

Bilingualism in Mental Retardation: Some Prospective Views

[Jean A. Rondal](#)

Laboratoire de Psycholinguistique

Université de Liège (Belgium)

Saggi, Child Development & Disabilities. XXVI 1/2000, pp. 57-64.

Reprinted with the permission of "La Nostra Famiglia Association",

Publisher: Scientific Institute "Eugenio Medea" - "La Nostra

Famiglia" Association

Via don Luigi Monza, 20

23842 Bosisio Parini (LC) - Italy

Tel. (+39) 031/877111. Fax (+39) 031/877499

E-mail: medea@bp.lnf.it

Website: www.emedeait

Summary: *A few controlled studies and numerous anecdotal indications suggest that many mentally retarded children display real, even if limited, bilingual and sometimes multilingual abilities. The paper discusses the problems and limitations of second language learning in mentally retarded subjects on the basis of data on first language acquisition in these individuals. Recommendations are made as to planning second-language exposure and teaching in school contexts with mentally retarded pupils.*

As the text on the program leaflet of the Symposium* correctly indicates: "In a united Europe, knowing two or more languages will become a sine qua non for European citizens. Who will know only the mother tongue will see a considerable reduction in their communicative abilities. Such a situation could be considered a new form of illiteracy." To this indication, one may add the obvious fact that mentally retarded (MR) or not, a growing number of children are being educated at school through a second language with often little to no realistic language alternative: for example, children being raised in Catalan homes and attending preschool and primary school in Castilian, or conversely; children speaking English at home and attending classes in Gaelic (two languages that differ under many respects); children speaking Basque at home and being taught in Castilian at school, or conversely (again two structurally distant languages). In such cases and many others in Europe and in the rest of the world, sequential bilingualism is compelling. In many cases, mentally retarded children also experience familial situations of simultaneous bilingualism (the two parents and/or grandparents being native speakers of different languages and speaking them with other family members or other people).

Two questions frequently asked by parents and other people concerned with mentally retarded are whether it is reasonable or advisable to expose mentally retarded children to developmental contexts and learning situations involving two languages, and if yes, what language benefits could be expected in the medium and long terms. I will attempt to answer these two questions relying on indirect issues and some anecdotal evidence because there are no systematic studies in the literature on bilingualism and subjects with mentally retarded on which to base some recommendations.

Fifteen years ago, I was invited by Michel Paradis and Yvan Lebrun to express my prospective views on "Bilingualism and mental handicap" in a chapter of a book on "Early bilingualism and child development".⁵

Following assessment of language acquisition in mentally retarded children I concluded that: "*It may be acceptable and perhaps useful to start bilingual education with mildly retarded children only a few years later than with normally developing children (say around a chronological age of 8 or 9 years). The situation, however, looks completely different when moderately and severely retarded individuals are taken into consideration. For these subjects, first-language acquisition is a strenuous, lengthy, and difficult endeavor, and it requires many years and much effort before they can attain a restricted productive and receptive capacity. So it would be extremely hazardous to risk systematic second-language training - let alone a complete immersion program - before late adolescence and without a favorable environment and maximum help from family and school . . .*" "...This is not to say that, if social circumstances make second-language learning necessary, a number of useful and functional vocabulary items and simple idiomatic structures could not be learned by moderately and severely retarded children..." "...In this case, the only additional thing to teach the retarded subjects would be to discriminate between those situations that call for using items $X_i \dots j$ from language X and those calling for the use of items $Y_i \dots j$ from language Y . This represents a simple case of discriminative learning of which most moderately and severely retarded subjects should be quite capable";

Do we have reasons as of today to modify the preceding opinion? It would seem that there are indeed.

There is anecdotal evidence seemingly indicating (with all due methodological and interpretive caution) that a number of mentally retarded children and adults exhibit some degree of bilingual competence (in its common meaning and not the peculiar Chomskyan one). Some of these children and adults are able to speak two, sometimes three languages, and a number of them, it would seem, are able to read and write at a functionally useful level in two languages. The levels of achievement seem to vary considerably between individuals.

Of course, the problem with anecdotal data is that their validity and reliability are difficult to establish. It is hard to know what they mean in terms of actual knowledge on the individuals' part. On such a basis, nothing can be proposed in general regarding the mentally retarded persons, except perhaps rejecting the view that a bilingual situation at home or at school is necessarily going to be overwhelmingly difficult for mentally retarded children.

It can be added that mentally retarded children and adults with some degree of bilingualism have had a variety of learning experiences. Some were raised in bilingual homes and have been exposed to two languages from birth (simultaneous bilingualism). They are reported as usually having more productive vocabulary and syntax in the language most frequently used in the family, while showing good comprehension of the other language.

Some other mentally retarded children and adults have learned a second language outside the home as a result of going to school in a community that uses a different language from the child's first language (sequential bilingualism).

There are also cases of Down syndrome (DS) children from profoundly deaf parents having become relatively fluent both in British sign language and English (simultaneous bimodal bilingualism). Buckley who reports the observations signals that these children have met with difficulties in the grammatical aspects both of BSL and English.¹

An issue bearing on the capacity of mentally retarded children for second language learning (L2) is their capacity to learn their first language (L1). I am not dealing here with the problem — still very unclear and debated in the literature — of the possible dependence of L2 learning on L1 acquisition and mechanisms in sequential bilingualism (the question, obviously, is not fully relevant for simultaneous bilingualism). Rather, my purpose is to look for indications in the literature on language in mental retardation that would be of particular help in answering my second question above, i.e., what to expect in terms of L2 acquisition judging from the difficulties encountered by mentally retarded people in L1 development.

There exists abundant literature on first language acquisition in mentally retarded children and adolescents, see the contribute written by Rondal & Edwards,⁹ for a systematic review and analysis, particularly for what concerns individuals with Down syndrome (DS), a genetic condition present in approximately one living birth out of 1,000 and due to a triplication of chromosome 21, causing abnormal neurogenesis and a retardation level from moderate to severe (modal intellectual quotient -IQ- 47).

Table I lists the major language difficulties of typical subjects with Down Syndrome. From the indications in table, it can be hypothesized that L2 learning, if possible at all with most Down syndrome children (which, optimistically considered, could be the case, at least for some degree of L2 learning), will meet with corresponding difficulties as L1 learning. This knowledge should therefore be made available to the teachers who would be involved in L2 programs with mentally retarded individuals.

Table I: Major language problems in persons with Down syndrome

Language component	Semiology
1. Sound articulation and auditory discrimination	<ul style="list-style-type: none"> • Articulatory and co-articulatory difficulties, particularly with the more delicate phonemes. • Slow and sometimes incomplete maturation of phonemic discrimination
2. Lexical semantics	<ul style="list-style-type: none"> • Reduced lexicon both in number of lexemes and in semantic features within lexemes. • Poor organization of the mental lexicon, both semantically and pregrammatically.
3. Morphosyntax	<ul style="list-style-type: none"> • Reduced length and formal complexity utterances. • Problems with inflexional morphology. • Problems with producing and understanding subordinated propositions and compound sentences.
4. Language pragmatics	<ul style="list-style-type: none"> • Slowness of development in advanced pragmatic skills (e.g., topic contribution in conversation, interpersonal requests, monitoring verbal interactions with other people.
5. Discursive organization	<ul style="list-style-type: none"> • Insufficiently developed discourse macrostructures.

□ Asterisks signal the most serious problems.

However, it is becoming clear that etiology of mentally retarded (particularly in the genetic syndromes) has to be taken into account. Down syndrome is in no way prototypical of language development and functioning in all mentally retarded people.

Recent analysis of the language of mentally retarded individuals affected with other genetic conditions but Down syndrome shows that there exists an important intersyndromic variation.⁸ This should be taken into account when considering L2 education or simultaneous bilingual exposure with mentally retarded children.

Table II summarizes comparative information on four mentally retarded syndromes: Down syndrome, Williams syndrome (WS; a congenital condition related to hemizygous deletion at chromosome 7q11.23, with an occurrence of 1 case in 10.000 living births), Fragile X syndrome (FXS; an X-linked disorder due to a null mutation of the FMR-1 gene at Xq27.3, that is passed on through generations with a prevalence close to 0.25 per 1,000 males; it is less frequent in females), and Prader-Willi syndrome (PWS; the majority of cases being associated with deletions in the q11-13 region of chromosome 15 from paternal origin; the incidence is 1 case in approximately 20,000 live births). Many more mentally retarded syndromes are awaiting systematic investigation.¹⁰

Table II: Feature distribution in four mental retardation syndromes

SYNDROMES				
Language aspect	Down	Williams	Fragile X (<i>affected males</i>)	Prader-Willi
Phonetic-phonological	— —	+ +	— —	— —
Lexical	—	+	+	—
Morfo-syntactic	— —	+	—	—
Pragmatic	+	— —	— —	—
Discursive	— —	+	—	?

Key: +(+): relative strength; —(—): relative weakness; ? : absent or insufficient data

It is worth adding that the intersyndromic variability has little to do with psychometric levels. In the four syndromes (spanning from moderate to lower mild mentally retarded) general cognitive abilities are roughly the same. Cognitive variables are not good predictors of development when it comes to the phonological and the morfo-syntactic components of language as I have shown elsewhere taking advantage of pathological cases and analysis.⁶ In the genetic syndromes leading to mentally retarded, it is becoming clear that the language developmental and functional characteristics of the syndromes are related to some aspects of neurogenesis (in the language areas of the brain). For example, the brain of Down syndrome and WS individuals is morphologically different in ways relevant to the language problems in each syndrome.³

As judged from the indications in table II, the expectations one may have regarding L2 learning, either simultaneously or sequentially, in mentally retarded individuals will vary substantially from one syndrome to the other. Extrapolating from L1 development, it is likely that WS individuals would demonstrate a better capacity of L2 learning, particularly with regard to the phonological, lexical, and productive morfo-syntactic aspects, while experiencing serious pragmatic and communicative difficulties.

Substantial interindividual variations also exist within mentally retarded syndromes in L1 development. So-called exceptional cases of (first) language development in mentally retarded subjects have been documented by Rondal,^{6,7} Rondal & Edwards,⁹ and Rondal & Comblain,⁸ for reviews and analysis. Exceptional language in this context refers to levels of functioning not usually found in moderately and severely mentally retarded persons although they are the norms for nonretarded (NR) people. In most of the exceptional cases studied so far, the most developed language aspects are phonology and receptive and productive morfo-syntax. Lexical development may also be particularly favorable in some cases.

I will describe two cases of exceptional linguistic skills in mentally retarded subjects with a multilingual ability. Vallar and Papagno¹² have documented the case of an Italian Down syndrome girl (standard trisomy 21).

FF (the girl) was aged 23 at the time of the study and she had an IQ score of 71 points. She exhibited good acquisition of Italian (her maternal tongue) and to a lesser degree of English and French vocabulary and expressive morfo-syntax. The extent of her receptive ability in either language was not systematically evaluated. She showed correct articulation in the three languages with occasional stuttering-like episodes. Until the age of six, FF lived in a NATO military base in Belgium where her father served as an officer. She practiced English with her sister-in-law who was British. According to Vallar and Papagno's report,¹² FF was able to hold a conversation with an English speaker, also on the phone, and to follow an English TV program or movie. Her French was less fluent but, at the time of the study, she was practicing it by herself using recorded tapes. FF lived with her parents and she was working full-time in an Italian advertising agency.

O'Connor and Hermelin⁴ and subsequently Smith and Tsimpli¹¹ have reported on the striking case of Christopher, a young mentally retarded adult - etiology unknown; hydrocephaly had been offered as a diagnosis at some point - (25 to 29 years at the time of the studies) with an IQ of 67 but on Piagetian scales preoperatively.

Christopher's skills in English are considered to be within the normal range, including an ability to detect morfo-syntactic violations (grammaticality judgements). Amazingly, he shows a good ability in translating in English from 13 languages (encompassing several families of languages): French, German, Spanish, Danish, Dutch, Finnish, Russian, Greek, Hindi, Norwegian, Polish, Portuguese, and Welsh. According to neurological reports, Christopher's motor coordination is severely impaired, amounting to apraxia. He is also reported to have a minor speech defect. By 3 years chronological age (CA), Christopher had begun to display his lifelong fascination with language including early evidence of reading ability (having more to do with the forms than the contents). His interest in foreign languages began around 6-7 years of age. Christopher's lexical ability for the languages he has been most exposed to is impressive. On the Peabody Picture Vocabulary Test (PPVT) he scored 121 in English, 114 in German, 110 in French, and 89 in Spanish (the normal population mean for the PPVT is 100, standard deviation 15). However, Christopher's abilities in other languages (e.g., Hindi) are rudimentary.

Analyzing Ln abilities in Christopher, one can derive the following hierarchy: lexicon — inflexional morphology — syntax. His greatest strengths lie in learning new words in a foreign language and in pulling out morphological paradigms to deal with inflexional variants of those words. Syntax is often much less appropriate. He makes syntactic errors in translating sentences and paragraphs. In particular, he shows transfer from English to his subsequent languages in all aspects of syntax. Christopher resists word orders that are incompatible with the English dominant SVO pattern (subject-verb-object).

In conclusion, there are good reasons to suppose that Christopher's Ln abilities are lexically-based overall and that the farther one

moves from the lexicon along the continuum indicated above, the less able he is.

Speculating from abovementioned observations, one can propose the following four points.

1. Learning foreign languages seems to be within the capacities of, at least, some mentally retarded children (not only the more mildly retarded). At the present stage, owing to lack of data it is not possible to specify what "some" may mean in the sentence above (in other words, to which proportion of mentally retarded individuals it applies if not to all of them).
2. As in L1, important intersyndromic differences are to be expected in L2 learning.
3. As in L1 again, a significant inter-individual variation is to be expected in L2 learning.
4. It may be predicted that mentally retarded individuals will meet with corresponding difficulties regarding the various language components and exhibit corresponding developmental delays in L2 as in L1 learning. Known problems in L1 development in the various mentally retarded syndromes, therefore, are of interest in preparing to meet L2 difficulties.

Of course, research should be promoted to test the above predictions and supply systematic data relevant to simultaneous and sequential bilingual learning in mentally retarded children and adolescents. These data should bear on the various language components (phonology, lexicon, inflexional morphology and syntax, discourse, and pragmatic regulations).

Notwithstanding, there is the need for experimental bilingual language programs for mentally retarded children and adolescents to be implemented in school settings. Special schools, probably, would be well suited for this kind of applied research action and pedagogical innovation. Existing experience in this respect is virtually non-existing to the best of my knowledge.

Reviewing the scarce pedagogical literature, I came across the summary of a study conducted in Kiev (Ukraine).¹³ The majority of their mentally retarded children (296 male and female Ukrainian children) demonstrated correct perception of speech, understanding of the sense of conversational replies, correct construction of utterances, and the ability to participate in a conversation in the initial stage of Russian-language instruction. But no specific data on the age of the children, the type of mentally retarded, and the pedagogical techniques applied were provided.

There is a newly emerging literature, particularly in the United States, on multicultural and bilingual or multilingual special education (e.g., Deutsch Smith and Luckasson²). It aims at increasing the teachers' and the school administrators' awareness towards the specific cultural and language needs of non-English- American mentally retarded children raised in American public schools. In this literature, mention is made of the necessity for teachers and schools to rely more on what is labeled a "mediational strategy". In order to be effective for mentally retarded students with limited English proficiency (the same is true for NR students), suggestions are made:

1. to use both English language and the students' native language for instructional purposes;
2. to integrate English language development with instruction in the content areas;
3. to use information from the students native cultures to enhance instruction. These common sensical indications have little chance to be successful, however, if they are not backed by teachers' training and research aimed at defining the specific language needs of mentally retarded students.

Based on current, admittedly scarce, knowledge of the mentally retarded subjects' capacities for foreign language learning, what can be recommended in order to enhance L2 acquisition in these individuals, no matter how partial and incomplete it may remain?

The following four suggestions may be made:

1. Systematic L2 exposure and/or training, in graduated immersion programs or otherwise, should be postponed for a few years (the exact time remains to be established from future relevant developmental data). Many immersion programs for NR children start at about the age of 4 years (CA). This age is generally considered to correspond to the period when NR children have learned enough of their maternal tongue as to have stabilized the various basic receptive and productive aspects (i.e., phonology, lexicon, and morphosyntax). Adapting to the moderately or severely mentally retarded child, one is speaking of roughly 6 or 7 years CA. What I am talking about is systematic L2 learning, not occasional or limited functional exposure. What matters, in my view, is limiting L2 influence as long as some solid basis in L1 is not established, which, as known, takes much more time in mentally retarded than in NR children. Acting otherwise might mean heightening the risk for mentally retarded children to have their first language acquisition process additionally retarded or perturbed.
2. In "unavoidable" familial bilingual situations, one should try to limit double input exposure for a number of years as much as possible, and select one language to be privileged as the basic or "more maternal one" (not excluding the other familial tongue, however). Later, when skills in the selected L1 are sufficiently stable, L2 exposure may be increased with fewer risks for L1 development.
3. Of course, L2 learning (even more than L1) will have to be functionally oriented in moderately and severely mentally retarded individuals.
4. In mentally retarded subjects, L2 learning will extend "naturally" over longer periods of time than in NR people for achievements to be equal in both groups. After childhood, looking at L1 development in mentally retarded children,⁹ it is likely that the cost/benefit ratio in some aspects of L2 learning (particularly articulation, co-articulation, phoneme discrimination, and morpho- syntax) will be less favorable. However, important learning benefits would still be expected as to the lexical and language pragmatic aspects.

References

1. [Buckley S. Bilingual children with Down's syndrome](#) Down syndrome: News and update, 1999; 1: 29-30.

2. Deutsch Smith D, Luckasson R. Multicultural and bilingual special education. In Introduction to special education. Boston, MA: Allyn and Bacon, 1995; 39-77.
3. Jernigan T, Bellugi U, Sowell E, Doherty S, Hesselink J. Cerebral morphologic distinctions between Williams and Down's syndromes. Arch Neurol 1993; 50: 186-191.
4. O'Connor N, Hermelin B. Aspecific linguistic ability. Am J Ment Retard 1991; 95: 673 - 680.
5. [Rondal JA](#). Bilingualism and mental handicap. Some programmatic views. In M. Paradis & Y. Lebrun (Eds.), Early bilingualism and child development. Lisse, Holland: Swets & Zeitlinger, Series in Neurolinguistics, 1984; 135-159.
6. [Rondal JA](#). [Exceptional language development in Down syndrome. Implications for the cognition-language relationship](#). New York: Cambridge University Press, 1995.
7. [Rondal JA](#). [Cases of exceptional language in mental retardation and Down syndrome: Explanatory perspectives](#). Down syndrome research 1998; 5 (1): 1-15.
8. [Rondal JA](#), [Comblain A](#). Current perspectives on developmental dysphasias. J Neuroling 1999; in press.
9. [Rondal JA](#), Edwards S. Language in mental retardation. London: Whurr, 1997.
10. Shprintzen R. Genetic syndromes and communication disorders. San Diego, CA: Singular, 1997.
11. Smith N, Tsimpli I. The mind of a savant. Language learning and modularity. Oxford, UK: Blackwell, 1995.
12. Vallar G, [Papagno C](#). [Preserved vocabulary acquisition in Down's syndrome. The role of phonological short-term memory](#). Cortex 1993; 14: 89-101.
13. Vavina L, Kovalchuk V. Characteristics of dialogic communication of mentally retarded schoolchildren under the conditions of Ukrainian-Russian bilingualism. Defektologiya 1986; 4: 9-14.

* Keynote presentation at the Symposium "Multilingual education in primary school in Europe" organized by Scientific Institute "E. Medea" and held in Udine, Italy, December 4th 1999.

Revised: August 11, 2004.