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Introduction

The given report describes the process and presents the outcomes of my consultancy on the development of school readiness assessment tools for measuring learning outcomes of children attending UNICEF supported Early Childhood Education (ECE) Centres. The consultancy consisted of two parts. The first home-based part that lasted from the end of December to the beginning of March was dedicated to the review of the current practice in the field and familiarisation with the existing instruments for measuring learning outcomes. The second part included my visit to Dushanbe from 5 March to 4 April and dealt primarily with testing and improving the developed tool.

The report comprises four parts:

- brief review of current practice in the field and expectations in Tajikistan;
- the process of the development of the tool;
- detailed description of the testing process and changes in the tool;
- conclusions and recommendations.

Both versions of the tool (the one prepared before the testing period and the one developed as a result of testing) are presented as annexes.

Review of current education theory and practice

The process of reviewing current practice in the field consisted of three parts:

- familiarisation with the existing research in the field (1, 2, 3, 4, 5, 7, 9, 10);
- review of various ECD tools developed for similar purposes in various countries (3,11, 13 and 15);
- conversations (face-to-face and online) with Tajikistan colleagues to understand specific requirements in the country.

The field of early childhood education is well-researched and generally there is an agreement regarding the spheres where a child is assessed. Some areas are present in practically any instrument used for assessing pre-school children. These include physical development, cognitive development, social and emotional development and speech development. The areas may be combined in some of the tools, e.g., speech and cognitive development being assessed as one area, or additional areas may be present.

Suggested indicators for measuring child’s school readiness in the consultant's TOR

included*:*

i) physical health and motor development;
ii) social and emotional development
iii) approaches to learning;
iv) language development and
v) cognitive development and general knowledge.

Actual spheres in Tajikistan ECD standards (13)[1] are a little different, though. For example, approaches to learning is absent as a category in the local ECD standards. It is partially covered in other spheres but one cannot speak of the full overlap. At the same time, the Standards include a separate sphere. It is dedicated to personal and moral development of the child.

Literature refers to three major methods for the assessment of school readiness: a) testing the child directly; b) obtaining reports from informants (e.g., parents or teachers) and c) observing the child in structured activities (1; 2009:24). In addition to deciding on the methods to be used in the local context, several more questions had to be answered:

- What is the actual purpose of the assessment at this stage?
- Who is going to collect the data?
- How many assessors per child can be afforded?
- What is the expected size of the tool?

From the end of December, the consultant has been involved in regular correspondence with Jamshed Kurbonov, Early Learning Specialist at UNICEF Tajikistan and Sara McGinty, Chief of Education at UNICEF Tajikistan. They helped him to get in touch with UNICEF offices and Kosovo and Moldova, where similar projects were implemented. The materials from both offices were obtained (13, 14, 15, 16). Both countries tried to adapt one of the most well-known instruments for the assessment of school readiness, namely Early Development Instrument (11). The consultant also got in touch with Magdalena Janus, McMaster Univesity, Canada, one of the developers of the EDI. Magdalena informed the consultant that both Kosovo and Moldova tried to adapt the so-called short version of the EDI (6) which they no longer supported due to low validity (5). This, perhaps, explains the fact why the consultant could never obtain convincing figures on the use of the tools in

1 Here and further on the numbers refer to the sources listed under References at the end of the report.

Kosovo and Moldova.

For better understanding of the local requirements and expectations, the consultant met with Jamila Nabieva, head of the kindergarten in Dushanbe and one of the members of the working groups at the Ministry of Education and Science. Later on the meeting with the deputy minister, T. Machmadova was also organised by the UNICEF colleagues.

The consultant also reviewed a number of other tools available on the market (9). It should be noted though that some of the tools are commercial and, thus, are not available in the public domain. As a result, it was not possible to get hold of them within the time-frame of the given project.

Development of the tool

In order to avoid potential challenges for developing frameworks in the countries following top-down process without in-country ownership of the products, the process was organised in the way to ensure the involvement of all important local stakeholders. This includes consultations with local experts referred to earlier, discussions with ECE teachers and the input of UNICEF professionals on the questions indicated in the previous section. As a result, the following things were agreed on:

- the assessment tool to be developed has a dual purpose: it should help UNICEF understand the efficacy of the ECE Centres and the contrbution they make to the development of children and at the same time introduce the tradition of measuring learning outcomes;
- the assessment is to be conducted by the teachers of the Centres themselves, as it is difficult to organise the process differently at the present stage;
- the tool is to be between 2 and 4 pages long;
- the process of data analysis should be as simple as possible;
- the tool is to be clearly connected with the local ECD standards to ensure the endorsement of the MoEs.

The first version of the tool was developed in early March 2015. It comprised 35 statements which were subdivided into five areas outlined in the local ECD standards: physical development (7 items), cognitive development (7 items), emotional and social

development (8 items), speech development (6 items) and personality development (7 items). The teachers were invited to assess the child on each item choosing one of the following options: fully agree, agree, partially agree, disagree and don't know. In addition to this, basic demographic information on each child was collected, as well as the data on the Centre and the teacher (see Annex A).

The tool was developed in accordance with the ECD Standards of Tajikistan (8) and the UNICEF programme for ECE Centres (17). The indicators used in the ECD Standards were the basis for the instrument. It was developed by the consultant and is not based on any specific other instrument. Although such an approach has the advantage of ensuring a well-contextualised tool, it also raises issues of reliability and validity of the instrument.

Testing of the tool

Version 1

Testing of the tool took place in the Soughd Region of Tajikistan on 17-19 March 2015. The consultant accompanied by a UNICEF officer and a person from the local school board visited six ECE Centres: 3 in Bobojan Gafurov Region and three in Isfara region. Each Centre was visited twice.

During the first visit, the team observed part of the class (about 10-20 min), had a short conversation with the teacher introducing the purpose of the visit and giving brief information about the tool. The teacher had an opportunity to ask questions or specify any item on the tool. She was given about 3-4 hours to fill in the instrument for ten of the pupils of her choice. She was asked to choose different pupils, including those who are both 'stronger' and 'weaker' according to the teacher. The phone number of the UNICEF officer speaking the local language was left with the teacher in case she wanted to specify any of the questions while filling in the form. The form was in Russian, and if the teacher was not confident about her Russian (4 out of 6 teachers), the team asked the school's head to ensure that she was assisted by a fluent Russian speaker (which was easily organised in every school).

During the second visit, the filled in forms were collected and the teacher was asked a few questions about the tool and the process of filling it in. The questions were as follows:

- Was it difficult for you to fill in the form?

- Were there any specific places where you felt changes are necessary?
- Did you feel that you wanted to add any information to the form to make it more comprehensive?
- On the average, how much time did you spend per form?

In addition, each teacher was invited to comment on anything she found important in relation to the tool.

All the teachers indicated that they found the tool useful and easy-to-use. The reported time spent on filling in one form ranged from 5 to 15 minutes. The teachers found most statements clear and were sure that as soon as the form was available in Tajik, there would not be any difficulties in filling it in. Most comments were connected with Question 27[2]. The teachers insisted that they were not allowed to teach anything related to reading or writing, therefore the question was not appropriate. Some teachers also indicated that questions 17, 31 and 32 were difficult to answer, as they assumed knowledge of children's behaviour out of the centre. A few teachers felt that Question 24 asked about children's knowledge of grammar rather than their communicative competence. All of the above questions were modified in the second version of the tool.

Some teachers also suggested that information on whether a child can be characterized as a special needs one is collected. This has also been incorporated in Version 2 of the tool (Annex B).

Data analysis

All the data collected during testing was typed into a spreadsheet. Numeric values were attributed as follows:

Answer of the teacher	**Numeric value**
Fully agree	3
Agree	2
Partially agree	1
Disagree	0
Don't know	-

The spreadsheets are available as Google Documents and full access rights have been

2 Here and further on this paragraph the reference is made to the version of the tool presented in Annex A.

given to Sara McGinty, Chief of Education, UNICEF Tajikistan and Jamshed Kurbonov, ECD Officer, UNICEF Tajikistan. The internal consistency for each of the five domains was tested using Cronbach's alpha. The results are presented below.

Sphere	**Number of pupils***	**Cronbach's alpha**
Physical development	N=58	0.82
Cognitive development	N=60	0.86
Social & emotional development	N=59	0.68 0.81**
Speech development	N=58	0.62 0.74***
Personality development	N=57	0.72 0.7****

Notes:

* - N is below 60 when the teacher left some items blank when evaluating a particular pupil for this specific sphere, i.e. N=58 means that 2 pupils were excluded from the analysis.

** - Cronbach's alpha was also calculated separately for the data excluding answers to Question 17. Most teachers indicated that it was impossible for them to assess children on this question, as it required knowledge of children's behaviour outside of the centre. As a result, the decision was taken to exclude the question from further versions of the instrument. The higher value of Cronbach's alpha supports the assumption of a better construct validity for the sphere without Question 17.

*** Cronbach's alpha was also calculated separately for the data excluding Question 27. This question turned out the most controversial during the testing period and some school board representatives that accompanied the team even insisted on it being inappropriate to ask it due to the contradiction to the explicit state policy not to teach reading and writing. Although the consultant does not agree that either recognition of simple words or being able to write their own name means that children have been taught to read and write in the proper sense of the word, it became clear that the question was to be taken out to avoid possible controversy. Hence, separate calculation for the data without this specific question.

**** Cronbach's alpha was also calculated separately for the data excluding Question 31. This question was modified in the second version, as in its original form it required the knowledge of children's behaviour outside of the centre. It should be noted though that the exclusion of the data did not increase the consistency of the factor.

The level of school readiness was calculated as the sum of all the scores given to the

child. This ranged from 32 (30%) to 95 (90%) for the first version of the instrument. No descriptive statistics analysis was conducted at this stage, but as the data are available, it can easily be done at any later stage of the project.

It should be noted that the sample is too small to draw any significant conclusions from the data collected, therefore all assumptions should be taken with a degree of caution and be subject to further validation. As all the raw data from this initial testing are available, additional analysis can easily be conducted when more data available.

Version 2 of the Tool

As a result of the data analysis and the feedback received during the testing period in the Soughd Region, version 2 of the too was developed at the end of March. The version included 33 items divided into the same five spheres of ECE. The options for the teacher's response were reduced by one, asking her to choose between agree, partially agree, disagree and don't know. The tool is presented in Annex B.

As indicated above, all problematic questions from the first version were either modified or taken out. In addition, specific guidelines were added to prevent teachers from making the mistakes noticed during the implementation of the first version. These included leaving some items without any answer, choosing several answers to one of the items, tending to choose 'I don't know' instead of 'I disagree'.

Unfortunately, there was no opportunity to conduct full scale validation of the second version of the tool. The team was able to collect only 20 filled in forms from two centres: Ayni 67 and the one run by the Aga Khan foundation. The answers ranged from 42 (64%) to 66 (100%). 20 forms are not enough to judge the internal consistency of the test, therefore it is suggested that additional data are collected to make sure that the instrument is valid for further use.

It is possible to conclude, however, that the second version of the tool helped to eliminate the drawbacks characteristic of the first version. None of the forms had two items marked to any of the questions, only one question in one form was left unanswered and 'I don't know' option was chosen only once.

Possible areas of concern include overall rather high score and the number of options for the response given to the teacher. While the former might be the fault of a very small sample and some accidental factors affecting the assessment (this needs to be checked,

though, through collecting more data), only one out of six teachers used all the four options during testing of the first version of the tool. It was assumed that reducing the number of options to three would prevent the situation of teachers not choosing any of the answers at all. So far this assumption has not been confirmed, as teachers avoided choosing 'disagree' in the second version of the test. Should the value of Cronbach's alpha turn out not high enough when data are collected, it might be necessary to go back to the four options to increase the internal consistency.

Conclusions and recommendations

This is my third visit to Tajikistan and the first experience of dealing with pre-school education. My previous missions dealt with tertiary and secondary levels respectively. So far my opinion is that the situation in the pre-school education sector is much better in comparison to other sectors of education I have experienced, both in terms of normative documents (ECD standards) and teaching practice. From the communication with teachers and regional school board representatives responsible for pre-school education, it is possible to conclude that they are ready for the assessment of learning outcomes at the level planned (at least in the Soughd region). This is an important conclusion, as probably no resistance should be expected, unlike in many innovations in other educational sectors.

As indicated above, it is important that further data are collected for validation of the second version of the tool before it is introduced in the academic year 2015-2016. My recommendation is that the data for at least 40 more pupils assessed by at least 4 different teachers is collected. As a result, there will be a data bank of results for 60 pupils, as it was done with the first version of the tool. After that the internal consistency of the results should be assessed for each of the spheres. If the value is higher than 0.7 for each of the factors, the instrument can probably be used in its present form. Should it happen that the values are lower, and especially if they fall below 0.6 for any of the factors, I suggest that further modification of the tool is considered before it is implemented. A possible solution could be to go back to the four point assessment system used in the first version instead of the three point assessment introduced in the second version. It might also be necessary to consider adding additional items for some of the spheres. It must be stressed that validity and reliability are always the area of potential concern when a new instrument is developed. While reliability will only be evaluated during a larger scale implementation

planned for the next academic year, certain measures should be taken now to increase the probability of the validity of the test being at the acceptable level.

There is another area I would like to comment on. It is connected with the translation of the instrument into Tajik (and possibly Uzbek) . As the quality of translation is generally not very good in the region, it is suggested that specific measures are introduced to ensure that the translated version of the tool is equivalent to the original version that was validated[3]. A possible approach could be the use of back-translation with further comparison of the versions by the expert. This would mean that the Russian version of the instrument is translated into Tajik and then is translated back to Russian by another independent translator. The two Russian versions are then compared by the expert and their equivalence is discussed. Certain differences are of course natural as no two languages are fully equivalent, but is is essential that the meaning of the items is understood in the same way irrespective of the version.

It is strongly suggested that when the implementation of the tool is organised during the next academic year, the quasi-experimental design model is chosen. This would assume that in addition to the experimental groups involving pupils' of UNICEF established ECE centres, there are also control groups. Specific decisions on the participants for the control groups are yet to be made and they depend on what is feasible given the restrictions of the time and budget available. While it would be desirable that the control groups comprise children from the same area not being involved in any form of formal pre-school education, it is probably much more realistic to use kindergarten children as control groups. In any case, it should be noted that the data obtained as a result of the suggested quasi-experimental study will be much more useful for demonstrating the efficacy of the centres than the data obtained as a result of the pre- and post-tests of the children attending the centres.

Finally I would like to say a few words about the long-term plan for the use of the tool. While the tool is probably sufficient for the purposes of assessing the efficacy of the UNICEF ECE centres, its benefits for assessing school readiness at the state level are less obvious. Country-wide implementation would mean regular work on large scale data

3 Ideally, of course, a separate validation process for each language should take place and the results should be compared. Only then can we speak of the equivalence between the versions.

analysis. It would be useful if the data for the country could be compared with other countries. This is much easier to implement when the internationally validated instrument is used. One such tool to consider could be the Early Development Instrument (EDI) developed by a group professionals from the McMaster University of Canada (11, 12). Their tool is currently being adapted for the use in Kyrgyzstan and I am sure the process and the results are worth following in the context of a possible partnership. Both Sara McGinty and Jamshed Kurbonov have been introduced to the McMaster group, so further communication should not be a problem even without the involvement of the consultant.

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