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Bilingualism in Children with Down Syndrome

This review article discusses the relationship of bilingualism and down syndrome in children. It begins by briefly defining what bilingualism and down syndrome entail. It continues by describing how language skills of children with down syndrome are impacted. In this article, a few recent research that examine how bilingualism emerges in children with down syndrome. The articles identify and investigate the connections between the two, which helps us understand how down syndrome children acquire second languages.

Bilingualism is the ability to speak or understand two languages or the regular use of two languages. As a general rule, one's knowledge of a language improves the more regularly and consistently that person is exposed to that language. The extent to which a child is exposed to a single language, however, varies across children and typically varies across languages for a given child. Parents, who are a child's primary caretaker, have the biggest influence on their language development in the early years. Peers and the academic environment, however, start to have a bigger influence after kids start school. A child's motivation to learn, evaluation of need, and judgement of usefulness are all factors that can affect how proficient they become in a given language, especially as their metacognitive skills advance.

Down syndrome (DS) is the most common genetic cause of intellectual disability (Centers for Disease Control and Prevention, 2006). The majority of cases (95%) of DS are caused by nondisjunction errors in meiotic cell division, which result in three copies of chromosome 21 (or some portion of it) rather than the normal two. One of the most severely affected areas of functioning in DS is language. Given their nonverbal mental age, children with DS frequently exhibit language skills that are more delayed than one might anticipate. The gap between language production and cognition emerges in the early period of language development. It was seen that vocabulary acquisition was a strength for monolingual children with down syndrome however there was a larger than expected gap between production and comprehension vocabulary emerged with the onset of first words. Although it was anticipated that children with language-learning issues would have difficulties learning any language, the specific ways in which they manifested differed depending on the language. It was discovered that there were no appreciable differences between the monolingual and bilingual children with DS. However, there was a wide range of second language proficiency among the DS kids, indicating that some of them might find learning two languages more challenging than others.

The following search engines were used to investigate the association between bilingualism and down syndrome: Google Scholar, Science Direct, and Wiley Online Library.

In order to provide us with a thorough understanding of the subject, the researches that follow have been reviewed since they go farther in examining this association between bilingualism and down syndrome.

Only empirical group study was given by Feltmate & Kay-Raining Bird (2008). They conducted a study to provide more information about the ability of children with DS to learn two languages and to understand the ability of children with DS who are bilingual by examining their semantic and syntactic skills using a variety of language sample measure. On the basis of mental age, four triads of kids were examined. One bilingual child with DS (DSB), one monolingual child with DS, and one bilingual child with Typical development (TDB) made up each trio. The sample consisted of 12 children (5-8 years old) where 8 were bilingual and 4 were monolingual. The children in each triad were matched on nonverbal mental age (2 and half to 4 years old) and exposure to a second language. Data was gathered using questionnaire.

It was found that TDB children performed better than DSB children on all but two of the language sample measures in both French and English. Additionally, the monolingual and bilingual children with DS showed similar patterns of language deficits relative to TD controls. However, they did not exhibit consistent similarities or differences when they were compared to each other on the language sample measures of English semantics and morphosyntax. The absence of a consistent pattern of difference on measures of expressive English vocabulary and morphosyntax when comparing monolingual and bilingual children with DS provided additional evidence that the introduction of a second language seemed to have no detrimental effects on the development of the stronger language of a bilingual child with DS. These thorough language sample analyses offered proof that bilingual children with Down syndrome grew semantically and syntactically in both of their languages. Numerous expressive semantic and syntactic assessments showed that bilingual children with DS had relative language challenges compared to bilingual children with TD who had similar mental ages. These findings supported previous works which showed that children with DS do become bilingual.

However, the current paper did not compare French language abilities of French-English bilingual children with DS to French monolinguals with DS. It was suggested that these findings could be useful for professionals to work with families to support bilingualism in children with DS.

Another study was conducted by Kay-Raining Bird et al. (2005). The purpose was to obtain information about how successful children with DS were in acquiring two languages. The English language and second-language skills of bilingual children with DS were specifically compared to those of three groups of developmentally matched controls. Children were still developing their language skills. In other words, they possessed productive vocabularies with more than 100 words but a mean length of utterance (MLU) of less than 3.5. The language skills of eight children with Down syndrome (DS) who were raised bilingually were compared to those of three control groups that were matched for developmental stage: monolingual typically developing (TD) children (n = 18), monolingual DS children (n = 14), and bilingual TD children (n = 11). The bilingual children were either balanced bilinguals or English-dominant, and they spoke English and one other language. The Preschool Language Scale, Third Edition, language sampling, and the MacArthur Communicative Development Inventories were used to measure English proficiency in all of the students. A vocabulary comprehension test, the CDI, and language sampling were used to test bilingual children in the second language as well.

Results indicated that the bilingual children with DS had an expressive language impairment to TD controls in case of their dominant language i.e. English. Additionally, Expressive morphosyntactic difficulties were evident in the second language of bilingual children with DS, as well as in English. The findings showed that bilingual children had a profile of language skills that was similar to what had been observed in monolingual children with DS. There was no proof that bilingualism had a negative impact, which was consistent with previous research's findings. That is, on all English examinations, the bilingual DS children performed at least as well as their monolingual DS peers. Moreover, it was found that the duration of exposure of second language did not predict the second-language ability. The findings showed that some children with DS might be more successful in becoming bilingual than others.

Further study was given by Katsarou & Andreou (2019) conducted a study in Greece with the aim to investigate whether second language learning on the part of children with DS has a negative, positive or no effect on their first language development. Participants in the study were 8 DS children who were bilingual and 8 DS children who were monolingual. They ranged in age from 4 to 8 years and had mild intellectual disability. They were all born and raised in Greece so Greek was their first language and their second language, English, was introduced to them from the time they were one year old, and they did not have their second language proficiency assessed. The Psychometric criteria of Language Adequacy which assesses the

receptive and expressive language systems in the Greek language, was administered to both groups.

The findings supported hypothesis that bilingualism did not hinder first language development in DS since it had no impact on the receptive and productive first language systems of children with DS. Additionally, the findings demonstrated that bilingual children with DS did not vary from monolingual children with the same genetic syndrome in terms of their receptive and productive language functions. This demonstrated that bilingualism was not a constraining nor an auxiliary element in the first language acquisition of children with DS. These findings came in accordance to the above research of research of Kay-Raining Bird et al. (2005) which demonstrated that, when compared to monolingual children with DS, bilingual children with DS do not exhibit any disparities in vocabulary comprehension. Findings pointed out that Children with DS could become capable users of two languages and the development of their first language would not hinder the learning of the second language.

Due to the sample size and the fact that it was drawn from a larger area of Northern Greece, the generalizability of this study was limited. Additionally, this study did not consider the whole mental spectrum of DS kids or the socioeconomic or educational condition of their parents.

A research by Ward & Sanoudaki (2021) examined the language profiles of bilingual children with DS and typically developing (TD) children in comparison to monolinguals, with a view towards identifying the factors associated with language abilities within these populations. Sample population included Four groups of children: Welsh-English bilinguals with DS (n=10), English monolinguals with DS (n=10), Typical Developing Welsh-English bilinguals (n=10) and Typical Developing English monolinguals (n=10).

Results revealed that language status had no impact on tests of phonological awareness, expressive and receptive language skills, or both. Both DS groups had clear linguistic deficiencies, especially in terms of expressive morphosyntax. The bilinguals with DS performed similarly to the bilinguals with TD in terms of their Welsh receptive vocabulary scores. In both DS groups, working memory, phonological awareness, and chronological age were the best predictors of results in receptive language, accounting for 90% of the variability. It was reported that there were no adverse outcomes on language development for bilinguals with DS. Additionally, it showed that bilingualism had no detrimental effects on the ability of a child with DS to develop linguistic skills.

Limitations of the current study were that the sample size was relatively small which contained early bilinguals that were English-dominant or Welsh-dominant. Lack of counterbalancing for the testing sequence for the bilingual participants was another drawback. All participants were evaluated in English first to enable a direct comparison with the English monolingual participants because of this, there were chances of practice effects for some of the Welsh assessments as the researchers used similar measures to assess language abilities in both languages.

Burgoyne et al (2016) studied the case of MB (a child with DS) with goal to research biliteracy and explore the extent to which learning two languages might impact such an individual's cognitive profile and potential effects on literacy development in each language.

She had learned to read in two separate alphabets with two different symbol systems: Russian (first language [L1]), and English (second language [L2]).it was showed that MB was equally skilled in Russian and English for oral communication, with a slight edge for reading in English, which was her primary language of instruction.

Her verbal abilities were discovered to be reasonably well-developed; she was a balanced Russian-English bilingual. When it came to literacy tests, MB performed better in English than in Russian. It was noteworthy that she showed poorer reading comprehension than accuracy in English, and nonword reading was at floor in both languages, which was consistent with the typical DS reading profile. Her phonological awareness in Russian, however, was not found to be compromised. The study proved that a child with Down syndrome was capable of achieving strikingly similar levels of proficiency in two different spoken languages, and it also extended this finding to word level literacy. Although the study used longitudinal data, one of its limitations was the difficulty in drawing firm conclusions from a single case study. Second, the study only contained a scant evaluation of the two languages' linguistic skills.

To conclude, all the research papers mentioned above clearly mentioned that learning a second language had no negative impact on the linguistic skill of the first language. It was also seen that children with DS can become bilingual but due to lack of extensive research one cannot determine which various factors, such as the degree of exposure to each language, the sociolinguistic framework within which bilinguals are, such as poor or enhanced linguistic environment, or the tests used for the evaluation of their linguistic competency have the most impact on learning second language. Additionally, given the wide range of individual differences in this population, choices on the most effective language learning supports must

be made on an individual basis, taking into account the requirements and objectives of the family, the child, and the environment in which they live.

References

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