



All Children Reading—Asia All Children Reading—Philippines

Computer-Based Reading Assessment Pilot Report

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ABBREVIATIONS AND ACRONYMS

AI	artificial intelligence
ACR	All Children Reading
CoBRA	computer-based reading assessment
COVID-19	coronavirus disease 2019
DepEd	Philippines Department of Education Early Language, Literacy, and Numeracy
FGD	focus group discussion
ICT	information and communication technologies
KII	key informant interview
LMS	learning management system
Phil-IRI	Philippines Informal Reading Inventory
USAID	United States Agency for International Development
Wpm	words per minute

I OVERVIEW

I.1 Introduction and Context

In February 2022, ACR–Philippines initiated conversations with USAID and the Philippines Department of Education (DepEd) on developing a prototype technology to enable automated assessment and scoring of learners’ oral reading fluency, listening, and reading comprehension skills. The idea resonated with DepEd leadership for several reasons. During the school years of 2020-2022, the COVID-19 Pandemic made face-to-face assessments challenging, particularly in remote learning settings. Teachers were stretched in time and resources to assess learners one-on-one their reading skills against the most essential learning competencies. Further, other international assessments like PISA use a computer-based format, and this will be an opportunity to understand how well-prepared students are to take computer-based tests.

In response, ACR-Philippines sought to produce a ‘proof of concept’ that explores the feasibility of a self-administered computer-based reading assessment (CoBRA) in English and Filipino for students in the Philippines. The technology would incorporate voice-recognition software to enable students to read directly into their device. The software would automate the score of the students’ reading scores through an artificial-intelligence (AI) algorithm designed to calculate words-per-minute (wpm) and reading accuracy rate. The platform will produce reports providing students, parents, and/or teachers immediate feedback on their performance.

Other efforts have underway to develop self-administered reading assessments for international education, and commercial software (mainly English language) is available. However, these tools do not include automated administration and scoring of expressive language, such as oral reading fluency. Moreover, they have not been piloted for systematic and sustainable use in the Philippines.

I.2 Parameters and Scope of the Pilot

RTI consulted with DepEd leadership on the timing, grade levels, language, and research questions for the CoBRA activity. Based on these iterative discussions, ACR-Philippines and DepEd agreed on the following key parameters and scope of the activity:

1. The CoBRA pilot will focus on administration of the Philippines Informal Reading Inventory (Phil-IRI) for Grades 4-6 in English and Filipino. The Phil-IRI is a standardized assessment administered to all students in the Philippines and serves as the primary means to determine students’ reading levels based on a determined set of benchmarked scores relating to accuracy, speed and comprehension.
2. The COBRA will take place on school premises, allowing a teacher or school staff to proctor the assessment and supervise the students’ taking the assessment.
3. The activity will enable teachers to access the reports, review and re-grade the students’ results, to assess how user-friendly the platform is for teachers.
4. The pilot will include a sample of at least 400 students per grade per language to ensure robust results in evaluating the efficacy and feasibility of the technology.
5. The pilot will include a mix of urban, peri-urban and rural schools that reflect a range of connectivity environments.

I.3 Research Questions

Based on the consultations with DepEd, the following research questions emerged:

1. How feasible are the logistics of a computer-based reading assessment in the context of the Philippines for students in the two grades?
 - a. Are students able to access the assessment and complete the assessment with minimal assistance, interruption, glitches, or frustration?
 - b. Are students able to understand the directions and successfully navigate the interface?
 - c. Are teachers and schools able to easily retrieve and interpret the results?
2. How well does the speech recognition technology manage the variety of English spoken by the participating children in the respective grades?
3. How reliable are students' results on the computer-based reading assessment, especially the speech recognition technology-supported tasks, compared to the assessor-administered approach of the assessment?
4. Based on the experience with the computer-based reading assessment and the speech recognition technology, what are considerations and recommendations regarding the future development of similar technology for other languages relevant to the Philippines?



Caption: Grade 4 Student taking the CB-Reading Assessment

1.4 Technology Design and Platform

From late February to mid-April 2022, the ACR-Philippines team developed the platform utilizing a license-based application called Poodll (<https://poodll.com/>). The decision to use Poodll was that it was optimized as custom Moodle plug-in for Moodle, which ACR-Philippines used as its Learning Management System (LMS). Given the tight turnaround to produce the application, the team deemed the Poodll application 'test-ready' for development. The team also incorporated Google's Speech Recognition Engine for the Filipino language.

Additional technology applications included automated scoring and teacher re-grading (machine learning). These involved regrading modes for spot-checking AI-errors, transcript updating for AI teaching via alternative pronunciations. **Figure 1** shows a screen shot of a recorded transcript of a Grade 4 student. The interface allows the teacher to listen to the voice recording of the student and re-grade the assessment, over-writing the AI-generated scores using 'Grade Mode', Spot-Check Mode or Transcript Check Mode.

Figure 1. Screenshot of Re-Grading Students Recorded Transcript

View Grading Reports Model Audio Administrator

Showing attempt for: Student 7 Set C Putik Central School SPED Center

0:00 / 1:00

WPM	Acc(%)	Grade(%)	Mistakes
32	44	0	39

Marian came home from school. She went to the kitchen and saw her mother cooking. "Mama, do we have mongo seeds?" asked Marian. "I will do an experiment." "Yes, we have some in the cabinet," answered Mama. Marian got some seeds and planted them in a wooden box. She watered the seeds every day. She made sure they got enough sun. After three days, Marian was happy to see stems and leaves sprouting. Her mongo seeds grew into young plants.

Red-highlighted words indicate the AI recognized as incorrectly read

Grey-line strike-out text indicate words the AI did not recognize as being spoken (or skipped)

Grading Mode Spot Check Mode Transcript Check Mode Clear all markers

Cancel Save changes Save ... and next

1.5 Pilot Implementation, Data Collection and Methodology

In April, the team conducted a comprehensive **user experience testing** with 10 learners from Grades 4-6. Teachers were also observed accessing the reports and reviewing and re-grading the learners' scores. This experience provided valuable feedback to the development team, which focused on how to improve the user interface, key functionality and navigation of the system to make it more user friendly.

On June 13, the ACR team introduced the CoBRA to 145 teachers and educators across the 42 schools that had previously participated in ACR-Philippines supported activities. This orientation was preceded by an orientation to 67 school and District ICT Coordinators to help prepare them to support the pilot. In the subsequent days, smaller check-ins were held with teacher groups to ensure they understood the tasks, requirements and features to facilitate their students to take the test.

From June 14-19, 1,063 learners took the Grade 4-6 tests in English and 933 learners took the G4-6 tests in Filipino. Teachers were asked to administer the tests to 10 students in each grade. As part of the pilot, they were also asked to review and re-grade five of their students, leaving an additional five students per grade un-graded. This would give the ACR-Philippines team ample data to validate the performance of the system in relation to the accuracy of the automated scoring function.

From June to July, the team employed three independent assessors to review the AI-scores of students whose teachers had not already re-graded. Using the Grading Mode, the independent assessors reviewed and re-graded 346 English assessments and 345 Filipino assessments. The independent assessors were tasked to record the original AI-generated wpm, accurate rate and grade, as well as the updated human-generated values for each indicator after re-grading the assessment. In addition, the assessors identified the words

incorrectly marked as error by the AI. The variances between AI-generated scores and human-generated scores serve as the basis for the concurrent validity analyses.

In addition, the team conducted a series of teacher surveys and focus group discussions (FGDs) with teachers and students. Their feedback informed the team's analysis of the application's usability and benefits from the user-perspective.

2 FINDINGS FROM THE PILOT

Overall, most teachers and students reacted very positively to the application and were able to cope with the technology with little disruption due to connectivity or technological issues. However, the voice recognition technology was more inconsistent in terms of its accuracy and reliability.

2.1 Results from the Concurrent Validity Analyses

The AI-generated scores for words per minute, accuracy and grade level of the students. The concurrent validity results from the initial pilot were less encouraging. The concurrent validity results indicate that the AI scored on average 25.1 fewer correct words per minute in Filipino and 21.8 fewer correct words per minute in English than those same tests re-graded by human assessors. Figures 2 and 3 show the average AI-generated wpm versus the re-graded Human wpm in English and Filipino respectively.

Figure 2. English Words Per Minute Variance between AI and Human Scoring

Grade	Average of Original AI WPM	Average of Regraded Human WPM	WPM Difference (Human - AI)
Grade 4	68.7	87.2	18.5
Grade 5	86.8	105.3	18.5
Grade 6	74.1	100.8	26.7
Overall	76.2	98.0	21.8

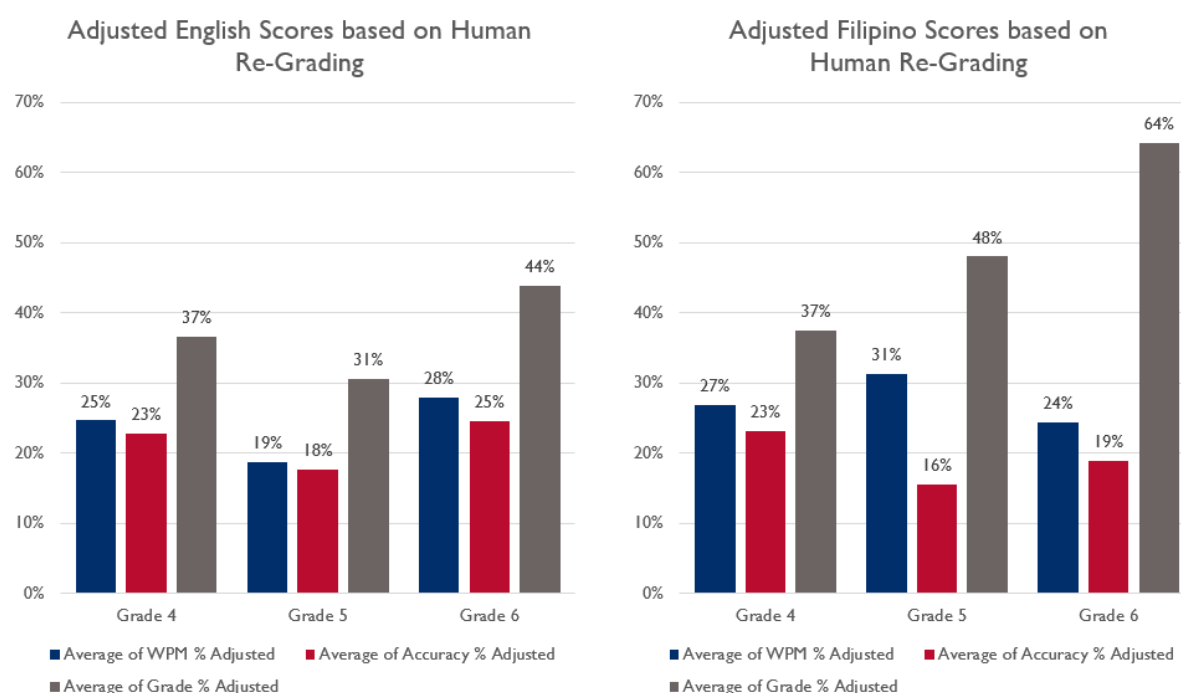
Figure 3. Filipino Words per Minute Variance between AI and Human Scoring

Grade level	Average of Original AI WPM	Average of Regraded Human WPM	WPM Difference (Human - AI)
Grade 4	53.0	71.5	18.5
Grade 5	63.6	105.4	41.8
Grade 6	63.1	81.5	18.3
Grand Total	60.2	85.3	25.1

Figure 4 shows the percent variances in adjusted wpm, accuracy and overall grade between the original AI scores and the human re-graded scores by language and grade. The grade score was based on the Phil-IRI standard of total correct wpm divided by target wpm. The average variance in adjusted overall grade increased by grade level in the Filipino from 37% in Grade 4, to 48% for Grade 5 and 64% for Grade 6. The average variance in overall grade score in English from 37% for Grade 4 to 44% in Grade 6 but dipped to 31% in Grade 5. The

generally higher increases in Grade 6 versus Grade 4 may be attributed to the higher levels of word complexity found in the Grade 6 passages.

Figure 4. Variances in AI-generated scores versus human re-graded scores by language and grade level based on average percent adjusted



Contributing to the error rates of the AI was the magnitude of the skipped text that the AI did not correctly recognize as being read, especially for Filipino. Overall, the AI incorrectly flagged or skipped 21% of all English text and 60% of all Filipino text read by students. The higher rate of error for the Filipino text was due more to the incorrect skipping of text—that is the AI did not recognize the student reading blocks of passage—more so than the incorrectly recording of mispronounced words.

2.2 Item analysis of words incorrectly flagged by the AI

The team also conducted an item analysis of words most frequently scored incorrect by the AI across all passages. The lower rate of error of Filipino words compared to English was offset by the higher rate of incorrectly skipped words (as noted above). Nevertheless, the AI performed much better in recognizing the Filipino spoken word than the English spoken word. This is most likely due to the ways children pronounced the words. **Figure 5** lists the top-ten words with the highest rate of error which were incorrectly flagged as incorrect by the AI.

Figure 5. Top-ten words with the highest error rate recorded by the AI by language

English Word	Total count	No. Errors	Error rate	Filipino Word	Total count	No. Errors	Error rate
falls	41	33	80%	nagsaka	201	60	30%
Mmm	34	27	79%	drowing	201	50	25%
I'll	34	23	68%	taga-Lucban	133	27	20%
hour	147	94	64%	Ana	130	25	19%
meteoroid	205	128	62%	isandaang	133	21	16%
300	21	13	62%	eskultura	201	31	15%
600	21	13	62%	patubigan	201	30	15%

English Word	Total count	No. Errors	Error rate
waves	21	13	62%
meteor	82	50	61%
Please	111	67	60%

Filipino Word	Total count	No. Errors	Error rate
nakapagpasigla	171	24	14%
ring	301	40	13%
di	130	17	13%

2.3 Summary of Feedback from Teachers and Students

Teachers were also asked to complete a teacher observation feedback survey. 81 teachers responded to the follow-up survey. The results were encouraging, as more than 90% of teachers noted that it was easy or very easy for the students to take the test, and more than 90% said it was easy or very easy to review and re-grade results. Although many teachers are located in rural areas, 82% indicated that their internet was stable enough to conduct the assessment online, and more than 90% indicated that their equipment and devices worked well enough to conduct the tests.

Encouragingly 90% agreed or strongly agreed that the automated scoring was generally accurate, and the comments were overwhelmingly positive.

For the CB reading Assessment FGD, the team met with total of 14 students (4 boys 10 girls) across grades 4, 5, and 6 who participated in the pilot. Students in Grades 5 and 6 felt the passages were not in sync with current trends in the Philippines and wanted the passages and task to have some more fun activities such as gamification of some of the tasks. A grade 4 student who had access to computer at home he uses for researching assignment, was able to browser to the ACR Moodle site, Login using the credentials supplied, navigate the CB reading assessment task and complete the Task without any teacher assistance. Students under the Pilot mentioned that loved the instant feedback on the silent and listening comprehension task.



CB Reading Assessment FGD session with grade 4, 5, 6 students at Sto Domingo ES

Teachers reported parents' high interest in expanding the CB reading assessment pilot to all the student in the school, as they found it very useful to getting a sense of their children's improvement. The school head in that regards pleaded with the project to expand the pilot to all the schools in the region as teachers found it very easy to read the report, regrade and access the students reading speed, accuracy, and profile. One teacher was quoted saying "it saved them weeks of calculating and counting words, and at same time saved the school from printing papers." Overall, the teachers, student where very excited at the prospect of scaling up the CB reading assessment for start of school and hope teachers in the grades 4, 5, and 6 will be able to use the CB reading assessment for pretest and posttest in the coming school year.

A full detailed account of the FGDs is provided under Annex I.

3 CONCLUSIONS

The conditions for a successful pilot and implementation were readily found in the Philippines. The schools were generally well-equipped with their own devices, internet

connectivity and the ample teacher support provided by the schools' and districts' ICT Coordinators. Moreover, students and teachers were already familiar with the basics of computer literacy and students themselves are digital natives requiring little support in navigating the platform and application. The initial orientation which included an overview of the system and platform was followed up by subsequent smaller-group orientations that allowed for the teachers to familiarize themselves and then ask the necessary follow-up questions to help them prepare for the pilot.

In addition, the Phil-IRI assessments were already developed, standardized and leveled, which allowed the team to focus more on the technology side than on the assessment development process.

The conclusion from this pilot is that the CoBRA may offer teachers a more efficient way to assess their students' reading and listening comprehension skills but requires significant review and re-grading by the teacher to determine accurately their reading scores and levels. The voice-recognition and AI scoring technology is not accurate or reliable enough to use as an independent means for measuring students' oral reading fluency skills.

The project cancelled the second planned pilot, which was originally scheduled for the beginning of this school year, for two reasons: first and foremost, the sponsoring unit within DepEd ICTS was dissolved due to internal reorganization as part of the new leadership's transition plan. Secondly, the licensing costs quoted for the software escalated to what were deemed unsustainable levels. The second pilot would have involved all teachers and grade 4-6 students in one school-division. This would have given DepEd a much better understanding of how this platform can benefit teachers, schools and supervisors at scale.

ANNEX I. DETAILED FEEDBACK FROM THE FOCUS GROUP DISCUSSIONS

Summary of Computer Based Reading Assessment FGD outcomes

The CB reading assessment pilot in the schools visited was mostly successful and the teachers, students, and school management were very excited about the innovation that relied on artificial intelligence and speech recognition technology to measure students' reading speed, comprehension, and overall reading profile. The CB reading assessment is part of the resources on the ACR Moodle site.

The student FGD for the user experience on the CB reading assessment pilot had about 7 to 16 students, and 3 to 6 teachers mixed between grades 4, grades 5, and grades 6. For the key informant interviews (KIIs) the team had the ICT coordinator and Head teacher present.

The Computer Based Reading assessment FGDs, and KIIs focused more on exploring user experience, identifying areas of improving accessibility and usability. It also focused on soliciting design and utilization inputs from the end users (students, teachers, ICT coordinator, head teachers, and parents). The process involved

Areas of inquiry and summarized response across the 6 pilot schools' session are as follows.

Student FGD questions areas

Students prior access and use of Mobile phone, and/or computer: Mobile Access and Computer access within the Sample students who took the CB reading assessment showed 99% percent of the students had access to Mobile device and 50% had access to a laptop/PC at home. Devices were mostly owned by parents, who gave student access to for school assignment, research, and entertainments (games, watching videos, and picture taking). However, access to computer and Mobile devices in school was limited mostly due to limited number of available devices for student, most devices were allocated to teachers.

School pilot preparation, support system, and infrastructure setup: Majority (100%) of the students sampled reported they observed their school had good setup with headsets, tablets, and computer available to students to take the CB Reading tasks. One student reported a faulty microphone was replaced by the school ICT coordinator.

Students' ability to access and navigate the Moodle site without assistances: Student who took the CB reading assessment pilot had just than an hour orientation on how to navigate the Moodle site, before taking the test. However, 30% of the respondents were able to navigate the Moodle site on their own, while the teachers assisted other students, especially grade 4 students, to avoid time delays. Majority of the 30% students that navigated without assistance had previous access to mobile phones and laptop pc at home.

Navigating the CB assessment subtask and initiating the assigned passage set: Students ability to self-navigate the task is crucial to the successful completion of the assessment. 100% of the sample student stated that the navigation was easy for them. 60% of the student stated that teachers decided to give them orientation before the task, which helped them to navigate the task on their own when the actual assessment commenced.

Read Aloud Task - Oral Reading Fluency (English and Filipino Passage set)

Level of difficulty starting the Read aloud task using the screen instruction: The Read Aloud task is a self-accessed task that student must initiate by starting a timer and reading aloud a passage stimulus that is displayed on a pop-up screen. 70% of the sampled student mentioned that it was easy to start the timer that launches the pop-up screen. While grade 6 students needed assistance to do this, grade 4 and 5 makeup the 30% who need some teacher assistance from teachers to start the timer

Size and legibility of the passage/stimuli screen prompt: Displaying passage set a clear and legible screen format, and size is very crucial to students sustained attention while reading on a device screen. 100% of the sampled student mentioned that the passage font, and font size was clear, and easy to read. Grade 6 student mentioned that for very long passage they needed to scroll up to access the rest of the passage.

Student ability to recall their assigned passage set and its subject matter: The validity of the sampled student as actual participants of the CB reading assessment, relied on their ability to recall the passage, and subjects within the passage set they were assigned to. Interestingly, 100% of sampled students recalled their respective assigned passage, subjects in the passage, and were able to respond to at least one comprehension question about the passage.

Completion rates of Read aloud passage task: All sampled student confirmed they completed the read aloud passage task.

Problem encountered completing the read aloud task: Out of all the sampled student, only one student mentioned a brief distraction during the read aloud task, and he had to start again from beginning.

Successful transition from the Read aloud task upon completion to the Silent reading comprehension task: Easy transitioning between task is very key to students completing the CB reading Assessment. 95% of students mentioned it was easy to transit to the next task (Silent Reading Comprehension), while 5% needed teacher assistance. The 5% students who needed assistance were mostly grade 4 students.

Silent Reading Comprehension Task (English and Filipino Passage set)

Size and legibility of the passage page: 100% of the sample students mentioned that the passage screen, and text was very clear, and easy to read on tablet and PC screen sizes.

Clarity and understanding of the displayed task instructions: 100% of the sample students mentioned that the onscreen instruction for the Silent Reading task was clear, easy to read, and understand

Successful navigation from reading passage to question and choice: Despite the few challenges encountered by some students, 100% of sampled student in all grades completed the Read aloud task

Student task completion rates: Despite the few challenges encountered by some students, 100% of sampled student in all grades completed the Read aloud task.

Feedback on the difficulty level, and content familiarity of the comprehension passage and questions: The CB reading assessment task has 3 sets of passage stimuli per grade for English and another set of 3 for Filipino language. Most of the grade 4 students mentioned that the passages were easy to read and understand. Grade 4 and 5 Students felt their passage sets were too long and a bit out of context of their realities in the Philippines. The Passages were from the Philippines Phil IRI Passage set. Overall, 80% of the sample student felt the difficulty level was easy.

Challenges experience completing the task: No student reported any problems with the Silent Reading Comprehension task.

Successful transition from Silent Reading Comprehension to Listening Comprehension task: The transition between the Silent Reading Task and the Listening task requires students to navigate back to the set task page as Listening task is for nonreaders who could not complete the Read aloud task. We had 50% of the students mostly in Grade 4 needing teacher support to initially navigate from the Silent reading to the listening task. majority of these students who needed initial support are in Grade 4.

Listening Comprehension Task (English and Filipino Passage set)

Student feedback on clarity of the passage reader Artificial Intelligence (AI) Text to Speech (TTS) voice model: For the pilot, we had all students try and navigate to the task and experience the AI Voice model simulate a teacher reading a passage to a nonreader and the nonreader listen to on screen audio instruction, listen to the choices, and select answers to comprehensions. 100% of the sampled students mentioned they liked the AI TTS voice model. They found the instructions and passage very clear to understand. Majority of the students felt it was a teacher that was reading. The AI model used was a South African female voice with soft spoken style. Filipino passages used a Tagalog female AI voice TTS model. Initial design attempt to use a Filipino voice TTS model made the passage too fast for the students to comprehend.

Clarity and understanding of the Artificial Intelligence (AI) Voice Model task instructions: 100% of student liked the AI TTS voice instructions and mentioned they were clear and understood.

Ease of replaying the audio passage and listen to the comprehension passage/questions again: The Listening Comprehension task for nonreaders allows for a student to replay the passage, questions, choices, and instructions multiple times. However only 10% of student needed to replay the passage, and the student mentioned it was easy to identify the play icon and replay the passage again.

Ease of playing and listening to each answer choice and selecting and deselecting the answer: Replaying the Listening Comprehension task instructions, questions, and answer choices is an anticipated action student will take as they consider questions. 70% of the student were able to replay the answer choices, and questions, while 30% initially needed teachers' assistance. Majority that needed a one-time teacher assistance are grade 4 students. while grades 5 and 6 found it easy.

Task Completion Rates: All students completed the Listening comprehension task

Challenges encountered completing the listening comprehension task: There were little or no issues reported by the student on the Listening comprehension task. However, we had one student who had a faulty headset replaced by the school's ICT coordinator.

Student Confidence level for 100 self-administration and navigating the CB reading assessment without teacher support: For the Listening Comprehension task, 98% of the student felt very confident that with their experience taking the task, they can now take it without any assistance from teachers, two sample students in Aklan felt they can support and guide other classmate on how to take the task for the pretest in August.

Feedback from Students on how to make the CB Assessment more engaging: It was an interesting session soliciting feedback, and inputs from students, on how to improve user experience of the CB Reading Assessment. Majority of students wanted more fun activities added, some wanted games, new passages, and more colorful user interface. Most of the students were very excited about the instant grading feedback on the comprehension task.

Teacher, ICT Coordinators and School Head, KIs/FGD questions areas

Pre assessment prep and setup: During the FGD with teachers on their perception of the school's setup and deployment of the CB reading assessment, 90% felt the school was prepared, and setup was adequate, 10 % felt the setup of their school was too noisy and distracting for the task.

Hardware, Infrastructure readiness: Majority (60%) of teachers felt they had good hardware, but others (40%) would have been more prepared if the schools had more tablets, faster internet for teachers and students.

Human resources and capacity: 80% of teachers felt they were ready and had adequate capacity to support learners to complete the CB reading assessment. Teachers in one school in Pampanga felt the environment was not fully ready, it was noisy, and distracting for students taking the test.

Read Aloud Task Passage Re-grading

Ease of Navigating the grading page: For the CB Reading Assessment Read Aloud task, the AI Speech recognition engine automated the passage grading for Oral reading Fluency. The system also has provision for teachers to review the AI grading and re-grade the passages again after listening to the student's audio of the passage they read. Majority 100% of teachers sampled mentioned it was easy for them to navigate the Grading section and 80% completed the Regrading task for student passages read.

Understanding of the re-grading process and features: Majority 100% of teachers sampled understood the grading process.

Teachers completing re-grading task: For the Read Aloud passage re-grading task assigned to teachers, 75% of sampled teachers completed the task, while others did not attempt to re-grade as they wanted to have some passages graded by the AI and compare.

Ease of downloading the reports: 50% of teachers where able to download the reports from the CB reading assessment for their respective schools, and class/grades. 40% needed some support from ICT coordinators, while 10% had ICT coordinator handle the report downloading for them.

Challenges encountered during the Assessment: Majority of the problems reported by teachers includes, limited number of quality tablets and laptops, slow reading by students, distracting and noisy environment at the school. Some teachers also mentioned some students not pronouncing the English words correctly.

CB Reading assessment features that had they felt positive about: The most positive feedback from teachers, ranged from increasing the AI auto grading accuracy, ability for teachers to regrade passage, and identify miscues, faster analysis and reporting of students reading profiles. Some teachers mentioned they like that it took less time to complete the tasks, compared to the traditional paper system, and it was overall less impactfully on the schools.

Areas of Improvement and additional functions request: The list of improvements suggestions to the CB reading assessment from interview with teachers range from a practice task for preparation, to reports that show reading profile by student by school. They also wanted the comprehension task and Read Aloud task to be on one report page. Some schools asked for report to be branded for each school.

ICT Coordinator and School Administration Feedback

Hardware and infrastructure readiness: Interview with ICT coordinators and school management showed majority of school felt their infrastructure needed upgrading, these include laptops, tablets, internet packages, and software available to support learners.

Capacity to manage school CB reading assessment platform, support students and teachers: Majority of the ICT Coordinators and school management displayed good confidence and willingness to better support the next pretest of the CB Reading assessment. Sto Domingo ES in Pampanga mentioned they will need more training in preparation for the pretest in August.

Issues encountered: Tech related issues encountered includes oversubscribed internet network in schools, few tablets and laptops/pc, and slow computers with outdated software.

Opportunity for improvement and custom requests: The list of improvements suggested by ICT coordinators and school management where like the ones mentioned by teachers. The list of suggested improvements includes reports that show reading profile by student by school. They also wanted the comprehension task and read aloud task to be on one report page. Some schools asked for report to be branded for each school, a dashboard for each school, and an improved AI auto grading system.



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