Crossing barriers: Profiles of reading and comprehension skills in early and late bilinguals, poor comprehenders, reading impaired, and typically developing children

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ABSTRACT

The aim of the present study was to analyze the performance of primary school children with different cognitive (specific learning disorders and poor comprehenders) or language (early and late bilinguals) profiles, considering reading and comprehension skills. In particular, it focused on a transparent orthography (Italian), complementing existing studies conducted mainly on children during their acquisition of an opaque orthography such as English, either as a first or second language. Five groups of children (N = 600) were involved in the study: children diagnosed with specific learning disorders, poor comprehenders, early bilinguals, late bilinguals, and a control group. They were tested for reading speed and accuracy of words, non-words, and text, and for reading and language comprehension when using the battery for Assessment of Reading and Comprehension in Developmental Age (Bonifacci, Tobia, Lami, & Snowling, 2014). Mean group differences and profiles within each group were analyzed. The comparison of different groups evidences how, within each dimension, there might be similar profiles across different groups (e.g., the same reading comprehension skills in early bilinguals, late bilinguals, and children with specific learning disorders) and highly discrepant skills within the same group (e.g., word and non-word reading in late bilinguals). These results provide some insight into the importance of assessing a complete functional profile aside from categorical classifications and reinforce the concept of dimensional models in developing trajectories of reading and comprehension skills (Snowling & Hulme, 2012).

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1. Introduction

In the present study, children with specific reading impairments or reading comprehension difficulties were compared with children with a bilingual profile (early and late bilinguals speaking minority languages) and typically developing monolingual children through a multi-component assessment of reading performance. A number of studies have shown that, as far as many aspects are concerned, learning to read in a second language is similar to learning to read in a first language [see August and Shanahan (2006) and Genesee and Jared (2008) for comprehensive reviews]. On the other hand, reading development strongly builds on oral language proficiency, thus second-language speaking children may experience some gaps compared to their monolingual peers (Bedore & Peña, 2008), and different predictors or protective factors might be involved in literacy acquisition. Following these considerations, it is important to conduct multi-group comparison studies that allow for an investigation into how bilingual performance is placed regarding both typical and atypical learning profiles. While the bulk of research on bilingualism was conducted with children who were acquiring English as a second language (English language learners, ELL), a paucity of research is available on children from different linguistic backgrounds who are acquiring transparent languages (Florit & Cain, 2011); for Italian see Bellocchi, Bonifacci, and Burani (2014) and Tobia and Bonifacci (2015). The present study focused on a highly transparent language (Italian), with the aim of better refining and increasing knowledge from the few multiple group comparison studies mainly conducted on children with English as first (L1) or second language (L2). A profile analysis was included in order to assess the effective percentage of children with typical, borderline, or deficient performances and thus add information on functional characteristics to the group mean trends. Thus, the present study should provide a test of theoretical models of reading difficulty (Snow, Burns, & Griffin, 1998) that argue that within a dimensional model of reading skills, there are different profiles for students with reading difficulties.

1.1. Reading and comprehension in children with specific learning disorders

Efficient readers are expected to show adequate word reading speed and accuracy but also to comprehend the meanings of the words that they read. According to the Simple View of Reading (Gough & Tunmer,

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1986; Hoover & Gough, 1990), reading comprehension can be considered the product of decoding and language comprehension skills.

Considering the classification theorized in the Simple View of Reading (SVR) model, impairment in the decoding component paired with adequate language comprehension skills is typically referred to as a specific reading disorder (or dyslexia) (e.g., Vellutino, Fletcher, Snowling, & Scanlon, 2004). The opposite pattern of difficulties—good decoding skills and poor oral comprehension—characterizes poor comprehenders (PC) (e.g., Nation & Snowling, 1998a; Yuill & Oakhill, 1991). The Specific Learning Disorders (315.00) classification of the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5; American Psychiatric Association, 2013) includes decoding and reading fluency disorders, spelling disorders as well as reading comprehension difficulties. Whereas decoding problems are linked to poor phonological skills (e.g., Frith, 1997; Landerl et al., 2013; Ramus, 2003), the source of difficulties in reading comprehension has been linked to poor semantic knowledge, poor morpho-syntactic and pragmatic skills, difficulties in making inferences and scarce use of meta-cognitive strategies (for a review see Nation, 2005). The prevalence of dyslexia highly depends on the language structure and writing system. If in English-speaking countries, the prevalence of dyslexia is estimated to be between 5 and 15% (Vellutino et al., 2004), the prevalence of dyslexia in the Italian population, with a highly transparent orthography, appears to be significantly lower; it has been estimated at 3.1%–3.2% (Barbiero et al., 2012), and that of reading comprehension impairments has been estimated to be approximately 3.5% (Cornoldi, De Beni, & Pazzaglia, 1996).

As supported by the SVR, there is a reciprocal interaction between decoding and comprehension impairments (Snowling & Hulme, 2012). Children with very poor decoding might ultimately also show difficulties in reading comprehension (but, theoretically, not in oral comprehension), because of their inaccurate and slow word reading (Gough & Tunmer, 1986; Perfetti, 1985). In turn, difficulties in language comprehension might ultimately impact decoding efficiency (despite adequate phonological skills). For example, poor vocabulary size might influence reading accuracy, leading to reading errors with low-frequency words or unknown irregular words (Nation & Snowling, 1998b).

In summary, specific learning disorders (SLD) involving decoding skills and poor comprehenders (PC) are distinct but interacting profiles. One of the aims of the present study was to investigate thoroughly, in a transparent orthography, which components of comprehension could be affected by decoding impairment and how oral comprehension impairment could affect decoding and reading comprehension skills.

1.2. Reading and comprehension in bilingual or second-language children

In western countries the number of children who are exposed to a reading system in a language that is different from their L1 is increasing and in most cases this is due to the intensification of migratory processes. Frequently these are second-generation children, who were born or arrived in their first years of life in the country where they are schooled: for example, in Italy 84% of non-Italian citizens in preschool programs and 64% of those in primary schools were born in Italy (MIUR, 2014). Children who are exposed to two or more languages can be defined as bilingual children, second language (L2) learners or dual-language children (Paradis, Genesee, & Crago, 2011): depending on the type of linguistic exposure they have received, many different definitions are used in literature. Kovelman, Baker, and Petitto (2008) distinguished between early bilinguals (EBs) and late bilinguals (LBs) based on the criteria of age of first bilingual exposure (lower or higher than the age of 3–4), which refers to when a bilingual child first begins to receive intensive, regular, and continued exposure to his/her new language. This distinction is supported by studies that highlighted how children who are exposed to L2 after the age of 4 (late bilinguals), that is, after

they have already mastered linguistic competence in L1, do not show a native-like pattern of activity in L2 (Jasinska & Petitto, 2013; Perani et al., 2003; Weber-Fox & Neville, 1999). Although it is assumed that second language learners who are exposed to an L2 later in life may also reach monolingual-like linguistic proficiency (e.g., Bialystok & Hakuta, 1999; Johnson & Newport, 1989), only those exposed before the age of 4 (early bilinguals) should exhibit a monolingual-like linguistic processing in L2. In the present study, two groups of early and late bilinguals were compared for their decoding and text (reading and oral) comprehension skills. The rationale for including early and late bilinguals is that early bilinguals are more likely than late bilinguals to invoke the same learning strategies as monolinguals and therefore to exhibit the same reading profile as monolinguals; in contrast, late bilinguals, having first mastered competencies in their L1, may show different neural and cognitive mechanisms in acquiring an L2 compared with early bilinguals and monolinguals.

With reference to decoding ability and oral and reading comprehension skills, some studies showed evidence of similar patterns in L1 and L2 learning paths in early and simultaneous bilingual children (see Genesee & Jared, 2008) and a high degree of sensitivity to the systematic linguistic properties of their L2 (Bellocchi et al., 2014). Despite evidence that underlines that bilingualism is not a risk factor for impaired language development, many children, particularly late bilinguals, are likely to score in the at-risk range on linguistic measures in their weaker language (Bedore & Peña, 2008). Contrasting results are reported in the literature on this issue, and most studies have been conducted on opaque languages such as English. Some North American studies (Lesaux, Lipka, & Siegel, 2006; Lesaux, Rupp, & Siegel, 2007) have reported that ELLs are not necessarily ultimately PCs (approximately 74% were found to be good comprehenders in grade 4), and they found that in a sample of ELLs, it was possible to classify the readers based on the SVR model (good comprehenders, poor comprehenders, poor readers). Along this line, Geva and Massey-Garrison (2013) observed that at Grade 5, ELLs and monolingual peers did not differ from each other in English syntax and oral comprehension.

In contrast, other studies have reported poorer reading comprehension in bilingual populations. As outlined by August and Shanahan (2006), difficulties in L2 readers are linked to language proficiency and are more prevalent in reading comprehension than in decoding skills. Along this line, Kovelman et al. (2008) found that early bilinguals showed monolingual-like performance on decoding tasks, and both early and late bilinguals performed more poorly than did monolingual children on reading comprehension tasks. Recent meta-analyses (Jeon & Yamashita, 2014; Melby-Lervåg & Lervåg, 2013) offer similar evidence to that found by August and Shanahan (2006) that suggests that differences in reading comprehension between bilingual and monolingual children appear to be best explained by linguistic comprehension rather than decoding skills. There is, however, a paucity of research that compares early and late bilinguals with both typically developing readers and struggling readers, such as children with dyslexia or poor comprehenders.

1.3. Issues in the assessment of reading and comprehension skills

1.3.1. Orthographic transparency

Considering that reading processes are related to orthographic transparency, variations linked to the characteristics of the orthography can be observed in developing trajectories of reading abilities (Seymour, 2005; Seymour, Aro, & Erskine, 2003) and in well-known cognitive mechanisms underlying reading acquisition in typical and atypical development (e.g., Landerl et al., 2013; Moll et al., 2014; see Tobia & Marzocchi, 2014a, 2014b for the Italian orthography); therefore, reading models developed and tested on a single language could be misleading (Share, 2008) and it is important to extend the observations to children learning orthographies with various degrees of transparency. For