play, eat, or go to sleep. We always respond to him by saying "good job telling me." We want him to speak with us more (PRNT028).

In a similar way, another parent also experienced their child's echolalia in a way that they understand is communicatively functional. This parent explains that their child is communicating his happiness through their echolalia:

Basically, it is communication. When we sit around as a family playing cards or a board game, he will start repeating lyrics from that happy song but not sing them, like he will say "if you are happy clap along." He is communicating to me that he is happy. His teacher tells me that he says the same thing when they are doing maths, which he loves (PRNT043).

Another parent identified that they experience their child's echolalia as a method of learning language. Of this, she said "his repeating things is how he is learning language. Basically, he is working out how to say new words and in which way he can say them. As he is learning, we hear new words and things repeated" (PRNT046).

Parents who perceive their child's echolalia to be developmentally orientated understand their child's echolalia to be communicatively functional or for the purposes of learning language. Both echolalia for the purpose of communication and language learning are features of the current clinically-orientated understanding of echolalia as being developmental in nature.

New emergent perspectives

In our inductive a-posteriori analysis, we found several perspectives that could not be accounted for by the pre-existing dichotomy of behaviourism or developmentalism. These were a "circumstance dependent" perspective and a perspective characterised by a withholding of judgement whilst "waiting for echolalia to evolve." The derived definitions of these emergent perspectives are presented in [Table IV](#).

Table IV. Emergent parent-perspective definitions generated in this study.

Emergent perspective	Derived definition
Circumstance dependent	A parent perspective of echolalia, which cannot solely be allocated to a fixed category of behaviourism or developmental. Rather, the parent and caregiver perspective of echolalia dynamically fluctuates between behaviourism or developmental, dependent upon how echolalia is heard. Constructs influencing the parent understanding of echolalia include (a) mannerisms that accompany a repeat, (b) the place or location in which the repeat was heard, (c) the structure of the repeat, and (d) the language in which the repeat was heard.
Waiting for echolalia to evolve	A parent perspective of echolalia in which parents are unsure about the nature of echolalia. Parents are wanting to give more time to echolalia to learn if, with the passage of time, their child's echolalia may naturally evolve to other forms or self-generated speech.

Circumstance dependent

For some parents, the phenomena of their child's echolalia was experienced as something dynamic. It was not readily allocated to any fixed category associated with either behaviourism or developmentalism. Rather, parents experienced their child's echolalia as a phenomenon that fluctuated between something that could be understood in terms of either behaviourism or developmentalism, dependent upon the circumstances.

For example, a mother of an 8-year-old boy highlighted that she experienced her son's echolalia to be both explicit functional communication and behavioural. She determined this meaning dependent upon his mannerisms in context when echoing:

My son will walk over to my husband or I, say a repetition, which is when he wants something, and then wait around looking at us. But other times when he is going to sleep, he often repeats lines from one of his shows to one of his toys, we want that stopped because it is just a behaviour. So when he is with us it is communication but when he is alone, I see it as behavioural. So, it really depends (PRNT010).

A mother of a 5-year-old boy explained that her son's echolalia changes depending upon the place he is in at any given moment:

It depends on the place, when he goes to my partner's work he will go around saying "look at the snowman," which means nothing and we tell him to be quiet, but at home he will repeat very specific lines to me, lines that are him communicating something and we always acknowledge and respond to that. It is different in different places, it depends (PRNT035).

Another parent, a mother of an 11-year-old boy similarly holds a circumstance-dependent perception of her son's echolalia; however, this mother moved between understanding her son's repeats as behavioural or developmental, dependent upon the different structures of her son's echoes. Interestingly, this mother also noted that like PRNT010, her son also makes interactive moves with his hands, face, and whole-body position, which also provided context for interpretation:

You know, I base whether it is a behaviour or communication by what it is he is actually saying to me. Sometimes, he will come up and just make a noise or sound over and over and over. I see this as being something silly and we punish him for doing that. But other times he comes up to me, uses his hands, turns his face, will move his body around, and says "you are so skinny, you need to eat something [mum's name]." That means that he is the one who is actually hungry and wants to eat (PRNT023).

A mother of an 8-year-old male noted that her son's echolalia was present in one of his languages, but not the other. Subsequently she used the language he was speaking at the time as a determination for which one is behavioural or developmental:

See, he uses two languages to speak. In one of his languages, he can count fine, label things, answer back when I ask him things, tell me his feelings. But in the other language he just repeats things from the iPad or what his teacher says. So, he can do both things, speak and communicate fine, and use echolalia. So, I guess that means that it depends on what language he is using (PRNT016).

Within the circumstance-dependent category, parents are neither completely aligned with a developmental or behavioural perspective; rather, parents assign a view that is dependent upon differing circumstances.

Waiting for echolalia to evolve

In our analysis we also found a parent positioning that was neither behavioural nor developmental, nor did it fall into the dynamic "circumstance dependent" category, but rather echolalia to these parents was something that they were not yet able to ascribe a perspective to because they were "waiting for echolalia to evolve." They were on a journey of seeking meaning and not yet ready to align with any particular perspective.

A mother of a 3-year-old boy reported that she is going to wait and see what happens to her son's language:

My son repeats noises, a lot, and that is how communication begins we think, so we are going to wait and see if the noises go away and he starts using proper words. He is too young yet to really

know if it is a silly behaviour or he will speak properly. We will wait (PRNT076).

Another mother of a 3-year-old boy noted that her son was still too young for her to form a perception. This mother, however, highlighted that she knew a bit about language development and appeared to use this as a rationalisation for not adopting a particular view:

Both my husband and I are really unsure about it, our son is still really young and we haven't made up our own minds yet. We hear him repeating noises, and we know that making noises is the first steps in language development, so we are going to wait and see if the noises turn into actual language (PRNT066).

A mother of a 3-year-old boy also spoke about the young age of her child and how he was only just developing language: "I haven't made my mind up yet because he is still very young, and he has only just started beginning to develop his language abilities. I will wait and see how his language develops" (PRNT122). Lastly, a mother of a 3-year-old girl said, "we don't know if it is communication or just a behaviour thing. I think we have to wait for her to speak more before and her language to get better then we can figure it out" (PRNT118).

Another mother of a 3-year-old boy similarly experienced her son's age and language abilities to be factors that are making her wait and see what happens before deciding:

He is really too young to tell, his language is all over the place. He says made-up words, repeats an entire song off by heart, runs around making weird horse noises and then repeats to me in the same accent as my partner. We are going to wait until his language develops, he is too young to know at the moment (PRNT056).

These parents reported that the age and language abilities of their children were influencing their ability to ascribe any particular view.

Discussion

This study investigated the experiences of parents reflecting on their child's echolalia within the context of ASD. The study had four objectives: (a) to understand how echolalia is experienced by parents of children with ASD; (b) to ascertain if these perspectives can be mapped onto an a-priori clinical framework; (c) to ascertain whether, if parents have perspectives of echolalia that cannot be mapped onto the clinical a-priori framework, these perspectives can form a new taxonomy; and (d) to ascertain if the parent experience of echolalia in ASD has implications for future practice, policy, and research.

It was found that the two clinically-orientated categories of behaviourism and developmentalism

reflected the experience and understanding of some parents. However, we also found some parent perspectives that could not be mapped onto the existing binary framework within the context of ASD.

"Echolalia means nothing and does nothing; it is a silly behaviour"

Within the dataset, it was identified that for some parents echolalia is understood as being behavioural in nature. Of the 126 total parent participants, 28 (22%) experienced echolalia as a behaviour that required stopping. Strategies used by parents included telling their children to stop and speak normally, following a blocking and interrupting procedure, and using hand gestures directed towards their children alongside a verbal prompt. All these approaches are reported in behaviourally-orientated literature as techniques that may suppress echolalia (Wang et al., 2020).

Parents with a behavioural understanding of their child's echolalia identified that their child's repetitions held no meaning for them, and indeed for their child. The idea that echolalia holds no meaning for their child is an interesting finding. In relation to the perspective of some parents, whose children repeat their previous repetition and become visibly upset in instances when the parent tries to stop them, developmentally-orientated literature on echolalia in ASD would contend that a repeat of a previous repetition alongside visible signs of distress could be indicative of a communicative attempt by the child (Cohn et al., 2022). The question that arises here then is, if a person with echolalia becomes distressed when their repeat is dismissed or misinterpreted by their communication partner, does this indicate that their repetition was inherently purposeful? Within our data, the answer to this is unclear; however, within the context of echolalia literature, recent work would indicate that signs of distress when a repetition is ignored or misinterpreted could represent that a person's repetition had a purposeful endeavour (Xie et al., 2023). To that end, it might be that, for the person with echolalia and ASD, their way of notifying the communication partner that their repetition was intentional is through distress. However, further work examining this is required.

"Basically, echolalia is learning language and communication"

Alongside a behavioural perspective of echolalia, a clinically-orientated, developmentally-positioned perspective was also identified. A developmental perspective was identified as being the majority understanding of parents. Specifically, 69 (55%) parents held a developmental perspective of echolalia. Within this category, parents experienced their child's echolalia as being developmentally orientated on the

basis that their child uses their echolalia to learn language and as communication.

Indeed, using echolalia as a method to learn language has been theorised as a non-communicative function (Cohn et al., 2022). Outside of literature in the context of echolalia in ASD, the repetition of speech has been found to aid with the language learning process (Pressley et al., 2023). Indeed, educators often leverage repetition as a technique for learning word pronunciation and overall fluency. It is worth repeating that repetition is most frequently reported as being the central language learning technique for those within the context of English as a second language (Azkarai & Rhonda, 2019). Indeed, repetition for learning is reported as being a pivotal part of writing (Durrant & Brenchley, 2019) and reading (Pressley et al., 2023). To that end, the role of repetition, across multiple domains, might be inseparable to learning.

Like echolalia for learning language, echolalia for the purposes of communication has been theorised within literature (Luyster et al., 2022; Ryan et al., 2022). Parents in the current study reported on their child's echolalia as having a function for the communication of needs, wants, and desires, and for the purposes of their child communicating their own feelings of happiness to communication partners. Echolalia for the communicative purposes of needs, wants, and the sharing of emotional states has been theorised to be functions of echolalia in ASD in several studies (Cohn et al., 2023; Marom et al., 2018, 2020; Prizant, 2015). However, there is little to no literature that has examined the function of echolalia in ASD as serving the purpose of sharing a child's own feeling of happiness. Within wider restrictive and repetitive behaviours in ASD, repetitive movements, such as hand flapping, have been reported to be indicators of emotional states such as anxiety, stress, and happiness, amongst others (Kapp et al., 2019). Further research is therefore required to examine echolalia as a possible function for the sharing of a child's own feeling of happiness.

“My view of echolalia changes depending on where and how my child echoes”

The circumstance-dependent perception is distinct from a behavioural or developmental categorisation because parents change their perception in response to certain events. This category would appear then to not see echolalia as a static clinical phenomenon, rather these parents adopt a dynamic stance that can be subject to change in response to certain environmental and/or situational factors. A “circumstance dependent” category would suggest that a categorisation, albeit allowing for a dialectic of behaviourism or developmentalism, is variable and context specific. That is, the “circumstance dependent” category includes examples of numerous constructs influencing parents' interpretation of the phenomena of

echolalia: mannerisms that accompany the echo, the place/location in which the echo occurred, the actual structure of the echo itself, and the language in which echolalia is observed.

In much the same way as was experienced by parents in our study, the observation of mannerisms-/paralinguistic features such as head turning, eye gaze shifts, and whole body repositioning, amongst others, is often reported in people who use their echolalia in ASD for communicative functions (Cohn et al., 2022; Prizant & Rydell, 1984; Sterponi & Shankey, 2014). In this way, the parent experience would seem to align with this research finding. What this means is that parents in our study understood their child's echolalia as being developmental in nature whenever they encountered signs of interactivity. Specifically, some parents shared that there are instances in which their children will move towards them, turn their face, and use their hands. The parents here interpret these interactive moves as signs that their child is communicating through echolalia. Indeed, some parents clarified that in the absence of these interactive moves, their child's echolalia might be behavioural in nature. This is an interesting finding and one that represents a new addition to literature in the context of echolalia in ASD. Specifically, within the context of echolalia, literature reports on examples of interactive moves directed towards a communication partner accompanying a repetition, which is perceived as being developmentally orientated (Sterponi & Shankey, 2014), and no interactivity directed towards a communication partner, perceived as behavioural (Boksa & Kominek, 2022). However, there is little literature that has reported on both interactivity and no interactivity, and the ability for the same person to alternate these. It is as if to say that the person with echolalia can mobilise their wider body interactivity functions in instances that alerts their communication partner that they have something to say which needs attention.

Within the dataset, some parents adopt a circumstance-dependent perspective based upon the language in which their child repeats. Specifically, the primary language of the child, which was English, was repetitive but to a far lesser extent than their alternate language, and was consequently understood as being developmental. Whereas the alternate language, which was Arabic, had a far greater frequency of echolalia and was perceived as being behavioural in nature. Outside of this study, there is little to no literature that has observed echolalia in ASD as occurring in one language but not the alternate in the same child. Therefore, more research is needed to examine this association.

“We need to wait and see what happens as my child's echolalia evolves”

In our analysis, parents reported a positioning of echolalia that was neither behavioural,

developmental, nor circumstance dependent. Rather, these parents were unsure of their child's echolalia. These parents were waiting to see how their child's echolalia evolves. It is important to clarify that we, the authors, are not suggesting that echolalia necessarily evolves on its own. What we are saying, however, is that parents in our study are waiting for this transformation to (possibly) occur prior to taking a perspective on echolalia. It could be said that these parents are waiting for echolalia to tell them what it is. When questioned, parents here did not give any indication on if they understand their child's echolalia to be developmental, behavioural, or something alternate. Indeed, it might be that parents who are "waiting for echolalia to evolve" may always remain open to multiple perspectives. That is to say, their perspective is largely dependent upon their child's language changing (i.e. their echolalia reducing, changing form, or discontinuing entirely). The question that arises here is: if, after a period of waiting, their child's language does not change, for whatever reason, will these parents continue to wait and be open to multiple perspectives? This is unclear in the data and, when questioned about this, parents reiterated that they "just need to wait and see."

Consistent with our hermeneutic (interpretative) phenomenological analysis approach, we interpret this as not a category per se; rather this appears to be a stage and process that is experienced by parents at the beginning of their journey of understanding their child's use of echolalia. Pertaining to the data, it was found that this process is generally centred around the age of the child. We reason that this is likely experienced by many parents of (younger) children with echolalia. Specifically, it was identified that the age of the child of whom their parents held this perspective was between 2 and 3 years. However, we assert that this is a legitimate perspective in its own right and ethically needs to be recognised, respected, and incorporated into the work of clinicians.

Indeed, within the context of language development literature in non-clinical populations, the repetition of sounds and noises forms an essential part of linguistic development in early childhood (Stoel-Gammon et al., 2022). As the child's language develops, in non-clinical populations, it is expected that the repetition of sounds transitions to the repetitions of words, then towards significant reductions in repetitive speech (Blume et al., 2021). In light of the emergent "waiting for echolalia to evolve" perspective generated in this study, a natural language acquisition framework (relating to echolalia in ASD) suggests that this development might be natural (Blanc, 2012). That is, within this framework the first stage of development for gestalt language processors may find children voice repetitions with rich intonations that, on the surface, may appear as repeated sounds. These repeated sounds however may, in actuality, be several words joined together. It is important to note

here that a natural language acquisition framework is embedded within a developmentally-orientated perspective of echolalia. We are not suggesting here that for parents who are "waiting for echolalia to evolve" should, or indeed do, experience echolalia as being developmental in nature. Rather, we are highlighting that, within the context of a natural language acquisition framework, the repetition of rich intonations is a natural phase and could be seen as a progression point towards self-generated language. However, further research is warranted in the area of gestalt language processing as there is limited empirical evidence that has plotted this form of development longitudinally across the life span.

Within language development in ASD, there is considerable variability in language developmental patterns in early childhood, with some children developing quickly then regressing and others developing at a slower pace (Blume et al., 2021). In the context of echolalia, there is further complexity regarding the language development and acquisition phases. There is a paucity of literature that has plotted the trajectory across the early years and the life span. Indeed, there is also no one prescribed path of how any given child might use their echolalia, and if and when this might transition to other functions or forms. The oldest person with echolalia in our dataset was 34 years old, highlighting that echolalia might span across childhood, adolescence, and adulthood. Therefore, future echolalia research needs to adopt a life span approach and go beyond a focus on children alone.

A new parent-informed taxonomy for understanding echolalia

In our analysis, we found two new parent experiences that did not fit within the binary of developmentalism and behaviourism. Specifically, the newfound circumstance dependent view is one in which parents move between developmentalism and behaviourism in response to variations in their child's echolalia and the circumstances in which the echolalia occurs. Whereas the waiting for echolalia to evolve experience is one in which parents are not yet ready to form a view. Therefore, we propose a new parent-informed taxonomy, which better represents the perspectives and experiences of parents in our study. [Figure 3](#) presents the parent-informed taxonomy generated in our study.

In presenting the new parent-informed taxonomy, each oval represents a perspective, not a group of parents per se. However, each perspective has a group of parents who experience their child's echolalia in that way. The circumstance dependent (dynamic) perspective is informed by the pre-existing perspectives of behaviourism and developmentalism. The circumstance dependent (dynamic) phenomena can be thought of as being formed through the combined influence of these two categories, and thus in the diagram it is indicated by thickened arrows that emanate

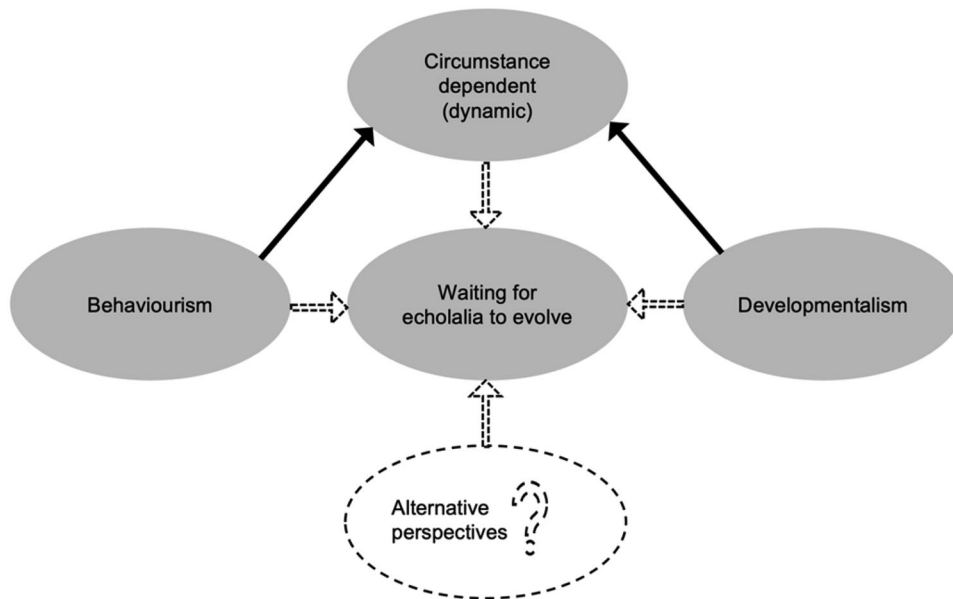


Figure 3. Parents' conceptualisation of the phenomenon of echolalia in ASD.

from behaviourism and developmentalism, and point towards the newfound perception in this study.

Waiting for echolalia to evolve is possibly informed by behaviourism, developmentalism, and circumstance-dependent (dynamic) perspectives, and indeed any yet to be discovered alternative perspectives. Parents who reported they were “waiting” did not say they were actively seeking meaning, nor did they mention what they think echolalia might be. These parents reported that they were simply waiting for an understanding of/meaning of echolalia to present itself to them. Thus, because how this perception currently understands echolalia is not yet able to be known, any potentially informing perspectives are indicated by dotted arrows.

The alternative perspectives group, whilst not explicitly identified in the current study, represents any new emergent views that parents may have of echolalia. Such perspectives could present themselves through future research. This could be thought of as a known-unknown; that is, we know that parents have alternative views, as indicated through this study, however, we don't know what these views might be. As such, the alternative perspectives are indicated by a dotted oval.

Implications for future policy, practice, and research

This study challenges the current dichotomous formulation of echolalia in terms of either behaviourism or developmentalism, and consequently has important implications for the directions of future research and clinical practice. It reveals new insights based on the lived experiences of parents, whose voices have been largely absent from the literature but arguably have the greatest exposure to the echolalia of their child. Importantly, it is parents that are largely

responsible for interpreting and responding to their child's echolalia, and the implementation of support and intervention strategies devised by researchers and clinicians.

Researchers and clinicians need to be aware of how their understanding of the phenomena of echolalia, and how to interpret and respond to echolalia, has been influenced and shaped by their respective disciplines. Our analysis suggests that in addition to these professional formulations, parents have their own formulations that warrant further exploration by researchers and to which clinicians need to attend when working with families.

Parents in our study could identify elements of their child's echolalia from both behavioural and developmental perspectives. But, importantly, they did not necessarily see echolalia as sitting solely in one school of thought or the other. Rather, many identified echolalia as a dynamic phenomenon. When working with families, clinicians need to be able to recognise this dynamic and formulate intervention and support strategies that reflect this dynamic across different circumstances and contexts. Rather than advising parents based on a particular school of thought, clinicians need to prepare parents to experience and work with echolalia across the hitherto dichotomous divide. That is to say, clinicians could be respectful of the parents' perspectives and seek to adopt a collaborative partnership whereby the understandings of echolalia in ASD by the parent and the clinician are valued. Such an approach reflects alignment with a family-centred practice approach, whereby clinicians recognise the role that parents have in the upbringing of their children and their expertise garnered from lived experience through the person in their care (Spence et al., 2023). Pertaining to a circumstance dependent perspective held by

some parents in this study, clinicians may come to understand that the perspective of parents often changes in response to how echolalia is observed in their child. Clinicians, therefore, may need to remain flexible in their service delivery, especially when a parent perspective that is circumstance dependent is subject to change. To that end, the key for clinicians here is to understand that parents may have a dynamic understanding of echolalia and therefore not to assume that parents understand echolalia one way or the other.

Some parents in our study were at a phase where they were still exploring the phenomena of echolalia as it pertained to their child. We termed this perspective as waiting for echolalia to evolve. Researchers could further investigate this developing understanding longitudinally, and the factors influencing parent thinking over time. In the context of family-centred practice, clinicians need to recognise the influence they can exert as professional experts, and support parents to sit with this ambiguity and explore the phenomena of echolalia as it pertains to their child prior to embarking on any discipline-driven intervention. That is not to say that the involvement of parents within a family-centred practice approach ignores the expertise of clinicians. Rather, a collaborative partnership approach relating to a waiting for echolalia to evolve perspective, as found in this study, may entail parents sharing their experiences and ambiguities of echolalia in which clinicians may seek to understand what the needs of the parents might be.

Lastly, in [Figure 3](#), we present a category that provides space for any new emergent perspectives that may arise from within the parent experience. By virtue of our research, we are able to identify that parents have their own formulations and that these differ from prevailing clinically-orientated assumptions. As such, we hypothesise that alternative perspectives exist. What we don't know, however, is what form these new perspectives might take. Therefore, clinicians need to be open to understanding that there is a place and space for new perspectives, and be open to discussing such perspectives should parents hold a perception that represents a new alternative.

Limitations

The current study had a few limitations. Specifically, our study sample was predominately mothers ($n = 126$) of male, English-speaking children with ASD ($n = 127$), explored within a qualitative framework. Whilst these participants formed most respondents, it cannot, and indeed is not, stated that these findings are generalisable to contexts outside of this study (e.g. children without ASD, non-English speakers, adults with echolalia, familial fathers, people who are caregivers but not parents, amongst others). It is worth noting, however, that the generalisability of findings is commonly not the goal or objective within a qualitative phenomenological lived-experience

framework (Howard et al., 2019; Reiners, 2012; Smith, 2004; Smith et al., 2009). Further, this study focuses on echolalia within the context of ASD. Future studies might explore echolalia in children without ASD (including the seven participants from the wider research program that did not form part of this specific study) and see if the findings of those studies align with, or offer other alternatives to, those reported in this study.

Conclusion

The primary aim of this study was to examine if the perceptions of echolalia by parents mapped onto the existing framework of behaviourism or developmentalism. It was found that the two academically constructed and clinically-orientated perspectives continue to exist within the parent experience. In addition to this, two new parent experiences were identified in the data: that of circumstance dependency (dynamic) and that of waiting for echolalia to evolve. These new ways of thinking about echolalia did not fit within the bounds of the clinical binary and thus required the creation of a new parent-informed taxonomy. A reliance on the prevailing dichotomy does not resonate with all parents, as they have their own formulations of their child's echolalia.

Our research will perhaps serve as the impetus for reframing our understanding of echolalia in ASD, from no longer being a condition primarily of clinical relevance, but perhaps to one that values and includes the parent experience and how their insights can broaden our understanding of the phenomena, in turn informing intervention and support strategies.

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Ethical approval

The protocol was reviewed and approved by the University of Melbourne Human Research Ethics Committee: approval number 2021-22230-23628-5.




Supplementary material

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ORCID

Eli G. Cohn  <http://orcid.org/0000-0002-4798-9640>
 Keith R. McVilly  <http://orcid.org/0000-0002-9753-9031>
 Matthew J. Harrison  <http://orcid.org/0000-0002-6561-2935>

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