March 2010

Deaf Literacy Initiative

Ontario Adult Literacy Curriculum

Report on Development of Adapted CAMERA Tool

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CAMERA Stage I

Adaptation for Deaf-stream Literacy

Phase 1 Activity

Overview

The Communications and Math Employment Readiness Assessment (CAMERA) was originally developed to evaluate the Literacy and Basic Skills (LBS) levels of literacy learners whose first language is English and whose main goal is employment. The assessment approach is competency-based and includes realistic employment tasks requiring the demonstration of document use, reading, numeracy and writing skills.

CAMERA was designed to meet the following objectives:

- Provide clear diagnostic information for use in literacy programs
- Function adequately for low-stakes assessment situations
- Adhere to standardized administration and scoring procedures
- Address an adult literacy population with English as a first language
- Inform placement and progress in workforce-oriented literacy programs
- Provide adequate coverage of four skill domains
- Align with Ontario's Literacy and Basic Skills (LBS) levels
- Address Essential Skills (ES) content, format and genre
- Include meaningful and authentic-seeming workplace tasks

The original CAMERA design was based on theoretical and content underpinnings drawn from a variety of sources, which included LBS performance indicators, authentic workplace document analysis, Essential Skills Profiles, and ES complexity level descriptions. Essential Skills research

played an important role in shaping the content and design of draft tasks, which were constructed to reflect authentic negotiation of a text or document according to the demands of a workplace setting. Tasks selected for inclusion in the assessment were those deemed most suitable for the assessment purpose – to place learners in appropriate LBS levels and to monitor learning progress over the course of study in workforce literacy programs.

The instruments were operationalized in 2000 and were subsequently used in the field for five years. In 2005, PTP undertook a project to update and revise the original CAMERA and to create parallel forms. The main purpose of the revision was to improve the quality of the assessment. The development of alternate forms was intended to enhance the security, efficiency, and effectiveness of administration.

The battery of CAMERA instruments comprises a Placement assessment and three Stage assessments. CAMERA Stage 1 targets the lower levels of literacy that align with LBS 1 and 2, CAMERA Stage 2 targets the mid-range of literacy aligned with competencies at LBS levels 3 and 4, and CAMERA Stage 3 targets LBS level 5.

This report describes the first phase of a project designed to adapt CAMERA Stage 1 for use in Deaf-stream literacy programs.

Feasibility Study

Before the adaptation could begin, it was necessary to determine whether CAMERA content and procedures could meet the assessment needs of Deaf-stream literacy learners. To this end, Deaf Literacy Initiative (DLI) and PTP Adult Learning and Employment Programs (PTP) conducted a feasibility study of CAMERA components.

In the feasibility study, a panel of experts from the Deaf literacy field was invited to provide feedback on the CAMERA and to comment on its potential suitability for Deaf-stream adaptation.

The panel agreed that CAMERA held some promise for use in Deaf-stream literacy. Their evaluation of procedures and tasks indicated that the materials seemed to be compatible with Deaf-stream purposes and programming. The group favoured the idea of working with an existing instrument that has been standardized and used successfully in the literacy field for eight years, rather than beginning from scratch with the development of a new assessment.

Based on the expert panel's recommendations, CAMERA Stage 1 was tried out with 17 volunteer Deaf-stream learners. These learners were told that they would be helping the researchers to determine the suitability of CAMERA for the Deaf community. They were encouraged to tell the research team their thoughts and impressions of the test. The Stage 1 assessment was administered as a one-to-one interview by a trained CAMERA assessor. Before each assessment, the assessor explained the purpose of the testing and put the learner at ease by engaging in some small talk and asking a few general questions. The assessor then explained that some of the test items would be easier and some would be more difficult. She encouraged the learner to do his or her best.

During the administration, an ASL interpreter was present to facilitate communication between the learner and the CAMERA assessor. Also present were a video camera operator, at least one researcher, and occasionally a Deaf Interpreter. The assessor determined how far each Stage 1 learner should be taken in the assessment and stopped at the appropriate point in the procedure. As this was an information gathering process, learners were invited to ask questions, seek clarification, offer feedback and comment on the content and procedures. Following each assessment, a debriefing was conducted in which the learner provided general reactions and specific details about the testing experience.

The 17 respondents achieved a good range of overall scores, from 15% to 78%, with a cluster of five respondents at 49%. Results indicated that the test appeared to discriminate well across all four literacy skills for this group.

The following observations were made during the feasibility study with Deaf-stream learners:

- Participants completed the assessment to their maximum proficiency.

- They appeared to be comfortable with the face-to-face administration, and they seemed to enjoy interacting with the assessor.

- Some instructions were not sufficiently clear. For example, when learners were instructed to "put these products in alphabetical order", some did not respond for the legitimate reason that they actually could not alphabetize, while others did not understand the instruction or the concept of changing the order of words in a printed list. Similar confusion was observed for the tasks requiring numerical ordering.

- Learners did not always understand that a whole series of questions pertained to one written text. They would often answer the first question in a series based on their reading of the text and then assume that the next question related to their own experience. For example, when asked to read a text about a change in room location, they would answer question 1 based on the information in the text but then answer question 2 in relation to the building in which the assessment was being conducted.

- Learners whose first language was not ASL had more difficulty negotiating the tasks than those who were fluent in ASL.

- Some learners had difficulty with items that were worded in hypothetical or conditional language. For example, in one of the numeracy tasks, the question "How much would you pay for …" could be more simply and accessibly worded as, "What is the cost of …"

- Respondents indicated that the original CAMERA instructions were sometimes too complex or there were too many ideas presented in one sentence.

- In some cases, insufficient detail and foregrounding made the tasks inaccessible. In these instances, the learners asked questions and sought clarification from the assessor. All of these interactions were recorded and kept on file so that appropriate detail and clarification could be added to the Deaf-stream adaptation.

- Some generic terms used in the test have multiple meanings that are somewhat ambiguous to Deaf learners. One example is the word "container", which could be represented by many ASL signs, depending on whether the container is a can, a box, a bottle. Learners had some difficulty with these types of words.

- Some of the assessment content was not chosen specifically for the Deaf stream and thus did not reflect a suitable degree of accessibility and sensitivity to Deaf culture.

Considerations in Adapting CAMERA

The Stage 1 CAMERA assessor is a trained expert who knows how to motivate and support the learner without giving away the kinds of information that would invalidate the test responses. The assessor is always positive and never indicates to the learner whether a response is correct or incorrect. S/he simply smiles, encourages, and thanks the person for each and every attempt. This face-to-face encounter is appropriate for Deaf literacy learners. They seem to find the assessor reassuring, and they appreciate the opportunity to communicate their responses in ASL. They are able to ask questions, seek clarification, and receive immediate feedback. Because of the interactive nature of the Stage 1 assessment, learners know what they are expected to do for each task in the test. There is no confusion or guessing as there might be with a paper-and-pencil test. The learners involved in the feasibility study were able to complete the Stage 1 assessment, and most felt that the content presented a relevant and positive challenge for them. The study revealed a number of key considerations to guide the test adaptation.

In summary, these considerations were:

Instructions

Translate all instructions in a way that best conveys the key ideas. Task requirements need to be presented clearly and sequentially so that the information is not too dense. All important requirements must be included in the instructions so that learners have a full opportunity to achieve their best possible score.

Examples

Provide very clear examples that show learners how they are expected to respond to the questions, items, and prompts. Examples can lend support and clarity to instructions for Deaf-stream learners, who may misinterpret decontextualized instructions.

Task Content

Make the tasks, ideas and concepts accessible to the Deaf culture. In cases where the content is not accessible, introduce appropriate revisions.

Language

Make appropriate changes to test content and approach to ensure fairness and validity for Deaf-stream learners who are dealing with English as a second or supplementary language.

Test Purpose

The Anglophone-stream CAMERA serves a specific purpose of placement and progress assessment. Presumably, the purpose of CAMERA testing in the Deaf stream would be similar – to determine the best placement for a learner and to assist instructors in making decisions about promoting learners from one level to another. These low-stakes, diagnostic objectives would be in keeping with the original intent of CAMERA.

Low Stakes

CAMERA is intended only for low-stakes placement and progress assessment. Any introduction of standardized assessment to the Deaf stream must be done with the assurance that inappropriate interpretation of test results will not lead to sweeping generalizations about the Deaf literacy population. Studies indicate that the unemployment rate for Deaf Canadians is quite high due to the "medicalization of deafness" and the "internalization of low expectations" (Roots and Kerr, 1998). Because barriers to employment are a stark reality for many Deaf-stream learners, it will be essential to ensure that CAMERA results do not contribute to a marginalization of the Deaf literacy population or to any form of employment gate-keeping.

Standardization

Adaptation of administrative procedures will require a rethinking of the assessment infrastructure from a Deaf literacy perspective. Instructions must be standardized in a visual/manual format and kept consistent by means of a script that may be stored on a DVD. The assessor should be proficient in ASL and familiar with Deaf culture. In terms of facilitation, the important consideration will be to standardize the interaction to a degree where the assessor fully informs and guides the learner in following all instructions but does not provide any clues or assistance in arriving at the correct test response. This is very important, as the validity of the assessment would be affected if an assessor provided inappropriate assistance.

Cultural Accessibility

A Deaf-stream assessment should have the flexibility to address all members of the Deaf literacy community in a valid and equitable manner. It should be free of any cultural bias and meaningful and relevant for the learners. Therefore, tasks that are based on a hearing cultural model may need to be modified so that they are better accessible to the Deaf culture. The adaptation team must share a strong commitment to overcoming any

barriers that might adversely influence the administration or the outcomes of the assessment. This commitment will ensure that the adaption is designed to serve the best interests of the Deaf community.

Relevance to the Employment Context

The main purpose of CAMERA is to identify gaps in the literacy skill set so that these areas of need can be addressed through proper instruction. In other words, the assessment model demands that that test takers demonstrate their weaknesses as well as their strengths. They are expected to make mistakes on the test. On a properly adapted instrument, they make errors for the right reasons – meaning that they have difficulty with the tasks and items that represent concepts that have not been internalized. These errors are not a reflection of a person's intelligence or ability to learn. Certain types of workplaces, jobs and contexts, such as those which require intense and spontaneous oral communication with numerous and varied interlocutors, may be less desirable for Deaf-stream literacy learners seeking employment. The CAMERA adaptation process should include an investigation of the jobs and careers that Deaf individuals would prefer to target so that the test content can be representative of their needs and goals.

Revisions to CAMERA Tasks

Intensive energy was devoted to analyzing and revising the Stage 1 CAMERA tasks. This work was done by a test developer in consultation with an advisory group. The advisory group reviewed the original CAMERA tasks and suggested the kinds of changes that would be appealing and appropriate for Deaf-stream learners.

In summary, the tasks in CAMERA Stage 1 were revised as follows:

Task	Objective	Revisions to Task Content
1	Tell Time	This content of this task remains the same as the Anglophone task.

2	Alphabetize	This task was changed for the Deaf stream. Instead of a list of words to be alphabetized, there is a set of file folders. This creates a kinesetic modality that is familiar and accessible. The alphabetization process is set up and demonstrated by the assessor in the form of an example. This change to the task has been viewed positively by the Anglophone stream, and they are also considering adopting this approach for alphabetization.
3	Numerical Order	This task was changed for the Deaf stream. Instead of a list of numbers to be put in order, there is a set of index cards. This follows on the kinesetic modality introduced in Task 2. Again, the numerical order process is set up and demonstrated by the assessor in the form of an example. This change to the task has been viewed positively by the Anglophone stream, and they are also considering adopting this approach for numerical order.

Task	Objective	Revisions to Task Content
4	Read a Directory	The concept of a client contact list was retained, but phone numbers were replaced with e-mail addresses and fax numbers, which are more appropriate for the Deaf stream.
5	Complete a Form	The form remains the same as the Anglophone task, but the confusing logo has been replaced with the heading “Personal Information”
6	Workplace Signs	A battery of new workplace signs was created from which the advisory group selected the most appropriate. The Deaf-stream task includes the same number of signs as the Anglophone task.
7	Write Note	The intent of this task was retained, but the instructions that foreground the writing were made more clear and concrete.
8	Calculate Cost	Changes were made to the wording of the instructions for this task because of misunderstandings that occurred during the feasibility study. Based on feedback from the advisory group, this task was moved from position 9 in the test to position 8. This was because the advisors suggested that Deaf-stream learners would find the calculations easier than the reading task.
9	Read a Notice	The notice contains the same information as the Anglophone stream task, but it is presented in a slightly more concrete way. This change is in response to language and cultural concerns identified in the feasibility study. This task was moved from position 8 to

		position 9 in the test.
10	Read a Schedule	The formatting of this task was revised to make it more accessible. The task was moved from position 12 to position 10 in the test. This was because the learners in the feasibility study said that they would prefer to have the writing as the final task in the test.
11	Read a Bulletin	The logo for this task was changed to Silent Voice (pending approval) so that it would be more relevant for the learners. A more appropriate scenario was selected, and contact information was changed from phone numbers to room numbers. This task was moved from position 10 to position 11.
12	Write about Activities	The photo prompts for this task were changed so that they depict relevant activities such as photocopying, instead of talking on the phone. The photos were enlarged and changed to colour. This task was moved from position 11 to position 12.

The following chart captures the intent of each task and item in the Deaf-stream CAMERA, indicating the abilities that a learner is expected to demonstrate.

Task	Item	Intent
1	all items	Tell the time on analog and digital clocks without assistance
2	all items	Alphabetize a set of file folders without assistance
3	all items	Put index cards in numerical order without assistance
4	all items	Locate specific contact information in a table without assistance
5	all items	Fill out a simple form by putting the date and personal information legibly in the correct places without assistance
6	all items	Comprehend the meaning of common workplace signs to identify the purpose of each sign and where it would be located
7	Write a short note to clearly convey simple information to colleagues	
8	8.1	Add whole numbers to determine cost
	8.2	Subtract whole numbers to determine difference
	8.3	Add to 2 decimal points
	8.4	Subtract to 2 decimal points
	8.5	Multiply whole numbers by a single digit
	8.6	Multiply double digits to 2 decimal points
9	9.1	Comprehend a notice to identify the purpose
	9.2	Comprehend a notice to determine what action to take
	9.3	Comprehend a notice to identify the location of a room
	9.4	Comprehend a notice to answer a “when” question

10	all items	Comprehend a shift schedule without assistance to locate and interpret specific information that is presented in a table
11	11.1	Comprehend a memo to identify an event
	11.2	Comprehend a memo to identify its purpose
	11.3	Comprehend a memo to locate simple information
	11.4	Comprehend a memo to answer a “where” question
	11.5	Comprehend a memo to answer a “how many” question
	11.6	Comprehend a memo to answer a “how” question
12	Write a short paragraph about simple everyday activities, guided by pictures, but without assistance	

Designing a Deaf-stream Assessment Protocol

Anglophone CAMERA is administered in accordance with a protocol documented in the form of a script that the assessor uses to guide the procedure. The administration of Deaf-stream CAMERA will also follow a protocol. However, instead of a script, the procedures will be documented in the form of a DVD that presents the protocol in ASL. Deaf-stream assessors will use this DVD for training purposes and will also refer to it as needed throughout the administration to ensure that standardized procedures are followed.

The first step in creating the Deaf-stream protocol was to consider the requirements of each task in reference to feedback gathered in the feasibility study and from the advisory group. With this information in mind, the test developer drafted an English script that includes all of the instructions to be communicated and all of the demonstrations, examples and explanations that are required. This draft script was to be translated into ASL. Prior to translation, the English script was reviewed by the advisory group. Much discussion ensued as to the most appropriate and accessible ASL terminology to be used in the translation. DLI assumed responsibility for completing the translation and for committing the draft protocol to DVD in preparation for Phase 2 of the project.

Roles for Deaf-stream CAMERA Assessors

Deaf-stream CAMERA assessors will need to fill several different roles as follows:

- **Facilitator / Proctor:**
  - Welcome the learner and make him or her feel comfortable.
  - Follow the standardized protocol to present instructions and tasks.
  - Guide and clarify in ways that are agreed to be appropriate.
  - Invite the learner to respond.

- **Recorder / Technician:**
  - Set up and run a video camera that captures all of the learner's ASL responses.

- **Evaluator / Rater:**
  - Apply standardized scoring procedures to assess quality and accuracy of responses.
  - Score each task and item in the test.
  - Total and check the results.
  - Maintain a database of results and information.

- **Reporter / Counselor:**
  - Interpret the meaning of CAMERA results.
  - Diagnose learner strengths and weaknesses.
  - Provide feedback to learners and instructors.
  - Recommend follow-up and areas to improve.

- **Educator / Trainer:**
  - Conduct PD sessions.
  - Present at conferences.
  - Train and mentor other assessors

For Phase 2 of the project, DLI is planning to implement a "1 and 4" assessor model. This model engages one expert in the roles of evaluator, reporter and educator, while four other individuals are trained to take on the roles of facilitator and recorder. Scoring of assessment results will be carried at DLI' head office, where the CAMERA expert evaluator will reside. The rationale for recording the learner's ASL responses on video is to free up the facilitator to engage fully in the interview. It would be too difficult for an assessor (i.e. facilitator) to write all of the responses while facilitating, and if the assessor has to stop interacting in order to write, this may frustrate the learner and take up too much administration time.

Assessors will need to be carefully selected according to a set of criteria and qualifications that ensure a high degree of ability, experience and professionalism. Their job is certain to be an interesting, rewarding and challenging one.

Plans for Phase 2

April, 2010	Identify criteria for selection of assessors
	Select and orient assessors
	Finalize the draft DVD protocol
	Train assessors and practice for the field test
May, 2010	Field test the procedure with a small group of diverse learners
	Discuss results of field testing
	Determine whether revisions are needed to the DVD protocol
	Adjust the ASL translation if necessary
	Determine who will become the assessor for the pilot testing
June – August, 2010	Record and materials needed for pilot testing
	Create assessor training module
	Orient and train the pilot assessors (if necessary)
	Identify and contact pilot test sites to make arrangements
September – October, 2010	Conduct and record pilot testing
	Observe and review random samples of pilot testing
November – December, 2010	Score pilot assessments
	Enter and analyze pilot data
	Interpret findings and recommend refinements as needed
January – March, 2011	Prepare outreach plan
	Prepare test materials and final deliverables
	Prepare test development report

It is hoped that the adaptation of CAMERA Stage I will provide an important catalyst to strengthen the delivery of Deaf-stream literacy programs. The feasibility study and adaptation process have shed light on the unique requirements of this stream, while the design and implementation of a relevant, meaningful, and fair assessment will enhance the accuracy of classroom placement and program outcomes. A literacy assessment to serve the needs of the Deaf community is a critical necessity, and the adaptation of CAMERA is a means to that end.

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