

A Device-Delivered, Automatically Scored, Formative Assessment of English Speaking and Listening Skills

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Abstract

Speaking and listening standards that require learners to construct oral arguments and supporting evidence and evaluate others' arguments present challenges for teachers and students. These challenges play out in the teaching-learning process and during formative assessment activities. Effective formative assessment practices are part of effective instruction (e.g., Black & Wiliam, 1998; Herman et al., 2006). Teachers need support to assess student skill in speaking and listening in order to foster development. We will demonstrate an innovative prototype speaking and listening assessment that is aligned to US speaking and listening standards and embedded in instructional content for English learners using story boards. Later this year, the assessment tasks will be administered on digital devices and scored automatically, thus providing timely formative feedback to teachers and students and reducing teacher assessment burden. This paper illustrates the online prototype assessment task Year Round School designed to provide reliable and validly interpretable formative information and for use for school-to-school and district-to-district comparisons.

Keywords: speaking and listening, online performance assessment, automated scoring

Introduction

The demand to effectively assess and support the large population of US students who are learning English language skills is a difficult challenge for most schools to address. At the same time, there are new requirements in the US Common Core State Standards to focus on student speaking and listening skills. While in traditional assessments of spoken language students are asked to read aloud, listen to a sentence and repeat, or listen to a lecture and retell, assessing Common Core speaking and listening requires a richer and more engaging conversational space as well as a broader connection to English language arts inquiry; for example, evaluating the soundness of the reasoning and relevance and sufficiency of the evidence to support an argument and identifying when irrelevant evidence is introduced; presenting claims and emphasizing salient points in a coherent manner with relevant evidence; and engaging effectively in one-on-one, group, and teacher-led collaborative discussions with diverse partners. Similarly, international English learners need opportunity to practice the demands of speaking and listening skills.

Implementation of the Common Core standards requires adopting states to assess rigorous new content, including speaking and listening skills, in ways not widely practiced, currently. The inclusion of speaking and listening skills as part of the English language arts standards has prompted the US multistate assessment consortia to include speaking and listening performance assessment components in their comprehensive assessment systems. Because these skills have not been a part of traditional assessment programs, however, teachers may not be equipped to adequately assess student progress in this area throughout the school year. In addition to background in formative assessment practices, teachers will have to be equipped with highly specialized skills in linguistics and phonetics, and understand which features from the student's background would affect the student's development of competency in English speaking and listening. The amount of time needed to assess all English language learners by listening to them speak or observing their listening skills would be impractical and detract from instructional time. While there are technologies that provide feedback on spoken language, most focus on discrete skills like pronunciation and fluency and are not enabled to assess higher-order speaking and listening skills, such as evaluating claims to support arguments. In addition, the Common Core standards require students to demonstrate their speaking and listening skills in a variety of settings (one-on-one, in groups, and teacher-led discussions), contexts, and tasks.

While in traditional assessments of spoken language students are asked to read aloud, listen to a sentence, and repeat or listen to a lecture and retell, assessments of Common Core speaking and listening standards require a richer and more engaging conversational space as well as a broader connection to English language arts inquiry. In this context, recent research on conversational agents in educational assessments can shed light on some of the promising directions in speaking and listening assessment. These conversational agents communicate through a host of channels, such as gestures, posture, speech, and facial expressions in addition to text (Atkinson, 2002; Biswas, et al., 2010; Graesser, Jeon, & Dufty, 2008; McNamara et al., 2007). Students communicate with the agents through speech, keyboard, gesture, or touch panel screen. The agents help students learn by interacting with the students in a manner that intelligently adapts to the students' contributions. For example, in Operation ARA, a system based on “dialogues,” the student interacts with two animated conversational agents—a teacher and a student—that converse in natural language and adapt their behavior to the real student's response (Millis, et al., 2011; Halpern, et al., 2012). Developing artificial spoken conversations

in natural language involves an integration of systems that combine automatic speech recognition, speech-to-text translation, and natural language processing to link the recognized text to specific computer actions. By using relatively simple conversational agent functionalities, it is possible to create the necessary range of engaging online tasks that provide comprehensive, balanced assessment of the Common Core speaking and listening standards (Ferrara, & Rosen, 2013).

Year Round School Assessment Task

Pearson's Center for Next Generation Learning and Assessment¹ has created a prototype performance task template, designed to measure speaking and listening skills and applications required by the Common Core standards. We have developed a storyboard and metadata table from the template for the prototype speaking and listening task, *Year Round School*. The task focuses on listening and presentation skills and provides 13 scorable measures that address specific Common Core standards in grades 6-8,² such as delineate a speaker's argument and claims, present claims and findings, and adapt speech to a variety of contexts and tasks. This task is built on a reusable template (or task generation model) that enables us to remove the content about year round schooling and replace it with a number of topics (e.g., proposed family pledge to limit video games, debate over more or less homework, proposal for only organic vegetables in the school cafeteria), using the same template metadata table, targeting the same standards, and using the same scoring rubrics. We have created a version of the template and task for teacher scoring and a version that is 100% automatically scored using existing Pearson Knowledge Technologies³ capabilities. Reports generated from this task model can provide actionable feedback for teachers and students on improving student speaking and listening skills. The task template is designed to provide reliable and validly interpretable formative information and for use for school-to-school and district-to-district comparisons.

The following visuals illustrate sample activities included in Year Round School speaking and listening performance

Activity 1: *Year Round School* Cover Slide

In this activity, the teacher avatar introduces the task to the student. The teacher avatar appears on almost all slides, to guide and engage examinees through the task and to read aloud, at the student's option, directions on how to complete each assessment activity. Examinees see the Record, Play, and Submit buttons plus the forward and back buttons (at the bottom of the slide) for the first time on this slide.

¹ See <http://researchnetwork.pearson.com/nextgen-learning-and-assessment>

² See <http://www.corestandards.org/>

³ See <http://kt.pearsonassessments.com/>

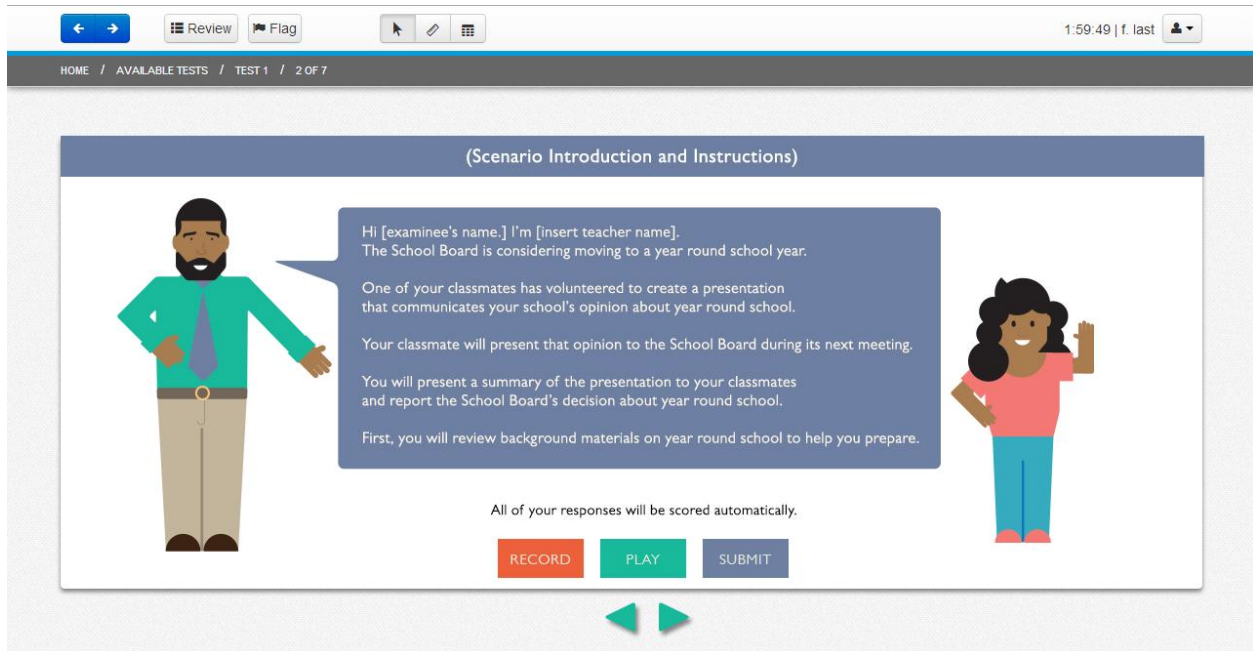


Figure 1: *Year Round School* introduction

Activity 2: Examinees View Three Videos and Pose Two Questions

In a previous activity, examinees viewed a news clip of a school superintendent who argued in favor of year round school and were asked to summarize her arguments. In this activity, examinees view counter arguments posed by two students and are asked to pose two questions to the principal, using arguments posed by the two students.

As in all activities, examinees can record their response, replay it, and either re-record the response or submit it and move to the next slide.

In this version of the task, examinee responses are scored using Pearson's *Narrative Accuracy and Clarity* scoring rubric to focus on two Common Core speaking and listening standards simultaneously: (a) Pose questions that connect the ideas of several speakers and respond to others' questions and comments with relevant evidence, observations, and ideas; and (b) Delineate a speaker's argument and specific claims, evaluating the soundness of the reasoning and relevance and sufficiency of the evidence and identifying when irrelevant evidence is introduced.

The screenshot shows a digital learning interface. At the top, there are navigation icons (back, forward, review, flag) and a timer showing 1:59:49. Below the navigation is a breadcrumb trail: HOME / AVAILABLE TESTS / TEST 1 / 2 OF 7. The main content area has a blue header with the instruction: "Click on each video and listen to the speakers. Then answer the question below." Below this are three video thumbnails, each with a play button. The first thumbnail shows a woman with blonde hair, the second shows a woman with glasses, and the third shows a man with glasses. Below the thumbnails is a question prompt: "What are the two most important questions to ask Ms. Margaret Trimer-Hartley in light of the arguments against year round school expressed by students at University Prep Science and Math High School in Detroit?" Below the question is a sub-prompt: "Click on Record to pose your FIRST question to Ms. Trimer-Hartley. (It's ok to review the videos as much as you want.)" At the bottom of the main content area are three buttons: RECORD (orange), PLAY (green), and SUBMIT (blue). Below the buttons are two green arrows pointing left and right, and a stopwatch icon showing 40 seconds.

Figure 2: Examinees view three videos and pose two questions

Slide 3: Examinees Present Arguments to their Avatar Classmates in Opposition to Year Round School

In previous activities, examinees have helped a classmate avatar prepare slides to represent their school’s opposition to year round school, rehearsed the presentation with the classmate, and viewed the classmate’s “live” presentation to the School Board. Throughout those interactions, examinees are able to take and update notes to help them prepare for the summary presentation that they will make to the teacher and classmate avatars on this activity. Examinees then present the summary of classmate avatar’s presentation to the School Board and include the content of two Board members’ comments in response to the presentation.

As in all activities, examinees can record their response, replay it, and either re-record the response or submit it and move to the next activity.

Examinee summaries are scored using Pearson’s *Narrative Accuracy and Clarity* scoring rubric to focus on two Common Core speaking listening standards and an English language arts standard simultaneously: (a) Present claims and findings, emphasizing salient points in a focused, coherent manner with relevant evidence, sound valid reasoning, and well-chosen details; use appropriate eye contact, adequate volume, and clear pronunciation; and (b) Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate.

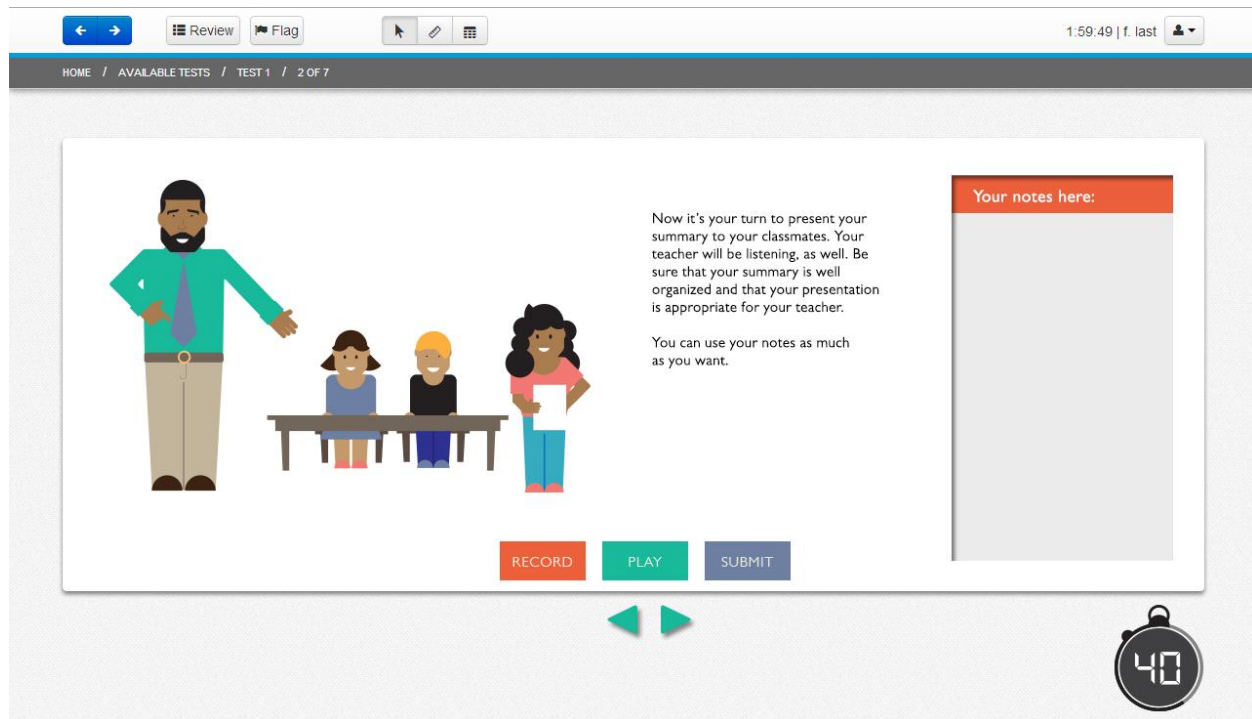


Figure 3: Examinees summarize arguments to their avatar classmates in opposition to year round school

Next Steps

Pearson is creating online instructional modules for students to learn and practice Common Core speaking and listening skills. The modules will monitor student practice responses and provide feedback to help them improve listening comprehension, oral fluency and other oral skills, and skill in argumentation, supporting evidence, and critique as defined in the Common Core standards. The performance task template behind *Year Round School* and other templates will form the basis for assessing and providing feedback on the learning outcomes in the instruction and practice modules. The new modules are scheduled for release in 2015.

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