The school experiences of bilingual children on the autism spectrum: An interpretative phenomenological analysis

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A B S T R A C T

Background: With growing numbers of bilingual children on the autism spectrum in UK class-rooms, the interaction between autism and bilingualism is becoming a pressing issue for prac-titioners, researchers and families. In this study, we report the school experiences of bilingual, autistic children in the UK through their own voice with focus on five aspects of their school life.
Method: Using interpretative phenomenological analysis (IPA) as a methodological framework, semi-structured, computer-assisted interviews were conducted with 11 children aged 7 to 14 from across England and Wales. Interviews were carried out in English and took place in mainstream schools or the children's home, depending on their preference.
Results: Results indicate that, while children's school experiences vary widely, there were com-monalities in this population's identity formation, including being bilingual, and their classroom experiences. Most notably, children educated in more multilingual environments (i.e. in schools with larger multilingual populations) expressed more positive views about multilingualism than those in more monolingual settings. In line with previous studies, limited social circles and classroom anxiety were present in participants' school experiences.
Implications: The findings of this paper suggest that giving autistic children from bilingual backgrounds opportunities to explore their linguistic identities in the classroom may enhance their experiences of school. Further research should focus on parents' and practitioners' attitudes and perspectives towards the support available for this population.

What this papers adds

This paper is the first of its kind to gather the perspectives of bilingual children on the autism spectrum. The study contributes a qualitative perspective to the growing quantitative field of research investigating the relationship between autism and bilingualism. It adds further credence to the idea that bilingualism is not detrimental to the child's development, suggesting that some children may draw on their bilingual identities and enriched linguistic repertoires in the classroom in a positive way. Like previous research, our findings suggest that autistic children may have limited social circles in the school environment.

1. Introduction

With ever-growing international migration and a mosaic of community languages in many countries, the need for access to, and

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understanding of, multiple languages for individuals with developmental disorders is increasingly pressing (Kay-Raining Bird, Genesee, & Verhoeven, 2016). Although bilinguals outnumber monolinguals among the world's population, the 'monolingual mindset' (Ellis, 2004) can often be pervasive in school settings in countries that emphasise educational provision in the majority or prestige language only. However, monolingual mindsets can deny children important opportunities to connect with family and community experiences, develop cultural awareness and build multilingual identities. This is especially relevant for children with autism spectrum condition (ASC) as an emerging body of literature documents a tendency for monolingualism to be adopted in the case of communication difficulties, although research to date has indicated no detrimental, and possibly beneficial outcomes associated with multilingualism (Uljarević, Katsos, Hudry, & Gibson, 2016). Indeed, despite widespread multilingualism (Tinsley & Board, 2016) and a growing public awareness of autism (Elsabbagh et al., 2014), the interaction between these two experiences remains something of an enigma for practitioners, researchers and families.

In the present study, we focus on the school experiences of children with autism from multilingual families. We adopt the term 'English as an Additional language' (EAL) to describe this group due to its widespread use in UK educational contexts (Leung, 2016). In the UK, children with EAL represent more than 1 in 5 pupils (21.2%) in primary schools (Department for Education. (DfE) (2018)) and prevalence estimates suggest that approximately 1.5% of 5–9 year-olds in the UK may have an autism spectrum condition (Baron-Cohen et al., 2009). Students with ASC face the challenge of inclusion in the mainstream classroom, an experience which is likely exacerbated for children with EAL. While Uljarević et al.'s systematic review (2016) provides insight and policy recommendations for speech and language therapists, no research to date explores the experiences of this population in the school setting, nor do existing studies draw on the perspectives of the children themselves. In part, this is due to the potential methodological, communicative and linguistic challenges involved with interviewing this population. The purpose of this study is thus to illuminate the school experience of bilingual children on the autism spectrum using computer-assisted interviewing, which is potentially a valuable tool for eliciting the perspectives of this group (Barrow & Hannah, 2012).

1.1. Autism and school experience

The number of autistic children educated in mainstream schools in the UK has risen in the last two decades (Department for Education. (DfE) (2014)). Research into autism in the classroom indicates that educational settings can be arenas of intense anxiety for some pupils, and opportunities to excel for others. The benefits of including autistic children in mainstream school settings include the fact that students can learn social and behavioural skills from their peers (Jones, 2013), develop friendships (Fryxell & Kennedy, 1995), have more comprehensive access to the mainstream curriculum (Jones, 2013), and benefit from significant academic gains (Kurth & Mastergeorge, 2010). However, such inclusion can be replete with challenges, both for educators and the learners themselves. Autistic children are more likely to be excluded from school than those without special needs (Department for Education. (DfE) (2016)), have a lower tolerance for the noisy and frenetic mainstream classrooms (Moore, 2007), and are less likely to want to engage with peers (Wing, 2007). Crucially, there is significant heterogeneity in the academic achievement of autistic children (Keen, Webster, & Ridley, 2016), meaning that decisions about schooling should be made on an individualised basis.

Existing research suggests that social interaction can be chief among the challenges faced by autistic students, who typically have reduced social networks (Wainscot, Naylor, Sutcliffe, Tantam, & Williams, 2008), can feel socially ostracised in school settings (Symes & Humphrey, 2010), and experience less companionship and reciprocity with their peers (Poon et al., 2014). In addition, bullying is prevalent in the school experiences of some autistic children (McNerney, Hill, & Pellicano, 2015). Peers, perhaps more so than teachers, therefore play a central role in facilitating the social integration of autistic children in school settings (Wainscot et al., 2008), while raising awareness of autism among the mainstream school population can be equally crucial (National Autism Society (NAS) (2017)). Many educational practitioners cite a lack of awareness among staff, students and parents as the greatest barrier to inclusion for this group (Sansosti & Sansosti, 2012).

1.2. School experience and EAL

The school experience of children with English as an Additional Language (EAL), particularly in the UK, remains a less examined area than that of autistic students. Nevertheless, with parallels to the autism literature, studies report that newly arrived EAL students experience high levels of anxiety in the mainstream classroom (Evans et al., 2016) and often feel isolated from their peers (Liu & Evans, 2016) by dint of linguistic and cultural barriers. Bilingual students tend to have more positive attitudes towards learning English than using and maintaining their home language (Liu & Evans, 2016). Such reluctance to use, or even acknowledge, their home language may be an attempt to fit in, or avoid bullying, but stands in contrast to the potential pedagogical benefits of drawing on their existing linguistic resources (Bracken, Driver, & Kadi-Hanifi, 2017). As the child's English proficiency develops, it is common for EAL pupils to use their home language less frequently, which can lead to language attrition (Little, 2017).

1.3. Special educational needs and bilingualism

While not focused only on autism, research highlights that Special Educational Needs (SEN) are not the result of bilingualism, and that the assumption that only typically-developing children can be bilingual is misguided (Baker, 2011). Nevertheless, it is recognised that, in certain cases, professionals have difficulty distinguishing between the different needs of bilingual children and pupils with SEN (Hart, 2009) and that bilingual children without SEN may still require further support due to the intricacies of their language development. The blurring of the lines between SEN and EAL policy, and a lack of specialised training, have meant that in many cases

the provision of support for this population is lacking (Geok Poh Tan, Ware, & Norwich, 2017). Uljarević et al.'s review (2016) offers valuable recommendations for practitioners working with bilingual children with developmental disorders, including: increasing dialogue with families and raising awareness of the potential challenges of monolingualism as a result of abandoning their home language, considering the language use of the multiple interlocutors that come into contact with this population, and incorporating multilingualism into public policy for children with neurodevelopmental disabilities.

1.4. Autism and bilingualism

Multilingual families are frequently advised to adopt a monolingual approach with their autistic child (Hampton, Rabagliati, Sorace, & Fletcher-Watson, 2017; Yu, 2013) despite the fact that such a recommendation may have unintended negative effects on the child's linguistic, social and cultural development (Uljarević et al., 2016). Indeed, the potential advantages of bilingual exposure for this population include the development of multicultural identities and the preservation of heritage (Yu, 2013), participation in religious life (Jegatheesan, 2011), and enriched relationships with, and access to, immediate and extended family members (Hampton et al., 2017; Kay-Raining Bird, Trudeau, & Sutton, 2016). Further, Yu's study maintains that parental use of the heritage language is valuable not only for the child's cultural inheritance, but also their social development, suggesting that forcing mono-lingualism is not only untenable, but 'at odds with their ways of life' (2016, p.425). Hampton et al. (2017), whose study centred on parental interviews, posit that bilingualism would become less of a stumbling block to families with autistic children were there better provision of bilingual resources and interventions, and argue that language choices and practices should be made on a case-by-case basis.

1.5. School experience

While previous studies explore language choices for families with bilingual children on the autism spectrum, no research examines this group's experiences of school. Drawing on the small body of literature pertaining to the well-being of school children with autism (Danker, Strnadová, & Cumming, 2016; Keen et al., 2016; Poon et al., 2014), in this study the term 'school experience' has been conceptualised in relation to five domains: language use, socialisation, accomplishment, motivation, and environment (see Table 1). Existing literature focuses on one or two of these discreet aspects of school life, with particular attention given to socialisation (Humphrey & Lewis, 2008; Rotheram-Fuller, Kasari, & Chamberlain, 2010; Stephenson & Adams, 2016), but this study aimed to capture the holistic school experience. The definitions of each domain and related examples in the literature are outlined in Table 1.

2. Research questions

The first-person perspectives of children with developmental disorders such as autism and those who have EAL are under-represented within literature on school experience (Anderson, Foley, Sangster, Edwards, & Rassool, 2016; DePape & Lindsay, 2016). By adopting a child-centric view and recognising the diverse cultural contexts of each individual, the aim of this study was to capture the lived experiences of bilingual children on the autism spectrum in the school setting. Giving learners a voice is essential to not only elucidating their school experience, but also improving it. Accordingly, using the conceptualisation of school experience outlined in Table 1, this study sought to answer the following research questions:

(1) What is it like to experience school as a bilingual child on the autism spectrum?
(2) What can educators do to improve the classroom experiences of this population?

3. Methodological approach

3.1. Interpretative phenomenological analysis

Interpretative phenomenological analysis (IPA: Smith, Flowers, & Larkin, 2009) was employed in this study as a means of uncovering the lived experience of participants. This methodological approach is most widely associated with the field of health psychology, and is gaining momentum within autism literature (Humphrey & Lewis, 2008; Poon et al., 2014; Stephenson & Adams, 2016). IPA is a dynamic process that acknowledges the inevitable distinctions between the participants' words and the researcher's

Table 1
The Domains of School Experience.

Domain	Definition	Examples in the Literature
Language Use	How the child's bilingualism impacts their linguistic identity at school	Molyneux, Scull, and Aliani, (2015)
Socialisation	How the child interacts with peers and staff	Liu and Evans (2016)
Accomplishment	How the child perceives success and accesses the curriculum	Evans et al. (2016)
Motivation	How the child engages in their learning	Dykstra Steinbrenner & Watson (2015)
Environment	How the school environment affects the child's school experience	Pesco et al. (2016)

Table 2
Demographic Information of 11 Participants.

Participant[a]	Age	Gender	Language(s) exposed to other than English at home	Born in the UK	Interview Location	School type[b]	School above or below EAL national average[c]
Nish	7	M	Bengali/Hindi	Yes	Home	Ma / P / EM	Above
Thomas	8	M	Welsh	Yes	Home	Ma / P / WM	Above
Ryan	9	M	Welsh	Yes	Home	Ma / P / WM	Above
Amira	9	F	Urdu/Punjabi	Yes	School	Ma / P / EM	Above
Daniel	9	M	Polish	No	School	Ma / P / EM	Above
Luke	9	M	Italian	Yes	School	Ma / P / EM	Below
Suvrat	9	M	Hindi	Yes	School	Ma / P / EM	Above
Rahul	10	M	Gujarati/Hindi	Yes	School	Ma / P / EM	Below
Gareth	11	M	Welsh	Yes	School	Sp / P / EM	Above
Marco	12	M	Italian	Yes	Home	Ma / Se / EM	Above
Jokubas	14	M	Lithuanian	No	School	Ma / Se / EM	Above

[a] Pseudonyms have been used for all participants to ensure anonymity.
[b] Ma = Mainstream.
Sp = Specialist Autism School.
P = Primary.
Se = Secondary.
EM = English-medium School.
WM = Welsh-medium School.
[c] 21.2% of primary-aged pupils and 16.6% of secondary-aged pupils in the UK are classified as having EAL (Department for Education. (DfE), 2018).

interpretation of those words. As such, it involves a 'double hermeneutic', whereby the researcher aims to make sense of the participant's experiences, while the participant themselves also aims to elucidate them. IPA was deemed to be the most apposite approach to the aims of this study given the move in autism research away from a medical framework in which the condition is 'judged from the outside, by its appearances, and not from the inside according to how it is experienced' (Williams, 1996, p.14).

3.2. Ethical considerations

Ethical approval was granted from the University's School of the Humanities and Social Sciences before recruitment began. Parental written consent was given prior to interviews and verbal consent was obtained from all participants following a pre-interview meeting with children to discuss the procedures. The first author conducted all eleven interviews. Audio recordings were safely stored in a password-protected file and all names and locations were changed to protect anonymity.

3.3. Participants

Consonant with other IPA studies, a sample (n = 11) of bilingual children with ASC aged between 7 and 14 were purposively selected for this study (see Table 2). Participants were recruited through contact with schools, and through posts on online forums and social media. Children were selected on the basis of the following inclusion criteria; that they 1) had received a diagnosis of autism in the UK, and 2) were exposed to more than one language on a daily basis. This led to a sample with maximum variation; participants were heterogeneous in terms of SES, ethnicity and language proficiency, factors which were documented and acknowledged in the data analysis. Not all the children in this study were classified as having EAL, partly because some were exposed to English along with an additional language at home and can thus be described as simultaneous rather than sequential bilinguals, and partly because some acquired Welsh as an additional language at school. However, the participants fulfilled the aforementioned criteria as they were all exposed to two or more languages on a daily basis.

The current study sought to uncover the experiences of children in a variety of schools in order to most accurately reflect the diverse linguistic make-up of various regions and cities in England and Wales. Nine out of the eleven schools had a percentage of pupils with EAL that was higher than the national average. Two children attended Welsh-medium schools (in which the language of instruction was Welsh) but came from English-dominant homes. Children attending mainstream schools were recruited rather than those in specialist autism schools, because a greater percentage of autistic children (70%, Department for Education. (DfE) (2014)) receive a mainstream education. It should therefore be acknowledged that the focus of this study has been narrowed to one type of schooling, and does not reflect the educational experiences of all autistic children. However, one child (Gareth) attended an English-Medium specialist autism school at the time of interview, but had attended a Welsh-medium mainstream primary school at the time of recruitment and spoke English and Welsh at home.

More primary school pupils (n = 9) were interviewed than secondary pupils (n = 2) because the perspectives of younger heritage language learners are conspicuously absent from bilingualism research (Little, 2017; Melo-Pfeifer, 2015). It was expected that selected pupils may have a co-occurring condition and would have therefore been methodologically unfeasible, as well as unrepresentative, to exclude such individuals. Teachers were also consulted about the suitability of the child for interview, in terms of their willingness and capacity to communicate. The period of time spent in the UK may have impacted upon both the children's capacity to express their perspectives and the extent to which their bilingualism interacts with their autism presentation, but this was

not defined as a selection criteria as it may have further constrained recruitment. This was therefore considered as a contextual factor in the children's identity formation.

3.4. Procedures

Semi-structured interviews are the exemplary method for data collection in IPA (Smith et al., 2009) and were conducted to draw out the lived experiences of bilingual children with ASC. Prior to the interviews, children were given a 'stop/move on' card, if they wished to end the interview or move onto the next question, and an 'emoji' palette, as a visual prompt they could point to when faced with difficulty expressing themselves verbally. Taking into consideration previous research methods (Hill, Pellicano, & Makin, 2017; Poon et al., 2014), interviews with pupils lasted between 8 and 22 min (av. 14.2) and questions were piloted and revised to ensure that they were linguistically and developmentally appropriate (Greene & Hill, 2005).

Interviews generally took place in the school environment, as it is a context in which unfamiliar adults are normative (Beresford, Tozer, Rabiee, & Sloper, 2004), it may be difficult to talk about one context when situated in another (De Clercq & Petters, 2006), and it represents the nexus of their school experience. However, four interviews took place in the home environment for logistical reasons or due to a preference expressed by the parent or child. Each interview was audio recorded to ensure an accurate record of interviewees' perspectives, and interviews were conducted in English. Participants were interviewed individually, but were given the option to be accompanied by an adult. Four children were accompanied by an adult (parent, teacher or teaching assistant). Questions focused on the five domains of school experience (see Table 1), as well as certain introductory questions personalised to the individual child about their hobbies as a means of building a rapport.

Interviewing bilingual children on the autism spectrum requires a high degree of sensitivity to the individual's social, linguistic and developmental needs, and an acknowledgement that this group may be less willing to engage in consultation (Preece, 2002). As such, the current study used computer-assisted interviewing (CAI) to elicit participants' lived experiences. This involved showing the children five images on a computer screen, which pertained to the five domains of school experience and served as a platform for discussion (see Table 3). These visual stimuli functioned as an aide-mémoire and were followed by questions about their specific experience of each domain. Among the benefits of CAI for autistic children are the engagement of the interviewee and interviewer in a shared external focus, the reduction of stress for the participant, and the opportunity for the child to control the pace of the

Table 3
Sample Set of Questions.

Domain	Main Question	Picture Description	Prompt Questions
Language Use	What does the picture show us?	Image of 4 children with speech bubbles saying 'hello' in different languages	1) I have heard that you speak more than one language – can you tell me about that? 2) Is it a good thing to speak more than one language? Why/Why not? 3) Do you learn other languages at school?
Socialisation	What do you think that this picture shows?	Image of children playing on a playground	1) What do you like to do at breaktime and lunchtime? 2) Do you like to spend time with other children from your class? 3) Do you like to use [home language] with others at school?
Accomplish-ment	What might this picture represent?	Image of rosette with 'star of the day' written in the middle	1) What do you think it means to be successful at school? 2) Can you give me an example of a time when you did something really well at school? 3) What makes it hard for you to learn in school? 4) Does speaking [home language] help your learning?
Motivation	What do you see in this picture?	Image of a chalkboard with the word 'can't' crossed out and replaced with 'can'	1) Why do you think the word 'can't' is crossed out? 2) When do you feel most motivated to learn? 3) Do you feel motivated to keep learning [home language]?
Environment	What can we see in this picture?	A photo of a primary school classroom	1) How does this picture compare to your own classroom? 2) What do you like about your classroom? 3) Who helps you to learn in school? 4) And what helps you to learn? 5) What would you change about your school environment to help you to learn even more?

Introductory Questions.
Can you tell me your name and age?
What do you like to do when you are not at school? [May need to prompt with examples].
Closing questions.
Thank you so much for taking part in this interview.
Is there anything that we have not covered that you would like to add?
Do you have any questions for me?

interview (Barrow & Hannah, 2012). Further, image elicitation is more congruent with the preference of many autistic individuals to process information visually rather than linguistically (Newman, Cashin, & Waters, 2010) and serves to facilitate the flow of conversation (Beresford et al., 2004). A sample set of questions can be found in the Table 3.

3.5. Data analysis

Consonant with IPA research, brief notes were taken after each interview to summarise the key points identified by the participant and each interview recording was transcribed verbatim. The first interview transcript was read and re-read line-by-line in search of descriptive, linguistic and conceptual significance. Descriptive summaries were annotated in the left margin, whilst initial interpretations and emergent themes were marked in the right margin. Once an initial list of themes was established, the other transcripts were analysed and amendments were made where necessary. This process then led to the clustering of superordinate themes followed by subsequent readings of the transcripts to confirm the suitability of these themes (Smith et al., 2009). An independent researcher then carried out validity checks to verify that the themes were consistent with the data (Smith, 1996). Following these checks, insignificant and overlapping themes were then discarded or subsumed to create a master list of superordinate and subordinate themes.

3.6. Rigour

In line with Yardley's characteristics for rigourous qualitative research (2000), the current study sought 'sensitivity to context' by providing participants with personalised visual aids. For example, the first image was adapted according to the language background of the child being interviewed. Further, 'transparency and coherence' were established through the provision of individual child-friendly summaries of each interview. These were shared with parents, who were asked to read the summary through with their child and to share any additional information or amendments that the child wished to make. In two instances, where contact had not been established with parents apart from their giving consent, the first author returned to the school to read through the summary with the child and give them an opportunity to suggest alterations. This process of 'member-checking' along with field notes, transcription directly after each interview and a comprehensive audit trail, helped to further ensure methodological credibility (Lincoln & Guba, 1985).

4. Results

Two superordinate and seven subordinate themes were extracted from the data (see Table 4). The first superordinate theme, 'identity at school', illustrates the children's self-reflection while the second, 'experiences of the classroom' relates to their perspectives of the school environment in which they are situated. Each subtheme is delineated below with excerpts from the participants' own words to capture the nuances of their school experiences in order to increase 'internal coherence' (Smith, 1996).

4.1. Identity at school

4.1.1. Being bilingual

After viewing the first image of children speaking different languages, participants expressed both positive and negative views about their bilingual identities. Most children compartmentalised their language use, with English or Welsh as the 'language for school', and their parents' native language as the 'language for home', with the exception of Daniel, (9) who uses Polish with other pupils in school, and Jokubus (14), who is described by his classmates as 'the King of Lithuania' and who speaks Lithuanian with the school librarian.

Two children were less aware of their bilingual identities; Rahul described his parents' language as 'Indian' rather than specifying which language was spoken, while Amira (9) was unable to identify which language she used at home. All participants, except Thomas (8) and Ryan (9) – both of whom attend Welsh-medium schools but speak English at home – cited communication with family members as the primary reason for speaking more than one language. For example, Luke (9) stated: 'I can communicate with my grandma who is currently here. And I can… with my other grandparents…I also speak Italian'.

The two children educated in more monolingual settings (i.e. attending schools with a lower percentage of EAL students) tended

Table 4
Emergent themes.

Superordinate theme	Subtheme
Identity Formation	Being bilingual
	Learner Identity
	Social interaction
Experiences of the Classroom	Learning environments
	Engaging with the curriculum
	Emotion regulation
	The role of technology

to defer to English and felt uncomfortable identifying as a bilingual; Rahul (10) described bilingualism as a 'bad thing' because 'no-one will understand you' while Luke stated 'I prefer to speak English over Italian…. I just feel more comfortable with it'. In a similar vein, some children minimised the importance of their bilingual identities: 'I only know two languages - English and Polish' (Daniel, 9) and 'I don't speak it that much, only when I'm in Italy or when I'm speaking to my grandad on the telephone - which is like every night' (Marco, 12).

Children who were educated in more multilingual environments, however, tended to hold their dual language use in higher regard and recounted some of the advantages of bilingualism. Gareth (11), for example, noted how 'I understand what people are saying', 'you can impress people that don't speak the language' and can even 'make them feel jealous and want to learn the language'. Amira suggested that being bilingual 'makes them special'; her use of 'them' rather than 'us' or 'me' indicates that she may not consider herself bilingual despite speaking Punjabi at home. Other children described bilingualism as a useful skill which increased opportunities for communication.

Nish (9): If you can chat to them in a different language, they may understand and then talk to you back.

Ryan: It's helpful. It's good to know more than one language.

Thomas: You can help people in other languages.

Suvrat (9) was the only child to highlight the religious facet of his bilingual identity, stating 'it's good to speak Hindi because it's good to pray to God', while Luke noted the similarities between languages, with possible benefits for further language learning: 'French actually sounds a lot like… French can sound a bit like Italian and… sometimes English'.

4.1.2. Learner identity

Along with their attitudes towards bilingualism, the children interviewed also commented on their identity as learners, particularly on viewing the third and fourth images related to accomplishment and motivation. Many expressed a fascination for learning and frustration about gaps in their knowledge. Gareth expressed a desire to 'feel like I'm smarter. Not the closed kind of looking smart, but actually being smart'. This suggests an awareness of social pressures to look intelligent and a desire to move beyond the superficial. Similarly, Jokubus commented, 'I be sad when I want to know, like, everything. I want to know everything' before giving the example of Simon in *Alvin and the Chipmunks*: 'I want to become like Simon. Simon knows everything'. Such inquisitiveness and aspiration were mirrored across many of the children's accounts. However, in line with the finding that socially-prescribed perfectionistic beliefs are more prevalent in children with autism (Greenaway & Howlin, 2010), participants often identified making mistakes at school as a distressing experience. When asked what he would change at school, Nish responded, 'I wouldn't make any mistakes because sometimes I make mistakes'. Nevertheless, he subsequently explained the benefits of making mistakes:

Nish: So first the brain is like that [draws small circle on page with dots], like I think 1cm… so whenever you make mistakes like, la…la… la [draws crosses in circle], and then there's something that's wrong, you cross it out and then your brain goes even bigger [draws bigger circle next to smaller one].

Interviewer: So is making mistakes a good thing?

Nish: Yeah! The more mistakes you get…

Nish's father: [corrects Nish] The more mistakes you make…

Nish: Ah 'you make', I mean - thank you dad - the bigger the brain gets.

This powerful insight into the notion of 'growth mindset' (Dweck, 2006) is echoed in other participants' accounts. Ryan, for instance, describes the process of improving his handwriting through consistent practice, while Rahul emphasizes the importance of perseverance by stating: 'if you can't do it you don't give up. If you can do it, you never give up. You can still do it'. Rahul also recounts his experience as a learner using the oft-cited metaphor of a light:

Think in your brain. Keep thinking, keep thinking, and then, have a question. Then there's a light. So thinking, then a light. There's a light here [gestures with hand] and it means 'I got it'.

Given the age of the participants and the fact that some did not know about their diagnosis, autism was not mentioned specifically by the interviewer. However, three children reflected independently on their experiences of autism. Gareth affirmed that 'everyone at my new school has autism'. As the oldest child in the study, Jokubus showed more awareness of autism, describing it as when 'you think different to other people'. He then went on to justify the school placing a limit on his computer time, saying, 'I have to be like a bit older, cos I have autism'. In Thomas's school, autism training was given to all pupils, staff and parents. Here, he reflects on his experience of talking to his class about autism.

Thomas: I told them what was easy for me, and what wasn't easy for me… Um I told them like about what it feels like being autistic… um… they were learning about autism…

Interviewer: What does it feel like?

Thomas: [long pause] Mmm. It kind of feels scary.

In contrast, Thomas continued by describing an advantage of autism, that 'you know more stuff about what you like than most people'. This notion of children's 'special interests' was present in many of the children's accounts and important to their identity formation.

4.1.3. Social interaction

After discussing the image of children playing on a playground, most children reported having limited friendship circles and

found social interaction, both inside and outside the classroom, a challenge. The uncertainty of their relationships with classmates is epitomised by Jokubus's (14) affirmation that 'sometimes I have friends. Sometimes I don't'. Amira, who attends a social group at lunchtime, said 'I made just a little bit of friends', and, when asked whether she works well with peers, replied: 'not really. I'm a bit annoying'. Social tension in the classroom was also evident in Marco's account: 'unfortunately, I don't really have many friends but I always surrounded by two bullies who don't really like me'. Others expressed frustration at not being listened to by peers, for example, 'he never listens to me when I have a great idea and he's just messing around' (Daniel).

These examples are consonant with the social interaction difficulties of autistic children in the school setting (Humphrey & Lewis, 2008), although some participants described more positive interaction with peers. Rahul moved school because of bullying, but found that he quickly made friends at his new school, while Gareth, in moving to a specialist autism school, explained how he formed friendships through a shared interest in videogames. All participants reported positive relationships with members of staff, with the exception of Thomas who still conceded that he got along with 'some' teachers.

4.2. Experiences of the classroom

4.2.1. Learning environments

In the fifth image, the children observed a classroom, which functioned as a springboard for reflection on their own learning environments. Despite the reoccurrence of social tension in the classroom, many of the children stated a preference for collaborative work and most claimed that peer and teacher support were essential to their academic success. With regard to the physical layout of the classroom, Suvrat noted 'I like it when things are hanging like aeroplanes and balloons' and 'if everyone's classroom looked the same it would be boring'. In keeping with the findings of existing literature, excessive or background noise was deemed to be a barrier to learning for some of the children interviewed (McAllister & Sloan, 2016). For example, when discussing sitting next to a classmate Gareth commented, 'I like that he doesn't make any noise'.

The children offered a range of recommendations for improving their learning experience, most of which centred on time. Daniel reflected that the major change he would make to his school experience was 'more time to think', reasoning that 'you can't think of anything in time' and 'sometimes you don't know something and you have to think but then… but then the lesson ends and it's too late'. Both Thomas and Ryan would like to see more time for play, because 'fresh air helps, doesn't it?' (Ryan), while other children suggested changes to the timings of the school day.

4.2.2. Engaging with the curriculum

Participants tended to report a preference for either art or maths when asked about their favourite school subjects. The seemingly opposing demands of these subjects highlight the variability of autistic children's preferences and skills in the classroom. Many described language-based subjects as hard and unenjoyable, tallying with the finding that the children's least favourite subjects all featured an element of literacy.

Daniel: When I have to write like a lot, it's like super hard.

Luke: If we're writing letters I usually find it hard, because I don't really know what to write.

4.2.3. Emotion regulation

Although not present in every account, anxiety, anger and apathy were also common features of the children's school experiences. While Nish expressed anxiety about coping in the later years of primary school, Luke described periods of lessons in which 'my mind goes in panic mode'. Marco used equally emotive diction to depict his difficulty maintaining composure in the classroom:

I find it hardest staying calm and then being able to stop my detonation like an exploding kitten. Very often I'll start blowing up and then I start creating trouble for everyone and then destroying it for the whole class.

Marco demonstrates an acute awareness of the impact of his emotional outbursts on the learning of others in his class. By contrast, Gareth demonstrated a very different type of dissatisfaction with his school experience, characterised by indifference. When asked about the hardest aspect of school life, he answered 'having to go there five times a week', and when questioned about his favourite subject he replied, 'going home, if that counts as a subject'. Other comments such as 'I just don't like going to school' and 'school is just a way to make money' underline his possible apathy towards school. However, such comments should be evaluated in the context of Gareth's special interest in computer games; Gareth referred to school getting in the way of his gaming and frequently mentioned that his school experience would be enhanced through greater access to technology.

4.2.4. The role of technology

The majority of children referred to technology during the interviews, either as an interest or as a learning resource in school. While Suvrat stated that videos helped him to learn, Marco said: 'they can't make me learn but it makes me calm down a lot'. Gareth spoke most frequently about the use of technology to enhance learning, suggesting that 'we can do the apps on computers', 'you can research things on the computer', and 'I can help the staff because they're not very good [with technology]'. Although Gareth is convinced that more access to computers would improve his school experience, arguing that the use of strategy in his games is educational, both he and Jokubus describe frustration that their screen time is limited at school.

5. Discussion

Through the use of interpretative phenomenological analysis, this study sought to illuminate the 'insider' accounts (Billington,

2006) of bilingual children on the autism spectrum and establish how educators may adapt their practice to improve the experiences of this population. Our findings offer valuable insights into their perspectives of life at school, demonstrating the complexity and diversity of their identity formation and classroom experiences. The two superordinate themes are discussed in relation to the study's research questions and existing literature.

5.1. Identity at school

In light of growing sociolinguistic diversification in UK schools, understanding pupils' attitudes towards their identity as bilinguals and the impact of bilingualism on their education is increasingly important (Evans et al., 2016; Strand & Murphy, 2015). In the current study, the type of school the children attended seemed to have an important influence on their bilingual identity. Children educated in schools with a higher percentage of EAL pupils (including schools in which the medium of instruction was Welsh) tended to hold more positive views about bilingualism than those in more monolingual educational settings, who, like the students in Liu & Evan's study (2016), stated a preference for English. Accordingly, more emphasis should be placed on creating opportunities for bilingual pupils to express, explore and evolve their linguistic identities at school, especially in schools with low numbers of EAL pupils. Such encouragement may be particularly significant for children with autism, who are more likely to be at risk of 'linguistic mainstreaming' (Bracken et al., 2017) given advice to some parents to adopt a monolingual approach (Hampton et al., 2017).

Unlike the findings of studies concerned with the school experiences of autistic children detailed in Williams et al.'s metasynthesis (2017), none of the children interviewed in this study except Jokubus described themselves as 'different', despite the potential 'double difference' to their peers of being bilingual and having autism. This is perhaps because most of the children in the current study had little awareness of their autism diagnosis, some were not fully cognisant of their multiple language use and many attended schools were multilingualism was the norm. The tendency among this group to pursue specialised interests, however, does distinguish them from their typically-developing peers to some extent. Depending on the nature and intensity of the interests, such enthusiasm could serve as a catalyst for improving educational outcomes. Without disregarding the learning challenges faced by the children interviewed, their pursuit of knowledge and identities as curious learners are differences worth celebrating.

Nevertheless, just as in other studies (Rotheram-Fuller et al., 2010; Symes & Humphrey, 2010), difficulties in social interaction are a hallmark of the school experience of autistic children and more research is required to clarify the extent to which bilingualism may mitigate or exacerbate these social challenges. Strikingly, the children attending Welsh-medium schools had a more positive opinion of the merits of bilingualism in line with previous research (Thomas & Roberts, 2011), perhaps because it is viewed as normative. They also tended to be more socially active in school. In this sense, helping autistic children to discover and understand their linguistic identities – and concomitant cultural backgrounds – may have a positive impact on their social interaction and lead to improved educational outcomes.

5.2. Experiences of the classroom

The findings of this study, taken together with those from existing literatures on the school experiences of children with ASC and EAL respectively, have significant implications for classroom practice. The children's concerns about noise and preference for quiet environments echoes findings in previous research (McAllister & Sloan, 2016; Moore, 2007). As such, teachers should be aware of the potential heightened sensitivity to noise among this population, keeping in mind that frenetic, noisy classroom environments can be inimical to their sensory processing and concentration levels (Preece & Jordan, 2010). More broadly, in viewing the school environment as a 'silent curriculum' (Taylor, 2009), schools should consider the effects of the sensory environment on pupils' outcomes through close consultation with students and their parents. The process of self-regulating their emotions was a complex task for most children in this study, and anxiety in school was frequently expressed, as in previous studies with EAL students (Evans et al., 2016) and autistic learners (Humphrey & Lewis, 2008). Although this anxiety was caused by varying factors, it is through understanding the needs and anxieties of the individual student that schools can set about improving their school experiences.

One of the more surprising findings of this study was students' preference for art. Future research could investigate the benefits of creativity in the curriculum - both in art lessons and more broadly - for learners with autism. These may include the encouragement of imaginative thinking and self-expression, along with findings that art therapy enables autistic children to feel more flexible and relaxed (Schweizer, Spreen, & Knorth, 2017). Literacy – and particularly difficulty with writing tasks – was a recurring theme, highlighting the need for more rigorous interventions and strategies to support this group's literacy development. Such interventions should take into account each of the child's languages (Kay-Raining Bird et al., 2016b), and particularly meaning-related emergent literacy skills (Westerveld et al., 2017).

A further implication for classroom practice includes the children's preference for group work, reflected also in Dillon, Underwood, and Freemantle, (2016), despite some difficulties in social interaction and maintaining friendships. Collaborative learning tasks may therefore serve as much-needed opportunities to improve this group's social and communication skills, and establish deeper relationships with peers. Finally, the use of technology in the classroom has a significant role to play in engaging this population in their learning, but should be used in tandem with other resources and mediums to create a balanced learning environment, and to mitigate against a different sort of sensory overload.

6. Conclusion

6.1. Strengths and limitations

To our knowledge, this is the first study to consider the perspectives of bilingual children on the autism spectrum and therefore makes a unique contribution to understanding the lived experience of this population, particularly within the school setting. Through the use of IPA and computer-assisted interviewing, this study sought to give a voice to this group of children despite their potential communicative challenges. Given that language is a central component of the IPA framework, using different methods of eliciting perspectives, such as drawings or diaries may have resulted in richer, more nuanced findings, particularly in view of the children's inclination towards art and creative expression. While the 'stop/move on' card and the emoji palette were only used by a handful of pupils, the use of computer-assisted interviewing was particularly effective in this study, both helping to redress the inevitable power asymmetry of the interview by giving the participant some control over the pace and focus of the interview and providing participants with visual stimuli for the basis of the conversation. Along with Barrow and Hannah (2012), we believe that computer-assisted interviews could provide a valuable consultation tool for interviewing children on the autism spectrum.

A limitation of this study is that the effect of bilingualism may have been reduced for participants in more monolingual school environments or those born in the UK, resulting in the construction of monolingual identities in certain cases (Kenner & Ruby, 2012). The variability in children's language exposure and presentation of autistic symptoms highlights the need for different approaches for different students. Although children came from a wide range of language backgrounds, females were under-represented in this sample and adolescent learners, rather than primary learners, may have articulated their experiences in more detail, drawing on a greater linguistic repertoire. Equally, collecting more comprehensive data from parents on children's language profiles and autism diagnoses may have provided clearer insights into how participants' school experiences converged and diverged.

6.2. Future research

Future research should continue to take into consideration the perspectives of autistic young people (Stephenson & Adams, 2016) and devise more engaging, personalised methodological approaches to elicit their lived experiences (Williams, Gleeson, & Jones, 2017). There is further need for research that investigates the types of learning environments and tasks that are most apposite to the learning outcomes of autistic, bilingual children. Future studies should also consider parental and educator perspectives on the interaction between autism and bilingualism, in order to improve the educational outcomes of this growing yet under-represented population.

Declaration of interests

none.

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