

*Working towards diagnosing bilingual children's
literacy abilities: Some key considerations
for teachers in Wales*

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ABSTRACT

One area of concern within a bilingual context relates to the appropriate 'diagnostic' assessment of bilingual children's language abilities and to the suitable application of their assessment results in practice. Communication and language difficulties are numerous and complex, and manifest themselves in a variety of ways that are captured to different degrees via standardised tests. Such tools are readily available – often in multiple forms – in some languages, such as English, but less readily available in others. This is particularly the case for minority languages such as Welsh, and this poses great difficulty when aiming for a certain type of assessment of specific language abilities. This paper outlines the current state of diagnostic assessment tools for Welsh, with a specific focus on measures of literacy abilities. Drawing on research evidence from the Welsh context, we argue for appropriate training of educators in this area, and for the urgent need to develop tools that are both language and context specific, with relevant bilingual speaker norms, that have practical applications in the classroom, to ensure equitable and relevant diagnosis and support for all children educated in Wales.

PRACTICAL ABSTRACT

When children are suspected as having language difficulties, they are usually measured for their abilities using tests that compare their language performance to other typically-developing children of the same age. The results of these tests are then used to help establish a diagnosis, where appropriate, and to help develop a programme of support for the child. Diagnosing bilingual children is different from diagnosing monolingual children, for reasons explored in this article, yet language tests seem to be created with monolinguals in mind. Similarly, measuring language abilities in one language is very different from measuring language abilities in another due to the structural differences across languages. We focus particularly on measuring reading and writing abilities since different languages use different writing conventions to reflect various sound patterns in writing. In this article, we argue for appropriate training of educators in this area, and for the urgent need to develop tools that are both language and context specific, with relevant bilingual speaker norms, and that have practical applications in the classroom, in order to ensure equitable and relevant diagnosis and support for all children educated in Wales.

Keywords: Child Language Assessment, Welsh, Bilingual, Minority Language, Bilingual Education, Literacy Difficulties

Background

One of the growing areas of interest within the bilingualism literature relates to the appropriate assessment of bilinguals' language abilities and to the suitable application of their assessment results in practice (e.g., Gathercole et al., 2013; Marinis and Armon-Lotem, 2015). When a child is suspected as having a language difficulty, in order that they receive appropriate support, they are usually administered a series of tests that help profile their language abilities. These tests are usually 'diagnostic' in that they provide standardised norms, most commonly in relation to age, that can help practitioners recognise or identify what sort of difficulties, and the level of difficulty, the child experiences. However, communication and language difficulties are numerous and complex, and can be influenced by

a number of different factors including those that have neurological (e.g., Aphasia – Damasio and Damasio, 2000), biological (e.g., Developmental Language Disorder (DLD), previously referred to as Specific Language Impairment (SLI) – O'Brien, Zhang, Nishimura, Tomblin, and Murray, 2003), or cognitive basis (e.g., Pragmatic Language Disorders – McDonald, 2000), influencing affective and social behaviours (e.g., Pragmatic Disorders and Autism – van Agt, Verhoeven, van den Brink, and de Koning, 2011). In the same way, each language is uniquely complex, involving intricate combinations of sounds, words, and sentence patterns to express meaning. Meaning can be expressed via oral (spoken), visual (written; signed) and/or tactile (braille) representations and the ability to express intended meaning relies on a set of general cognitive abilities (selective attention, inhibition, memory, pattern abstraction/decoding, phonological awareness, etc.) that are controlled by internal factors (biology) and influenced by external ones (social). An inability in any of the core aspects of cognition that underpin language production and language reception can lead to various types of communication difficulties. Among these are: Articulation/Phonological Disorders (difficulties producing sounds in certain contexts); Auditory Processing Disorder (inability to process certain sound contrasts); Developmental Language Disorders, previously referred to as Specific Language Impairment, including Expressive Language Disorder (difficulties expressing meaning) and Receptive/Expressive Developmental Language Disorder (difficulties with phonology and syntax, manifested in the production of short, simplified sentences and difficulties with morphological features such as the past tense *-ed*); and Pragmatic Disorder (difficulties with speech coherence). Those that are assumed to have genetic, neurological or cognitive basis will be presented in any language or languages that a child is learning, but the extent to which those underlying issues affect a child in a given language will vary, depending on the nature of the language.

One added complexity in the bilingual context is the heterogeneity of the bilingual experience (Thomas and Roberts, 2011). No one bilingual has equal or equitable experiences in both their languages, and no one bilingual belonging to a specific group of bilinguals (e.g., speakers of Welsh and English) will have the exact same bilingual experiences as other bilinguals speaking the same two languages. Identifying when a bilingual child's language behaviour changes from being typical of a bilingual (e.g., showing delayed receptive vocabulary knowledge, which is typical of early bilinguals – Gathercole and Thomas, 2009) to being atypical (i.e., showing

delayed receptive vocabulary knowledge that is not typical of early bilinguals) is challenging, albeit possible provided that the appropriate tools are available to create and interpret profiles of bilinguals' language abilities.

Children's linguistic profiles are usually obtained via the implementation of a battery of standardised tests or 'tools' that capture various aspects of language difficulties to various degrees. Such tests are readily available – often in multiple forms – in some languages, such as in English, but are less readily available in others. Among the most widely used tests for English is the Clinical Evaluation of Language Fundamentals (CELF) assessment, a multi-perspective assessment that pinpoints pupils' language and communication strengths and weaknesses, which is administered by a qualified Speech and Language therapist, and the sub-tests within the WISC-V that assess pupils' verbal comprehension and the language processing, typically administered by Educational Psychologists.

In many other languages however, access to such a rich source of tools is limited, which poses great difficulty when aiming for a given type of assessment of specific language abilities in a particular language. Where tests are available, they are often unattractive to children, with dated norms (normative data should be updated every 10 years or so – Alfonso and Flanagan, 2009), and have limited diagnostic 'power' due to (i) children becoming over-familiar with the content via repeated use and (ii) the inability to explore construct validity (does the tool test what it's meant to?), content validity (does the tool adequately cover the target behaviour being tested?), and, in particular, criterion-related validity (do the results generated by the tool predict performance on another tool?) due to the scarcity of other measures that can be used to compare outcomes. Added to this is the fact that minority language speakers are usually bi- if not multilingual speakers, and tests are often standardised on monolingual rather than bi-/multilingual norms (Gathercole, Thomas and Hughes, 2008). This means that testing for language abilities in only one of a bilingual's two languages, or to test a bilingual's ability relative to that of monolinguals, is inappropriate and will often lead to under- or overrepresentation of potential problems (Thordardottir et al., 2006; however, see Roberts and Tainturier, 2010, for evidence of therapeutic transfer for Welsh-English bilinguals with Anomia). In the same way, using language tools that are modelled on those developed for English monolinguals may not necessarily be ideal for other languages as they may miss out on language specific issues that are unique in a given linguistic context and might be more insightful for teachers who are dealing with the child on a daily

basis. For several reasons, then, children learning more than one language require profiling in both languages, profiling that, ideally, taps into the nuances and nature of the languages being tested, in addition to providing measures of their general cognitive abilities.

However, having a reliable diagnostic tool is one thing; knowing what the results mean is another thing entirely. This is a key issue in education where teachers are tasked with the challenge of addressing multiple issues relating to Additional Learning Needs (ALN)¹ within the classroom. Within a bilingual context, such as the case in Wales, understanding the difficulties a bilingual child is facing, and how those difficulties are manifested in each of their languages, is crucial in developing appropriate educational support for those children and ensures equity and parity across pupils.

Bi-literacy

One domain of language where levels of ability are likely to be manifested differently across the two languages of a bilingual, and which features heavily in education, is literacy. Languages vary in terms of their orthographic depth (Ziegler et al., 2010) and various languages appear at different points on the orthographic depth continuum. Some languages, such as English, Danish, and French, are said to have ‘deep’ or ‘opaque’ orthographies, whereby the grapheme-to-phoneme correspondence is relatively inconsistent (Caravolas, 2004; Elbro, 2006; Juul, 2005). Other languages, such as Welsh, Finnish, Spanish, Italian, and German, are said to have ‘shallow’ or ‘transparent’ orthographies (Spencer and Hanley, 2003; Hanley et al., 2004). In this case, there is greater one-to-one correspondence between form and sound, whereby certain graphemes (e.g., *c* and *ch* in Welsh) and grapheme clusters (e.g., *-oedd* and *-ach*) correspond with certain sounds (e.g., /k/ and /χ/, /ɔið/ and /aχ/), and do so in a relatively consistent manner.

Given its orthographic structure, English does pose specific difficulties to learners when compared to those learning other European languages (Seymour et al., 2003). This has been demonstrated specifically in studies comparing learners’ skills in English and German (Ziegler, Perry, and Coltheart, 2000; Frith et al., 1998; Goswami et al., 2001, 2003; Wimmer and Goswami, 1994; Ziegler, Perry, Jacobs, and Braun, 2001). Children learning English are often found to demonstrate a phonological deficit in

literacy (Ramus, 2001, 2003; Ramus et al., 2003), and exhibit poor performance on non-word reading (Wimmer and Goswami 1994; Seymour et al., 2003). Conversely, learning to read in a shallow (or transparent) language is easier (e.g., Goswami, Ziegler, Dalton, and Schneider, 2001, 2003; Ziegler et al., 2003), faster, and more accurate than in a more opaque language (Cossu, Shankweiler, Liberman and Gugliotta, 1995; Wimmer and Hummer, 1990, Parsons and Lyddy, 2015, Spencer and Hanley, 2003 and Hanley et al., 2004), leading some to question whether literacy difficulties are language specific, manifesting themselves only in languages with opaque orthographies (e.g., Wydell and Butterworth, 1999). For example, Spencer and Hanley (2003) demonstrated that 5- to 7-year-old children attending Welsh-medium schools performed significantly better at reading both real words and non-words than did children attending English-medium schools. Data also shows that L1 English-speaking children attending Welsh-medium schools perform the same as L1 English-speaking children attending English-medium schools on measures of vocabulary knowledge and reading in English (Rhys and Thomas, 2013), suggesting that L1 English-speaking children attending Welsh-medium schools in Wales are not only gaining a language, but are also benefitting from an additive bilingual experience. Studies also suggest that juxtaposing languages with transparent orthographies with those that have opaque orthographies enhance underlying literacy skills – ‘exposure to a language with more predictable grapheme–phoneme correspondences, such as Italian, may enhance phonological skills’ (D’angiulli, Siegel and Serra, 2001, p. 479) – leading to enhanced skills in English (Yelland et al., 1993). This positive transfer from transparent to opaque orthographies has been noted in the Welsh context (see, e.g., Lallier, Thierry, Barr, Carreiras, and Tainturier, 2018), with specialist teachers of dyslexia dealing with Welsh-English bilinguals of the opinion that ‘that Welsh is quite phonetical [*sic*]; helps in English as well’ (Teacher B) and that ‘[w]eaker Welsh pupils pick up English quicker than the weaker English pupils’ (Teacher E) (Davies, 2016, p. 52).

However, if one assumes that literacy difficulties – such as dyslexia – result from an underlying neurological deficiency that affects an individual’s ability to process phonological information (Lyon, Shaywitz, and Shaywitz, 2003; Habib, 2021), this deficiency will be present regardless of the language being learned (Paulesu et al., 2001). How the deficiency manifests itself on the surface may differ, however, depending on orthographic depth (Landerl et al., 1997), and one can question to

what extent transparency of the system may or may not mask true underlying abilities. That is to say that the transparency of the Welsh orthography has led to the assumption that Welsh-speaking pupils will not encounter dyslexic type difficulties, which may hinder the early identification of dyslexia especially among first-language Welsh children (Efans and Cooke, 2000).

To ensure early identification of potential problems, early screening in both languages is essential, particularly in those cases where education is delivered through a language other than English. The Welsh-English context in Wales is a case in point. However, in order that potential issues are identified early enough for a fair and valid diagnostic assessment to take place, we need to understand more about the literacy profiles of Welsh-English bilinguals – in Welsh and in English – and develop assessment procedures and measures that can provide more holistic rather than ‘snapshot’ analyses of their abilities to supplement the diagnosis gained from current tasks (see e.g., Bedore and Peña, 2008).

Welsh-medium education: issues for assessment

In 2020–1, 121,611 pupils received their education either largely or wholly through the medium of Welsh. The remaining 347,169 received their education predominantly through the medium of English, with Welsh taught as a subject (StatsWales, 2021). At the same time, there were 74,661 children enrolled in mainstream schools in Wales who were registered with an ALN. Having an ALN status is important as it is a known predictor of academic achievement (ap Gruffudd et al., 2017, p.55), and early identification is key to supporting children to achieve. Of the ALN diagnosed in Wales, ‘speech language and communication difficulties’ are among the most prevalent (Schools Census Results, 2022). This means that many children attending schools in Wales have a recognised language-related difficulty, assessed, most likely, using several tools measuring abilities in English and the few tools that are available for measuring abilities in Welsh. This is problematic for a number of reasons:

First, children attending Welsh-medium schools are not formally introduced to English until age 7 (Key Stage 2) and are introduced to basic literacy in Welsh during the Foundation Phase (age 4–7). Understanding the difference between bilingual literacy performances that are typical of bilinguals and those that are indicative of a potential underlying problem is difficult and is largely underexplored in relation to bi-literacy in

Welsh-English bilinguals. Studies that do exist to date either involve specialist teachers' views, that are largely drawn from anecdotal evidence and personal experiences (Davies, 2016), or involve the use of assessment tasks – adapted 'ad hoc' for Welsh – with a small sample of children (Thomas and Lloyd, 2004 – see below). Whilst both types of studies provide useful data, what is needed is a better understanding of bilingual children's writing, reading and comprehension in each of the language(s) they are learning, and of how both languages interact and impact on each other within those practices.

Second, failing to measure a child's abilities in both of their languages, or failing to provide measures that are normed on a representative sample of children that share similar linguistic experiences is grossly incongruous with legislative duties and guidance imposed on statutory services in Wales and beyond (see e.g., Knight and Crick, 2022). From the point of view of parity of public service delivery in Wales, Welsh language provisions are protected by the Welsh Language (Wales) Measure 2011, which provides a legal framework for the status and use of Welsh. The Welsh Language (Wales) Measure 2011 Act imposes Welsh Language Standards on public service sector, regulated by the Welsh Language Commissioner, and ensures that the Welsh language is treated no less favourably than English. Welsh also has protected status afforded by the European Charter for Regional and Minority Languages Treaty adopted in 1992 under the auspices of the Council of Europe to protect and promote historical regional and minority languages in Europe. Promoting and protecting a language means promoting and protecting its speakers, and failure to provide suitable assessment and support for speakers of minority languages does little to fulfil these goals.

Third, the recently-enacted Additional Learning Needs and Education Tribunal (Wales) Act 2018 (the Act) makes provision for a new statutory framework for supporting children and young people with ALN in Wales. The act has three overarching objectives:

1. a unified legislative framework to support all children of compulsory school age or below with ALN, and young people with ALN in school or further education;
2. an integrated, collaborative process of assessment, planning and monitoring which facilitates early, timely and effective interventions; and
3. a fair and transparent system for providing information and advice, and for resolving concerns and appeals.

The Act has eleven core aims as founding principles guiding the overarching objectives, one of which has particular resonance with the discourse of this paper: a bilingual system that requires services to consider whether a child or young person needs additional learning provision in Welsh and that it must be documented in their Individual Development Plan and ‘all reasonable steps’ must be taken to secure the provision in Welsh.

Evidence presented in the formally referenced Welsh Government Research on the Baseline of SEN in Wales (2019) suggests that current practices are in disaccord with these principles. Welsh language provisions are mostly only available on request by service users, which is not reflective of the shift in legislation that state that Welsh language provisions should be made available irrespective of the demonstrable need or scarcity of resources to provide that service.

Fourth, of the few standardised tools that are available to assess children’s literacy abilities in Welsh, the resulting tool has often been developed based on an English model (e.g., the *Profion Glanau Menai*, Payne, 1993, based on the *Neal Analysis of Reading Abilities*, Neal, 1992), or developed almost as an adapted translation of an English model (e.g., the *Prawf Darllen Cymru Gyfan – All Wales Reading Task*, Forbes, 1999). Whilst these are extremely useful measures of abilities, they focus on a specific aspect of the child’s abilities – reading and comprehension. Having such a limited access to standardised tools for Welsh provides an incomplete snapshot of their abilities in Welsh, whilst, at the same time, overlooking external factors (such as environment and affective issues) that help interpret the assessment of a child’s profile: ‘Learners’ belief systems and identity ... are part of the story of differential outcomes to bilingual learning’ (Carroll, 2017, p.4). In addressing these issues, a closer look at the nuances of Welsh, particularly in relation to the written form, and in comparison with English, might be useful: ‘[o]nly by conducting detailed studies of particular learning problems, with good information on the language use profiles of particular types of learners (bilingual first language learners, early child L2ers, later child L2ers) will we be able to unpack the complexity’ (Carroll, 2017, p. 4).

The nuances of Welsh

Welsh operates a clear, almost one-to-one correspondence between graphemes and their respective phonemes, particularly in relation to consonants

(e.g., *c* – /k/), but also in relation to vowels and diphthongs, albeit with some obvious exceptions. For example, *u* and *y* are realised as /i/ and /ɨ/ in northern dialects (*llun* /lɨn/ ‘picture’, *dyn* /dɨn/ ‘man’, *byr* /bɨr/ ‘short’ and *pump* /pɨmp/ ‘five’) but as /ɪ/ in southern dialects (/ɨn/, /dɨn/, /bɨr/) whilst the grapheme *y* is also realised as /ə/ in all dialects (*yn* /ən/ ‘in’; the word-initial *y* in *ynys* /ənis/ ‘island’), although the two realizations of *y* are fairly predictable in terms of syllable placement. Similarly, the diphthongs *ai*, *au* and *ae* are all realised as /ai/ or /aɨ/ in southern dialects (*tai* /tai/ ‘houses’, *cau* /kai/ ‘to shut/close’, *cae* /kai/) but as /ai/, /aɨ/, and /aɨ/ in northern dialects (/tai/, /kai/ and /kai/) (see Jones 1993; Thomas and Lloyd, 2004).

Whilst the Welsh system, beyond the noted exceptions, is relatively transparent, there are certain aspects of the system – particularly those that seem to carry high phonological awareness loads – that do cause problems for children when learning to write, and particularly so among those who are diagnosed, or are suspected to be with, dyslexia. Among these are contexts that trigger a change in how words appear or sound in different syntactic contexts, making a familiar word ‘look unfamiliar’ (Davies, 2016: 68), such as contexts for plural morphology, word-initial mutation (see below), and conjugated verbs (Efans and Cooke, 2000). For example, there are subtle grapheme-phoneme alternations around diphthongs that undergo subtle phonological changes when converting singular words to their plural form – e.g., *cae* /kai/ – *caeau* /kəai/ ‘fields’, but *caead* /kəiad/ ‘lid’ – *caeadau* /kəiadai/ ‘lids’. (See Thomas et al., 2014, and Binks and Thomas, 2019, for studies looking at children’s acquisition of Welsh plural morphology.) Welsh also involves a relatively unique *mutation* system – a morpho-phonological process whereby initial consonant sounds undergo phonological change under certain syntactic conditions, and these phonological changes are also represented in print. For example, nouns with initial *p* /p/ undergo Soft Mutation (SM) into *b* /b/, *t* /t/ → *d* /d/, *c* /k/ → *g* /g/, *b* /b/ → *f* /v/, *d* /d/ – *dd* /ð/, *ll* /l/ → *l* /l/, *rh* /r̥/ → *r* /r/, *m* /m/ → *f* /v/ and *g* gets deleted /ø/. These sound changes are triggered by a set of lexical items or syntactic contexts – e.g., *dy* ‘your’, *dau* ‘two’ and feminine noun gender triggers SM onto following nouns such as *dy frawd* ‘your brother’ < *brawd* ‘brother’, *dau gi* ‘two dogs’ < *ci* ‘dog’ *y gath* (feminine) ‘the cat’ < *cath* ‘cat’ vs. *y ci* (masculine) ‘y ci’ < *ci* ‘dog’. (For a thorough overview of the mutation system see Ball and Müller, 1992; Thomas and Gathercole, 2007; Thomas and Mayr, 2010.) Given that learners of transparent languages have been shown to rely somewhat on grapheme-phoneme

conversions during the process of reading (Ellis and Hooper, 2001), the transparency of the phoneme-grapheme conversion in mutations may lead children, with or without literacy difficulties, to perform fewer errors when reading or spelling in Welsh (Thomas and Lloyd, 2004; Spencer and Hanley, 2003; Hanley et al., 2004), but those with literacy difficulties may demonstrate more effortful and slower attempts at reading, and produce more errors in writing than their typically-developing age-matched peers (Thomas and Lloyd, 2004; Wimmer 1993; Barca, Burani, Filippo and Zoccolotti 2006). However, given the additional level of accuracy required when writing or spelling words as compared to the spoken form, and the clear associations between anxiety and performance with language (Alexander-Passe, 2006; Burden, 2005; Riddick, Sterling, Farmer and Morgan, 1999), it may well be that early indications of literacy difficulties in Welsh will be more prominent in the written attempts that children perform rather than in their reading abilities (Thomas and Lloyd, 2004). However, as with other languages that have transparent orthographies (e.g., German), reading rate may show delays among those with literacy difficulties and is therefore an important behaviour to measure.

Current studies of Welsh-English literacy

To date, there are a number of studies that have addressed various issues relating to Welsh-English bilinguals' linguistic practices and behaviours, from many perspectives. Together, these studies provide clear suggestions as to what are key challenges to appropriate diagnosis and support, particularly for literacy difficulties. Key findings from among these studies that are relevant for the purpose of the present paper are presented thematically below.

(i) Resources

It is widely recognised that there are not enough diagnostic tools available to help identify specific types of language-related difficulties among Welsh-speaking children. Where some tools do exist, such as the *Beth allai wneud* (What I can do) tool created by Conwy LEA, which assesses the foundations of phonological knowledge in primary age children and provides a detailed diagnostic insight to the child's phonological awareness, they do not always offer a standardised score, and this limits practitioners'

ability to both diagnose and support children appropriately. In extreme circumstances, this has led to practitioners adopting the false belief that children are best supported if they reduce their engagement with Welsh all-together. However, as noted above (and in relation to literacy in particular), excluding children from accessing a language such as Welsh may be more detrimental to their development of English literacy than focusing on English alone, and could therefore be seen as counterproductive. Depriving the child from accessing the full array of benefits that accompany bilingualism is therefore not the answer. The answer lies in the continued development of appropriate assessment for bilinguals – assessments that are fit for purpose, easily accessible, and relatively cheap to use. Recent Government Social Research (Research to establish a baseline of the special educational needs system in Wales, Welsh Government, 2019) suggests conflicting accounts of language parity afforded to service users by multiple public service providers, generally (p. 98) in statutory assessment process (p. 23), statutory assessment process for learners (p. 24), processes in relation to SEP including identification and assessment, planning, involving parents/carers and learners, review, and disagreement resolution (p. 81). Most interviewees acknowledged that

some services were not always available in Welsh [and that] the main barriers to the availability of services in Welsh were capacity and skills shortages. There were general shortages of staff and recruitment challenges in some sectors and roles which were more acutely felt in Welsh-medium settings. (p. 99)

However, most poignantly, it reported that

Welsh-medium and bilingual schools noted they could carry out school-based assessments bilingually but interviewees working through the medium of Welsh in all settings and sectors reported there were a shortage of assessment tools that were Welsh-language specific. Several interviewees reported that Welsh-language tools that were available were often outdated compared with the range of tools available through the medium of English. (p. 99)

Implications:

There is a clear need to ensure that there is a constant influx of resources and diagnostic tools that are fit for purpose and that continue to be relevant in a given context. Languages change rapidly, and tools need to keep abreast of such changes. There needs to be a national body that serves to ensure continued development of tools, evaluate their effectiveness, and monitor their use and relevance at different periods of time.

(ii) *Bilingual norms*

Gathercole, Thomas and Hughes (2008), in developing a normed, standardised receptive vocabulary test for Welsh – the *Prawf Geirfa Cymraeg, Fersiwn 7–11* (Gathercole and Thomas, 2007), highlight the importance of both **language** and **year group norms** in addition to a general age group norm when developing standardised tasks for bilinguals. They demonstrated how children from different linguistic backgrounds (those from homes where both parents spoke Welsh, those from homes where one parent spoke Welsh and the other spoke English, and those from homes where both parents spoke English), who are either older or younger in their school year, perform differently on the task. At older ages, during secondary education (between age 11 and 15 years), however, Thomas, Gathercole and Hughes (2014) found that whilst L1 and 2L1 speakers continue to develop vocabulary, L2 speakers tend to plateau, most notably so if living in an area where less than 65% of the population speak Welsh, a pattern also found by Binks and Thomas (2019) for certain aspects of grammar. This suggests that at the older ages, norms for L2 speakers should reflect those of L2 peers, taking into consideration their use of the language, particularly among peers.

Implications:

In order to be meaningful, diagnostic tools developed for Welsh should include bilingual norms. These bilingual norms should be further divided according to L1/L2 status.² Age norms and School Year norms should be included at Primary School age level, whilst proportion of speakers in the community may provide a distinguishing norm at Secondary School level, particularly for L2 speakers.

(iii) *Holistic view of the child*

People use diagnostic tools for different purposes. In some cases, measures of language abilities are used for language-specific purposes; in other cases, they are used for non-language purposes (Gathercole, Thomas and Hughes, 2008). When used for language-specific purposes, a tool can be used to look for information pertaining to the child's abilities in that specific language. If the tool measures vocabulary, then the information relates to their vocabulary knowledge in that language. If the tool

measures their morphological knowledge, then the information relates to their morphological knowledge in that language, etc. If the child is bilingual, they would require testing for language-specific purposes in both languages. Generalising their performance in one language to predict language abilities (or disabilities) in general is possible for monolinguals, but not so for bilinguals, unless testing is available in both languages. However, when aiming for a 'measure' of a child's literacy abilities in a language with a transparent orthography, making the tasks 'work' for that language is crucial, and making tasks 'work' requires good knowledge of (i) how the language works, and (ii) how children typically 'perform' when engaged with reading or writing in that language. Given the transparency of the Welsh orthography, it may not be suitable to adapt tools that work well in opaque languages, such as English (see (v) below), unless they are supplemented with alternative, language-specific tasks and activities that can help build a more holistic view of the child's abilities and needs. In an L2 context in particular, tapping into the affective aspects of learning an L2 (their motivation to learn, attitudes towards the language, self-esteem – see Young et al., 2016) whilst capturing their 'real-time' struggles in organising their thoughts and expressing themselves in writing (see, e.g., Aldridge and Fontaine, 2019; Lindgren, Westum, Outakoski and Sullivan, 2019; Spelman Miller, Lindgren and Sullivan, 2008; Beers, Mickail, Abbott, and Berninger, 2017) may provide a more useful indicator of problems and ideas around the support required to help the pupil achieve. Using adapted tasks alone, which is the current trend for many transparent languages, is problematic, since they may not hold any distinguishable power when the requirements of the task are not challenging enough.

Implications:

In order to gain a holistic view of the bilingual, tasks need to be available to measure various aspects of language that are particularly prone to difficulty in either language. Adapting existing tasks from one language to another will often miss out on language-specific issues that are problematic for the learner. In contexts where traditional measures may under-represent difficulties, such as phonological awareness in languages with transparent orthographies, a more holistic approach to measuring language ability that may focus on the process rather than outcome could be instructive.

(iv) Training of teachers

Davies (2016) found that specialist dyslexia teachers dealing with bilingual pupils were of the opinion that there is a lack of training and courses they can attend that deal directly with matters influencing the literacy profiles of bilinguals with or without literacy difficulties. Anecdotal evidence from discussions with generalist ALNCOs who are tasked with supporting children with various types of language (and other) difficulties, suggest similarly that more training and support is necessary in order that they feel confident in their role.

Implications:

More training is needed, at ITE level, through NQT and beyond to keep teachers abreast of knowledge in the broad field of SEN, and also in literacy. Training is needed in particular in relation to how to help children deal with specific forms of the language that seem to cause difficulties. This requires understanding on the part of the teacher/practitioner of the language, the nature of bilingual language learning, and the typical patterns of behaviour among children with different types of language difficulties.

(v) Fit-for-purpose tests

Thomas and Lloyd (2004) compared 13 bilingual Welsh-English children who had been diagnosed as having dyslexia with 26 age-matched typically-developing peers on an adapted subset of the Dyslexia Screening Test (Fawcett and Nicholson, 1996). Five different tasks were created in Welsh: real word reading tasks, non-word reading task, real word spelling, non-word spelling, and a text copying task. In all cases, the items chosen for each task were selected (real words) or created (non-words) purposefully, and included vowels, diphthongs, digraphs (e.g., ll /l̪/, dd /ð/, th /θ/) etc., that often elicit two or more plausible pronunciations and are known to be problematic in Welsh.

The analysis revealed the following patterns among the data:

First, all children seemed to perform better on the reading tasks than on the writing tasks. This may be related to the additional exceptions that exist when converting phonemes to graphemes (sound to letter) during writing as compared to when decoding graphemes into their respective phonemes (letter to sound) when reading in Welsh. Currently, there tends

to be more of a focus on reading rather than writing in diagnostic tools for literacy, particularly among existing standardised tests for Welsh (e.g., *Profion Glannau Menai*, which has one spelling task but the focus is on the graded texts for reading; and *Prawf Dallen Cymru Gyfan*, which is entirely based on reading comprehension).

Second, children with dyslexia produced more errors in general than children with no known difficulties on four of the tasks ($F(4,34)=4.15$, $p < .01$). No significant difference was found on the non-word reading task (although children with dyslexia produced more errors on this task, but not significantly so). Whilst the number of participants in this study was small, the results nonetheless reveal interesting patterns that may be worthy of further investigation. This particular pattern suggests that non-word reading may not yield strong diagnostic information in languages with transparent orthographies.

Third, the results also revealed that children with dyslexia took longer to complete all tasks (all $F_s \geq 4.96$, all $p_s < .05$) bar the non-word spelling task, which all children took longer times to complete. These findings echo previous findings among speakers of German – another language that has a relatively transparent orthography – who, despite making relatively few errors, show slow and effortful reading (e.g., Wimmer, 1993; Barca, Burani, Filippo and Zoccolotti 2006). Measures of time-on-task or reading rate may therefore be a useful marker of potential difficulties among children learning languages with opaque orthographies. However, currently, we have no such measure for Welsh. The analyses of keystrokes when engaged in writing on a computer (see, e.g., Aldridge and Fontaine, 2019; Lindgren, Westum, Outakoski and Sullivan, 2019; Spelman Miller, Lindgren and Sullivan, 2008; Beers, Mickail, Abbott, and Berninger, 2017) could yield very useful information here.

Finally, error analyses performed on children's responses revealed that children with dyslexia were more likely to make two or more errors in spelling and/or reading within a single word whereas typically developing children's errors were typically confined to one error per word.

Implications:

Writing tasks may yield more substantive data that help distinguish between typical and atypical patterns than reading tasks, and should therefore hold equal, if not superior status in literacy tasks for languages with opaque orthographies. Non-word reading may not yield strong diagnostic information in languages with transparent orthographies. Measures of

time-on-task and reading rates may be a useful marker of potential difficulties among children learning languages with opaque orthographies. Number of errors performed per word in Welsh may serve as a good first indicator or potential atypical development.

(vi) Language-specific items

In an on-going study profiling primary school-aged children's literacy and Welsh language abilities, preliminary analyses performed by Owen (in preparation) has revealed a close (and significant) correlation between scores on a set of mutation and a set of plural morphology tasks and scores on the *All Wales Reading Test* (AWRT) in Welsh and in English. Moreover, scores on the mutation tasks seem to predict the children's scores on the AWRT in Welsh and (bar one task) in English. Similarly, scores on a plural task predict children's scores on the AWRT in Welsh, but only one plural task predicts scores in the AWRT in English. Likewise, as noted above, both Davies (2016) and Efans and Cooke (2000) suggest that these forms are particularly problematic for children with dyslexia. Thomas and Lloyd's (2004) study identified three core types of language-specific errors that could also yield useful information when aiming for a diagnosis of potential language difficulties. They found that children with dyslexia were more likely to use the incorrect phonemic/graphemic representation of the vowels *i/u/y*, and were more likely to omit geminates (double letters – e.g., 'nn') and omit letter/sounds when reading or writing in Welsh.

Implications:

Children's approach to mutation could yield important information that can help distinguish between typical and atypical development. Issues around mutation may also serve as a good first indicator of potential problems for a teacher to identify. Tasks that are developed for the purpose of measuring children's literacy abilities in Welsh should use items that involve language-specific traits (geminates, *y/u/i*), and include a measure of 'number of errors per word' in order to find a feature of their written behaviours that may help distinguish between typical and atypical writing. Additional research is needed to explore further the relationship between children's knowledge of these forms and their literacy skills.

Conclusions and Recommendations

The wider application of these results suggests that assessments for languages with transparent orthographies, such as Welsh, may require different types of measures to those typically used in English. In addition to the development of formal holistic observations of literacy behaviours, such measures should incorporate a focus on written abilities alongside reading abilities, including measures of speed and length of writing as well as various production features such as pause behaviours and patterns of writing bursts and/or copy task performance. Observations of literacy development should also include an in-depth exploration of language-specific structures that require high levels of phonological and graphological awareness, such as mutation in Welsh, where it is important to capture the effects this can have both on reading and writing abilities.

In order that diagnostic tools are able to distinguish between children with specific needs and those who are typically developing, we need a targeted approach for the languages of the bilingual child. For Welsh/English bilingual children, this would involve choosing forms purposefully and carefully, for example, including u/y/i forms, digraphs, and lexical items that share sounds across Welsh and English, as well as including forms which change for grammatical reasons (e.g., verb forms, mutation and plurals). However, in addition to what we have suggested here, any measure of literacy development needs to consider the time it takes to complete a task and the number and type of mistakes.

Importantly, any communicative or literacy profile of the bilingual child needs to take into account the individual's unique linguistic experiences in order to ensure that any diagnostic comparisons reflect the individual profile. The basis for any such comparison needs to ensure that any 'norm' is appropriate. As we have shown above, there is no case for assuming a comparison with English is appropriate or that all bilingual children develop each language at a similar rate.

In this paper, we have made the case that not only do bilingual children need to be assessed differently from their monolingual peers, but that effective and appropriate diagnostic tools must enable educational professionals to take into account writing abilities in conjunction with reading performance together with the individual literacy profile of the bilingual child's language abilities. The assumptions that underpin current methods

of assessing the literacy development of bilingual children need to be re-examined so that every child learning through multiple languages has every opportunity to thrive in an educational setting.

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Notes

- 1 The use of ALN in Wales corresponds to the use of Special Educational Needs (SEN) in other contexts.
- 2 Within the framework of the Welsh language continuum that is currently under consideration, the division between L1/L2 speaker may become substituted by contextual information relating to the language(s) of transmission in the home. However, the fundamental issue remains: different types of bilinguals perform differently on various aspects of language and normative data need to reflect those differences.