Зборник Института за педагошка истраживања ISSN 0579-6431
Година 49 • Број 2 • Децембар 2017 • 147–169 Оригинални научни чланак
УДК 159.922.72.072-053.4; DOI: https://doi.org/10.2298/ZIPI1702147A
81'23-053.4; 159.946.3.072-053.4

EMPIRICALLY BASED SOLUTIONS FOR THE SERBIAN ADAPTATION OF A PARENT REPORT INVENTORY USED IN THE ASSESSMENT OF CHILD LANGUAGE DEVELOPMENT*

*Anđelković Darinka***
Faculty of Philosophy, University of Belgrade, Serbia

Nada Ševa
Institute for Educational Research, Belgrade, Serbia

Maja Savić
Faculty of Philology, University of Belgrade, Serbia

Slavica Tutnjević
Faculty of Philosophy, University of Banja Luka,
Republic of Srpska, Bosnia and Herzegovina

Abstract. The study is aimed at providing empirical basis for the adaptation of the MacArthur-Bates' Communicative Development Inventories (CDIs) for Serbian language, a parent report instrument for the language development assessment. Two sources of data were used in order to provide the basis for selection of items and evaluation of their linguistic, cultural and developmental validity: a. Serbian Corpus of Early Child Language (SCECL), and b. focus groups with experts and parents/caregivers. Exploration of the frequency of words/forms in Serbian child language and the qualitative analysis of focus groups discussions provided criteria for selection/adjustment of items in the course of inventory adaptation. The results also revealed that parents are naturally more focused on semantic and communicational aspects of utterances, and insufficiently aware of formal properties of their children's production.

* *Notes*. One of the authors received the authorization for a Serbian adaptation of the MacArthur-Bates' CDIs delivered by the MacArthur-Bates Advisory Board. Since it is still under development and revision, the current version cannot yet be considered as final version of the Serbian adaptation. The study was supported by the Ministry of Education, Science and Technological Development of Republic of Serbia, grant numbers: ON179033, ON179034, III 47008 and the Ministry of Science and Technology of Republic of Srpska, grant number 19/6-020/961-151/14.
** E-mail: dandjelk@f.bg.ac.rs

The paper presents significant changes and modifications of the instrument in the course of its adaptation for Serbian, which is a step closer to the final aim – providing a standardized instrument for the assessment of language development in Serbian.
Keywords: language development, language assessment, child language inventory, adaptation of an instrument, Serbian language.

INTRODUCTION

The lack of standardized tests for the assessment of language development is a serious problem for parents, experts, and policy makers in Serbia, because there is no valid and reliable instrument for monitoring and evaluation of Serbian children's development. Our efforts are aimed at building an instrument for the assessment of early Serbian child language on the basis of adaptation of a parent report inventory which is widely in use in different languages – *The MacArthur-Bates Communicative Development Inventories (CDIs)* (Fenson, Marchman, Thal, Dale, Reznick & Bates, 2007).

Assessment and monitoring of language development on the basis of parents' report is considered as an effective procedure and is well accepted among practitioners (Alcock, Rimba, Holding, Kitsao-Wekulo, Abubakar, Newton, 2015; Bates, Bretherton & Snyder, 1988; Dale, Bates, Reznick & Morisset, 1989). Although sometimes regarded as incapable of being objective and reliable, mainly due to their education or SES (Feldman, Dale, Campbell, Colborn, Kurs-Lasky, Rockette & Paradise, 2005; Larson, 2016), parents/caregivers are inevitably the main informants on child at the early ages (Dale *et al*., 1989; Fenson *et al*., 2007). Standardized tests are an expensive tool which requires expertise of a tester, and cooperation of an immature child which is difficult to obtain in informal setting within a limited assessment/consulting time interval. In addition, tests used by experts can be problematic especially at the prelinguistic stages, when nonverbal dyadic communication with the caregiver is crucial for evoking behavioral indicators of developmental achievements. These reasons have caused that parent/caregiver report became a widely spread part of evidence-based child development instruments like Ages and Stages Questionnaire (ASQ) (Squires, Potter & Bricker, 1990), Parent's Evaluation of Developmental Status (PEDS) (Glascoe, 2013), Bayley Scales of Infant Development (Bayley, 2006), MacArthur-Bates Communicative Development Inventories (CDIs) (Fenson *et al*., 2007), etc.

In this paper we present empirical evidence for the solutions to challenges we faced with in the course of adaptation of the MacArthur-Bates Communicative Development Inventories (CDI I and CDI II) for the Serbian language. The paper is focused on methodological constraints in the usage of parent report as a source of information on language development. We present our experience gained in efforts to provide a comprehensive and parent-friendly questionnaire for the Serbian population. Special attention was devoted to the complexity of morphosyntactic structural properties of Serbian language,

and difficulties that parents might have in the efforts to observe and report on their child's language development.

MacArthur-Bates Communicative Development Inventories (CDIs)

The original scales were constructed in American English and Mexican Spanish language for the purpose of assessment of early communicative development. They are used for the evaluation of early non-verbal communication, early vocabulary comprehension and production, and development of grammar. Two basic inventories, CDI I and CDI II, both have long and short form for particular applications in clinical and research context. *The CDI I Words and Gestures (Infant form)* is designed for the children between 8 and 18 months of age, and is aimed at the early communicational skills (gestures) and first words comprehension and production. *The CDI II Words and Utterances (Toddler form),* intended for children of 16–30 months of age, comprises the items for evaluation of expressive vocabulary and development of grammar. There is also *CDI III* form which is a brief upward extension constructed for the assessment of language in children of 30–37 months of age.

The inventories are scorable by the usage of CDI Scoring program and norming data are available, which enables longitudinal monitoring of development, as well as detection of language delay and disorders. The MacArthur-Bates CDIs is translated and adapted for more than 90 languages and dialects, and widely used in different countries for the purpose of clinical assessment and research in the field of child language. The CLEX[1] and Wordbank[2] compile data on CDIs from different languages which enables cross-linguistic comparisons, and evaluation of monolingual, bilingual and multilingual children development.

A wide scope of communication behavior is detected by the scales (first verbal expressions, receptive and expressive vocabulary, actions and gestures, grammatical structures and sentence complexity) and they make a valuable instrument for monitoring the growth of early communication, and discrimination of typical and atypical course of development. The major sections of original *CDI I Words and Gestures* include comprehension of phrases (28 items), comprehension and production vocabulary checklist (396 words divided into 19 semantic categories), and actions and gestures (5 categories, 63 items). The *CDI II Words and Utterances* encloses 680 items (22 semantic categories) of expressive vocabulary, and 135 items about early morphology and syntax (Fenson *et al.*, 2007).

[1] CLEX Cross Linguistic Lexical Norm http://www.cdi-clex.org/
[2] Wordbank An open data base of children's vocabulary development http://wordbank.stanford.edu/

It will be explained later that the grammatical part was particularly significant and complex for the adjustment to Serbian due to numerous morpho-syntactic differences between the two languages. The original part on grammar encompasses plural of nouns in regular and irregular forms (e.g. *cars, men, children*), possessive genitive (-*'s*), irregular past tense of verbs (e.g. *ate, got, had*), -*ing* and -*ed* forms, the appearance of morphological overgeneralizations in nouns (*mans* instead of *men*, *mices* instead of *mice*) and verbs (*ated, comed*). The *Complexity* section is aimed at first word combinations (2-5 words utterances) presented with sentences pairs, where a parent is supposed to choose between the grammatical or proto-grammatical construction depending on what represents the way their child is most likely to talk to talk, e.g. *Two foot* vs. *Two feet*, or *Doggie table* vs. *Doggie on table*.

The validity of CDIs was repeatedly explored in numerous studies with comparisons on different languages, samples, age levels, and social groups. The studies revealed moderate to excellent reliability and validity, which speaks in favor of the usage of CDIs for an early child language assessment (Alcock *et al*., 2015; Dale, 1991; Dale *et al*., 1989; Galeote, Checa, Sánchez-Palacios, Sebastián & Soto, 2016; Kapalková & Slanèová, 2006; Kapalková, Kesselová, Slanèová & Zajacová, 2011; Marchman & Martinez-Sussmann, 2002; Miller, Sedey & Miolo, 1995; Rescorla, Bernstein Ratner, Jusczyk & Jusczyk, 2005; Thal, Jackson-Maldonado & Acosta, 2000; Thal, O'Hanlon, Clemmons & Fralin, 1999).

Aims

The main objective of adaptation of MacArthur-Bates CDIs for Serbian was to make a reliable instrument for assessment of early communication and language development which covers both verbal and nonverbal aspects of early communication, lexical and grammatical aspects of language in comprehension and production. Adaptation of an instrument from English to a morphologically rich language is a complex endeavor with numerous challenges. An example of good practice is the Slovakian adaptation with dialogical form of questions which invigorates metalinguistic potentials and eases the task for less educated parents (Kapalková, Slančová, Bónová, Kesselová & Mikulajová, 2010). It is also important to convey a general outline of the original instrument in order to allow for the cross-linguistic comparability as in the case of Croatian, a South Slavic language very close to Serbian: in the grammatical section different words are presented in certain morphological forms comparable grammatically and/or semantically with the items of original test (Kovačević, Jelaska, Kuvač-Kraljević & Cepanec, 2012). The question is whether it is possible to combine these strategies within one attempt of the adaptation.

In this paper we present relevant methodological challenges related to inventory adaptation, and consequent modifications that Serbian version had to go through:

(a) Providing an external evaluation of the lexical items obtained in the translation of original CDIs, and finding more adequate alternatives representative for the early Serbian child language.
(b) Modification of items according to morphosyntactic properties of Serbian language which are significantly different from the properties of English. Serbian language has seven cases for nouns, adjectives and pronouns, and four types of noun declension. Serbian regular and irregular verbs have many different forms – seven conjugational classes differing in formal complexity morphologically marked for tense, number, person and gender. Therefore, one of the main aims was presenting the main structural properties of the morphologically complex language in a parent report inventory.
(c) Adjustment of structural properties of the inventory in the parts of grammatical development in order to construct a comprehensible instrument for parents, a tool that would guide them in observation and help them to easily recognize the relevant behavioral indicators. The question of monitoring the child language morphology depends on whether a parent is capable of recognizing the forms in a vivid interactional flow he/she actively participate in, and retrieving them from the memory when asked about their children's production. This problem is more prominent in synthetic languages due to the fact that words are a fusion of several morphemes difficult for a laic to differentiate and report on.
(d) Adjustment of items according to cultural specificities of Serbian language: common expressions, songs and rhymes from the local culture, traditional games and routines, products available in the country, consumer goods, etc.

In addition, the instrument is made in two versions, one for each of the two dominant pronunciations of Shtokavian dialect, which is the foundation of the standard Serbian language (Ekavian and Iekavian) (Radovanović, Brborić, Klajn, Petrović, Stanojčić, Luković, Ćupić i Pešikan, 1996). The main difference between the Ekavian (used by the majority of population in Serbia) and the Iekavian (mainly spoken by Serbian population in other Western Balkans countries, including Republic of Srpska, as well as in Southwestern parts of Serbia) is the phonetic/phonological transformation of the Old Slavic vowel *ě* into either *e* (in Ekavian) or *je/ije* (in Iekavian): *mleko* vs. *mlijeko*, *dete* vs. *dijete*, *vežbati* vs. *vježbati*, etc.

The preliminary version of Serbian CDI I and CDI II resulted from this study is in use in the pilot study that is currently carried on in the field. Its

outcomes with detailed psychometric properties of the inventory will be presented in a separate paper.

METHODS

As advised by Hambleton (2005: 11) we collaborated with a translator who is familiar with both source and target language, and not just the languages. The first version of Serbian translation of both scales were made by a native Serbian linguist educated in English with an expertise in the field of child language development, also a parent of two girls (age 5 and 1). Three additional independent native Serbian experts in the field of child language development with the background in psychology, also fluent in English, evaluated the translated items and suggested alternative solutions. The items were accepted on the basis of inter-subjective agreement between the four experts, which made a starting point for the adaptation of the inventories.

The adaptation was divided in two main parts with different methodological procedures. The first part was based on search of the *Serbian Corpus of Early Child Language (SCECL)* (Anđelković, Ševa & Moskovljević, 2001) primarily aiming at the validation and selection of lexical items for the vocabulary checklists. In the second part of adaptation we opted for the focus group interviews with experts and parents in order to explore their impressions on the instrument, and provide an evaluation of its usage as a parent report tool. The aims listed above were all taken care of in both phases, even though the modifications of vocabulary checklists were focused in the first part, while the aims related to grammar and cultural specificities were targeted in the second part of the study.

I The corpus of Serbian child language in the adaptation of CDIs

The preliminary adaptation of vocabulary check lists of CDI I and CDI II was based on the *Serbian Corpus of Early Child Language (SCECL)*[3] (Anđelković *et al*., 2001). It is consisted of transcripts of eight Serbian children spontaneous production longitudinally recorded at 16 age levels from 18 to 48 months of age, transcribed and stored in *The CHILDES database* (MacWhinney, 2000).

The list of original test items divided in different semantic categories provided the material to start with. An inspection of their relative frequency in Serbian enabled alternation of low frequent and culturally inappropriate words with more frequent, semantically adequate, and culturally specific substitutes. Two ranks of frequency were retrieved:

[3] http://childes.talkbank.org/browser/index.php?url=Slavic/Serbian/SCECL/

(a) Ranks of word frequency for the span 18–48 months of age which displays the most frequent words in overall children's production.
(b) Rank of frequency for the age of 18 months, the earliest age level in the corpus. It reveals the earliest words in the corpus and their relative frequency at the onset of language production.

The selection of items was led by the following criteria:
(a) The presence of particular item in the original CDI form
(b) An early acquisition of particular word, i.e. its presence in the earliest samples of all eight children (18 months) which was used for the construction of CDI I.
(c) The high frequency in overall sample of children's production (18-48 months of age) which was crucial for the construction of CDI II.

II The focus group interviews

Qualitative methods like group interviews and focus groups are well accepted as a data collecting strategy in social sciences in the recent decades. Besides decreasing the costs and efforts in organization of research projects, the benefit from focus group interviews appeared to be numerous and theoretically significant (Pavlović i Džinović, 2007; Pavlović, Džinović i Milošević, 2006). An important paradigmatic change from the positivist to the constructivist theory and practice evolved a shift in methodology – from the focus groups as a data collection technique (Morgan, 1996; McLafferty, 2004), to the focus group as a field of critical practice and social change (Freire, 1998; Kamberelis & Dimitriadis, 2005).

Focus group in our project was primarily a method of validation of preliminary version of Serbian CDIs and detection of inventory parts difficult for parents to understand and respond. Furthermore, it was also an opportunity to search for an appropriate substitution of items and sections, in which the subjects participated actively and contributed to the final form of the preliminary version of Serbian CDIs. This step was in line with general recommendations to go through evaluation of the adapted instrument by the unbiased experts and targeted population after the translation of the instrument (Borsa, Damásio & Bandeira, 2012).

Three different focus groups were organized. The first one consisted of experts: 2 linguists, 2 psychologists, 1 speech therapist, 1 preschool teacher, and 1 pediatrician. They were given both questionnaires CDI I and CDI II, and expected to participate in the focus group discussion in order to provide a feedback on the validity of items based on their expertise and professional experience.

Two other groups involved the mothers of children 8–17 months of age (for the evaluation of CDI I), and the mothers of children 18–30 months of age (for the evaluation of CDI II). Six to eight mothers participated in each

group. The level of education was equally distributed between high school education and university degree. They were given the instrument for a week, and expected to fill it in referring to the language development of their own child. The focus group discussion was moderated by means of the following questions:

- What are your general impressions of the questionnaire?
- Was it difficult to fill in the questionnaire?
- Who participated in filling the questionnaire?
- Was it difficult to involve other members of the family?
- How clear were the instructions? What was unclear? Do you have any suggestion how to make particular instruction more clear?
- Do you have any objection on particular parts/items?
- Did you have any trouble understanding particular items? What was unclear?
- Was there anything important regarding your child's communicative/language development that was not listed and asked about in the questionnaire?
- Was there anything in your child's communicative/language development that puzzles you, worries you, or amuses you? Can you name it?
- What part of the instrument was the most difficult to answer?
- What answers are you the least convinced in, i.e. which of your answers are the least reliable in your opinion? Why?

RESULTS

The changes and adjustments made for particular parts of the Serbian CDIs are presented in the following sections: modification of the introductory part and instructions for parents, adaptation of vocabulary checklists, adaptation of the non-verbal communication items, adaptation of grammatical parts of the inventories, ensuring parents' understanding of inventories and recognition of items in children's production, adaptation of inventories in two standard Serbian pronunciations Ekavian and Iekavian.

I Improvement of the introductory part and instructions for parents

The participants of the focus groups suggested the changes in order to ensure better parents' understanding of what was expected from them, and how to fill in the questionnaire. They also reported that instructions within particular parts of the questionnaire (i.e. wording of tasks) were poorly connected with the items that followed. We further clarified the connection between the instructions for the specific parts of the questionnaire and the items pertaining to these parts.

More detailed instructions for parents were also necessary in order to resolve their dilemmas on children's words that deviate phonologically, semantically and morphologically from the standard language. For this reason, an additional one-page text entitled *Typical characteristics of child language* was added at the end of the general instruction in order to support parents in recognizing typical variations in children's production. Variations in phonological, semantic and grammatical domain were explained and illustrated by accompanied examples (Appendix 2).

II Preliminary adaptation of vocabulary checklist for Serbian CDI I and CDI II

The corpus analysis made on the *SCECL* enabled an exploration of the rank frequencies of vocabulary items. The selection of items was also based on the focus group discussions, since the parents suggested additional words and expressions produced by their children. It was a source of culturally specific items for vocabulary checklists, and communicational phrases, games and routines. Thus, both sources provided an empirical evidence for building the inventories adjusted for a typical Serbian child at early age.

The overall average number of changes we made in CDI I was 26,40% and in CDI II 24,16% per semantic category. As expected the highest number of changes was applied to the culturally dependent sections about foods, household items, furniture and rooms, places to go, as well as verbs and quantifiers among the more abstract categories. Based on the corpus analysis and comments from the parents in the focus groups, we have decided to add extra items in most of the semantic categories, which led to 22% of increase in CDI I and 17% of increase in CDI II.

As an illustration, the items *jello* and *jelly* from the original CDI II (the section *Food and drink*) were replaced with *sutlijaš* 'rice pudding' and *bananice* 'chocolate banana bars' due to cultural differences in what Serbian children eat as snack food. Other items were replaced based on the corpus frequency data as explained earlier in the text. For example, the item '*plant*' from the section *Small household items* (CDI I) had overall frequency 4, and was replaced with more frequent *kesa* 'plastic bag' (Freq=54). When it comes to the *Action words (verbs)*, item like *splash* which is low frequent in the SCECL (Freq=2) was excluded from the CDI I. Contrary, high frequent verb *znati* 'know' (Freq=1621) was included although it was not included in the original list.

Table 1: Examples for the presentation of the Action words (verbs) in English vs. Serbian versions of CDIs

English CDI 1	Serbian CDI 1
run	*trčati (trči)* run.inf (run.imp)[4]
carry	*nositi (nosi)* carry.inf (carry.3sg.pres/carry.imp)
watch	*gledati (gleda, gledaj)* watch.inf (watch.3sg.pres, watch.imp)

In addition, the list of verbs was improved by adding the most frequent finite verbal form in the parenthesis attached to each verb (see Table 1 as an illustration). This kind of solution was applied according to parents' notice that it was easier for them to recall a child's utterance on the basis of a finite verbal form than on an infinitive form as presented in the original CDIs. This is probably caused by the fact that the infinitive form of Serbian verbs is less frequent in spoken language, and additionally that there is a great number of suppletive infinitive and finitive forms for the same verb (e.g. jesti – jedem (*to eat*), pasti – pade (*to fall*).

Table 2 and Table 3 present the overall results of preliminary Serbian adaptation of vocabulary checklist for CDI I and CDI II.

Table 2: Preliminary adaptation of vocabulary check list for CDI I (N of items)

	Semantic category	Parts of Speech	CDI I English	CDI I Serbian	N of added items	% Difference in added items	N of changed items in the original list	% Difference in changed items
1	Sound Effects and Animal Sounds	Interjections (Phrases)	12	14	2	16.67	2	16.67
2	Animals Names (Real or Toy)	Nouns	36	36	0	0.00	11	30.56

[4] Abbreviations: inf – infinitiv, 3sg – third person singular, pres – present, imp – imperativ.

3	Vehicles (Real or Toy)	Nouns	9	9	0	0.00	2	22.22
4	Toys	Nouns	8	13	5	62.50	2	25.00
5	Food and Drink	Nouns	30	49	19	63.33	10	33.33
6	Clothing	Nouns	19	21	2	10.53	5	26.32
7	Body Parts	Nouns	20	22	2	10.00	4	20.00
8	Furniture and Rooms	Nouns	24	24	0	0.00	7	29.17
9	Small Household Items	Nouns	36	42	6	16.67	16	44.44
10	Outside Things and Places to go	Nouns	27	32	5	18.52	12	44.44
11	People	Nouns	20	20	0	0.00	5	25.00
12	Games and Routines	Phrases	19	23	4	21.05	6	31.58
13	Action Words	Verbs	55	69	14	25.45	22	40.00
14	Words about Time	Adverbs	8	12	4	50.00	0	0.00
15	Descriptive Words	Adjectives	37	45	8	21.62	7	18.92
16	Pronouns	Pronouns	11	14	3	27.27	2	18.18
17	Question Words	Pronouns	6	7	1	16.67	1	16.67
18	Prepositions and Locations – in English version[5]	Prepositions and Adverbs	11	21	10	90.91	1	9.09
19	Quantifiers	Adverbs	8	10	2	25.00	4	50.00
SUM			396	483	87	21.97	119	30.05

[5] In Serbian version of the instrument this section is diveded in two sections: Locations (N=9) and Prepositions (N=12).

Table 3: Preliminary adaptation of vocabulary check list for CDI II (N of items)

	Semantic category	Parts of Speech	CDI II English	CDI II Serbian	N of added items	%Difference in added items	N of changed items in the original list	%Difference in changed items
1	Sound Effects and Animal Sounds	Interjections (Phrases)	12	14	2	16.67	2	16.67
2	Animal names (Real or Toy)	Nouns	43	46	3	6.98	8	18.60
3	Vehicles (Real or Toy)	Nouns	14	16	2	14.29	2	14.29
4	Toys	Nouns	18	22	4	22.22	4	22.22
5	Food and Drink	Nouns	68	82	14	20.59	23	33.82
6	Clothing	Nouns	28	31	3	10.71	7	25.00
7	Body Parts	Nouns	27	28	1	3.70	4	14.81
8	Small Household Items	Nouns	50	56	6	12.00	15	30.00
9	Furniture and Rooms	Nouns	33	32	-1	0.00	12	36.36
10	Outside Things	Nouns	31	37	6	19.35	7	22.58
11	Places to go	Nouns	22	26	4	18.18	7	31.82
12	People	Nouns	29	34	5	17.24	8	27.59
13	Games and Routines	Phrases	25	30	5	20.00	10	40.00
14	Action Words	Verbs	103	130	27	26.21	29	28.16
15	Descriptive Words	Adjectives	63	73	10	15.87	19	30.16
16	Words about Time	Adverbs	12	22	10	83.33	2	16.67
17	Pronouns[6]	Pronouns	25	30	5	20.00	5	20.00
18	Question Words	Pronouns	7	12	5	71.43	0	0.00

[6] In Serbian version of the instrument section Pronouns is presented in the section 2. Grammar

19	Prepositions and Locations – in English version[7]	Prepositions and Adverbs	26	36	10	38.46	4	15.38
20	Quantifiers and Articles	Adverbs and Articles	17	18	1	5.88	10	58.82
21	Helping Verbs[8]	Verbs	21	12	-9	0.00	6	28.57
22	Connecting Words	Conjunctions	6	10	4	66.67	0	0.00
SUM			680	797	117	17.21	184	27.06

III Modifications of the Actions and Gestures (CDI I, Part II)

An additional section was introduced in the Serbian version that was not there in the original CDI I – *Usage of gesture followed by a word.*[9] We found it important to collect data on behavioral indications of the transition from non-verbal communication to first words, because it is a very significant developmental stage.

Minor changes were made in the section *Imitating Other Adults Actions (Using real or toy implements)* (*CDI I, Part II: Actions and Gestures*). The parents from the focus groups reported on perplexity they were faced with regarding the status of reality of the actions referred to in the items. Namely, although a note was written in parenthesis next to the title of the section (referring to the symbolic nature of the activities), most of the parents had a dilemma whether they should report on their children's real activities or their play/symbolic activities. In order to clarify this we entered the quote marks in the symbolic parts of items. E.g. *"Čisti" metlom* 'Sweeps with broom or mop'; *"Usisava" sobu* 'Vacuums room', etc.

[7] In Serbian version of the instrument this section is devided in two sections: Locations (N=13) and Prepositions (N=23).

[8] In Serbian version of the instrument section Helping words is presented in the section 2. Grammar. Some of the verbs are listed in the section Action Verbs.

[9] Examples of items: Offers you an object and says *To* 'that'; Points to a distant object and says *Tamo* 'there'.

IV Adjustments of the grammatical sections to Serbian morphology and syntax

The focus group discussions were very fruitful regarding the parents' difficulties in observing grammatical aspects of child language. The following parts of the inventory were particularly hard to respond to: verbs and verbal morphology, auxiliary and modal verbs, pronouns, prepositions, quantifiers, conjunctions. It was difficult to remember particular forms since parents/caregivers usually do not pay attention to functional words and grammatical properties of children's utterances but to their semantic and communicational function. Serbian being a fusional language turned out to be an obstacle for reporting on the usage of particular grammatical structures, especially if a report is expected from a linguistically unaware parent.

We made significant adjustments necessary for the grammatical parts of the inventory particularly in the case of the CDI II.

Additional items were added in order to cover the cases of nouns and pronouns, conjugational classes of verbs, tense, verbal person, number and gender, auxiliary and negated verbs. The selection of morphological forms was based on the corpus of child language (SCECL) which was searched for the frequency when necessary to choose between different morphological forms within a paradigm.

The sections *Pronouns* and *Question words,* due to significantly larger number of morphological forms in Serbian than in English, had to be dislocated from the vocabulary checklist to the section of grammar.

Being grammatically congruent in Serbian and also related in the acquisition, prepositions and cases were presented together. The strategy was based on findings of the previous research on the acquisition of Serbian case and prepositions (Anđelković, 1997; Savić & Anđelković, 2007).

In the *Complexity* section which aims at sentence construction we added one more level of complexity in order to detect more details of morphological marking. In addition, we offered the option *My child is not producing this kind of utterances* for methodological reasons.

V Ensuring the parents' understanding of what is to be monitored and its recognition in a child's language.

The focus group discussions revealed a difference in how the experts and parents perceived the inventories: what seemed clear and easy to discern for experts was difficult to recognize and report for parents. Unlike the words from the vocabulary part, it was difficult to recognize the functional words/forms listed in the grammatical sections when presented out of a linguistic and communicational context. Semantic and communicational aspects of children's utterances are perceptually more salient than grammatical structure/forms.

Therefore a parents' report is very much dependent on his/her educational level.

It was also necessary to prevent the problem aroused by the homophony[10] of particular words/forms, a phenomenon that is quite frequent in morphologically rich languages. For example, the pronoun *ona*.3sg.fem 'she' vs. *ona*.3pl. neut 'they'; the pronoun *ta*.3sg.fem 'this' vs. *ta*.3pl.neut 'these' .[11] When presented in the inventory in the list of pronouns these pairs are impossible to differentiate, which is crucial if we want to make a record of the usage of case, number, and gender in personal pronouns.

In order to introduce the linguistic and communicational context for words/forms in consideration, two following solutions were applied: the dialog form of questions, and ordering of items in accordance with the grammatical paradigm. Sections were ordered in a sequence from more general to more specific parts: a. the word category was introduced at the beginning by its semantic and functional values, followed by illustrative examples; b. the morphological forms (items) with checkboxes were listed in accordance with grammatical paradigm (although not all forms in a paradigm were included, only the frequent ones); c. additional less transparent forms (e.g. pronouns in different number, gender, cases) were presented in the context of exemplar sentences which furthermore enhanced the transparency of grammatical status of the words in issue (an example is provided in the Appendix 1.)

VI Adaptation in two pronunciations of standard Serbian language: Ekavica and Iekavica

The spell check was made in order to adapt the inventories for two main pronunciations of Serbian language (*mleko* vs. *mlijeko 'milk'*). In addition to phonological alternations, another source of differences between these two versions of the instrument is related to small regional/cultural differences in the vocabulary (e.g. *šargarepa* vs. *mrkva* 'carrot'; *jurka* vs. *ganja* 'game of chasing'). At this level, 23 items differed in CDI I (4,8%) and 35 items in CDI II (4,4%).

DISCUSSION

Clearly, in order to adapt any instrument for the assessment of child language development for the use in another language one needs to do more than simply translating the items: gathering relevant information on the course of acquisition in the specific language, data on typical children's comprehension and production at different ages, cultural adequacy of the translated items,

[10] It is also the case of homography due to the shallow orthography of Serbian language.
[11] Abbreviations: 1 – first person; 3 – third person; sg – singular; pl –plural; fem – feminine; neut – neutral.

and adjustment of items to the morphosyntactic properties of language. In addition, an adequate introduction with clear instructions for the parents, as well as the appropriate form of the tasks, is essential in order to assure a full parents' understanding of the task and the items. To get this kind of instrument, researchers are required to go through a set of steps that include translation of the instrument by at least two highly proficient translators for the relevant field, synthesis of these translations, evaluation by the experts and targeted population, backward translation as well as the pilot study. These steps should then be followed by detailed statistical analyses which would make sure that the instrument can be used both in the target population and in cross-cultural studies (Borsa *et al*., 2012).

This study was focused on obtaining empirical basis for the adaptation of CDIs for Serbian, a South-Slavic language with the considerably more complex morphology in comparison to English. Both main sources of data (the *SCECL* and the focus group discussions with language experts and parents) contributed to the aims and resulted in significant adjustments in the adapted inventories. The study revealed that the Serbian CDI II is more difficult for parents to fill in than the CDI I, mostly because of the grammatical parts. In the pre-preliminary version of the inventory (the one applied in the focus groups) the parents were not entirely able to recognize and report on complex morphosyntactic structures of Serbian used by their children. Being primarily focused on the semantic and communicational aspects of children's production, parents/caregivers are unaware of formal properties of children's utterances and need some kind of support in filling in the questionnaire.

One could suggest a support of a professional to interview the parent and help in completing the questionnaire for him/her, which is an already used procedure (Alcock *et al.*, 2015). However, having in mind the circumstances of practice and overload of work in public health institutions in Serbia and Republic of Srpska (which are the most probable context in which parents would be asked to fill in the inventory), it is more probable that parents would fill it in on their own at home. Thus, we believe that the best way to maximize the parents' understanding of the inventory is to further clarify the written form of both the instructions and the items.

CONCLUSION

Based on the quantitative data from the child language corpus and the qualitative data provided by the participants in the focus groups, we were able to perform a thorough analysis of the pre-preliminary version of the Serbian CDIs. As a result of this analysis we introduced numerous changes in both inventories: a novel selection of items more relevant in the new linguistic and cultural context, and an adjustment of the inventories to formal properties of Serbian language. The specific attainments of previous projects were considered and built upon (Kapalkova *et al*., 2010., Kovačević *et al.*, 2012). We made a dia-

logical form of questions and organization of sections, improved the instructions for parents, and provided additional explanations on forms and function of particular grammatical categories – all in efforts to produce the inventory that will hopefully serve the purpose of reliable communication with Serbian parents and cross-linguistic comparability of data. An additional section was also included targeting the transition from the stage of non-word communication to the first words stage (*Using of gesture followed by a word).*

The adaptation presented in this study resulted in the preliminary version of the Serbian inventory for language development assessment, which is used in the pilot study currently administered in the field. A statistical analysis of the pilot data will enable the exploration of psychometric properties of the inventory and the selection of items for proposing final version of Serbian CDIs which is planned for the standardization in Serbian population.

References

Alcock, K., Rimba, K., Holding, P., Kitsao-Wekulo, P., Abubakar, A. & Newton, C. R. J. C. (2015). Developmental inventories using illiterate parents as informants: Communicative Development Inventory (CDI) adaptation for two Kenyan languages. *Journal of Child Language, 42*, 763–785.

Anđelković, D. (1997). *Razvoj razumevanja padežnih konstrukcija tokom usvajanja srpskog jezika* (magistarska teza). Beograd: Filozofski fakultet Univerziteta u Beogradu.

Anđelković, D., Ševa, N. & Moskovljević, J. (2001). Serbian corpus of early child langauge. Laboratory for Experimental Psychology, Faculty of Philosophy, and Department of General Linguistics, Faculty of Philology, University of Belgrade. In *The CHILDES Database.* http://childes.talkbank.org/access/Slavic/Serbian/SCECL.html

Bates, E., Bretherton, I. & Snyder, L.(1988). *From first words to grammar: Individual differences and dissociable mechanisms*. New York: The Psychological Corporation.

Bayley, N. (2006). *Bayley scales of infant and toddler development* (Third edition). San Antonio, TX: Harcourt Assessment, Inc.

Borsa, J. C., Damásio, B. F. & Bandeira, D. R. (2012). Adaptação e validação de instrumentos psicológicos entre culturas: Algumas considerações [Cross-cultural adaptation and validation of psychological instruments: Some considerations]. *Paidéia, 22*(53), 423–432.

Dale, P. S. (1991). The validity of a parent report measure of vocabulary and syntax at 24 months. *Journal of Speech & Hearing Research*, *34*(3), 565–571.

Dale, P. S., Bates, E., Reznick, J. C. & Morisset, C. (1989). The validity of a parent report instrument of child language at twenty months. *Journal of Child Language, 16*(2), 239–249.

Feldman, H. M., Dale, P. S., Campbell, T. F., Colborn, D. K., Kurs-Lasky, M., Rockette, H. E. & Paradise, J. L. (2005). Concurrent and predictive validity of parent reports of child language at ages 2 and 3 years. *Child Development*, *76*(4), 856–868.

Fenson, L., Marchman, V. A., Thal, D. J., Dale, P. S., Reznick J. S. & Bates, E. (2007). *MacArthur-Bates Communicative Development Inventories (CDIs), Second Edition*. Baltimore: Paul H. Brookes Publishing Co., Inc.

Freire, (1998). The adult literacy process as cultural action for freedom. *Harvard Educational Review*, *68*(4), 480–499.

Galeote, M., Checa, E., Sánchez-Palacios, C., Sebastián, E. & Soto, P. (2016). Adaptation of the MacArthur-Bates Communicative Development Inventories for Spanish Children with Down syndrome: Validity and reliability data for vocabulary. *American Journal of Speech-Language Pathology*, *25*, 371–380. doi:10.1044/2015_AJSLP-15-0007

Glascoe, F. P. (2013). *Parents' evaluation of developmental status (PEDS)*. Nolensville, TN: PEDS*Test*.com, LLC. www.pedstest.com

Hambleton, R. K. (2005). Issues, design, and technical guidelines for adapting tests into multiple languages and cultures. In R. K. Hambleton, P. F. Merenda & C. D. Spielberger (Eds.), *Adapting educational and psychological tests for cross-cultural assessment.* Manwah, NJ: Lawrence Erlbaum Associates. ISBN 0-8058-3025-1.

Jovanović, J., Džinović, V. & Milošević, N. (2006). Teorijske pretpostavke diskurzivnih i narativnih pristupa u psihologiji. *Psihologija*, *39*(4), 365–381.

Kamberelis, G. & Dimitriadis, G. (2005). Focus groups: Strategic articulations of pedagogy, politics, and inquiry. In N. K. Denzin & Y. S. Lincoln (Eds.), *The SAGE Handbook of Qualitative Research* (pp. 887–909). Thousand Oaks, CA: Sage.

Kapalková, S., Kesselová, J., Slanèová, D. & Zajacová, S. (2011). Cross-cultural and cross-linguistic relations of the test of communicative behaviour (TEKOS I and TEKOS II) for Slovak-speaking children. *ELDEL. International conference on reading, spelling and writing development. Enhancing literacy development in European languages.* Hilton Prague Hotel. June 4 – 5, 2011. Abstracts, p. 31.

Kapalková, S. & Slanèová, D. (2006). Adaptation of CDI to the Slovak language. *Proceedings from the first European network meeting on the communicative development inventories*, 24–28. 5. 2006. Dubrovnik, Croatia.

Kapalková, S., Slančová, D., Bónová, I., Kesselová, J. & Mikulajová, M. (2010). *Hodnotenie komunikačných schopností detí v ranom veku*. Bratislava: Slovenská asociácia logopédov.

Kovačević, M., Jelaska, Z., Kuvač-Kraljević, J. & Cepanec, M. (2012). *Komunikacijske razvojne ljestvice – Koralje*. Jastrebarsko: Naklada Slap.

Larson, A. L. (2016). Language screening for infants and toddlers: A literature review of four commercially available tools. *Communication Disorders Quarterly*, *38(1)*, 3–12.

MacWhinney, B. (2000). *The CHILDES Project: Tools for analyzing talk* (Third Edition). Mahwah, NJ: Lawrence Erlbaum Associates.

Marchman, V. A. & Martinez-Sussmann, C. (2002). Concurrent validity of caregiver/parent report measures of language for children who are learning both English and Spanish. *Journal of Speech, Language, and Hearing Research, 45*, 983–997. doi:10.1044/1092-4388(2002/080)

McLafferty, I. (2004). Focus group interviews as a data collection strategy. *Journal of Advanced Nursing, 48*(2), 187–194.

Miller, J. F., Sedey, A. L. & Miolo, G. (1995). Validity of parent report measures of vocabulary development for children with Down syndrome. *Journal of Speech & Hearing Research*, *38*(5), 1037–1044.

Morgan, D. (1996). Focus groups. *Annual Review of Sociology*, *22*, 129–152.

Pavlović, J. i Džinović, V. (2007). Fokus grupe: Od prikupljanja podataka do kritičke pedagoške prakse. *Zbornik Instituta za pedagoška istrazivanja*, *39*(2), 289–308.

Pavlović, J., Džinović, V. i Milošević, N. (2006). Teorijske pretpostavke diskurzivnih i narativnih pristupa u psihologiji. *Psihologija, 39*(4), 365–381.

Radovanović, M., Brborić, B., Klajn, I., Petrović, D., Stanojčić, Ž., Luković, M., Ćupić, D. i Pešikan, M. (1996). *Srpski jezik na kraju veka* (redaktor Milorad Radovanović). Beograd: Institut za srpski jezik SANU i Službeni glasnik.

Rescorla, L., Bernstein Ratner, N., Jusczyk, P. & Jusczyk, A. M. (2005). Concurrent validity of the language development survey: Associations with the Macarthur-Bates communicative development inventories words and sentences. *American Journal of Speech-Language Pathology*, *14*, 156–163. doi:10.1044/1058-0360(2005/016)

Savić, M. & Anđelković, D. (2007). The role of input freqeuncy in early language production: Children's usage of Serbian prepositions. In I. Gülzow & N. Gagarina (Eds.), *Frequency effects in language acquisition: Defining the limits of frequency as an explanatory concept* (pp. 145–180). Berlin: SOLA 32 Mouton de Gruyter.

Squires, J., Potter, L. W. & Bricker D. (1990). *The ASQ user's guide for the ages and stages questionnaire: A parent – completed, child monitoring system*. Maryland, BA: Paul Brookes Publishing Comp.

Thal, D. J., O' Hanlon, L., Clemmons, M. & Fralin, L. (1999). Validity of a parent report measure of vocabulary and syntax for preschool children with language impairment. *Journal of Speech, Language and Hearing Research*, *42*, 482–496. doi:10.1044/jslhr.4202.482

Thal, D., Jackson-Maldonado, D. & Acosta, D. (2000). Validity of a parent-report measure of vocabulary and grammar for spanish-speaking toddlers. *Journal of Speech, Language, and Hearing Research, 43*, 1087–1100. doi:10.1044/jslhr.4305.1087

Примљено 19.10.2017; прихваћено за штампу 14.12.2017.

APPENDIX 1

An example of application of a dialog form of inventory in the Section Pronouns (Preliminary version of Serbian CDI II)

In a language, instead of particular word for a subject or object one can use pronouns such as *ja* 'I', *ti* 'you', *on* 'he', *ona* 'she', *ono* 'it', *me* 'we', *vi* 'you', *they* 'oni/one/ona', etc. Does your child use this kind of words? When speaking about him/herself is your child (e.g. Marko) able to say *Ja pišem* 'I am drawing' or *Marko piše* 'Marko is drawing'?

- He/she is not able to say *Ja pišem* 'I am drawing'
- He/she is able to say *Ja pišem* 'I am drawing'

If your child would want you to pet a kitten, would he/she be able to say *Mazi je* 'Pet her' instead of *Mazi macu* 'Pet the kitten'?

- He/she is not able to say *Mazi je* 'Pet her'
- He/she is able to say *Mazi je* 'Pet her'

Does your child use more of these words (pronouns)? Please mark the pronouns in the following list that your child uses:

ti 'you'	moj, moja, moje 'my'	taj, ta, to 'that'
on, ona, ono 'he, she, it'	ovaj, ova, ovo 'this'	tvoj, tvoja, tvoje 'your'
mi 'we'	njen, njegov 'his, her'	onaj, ona, ono 'that'
vi 'you'	naš 'our'	ovoliki 'this big'
oni, one, ona 'they'	vaš 'your'	toliki 'that big'
njihov 'their'		drugi, drugo 'other'
svoj 'my/your/his/her/our/ their own'		

Has your child started to use the pronouns in other forms too? For example:

Vidi me 'Look at me.sg.acc'	Vidi nas 'Look at us.pl.acc'
Baci mi 'Throw (it) to me.sg.dat'	Baci nam 'Throw (it) to us.acc'
Volim te 'I love you.sg.acc'	Volim vas 'I love you.pl.acc'
Nosim ti. 'I bring (it) to you.sg.dat'	Nosim vam. 'I bring (it) to you. pl.dat'
Pokrij ga/je 'Cover him/her.sg.acc'	Pokrij ih 'Cover them.pl.acc'
Daj mu/joj 'Give (it) to him/her.sg.dat'	Daj im 'Give (it) to them.pl.dat'
Nema je 'She.sg.acc is not there'	

APPENDIX 2

An example of explanation in the section Typical properties of child language

Variability in semantic properties of words

The meaning of words in child language is sometimes slightly different then the meaning of words in adult language. For example, a child's word *kitty* can refer to all cats, but may also include other four legged animals (e.g. dogs). Or, its meaning may be more narrow then the meaning of the adult word and can possibly refer only to *my pet*.

If you are aware that your child uses the word *kitty*, you will mark it in the checkbox no matter whether its meaning is slightly different. If your child does not use the word *kitty* at all, you are supposed to leave the checkbox unmarked.

ЕМПИРИЈСКЕ ОСНОВЕ СРПСКЕ АДАПТАЦИЈЕ ИНВЕНТАРА ЗА РОДИТЕЉЕ НАМЕЊЕНОГ ПРОЦЕНИ РАЗВОЈА ГОВОРА КОД ДЕЦЕ

Даринка Анђелковић
Филозофски факултет, Универзитет у Београду, Србија

Нада Шева
Институт за педагошка истраживања, Београд, Србија

Маја Савић
Филолошки факултет, Универзитет у Београду, Србија

Славица Тутњевић
Филозофски факултет, Универзитет у Бања Луци,
Република Српска, Босна и Херцеговина

Апстракт

Циљ истраживање је да се обезбеди емпиријска основа за рад на адаптацији *Мекартур-Бејтс инвентара комуникацијског развоја* (*MacArthur-Bates Communicative Development Inventories* – CDIs) за српски језик, инвентара за родитеље који је у свету широко коришћен за процену развоја говора код деце. Селекција ајтема из оригиналног инветара и евалуација њихове језичке, културне и развојне валидности заснована је на два извора емпиријских података: (а) *Српски електронски корпус раног дечијег говора* (*Serbian Corpus of Early Child Language* – SCECL) и (б) дискусионе фокус групе са експертима и родитељима. Претрага корпуса и анализа фреквенци речи у раној дечијој продукцији на српском језику и квалитативна анализа дискусија у фокус групама је обезбедила критеријуме за селекцију/измену ајтема у сврху адаптације инструмента. Резултати такође откривају да су родитељи природно више усмерени на значење и комуникацијску улогу дечијих исказа и да су недовољно свесни формалних карактеристика њихове спонтане продукције. Рад приказује значајне измене које су биле унете у инструмент током рада на адаптацији за српски језик, измене које представљају корак ближе крајњем циљу – обезбеђивању стандардизованог инструмента за процену и праћење развоја говора на српском језику.

Кључне речи: језички развој, процена језичког развоја, инвентар дечијег језика, адаптација инструмента, српски језик.

ЭМПИРИЧЕСКИЕ ОСНОВЫ СЕРБСКОЙ АДАПТАЦИИ ИНВЕНТАРЯ ДЛЯ РОДИТЕЛЕЙ, ПРЕДНАЗНАЧЕННОГО ДЛЯ ОЦЕНКИ РАЗВИТИЯ ДЕТСКОЙ РЕЧИ

Даринка Анджелкович
Философский факультет, Университет в Белграде, Сербия

Нада Шева
Институт педагогических исследований, Белград, Сербия

Майя Савич
Филологический факультет, Университет в Белграде, Сербия

Славица Тутневић
Философский факультет, Университет в Банялуке,
Республика Сербская, Босния и Герцеговина

Аннотация

Цель исследования – обеспечить эмпирическую основу для работы над адаптацией *Мекартур-Бейтс инвентаря коммуникативного развития* (*MacArthur-Bates Communicative Development Inventories* – CDIs) применительно к сербскому языку, инвентаря для родителей, нашедшего широкое распроостранение в мире в сфере оценки детской речи. Отбор айтемов из оригинального инветаря и эвалюация их языковой, культурной и возрастной валидности основывается на двух источниках эмпирических данных: (а) *Сербский электронный корпус ранней детской речи* (*Serbian Corpus of Early Child Language* – SCECL) и (б) дискуссионные фокусные группы с экспертами и родителями. Поиск в корпусе и анализ частотности слов в ранней детской продукции на сербском языке и качественный анализ дискуссий в фокусных группах обеспечили критерии для отбора/изменения айтемов в целях адаптации инструмента. Результаты также указывают на то, что родители естественно больше внимания обращают на значение и коммуникативную роль детских высказываний и что они недостаточно осознают формальные характеристики их спонтанной продукцији. В работе излагаются значительные изменения, которые были внесены в инструмент в ходе работы над адаптацией к сербскому языку, изменения, представляющие шаг ближе к конечной цели – обеспечению стандартизованного инструмента оценки и наблюдения над развитием речи на сербском языке.
Ключевые слова: языковое развитие, оценка языкового развития, инвентарь детского языка, адаптация инструмента, сербский язык.