**Functional Specifications of CAPITAL Passages**

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**Overview**

Comprehension and Pronunciation Instructional Tools for Adult Learners (CAPITAL) is a collection of tools for students who are looking to improve their literacy skills and are enrolled in a literacy educational program. According to the American Library Association, 14% of adults in the United States cannot “search, comprehend, and use continuous texts”[[1]](#footnote-1). Current government and philanthropic funding only indirectly helps 10% of these nearly 30 million individuals. There is therefore a significant opportunity for the development of technology to help improve literacy rates. CAPITAL aims to utilize the unique opportunity mobile technology allows for a new medium of learning, and CAPITAL Passages aims to focus on learners who are at the point of learning to comprehend entire passages. CAPITAL Passages aims to automatically generate reading comprehension questions from a given passage.

This document describes how the users will interact with the CAPITAL system and does not examine the technical implementation of the system.

**Scenarios**

**Scenario 1: Brenda.**

Brenda is a teacher at the Washington Literacy Center (WLC). She has a full-time job as a teacher at a local D.C. public school and spends her nights and weekends volunteering as a teacher at WLC. She has a very hectic schedule and finds herself constantly working overtime to create material for her students. She creates and assigns nightly homework to her students at WLC, but this is an incredibly time consuming process. She often finds herself sacrificing personal life to create reading questions for her students. Brenda spends hours upon hours reading sample passages and generating her own reading comprehension questions. After voicing her concerns to her colleague, she creates a CAPITAL Passages account in hopes that it will save her time and allow her to effectively teach her students.

Brenda logs onto the CAPITAL Passages web interface and creates a course for her night class. She enters a few passages she wants the students to read this week and uses the website to automatically generate comprehension questions for the passages. She publishes her class and the questions she chose automatically go to the students’ smart phones.

**Scenario 2: Barry.**

Barry is a sixty year old Washington, D.C. resident who works full time as a construction worker. He is a native English speaker who, due to his educational upbringing, never learned reading comprehension skills and is functionally illiterate. A year ago, he decided to change this and enrolled in a program at WLC. He has been enrolled in Brenda’s course and has worked his way up from struggling to read single words to reading full sentences. He is currently trying to master reading an entire passage and comprehending the meaning of the passage. Barry tries his best to complete his nightly homework assignments from Brenda, but finds it difficult to find the time to. He works full time and has a two hour reading class every night. Brenda told him about a new app that he could put on his phone that would allow him to work on his homework on his bus ride to work. In hopes of improving his reading at a quicker rate, he downloads the app onto his phone.

Barry now uses his app every day on his commute to and from work. He is able to get new exercises from Brenda and complete them daily. He’s doing better in school than ever and has made leaps and strides in his reading test scores.

**Screen by Screen Specification—Website**

The website is the part of CAPITAL Passages that instructors interact with in order to create reading questions and send them out to their phones. Each webpage will have a sidebar with links to the Create a Student, Create a Course, and Profile pages. Additionally, in the top right hand corner of the page, the instructor will have a link titled “My profile”, which will direct to the Profile Page when clicked.

**Home Page**

The home page is where the instructor first accesses the website. The home page includes a FAQ which explains how to use the site to instructors and the sidebar which allows them to access the other pages of the website.

**Profile Page**

The profile page is where instructors can view and edit details about their profile—specifically: their name, email, password, and picture. This information is displayed in a list on the page with a button in the top right hand corner titled “Edit”, which allows the instructor to edit and save the changed information.

**Create a Student**

The Create a Student Page is the page where the instructor can create accounts for his or her students. The instructor accesses this page from the sidebar labeled “My students.” Each student needs to have an account in order to log into the application on their phone. Once My Students is clicked, the instructor sees a list of their current student accounts. Next to each student, there is an “edit” button which allows the instructor to change a student’s information and save it. There is an “add a student” button at the end of the students list. This directs them to a form requesting the following information: the student’s name, email, reading level, and a password. Once they save the new student’s information, the student is added to the list.

**Create a Course**

The Create a Course page is where an instructor can create a new course for one of her classes. Each course consists of a number of Modules, which each include one or more passages and questions. An instructor creates a course by filling out the following information: course name, course level, and students who should be enrolled in the course. The webpage has a form asking for that information. Once the instructor selects “submit” with the information correctly filled out, the page displays the information as well as the option to add a module.

After modules have been added, the list can be viewed on the course page as well. Once at least one module has been added, the instructor sees a button called “publish to students”, which pushes the course and corresponding modules to the students’ phones. Once a course has been published, the course and its modules can no longer be edited, they can only be viewed on this screen.

**Create a Module**

Once a course has been created, an instructor can add any number of modules to the course. Once “add new module” has been clicked on the course page, the instructor is sent to this page. This page allows the instructor to add passages and questions to the current module. The instructor sees the passages they have already added along with the option to add a new passage. When they click on add a new passage, they are asked if they would like to manually input questions or have CAPITAL automatically generate questions for them. If they select CAPITAL, they are taken to the Generate Questions screen. If they choose to manually input, a field is added to the screen which allows the instructor to paste in their passage and type in questions and answer choices. A button, called “add question” is available whether questions have been manually or automatically generated. An instructor can always add a question to their current list of questions or to their prior automatically generated questions.

**Generate Questions**

This page allows the instructor to paste a passage into a text box, fill out what type and how many questions they would like to have generated, and choose which questions they like and dislike. The instructor begins by pasting their passage from the text box. From there, they can select from a variety of check boxes which types of questions they would like generated. These specific types are still being determined, but it is anticipated they will include factual questions, true and false questions, and mutli-fact comprehension questions. The instructor will also fill into a box how many questions they would like generated. The instructor will then click a button which says “generate questions” and the correct number of questions of the selected types are generated and displayed to the instructor on this page. The back end of the website will work to automatically parse the passage and generate questions according to the instructor’s specifications. From here, the instructor can opt to remove certain questions they do not like, modify the wording of questions, and add questions they would like to be seen. Once they are happy with the question choices, they click “Add passage and questions”, and are redirected to the module page, which now includes the new passage.

**Screen by Screen Specification—Phone Application**

**Home Screen**

The home screen on the smart phone app will display to a student a list of all the courses they are enrolled in. They can scroll top to bottom to view all of their courses. If a student clicks on a specific course, they will be directed to the course screen for that course.

**Course Screen**

Once a student selects a certain course, they are directed to the page which displays to them all of the modules in a given course. The list is centered both vertically and horizontally. They can scroll left to right to examine the list of modules. Each module displayed will include the name and prior score of the module. A student will only be able to click on the modules they have previously completed or the next module in the series, to prevent students from completing more advanced modules before they are prepared.

**Exercise Screen**

When a student selects a module to begin working on, they are directed to a screen which shows the first passage and its associated questions. The student marks answers for the selected questions that accompany the passage and clicks “submit.” They are immediately notified of which questions they got wrong and are given a chance to review their correct and incorrect answers before moving on to the next set of questions. When all of the passages have been answered, the student is displayed a splash screen which depicts a percentage score for their progress as well as the representation of that score in a five star scale.

If the app crashes or the user closes the app in the middle of completing a module, the progress is saved along the way each time the user selects submit for a given passage. At worst, the user will only lose responses for the passage they were currently on—not the entire module worth of passages. The next time they navigate into this module, they will resume in the place they left off.

1. [1] ”Outreach Resources for Services to Adult New and NonReaders.” American Library Association, n.d. Web. 13 Nov. 2014. [↑](#footnote-ref-1)