

Information for prospective developers of new CDI adaptations

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The MacArthur-Bates Communicative Development Inventory (CDI) Board is gratified by the research and clinical usefulness of the CDI instruments, and welcomes their adaptation into as many of the world's languages as possible. Adaptations can play an important role in both research and clinical practice in a new linguistic community, especially in contexts where there are few existing tools. Beyond that, the development of similar instruments greatly facilitates cross-linguistic research, which has provided much fruitful data for formulating and evaluating theories of language development. Before the development of valid parental report measures, cross-linguistic research, like early research on the acquisition of English, was generally limited to the study of very small samples. A comparison of two or three children acquiring one language, with two or three children acquiring a different language, has only limited interpretability in the absence of information about variability among children acquiring those languages. An apparently large contrast between the two groups may simply reflect sampling fluctuation in the two populations; alternatively, a genuine difference may be obscured by sampling variation in the opposite direction. Information is needed on the nature, time course, and stability of individual differences in the acquisition of each language. This basic science understanding of variation is also essential for the diagnosis and remediation of language disorders. Investigation of individual differences necessarily requires large samples of children; parent report is ideally suited for this purpose.

How to request authorization for the development of adaptations

Adaptations of the CDI are most useful when they adhere to shared standards and procedures that make them genuinely comparable to the original and thus insure some degree of coherence and consistency across versions. Furthermore, given the extensive work required to develop an adequate adaptation, it is important that appropriate academic and other resources be available for the project, and that duplication be avoided. For these reasons, the CDI Board authorizes specific adaptations of the CDI, using the following guidelines:

A. The research team should have **appropriate competence and resources** for generating a successful adaptation, including norming and validation. We encourage collaboration among researchers in these projects. When the resources and plans are appropriate, a full, exclusive authorization (Level I) will be granted. In other cases, an individual researcher or group of researchers may wish to develop an adaptation for a specific research project, such as a dissertation, without plans for full norming and validation. In these cases, a limited, nonexclusive authorization (Level II) will be granted, which does not include the right to use the term "MacArthur" or "CDI" in the title, or to distribute the form to others. This does not preclude a later individual or research group from proposing a full adaptation. (See item 4 at the end of this document.)

B. The proposed adaptation should contain **the major communicative structure categories** that are in the original. Specifically, adaptations of the CDI: Words & Gestures should assess receptive and expressive vocabulary, and gestures. Adaptations of the CDI: Words & Sentences should assess expressive vocabulary and grammar, the latter in a format appropriate to the

structure of the language. Adaptation of other components of the original CDIs is optional. Researchers are also welcome to add new components not in the English CDIs. New components should be consistent with the general CDI approach, which is parent-report, primarily in a recognition format.

C. Adaptations should provide **unique content above and beyond previously authorized CDIs**. Note that CDI versions covering a closely related language or an additional dialect can sometimes meet this criterion. For example, we have authorized adaptations for Mandarin and Cantonese versions of Chinese; for German and Austrian German; and for several of the related Romance languages of Spain, i.e., European Spanish, Galician and Catalan, as well as Basque. Authors submitting requests for authorization to develop instruments for a language or dialect close to an existing, previously authorized one should provide information about the differences that they believe justify the proposed new versions. Minor differences in pronunciation or vocabulary items, even if numerous, can generally be handled by writing in the variations on existing forms, and acknowledging those changes in publications and presentations. Evidence for a new form would be provided by differences in grammar, or a need to change more than 2-3% of the vocabulary items to conceptually different, more culturally appropriate items. We do recognize that there are political and social contexts in which more minor changes may merit a new form and title, and will consider those arguments.

Both parent report and vocabulary checklists have long histories antedating the development of the CDI, and nothing here precludes the development of qualitatively different instruments along other lines. Those instruments, however, should not be characterized as MacArthur or MacArthur-Bates CDIs. Investigators unsure whether their work might infringe on the copyright of the CDIs should address their questions to the CDI Board.

Investigators interested in developing an authorized adaptation of the CDI should follow these steps:

1. Describe the proposed project, addressing the guidelines listed above, and submit this proposal to the MacArthur-Bates CDI Board. Philip Dale (dalep@unm.edu) is the contact person for these requests. The request should include:

- (a) a statement of the nature of the proposed adaptation, including which forms (CDI: Words & Gestures, CDI: Words & Sentences, shortforms of those two, the CDI-III) will be adapted and the plan for developing the adaptation, plans for norming and validation (if any), and in the case of languages closely related to those with existing authorization, an explanation of the need for a new adaptation;

- (b) names and vitas for the principal authors of the adaptation; and

- (c) an approximate timetable

The CDI Board will provide written authorization of approved projects, and would be happy to maintain contact during the development period, if the research team finds consultation useful.

2. When the adaptation is complete, a copy should be sent to the MacArthur-Bates CDI Board (again via Philip Dale) for final approval. Only with this final approval, provided in writing, is use of the term “MacArthur-Bates CDI” or equivalents permitted. Note that there is no requirement that the term “MacArthur-Bates CDI” be used in the title of adaptations, although developers are welcome to do so. Approved adaptations will be listed on the CDI website (<http://www.mb-cdi.stanford.edu>) with links to the instrument and to the adaptation team. When it is not used in the title, as is the case for preliminary version, a footnote or other prominent note should be included on the form acknowledging that this is an authorized adaptation of the MacArthur-Bates CDI.

3. Authors of approved versions who wish to explore commercial publication of their MacArthur-titled instruments must obtain explicit, written permission from the CDI Board, holders of the CDI copyright. This permission will normally be granted automatically, with no charge, for all languages other than English or Spanish, if the previous steps have been followed. All authorizations for publication by the CDI Board are for specific adaptations whose development have been previously authorized, and have no implications for other adaptations. For adaptations into other dialects of English or Spanish, our copyright and contractual arrangements with Brookes Publishing entail a negotiated agreement with Brookes as well as with the CDI Board.

4. We realize that there will be cases where events in the authorized developer’s professional life, or the institutional context, may preclude progress on a project. We consider adequate progress for Level I authorizations to include the availability of a form for sharing with the research and clinical community. The CDI Advisory Board does therefore retain the option in these cases, after consulting with the original investigators, of granting new authorization.

Some suggestions for the development of adaptations of the CDIs

Each new inventory is necessarily an adaptation, not a translation, of the CDIs. Languages and cultures differ substantially in both the form and content of their communication systems, and there is every reason to believe that even in the earliest phases of development differences will be noticeable in gestural communication, vocabulary, and grammar. For example, Ogura et al. (1993) included bowing as an early-emerging gesture, while Jackson-Maldonado, etl al. (1993) include "tortillitas" (little tortillas), a variant of patty cake used in Mexico. In the domain of vocabulary, it is obvious that there can be major differences in clothing, food, and household items.

Grammatical features are likely to be even more different from one language to another. This raises problems for measuring vocabulary, as well as grammar. Consider, for example, the problem that Italian researchers face in constructing a list of nouns and verbs. Which inflected form of the noun or verb should they use on the word checklist? Caselli and Casadio followed the convention of using singular nouns and verbs in the infinitive form. Languages with a rich inflectional morphology system are especially difficult. The English list includes different entries for "am," "are," and "be." In a language like Italian, listing all forms separately in this way would enormously lengthen the list. In the Sentence Complexity section, assessing grammatical

development, the selection of which aspects of grammar to include, and how to capture early syntax and morphology must be done on the basis of knowledge of the acquisition of each language. We believe the forced-choice, sentence pair format developed for the English-language CDI: WS will prove valuable in most languages. Asking for the three longest examples the parent has heard is also useful, but it will require clear guidelines for scoring.

The English-language CDIs have many subparts. The core components of the CDI: Words and Gestures are a 396 word vocabulary checklist (comprehension and production), and a 63 item list of gestures. The core components of the CDI: Words and Sentences are a 680 word vocabulary checklist (production only) and a set of 37 sentence pairs to assess sentence complexity. These have the greatest validity as general measures of language development for English, and similar scales are likely to be the most important in other languages. It is not essential to adapt the other, more minor portions of the CDIs. Adaptations also need not have the same number of items as the English originals within the specific subparts.

It is very important to keep in mind from the outset the need for multiple iterations in the development process. The CDIs represent the culmination of nearly 20 years of research, beginning with interviews. Even as questionnaires, they have evolved through more than half a dozen forms in the past decade. In each cycle of revision, previously collected data have been used to modify, add, or omit selected items in order to improve clarity, internal consistency, and validity. It is best to develop the first version or two on a small scale, concentrating on obtaining the information necessary to revise the inventory before proceeding to a larger-scale norming study.

In the process of iteration, it is most effective to begin with a more open-ended format, in which parents are invited to list additional words and gestures, and perhaps even sentences. In this way, a more inclusive list of potential items appropriate for the widest possible range of young children in the linguistic community of interest will be generated. At each step, information from a modest number of parents across the full age range can be used to modify the inventory on the basis of item frequency, clarity of questions, etc. Information from language samples is also highly valuable for identifying possible additions. Later in the development process it is important to shift to the checklist format for the collection of norms, in order to remove the variance that would otherwise be introduced by parental reporting style and recall abilities.

Items with relatively low frequency are appropriate for the instrument (along with higher frequency items), in order to provide an assessment across the full range of age and language ability. In the development of the English-language forms, only items with an overall frequency of less than 5% were dropped on the basis of frequency alone.

The developers of the English-language MacArthur Communicative Development Inventories had the advantage of being part of a sizable collaborative team, with an adequate amount of time (many years), and access to substantial samples of children. This will often not be the case in other linguistic communities. We believe the highest priority should be given to going through the revision cycle at least twice with a modest number of parents (perhaps 25-30) before attempting to obtain norms from a larger number of children. For the norming process

itself, we recommend a minimum of 40 children at each age for which norms are being obtained. (It may not be appropriate or necessary at first to obtain norms at each month of age, depending on the intended use of the instrument.)

Finally, even though numerous studies have documented the validity of the CDIs for English, it is highly desirable to conduct validity studies of the newly adapted forms, comparing parental CDI information with information from structured tests and/or language samples.

A final word, on collaboration and sharing

The CDI Advisory Board has a long history of facilitating both instrument and data sharing. For example, see the CLEX website with cross-linguistic lexical norms, at <http://www.cdi-clex.org>. We feel that this collaborative approach is beneficial both to individual investigators and to science as a whole. Developing, norming, and validating a CDI adaptation is a very big job, and requires a lot of time. Other researchers in the particular language involved may wish to use an instrument before the work is complete and published, particularly the norming effort. Allowing such use is the choice of the CDI adaptation developer, but we feel this kind of cooperation can benefit everyone involved and recommend that developers consider this. We suggest the following ground rules if that sharing is to occur:

Authorization is granted to use the instrument for a specific project only, and there is a commitment on the part of the user not to distribute the instrument to anyone else;

Acknowledgement of the special permission in any publication or presentation, and an explicit disclaimer in the publication or presentation that in the absence of norms, no clinical judgment is being made about individual children; only raw scores are used;

There is agreement to share some of the data back with the CDI adaptation developer for purposes of evaluating and improving the instrument, including conducting such analyses as intercorrelations of measures with each other, and age and gender effects. The original developer will not perform any analyses which are appropriate to the independent variables of the research study, such as clinical condition or intervention.

We also suggest that these commitments be expressed in writing or email by both parties.