Design Requirements Specification

ISEC-ADE

2021-1-CY01-KA220-SCH-000027701

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ISEC - ADE

Design Requirements Specification for *TeachSpace* Web Application

Result 1: Accessible e-learning web app

Accessible digital education for learners with autism and intellectual disabilities: innovating solutions and enhancing educators' competences (ISEC-ADE)

2021-1-CY01-KA220-SCH-00002770

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Contents

Full project overview

The digital divide for learners with SEN is not only an issue of access to broadband and technological devices, but also about ensuring that the technology and content is inclusive for their needs. The e-learning web app to be developed is a tool for creating interactive and accessible digital educational content. The content in the form of lessons, exercises and activities will enable access to digital education for learners with autism.

This tool will be free, open access, web-based application, that can easily be embedded in national e-learning platforms. The web based approach makes the app accessible from any device via the device's internet browser, without the need for downloading and installing locally, requiring only an internet connection. It will enable educators to create accessible digital educational resources, very much needed to bridge the current gap in digital education opportunities for learners with autism, who require specialized instruction and accommodations to access high-quality education.

The app will be designed in such a way that allows for versatile use regardless of the type of educational setting (inclusive or one to one support) academic subjects, or developmental and educational curriculum goals. It will have functional features to cover several areas of difficulties for autistic learners: academic skills, social skills, behavior and communication. Various types of education professionals in primary education, such as teachers, special educators, teaching assistants, school based speech and language therapists can utilize the tool for remote or in-class education and/or teletherapy. On the other hand, the app will be simple enough and accessible to learners with autism and intellectual disabilities. The tool will available in English and Macedonian, Greek and Bulgarian.

The app incorporates several innovative elements, such as:

- The exercises/activities/lessons produced with the app are self-grading, providing immediate feedback to students, to ensure errorless learning (teaching strategy widely used by autism and SEN education specialist), and to save time on progress tracking and grading for teachers.
- The lessons are paperless, and don't require printing, photocopying, cutting, laminating and velcroing. Thus, are cost-efficient and environmentally friendly way of teaching in-class as well as remotely;
- The educational content is gamified and interactive, features that keep learners engaged and help with motivation;
- The app can be used by all people who are in direct or indirect support of pupils with Autism and therefore it offers a holistic approach in the overall aim of having self-dependent learners regardless or their condition

- Participative user-centred design methodology. The practical/ hands on experience and accumulated knowledge of all type of stakeholders will be taken into consideration during the development of the guidelines for app development and testing

This document provides an overview of the design of the app, detailing the **logic between users and software though use cases.** The aim of this document is to gather, analyze and give an in-depth insight of the complete **TeachSpace application** by defining the problem statement in detail. It also concentrates on the behavioral description of the system. The detailed requirements of the **TeachSpace application** are provided in this document. The SRS is intended for members of project consortium and of course developers of **TeachSpace Application**.

Main needs and implementation goals

The document examines the comprehensive design specification of TeachSpace application. It includes all the vital information regarding the software design, architecture, and how to design it while meeting technical specifications. The next sections specify all the information related to the software design process, software design requirements, architecture, and others. It not only ensures that all the main software design requirements are met but also helps streamline the workflow of the software development team by guiding them through the right steps to how to build the software.

The TeachSpace app will be produced following the Software Development Life Cycle (SDLC) framework. This methodology is used by the software industry to design, develop and test high quality software. The SDLC aims to produce a high-quality software that meets or exceeds users' expectations, reaches completion within times and cost estimates. SDLC is a well-structured flow of phases i.e. plan that involves the following stages:

Stage 1

Planning and Requirement Analysis (Month 1, 2, 3 and 4 of the project). Requirement analysis is the most important and fundamental stage in SDLC. In order to identify the current problems, the consortium will acquire input from all stakeholders, including teachers, special educators, assistants, learners and parent/careers. We will examine current best practices, identify strengths and weaknesses of the current digital solutions with improvement as the goal. All partners will be equally involved in this stage. All 6 partners will conduct a desk research and focus group interviews to identify problems in current digital solutions and best practices in digital education for learners with autism on a national and/or global level. In order to acquire in depth knowledge on this topic, a focus group interview and a desk research protocol and template will be designed. Using the same interview protocol, ShipCon, The Peter Beron Center, MSSA, DADAA and Cyclisis, will conduct two focus group interviews with 6-10 people, one with a group of educators, one with a group of learners, parents and carers. Autism Institute will provide a template for reporting the findings of each

organization and will produce the complete report summarizing the findings from 5 focus groups of educators and 5 focus groups of learners, parents and carers.

Stage 2

Defining Requirements (Month 5 and 6) “What do we want?” Once the requirement analysis is done the, next step is to clearly define and document the product requirements, done through an SRS (Software Requirement Specification) document which consists of all the product requirements to be designed and developed. The partners will jointly produce the SRS document, based on the Stage 1 report.

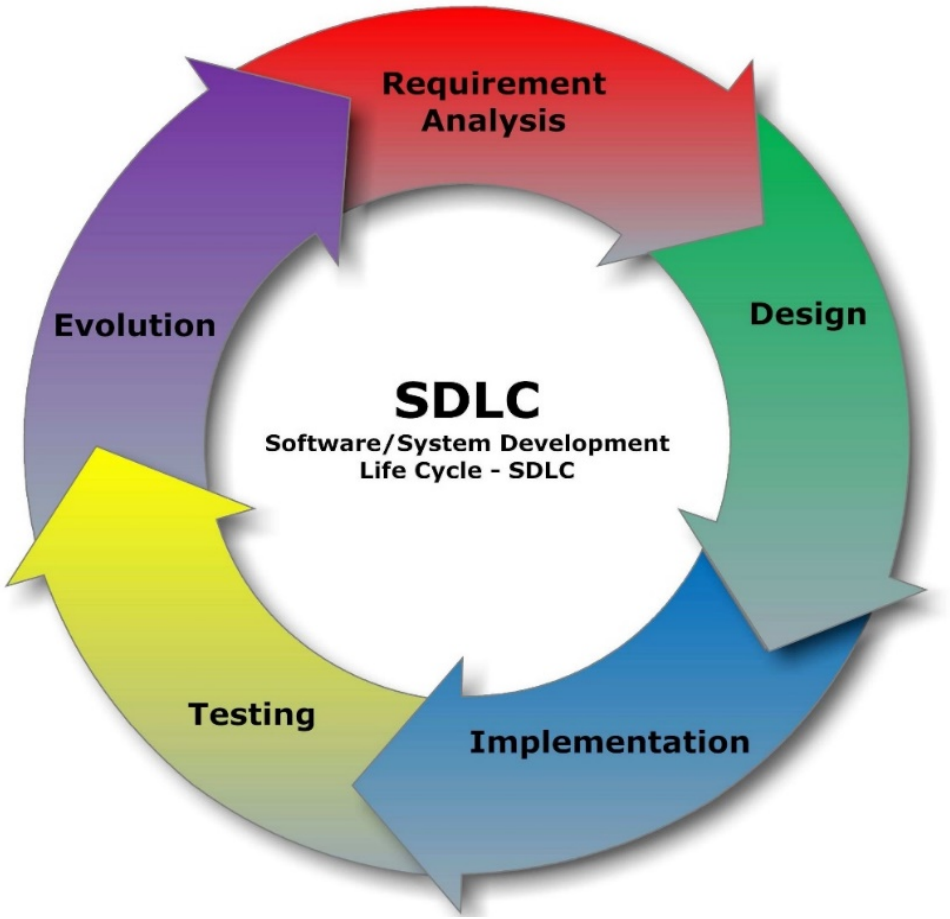


Diagram of development phases sand their sequence

Stage 3

Designing and Developing the Product (Month 7, through 17) Based on the requirements specified in SRS, a design approach for the product architecture is proposed and documented in a DDS - Design

Document Specification. Autism Institute will prepare the DDS. Then this will be reviewed by all partners and based on various parameters as risk assessment, product robustness, design modularity, budget and time constraints, the design approach will be approved and the web app is going to be built by technicians at Autism Institute. Partners will provide adaptations to local languages.

Stage 4

Testing/Piloting the Product (Month 18, through 20) This stage refers to testing the practical use of the app, where products defects are reported, tracked, fixed and retested, until the product reaches the quality standards defined in the SRS. The app will be piloted by ShipCon, The Peter Beron Center, MSSA, DADAA and Cyclisis and finalized based on the feedback from all relevant users/stakeholders: teachers and special educators, learners with autism and people in their support circle (assistants, parents, caregivers). Autism Institute will be responsible to fix all issues, reported by partners during the testing. ShipCon, The Peter Beron Center, MSSA, DADAA and Cyclisis will be responsible for arranging testing of the app with at least 6-10 educators, who will create educational content for 6-10 learners with autism, and collect feedback from both groups of users. The product will be officially released during the conference/multiplier event (Month 35), although it will be fully functional by month 20 and used for the training event (month 30). Feedback from the conference and training event will be additionally taken in consideration for improvement of the web app

References

Using the development methodology described in detail in the SRS document, the conducted desk research in the requirements analysis phase resulted with the selection of the following references for the app development, as best practice examples. These references have a broader scope of functions, broader target audience and will serve only as guidelines and will be adapted to comply with the accessibility recommendations defined in the FDGs Report.

1. Boom Learning https://wow.boomlearning.com
2. Easel https://easel.teacherspayteachers.com

Target audience

1. **Teachers:**
    a. it targets a significant number of people, such as: teachers, special educators, teaching assistants, speech and language pathologists, and other professionals - therapists, that will have the role of creators of the educational content,
    b. Interfaces of product like this should be so easy that any person with limited skills of internet, web browser and computer can use this application for their teaching purpose.
2. **Students:**
    a. the app is intended to be used by learners with ASC an ID in elementary school, with limited digital skills but also considerable cognitive and sensory challenges. For this reason, interfaces will follow specific accessibility guidelines defined in the requirements analysis phase of the development. They are referenced in detail in the Design Specification Document.
    b. The app is intended to be used by typical elementary school students. This does not require additional accessibility guidelines other than the previously mentioned.
3. **Support persons**
    a. Personal assistants, parents and carers, that support children in the home during online education.
    b. This audience will not present a distinctive user class, instead they will interact with the app through the student interface.

User Classes and Characteristics

There are essentially two classes of users for TeachSpace application. First one is the learner, who can complete an interactive task or assignment, submit a completed assignment and view grades and progress report. The second one is the teacher who can create, print, assign tasks to individual student or students, share tasks/assignments with colleagues, view grades and progress reports. and manage classrooms.

Functional requirements and desired set of features

In this section the logic between users and software is described though several use cases.

Use cases: Teacher

1. **Use case: Create an account**

There is nothing to download or install. The online account houses all the Slides they make or are shared with them, as well as all student account data.

2. **Use case: Setting up profile**

- Add or change some basic information such as: a picture, name & username, teacher info (details about themselves – optional);
- Add or change your email address;
- Update password;
- Request email address confirmation messages;
- Confirmed email addresses are required in order to add students.

3. **Use case: Setting up Students**

- Create a new classroom by going to the "Classes" tab and clicking on "New Classroom; Add an individual student by using the "New Student" button;
- To simplify account creation for the students, teachers need to make students' accounts ahead of time.
- Enter a name for the student and assign a password to them; Once teacher has added their students, students will appear in *my classroom*. They will be automatically assigned a username; Students can log in using their username and password.
- For students that might find login in difficult, teachers can copy an individual permanent sing-in link to share with a student.

4. **Use case: Assigning Slides/Sets**

- Before assigning slides/sets, you will need to create a classroom with students;
- You can assign slides/sets to students in the classroom or individually;

- Students will see their assigned sets when they log in to their accounts;
- They can play them at their leisure with custom play settings. Both the student and the teacher can see their reports.

5. Use case: Assigning and Un-Assigning Sets to Classrooms

Using the Library to Assign and Un-Assign Sets

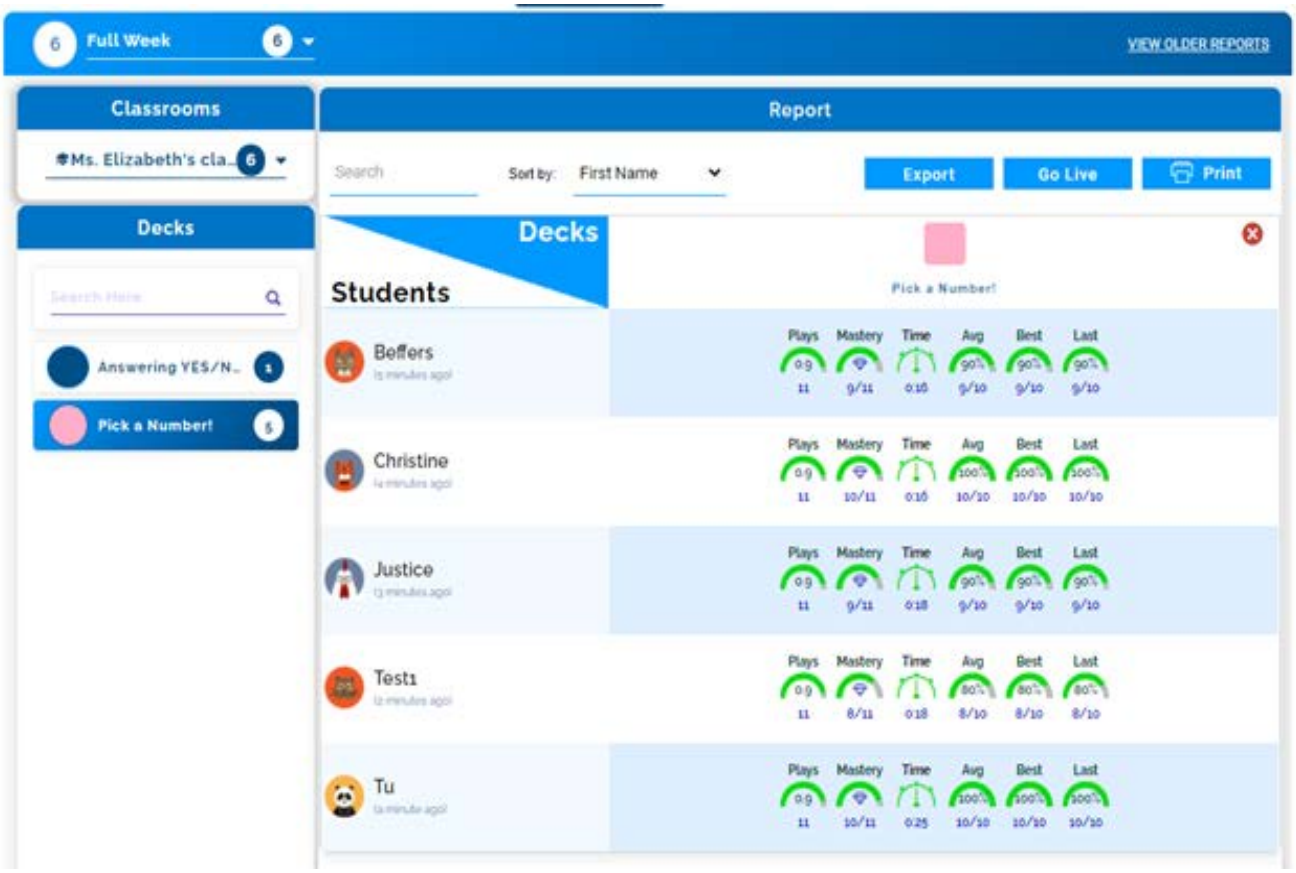
- First, find the Set you want to assign, then click the Action dropdown menu, then click Assign.
- You will be presented with a checklist of all your classrooms. Check a classroom to assign the Set to that classroom, and uncheck a classroom to un-assign it.

Using Classes to Assign and Un-Assign Sets

- After you have a classroom set up, select it from the left side of the Classes page. Then select the "Assignments" sub-tab and click the "assign more sets" button to see a full, searchable list of all your sets.
- You can assign/un-assign by clicking the checkbox next to each Set displayed.
- Note that **Students can only see 10 assignments at a time**. This is to prevent them from being overloaded by choices. You will need to un-assign old sets if you exceed this limit.
- Reports and grades for un-assigned sets can no longer be viewed by the student, but are still saved and viewable by the teacher.

6. Use case: Grading and Reports

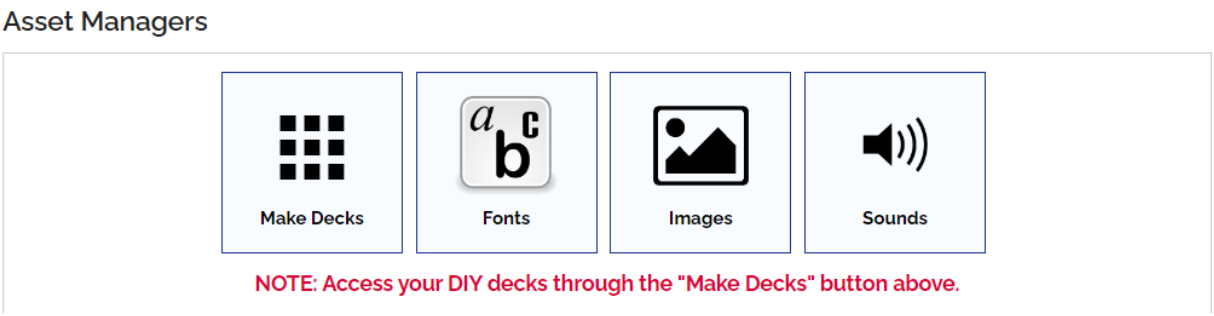
- TeachSpace give students instant feedback as they play through the Set.
- Teachers can view progress and performance on the reports page.
- Data can be sorted and viewed either by an individual student or for the whole classroom.
- Reports can also be viewed by Set by going through the Library tab to locate the specific Set you'd like to see a report from. Click on the blue "Action" button to open the drop-down menu and then click on "View Report" to open that Set's report.
- From the classroom report, teachers can see assigned sets as well as who has not yet started on assignments, who has completed all assigned sets, and who is in the process of working through a Set.
- Teachers can also see student score so far as well as the number of times they have played through the Set.


Full Week
VIEW OLDER REPORTS
Classrooms
Ms. Elizabeth's cla..
Decks
Answering YES/N..
Pick a Number!
Report
Search
Sort by: First Name
Export
Go Live
Print
Decks
Students
Pick a Number!
Plays Mastery Time Avg Best Last
Beffers
Christine
Justice
Test1
Tu

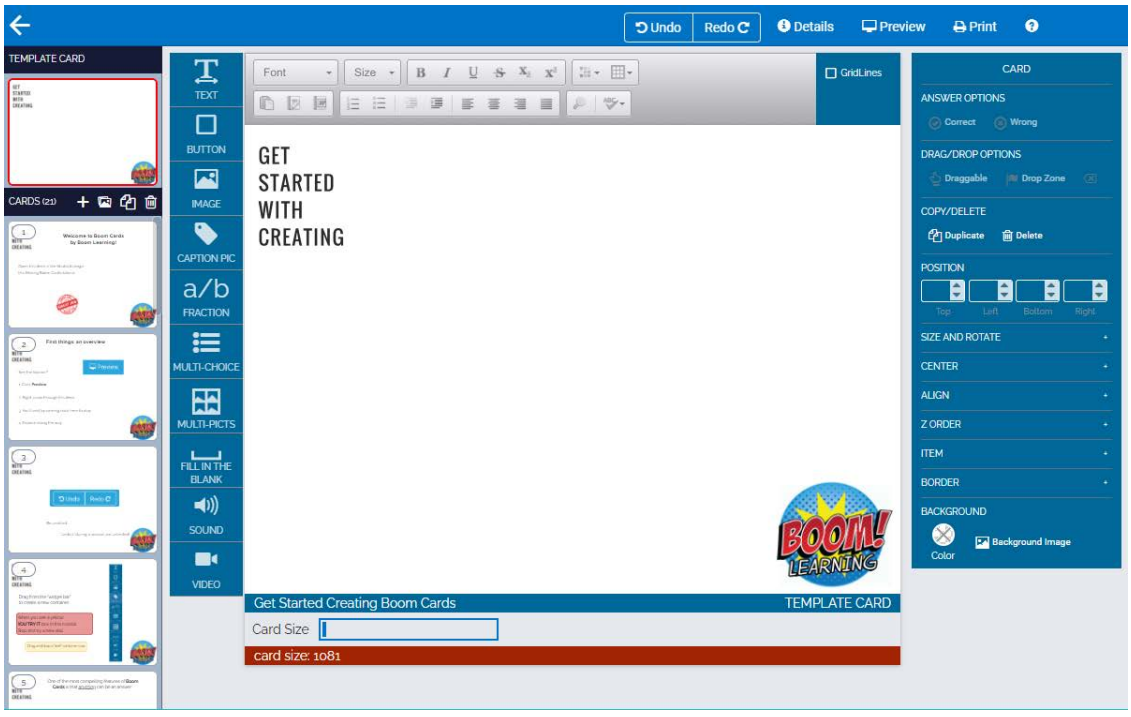

Legend
Plays Mastery Time Avg Best Last
2.3 14/15 1:47 80% 93% 67%
35 14/15 1:47 28/35 14/15 10/15
Plays: This sample deck has 15 cards and the student has played 2.3 times or 35 cards.
The internal number shows how many full plays. 2 1/3 in this example.
The bottom number shows cards played (35 cards) including repeats.
Mastery: how many cards answered correctly at least once.
Time: the sum of active time spent on each card.
Avg: % correct of all the cards played. Cards with multiple answers must be answered completely to be counted as correct.
Best: % correct of the best set of answers to all cards in the deck.
Last: % correct of the most recent answers to all cards in the deck.
Learn more

8. **Use case:** Creating Your Own Slides

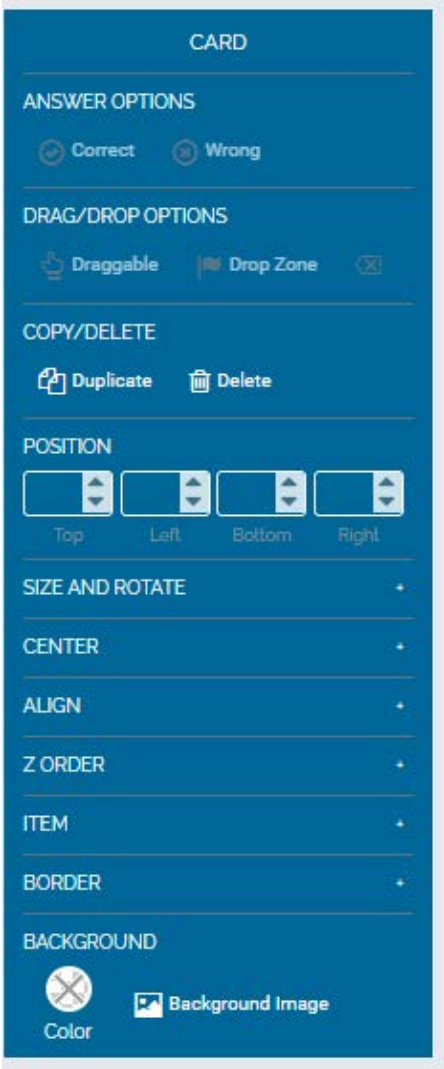
- To get started making your own TeachSpace Slides, go to the Studio tab.
- Scroll down to the bottom of the Studio and click on "Make Sets" under the Asset Managers section.



- Click to open the "Get Started Creating Slides" Set you find there.
- This Set will walk you through the basic tools and give you a chance to play around with them any time you need. Once you have a handle on the basics, to start making your own Set from scratch, click on the blue "New Set" button in the **make sets** section of Asset Managers.

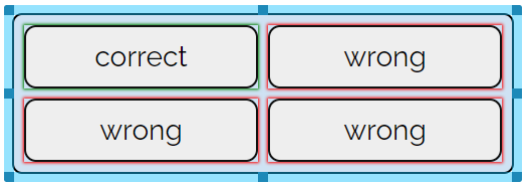


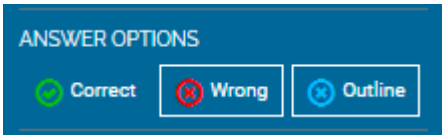
- left toolbar will provide options to add text, buttons, images, and different answer options.
- In the center of the screen is the actual Slide, where you'll be placing all your buttons, images, questions, and answer options. To the right of this, you'll find another blue toolbar with a few different sections and many options to help you create and edit everything you add to your Slide.
- Additional option that is not shown here on the toolbar is **draw simple shapes**



9. Use case: Creating Answer Options

- The **Answer Options** section is where you can both see and modify whether any given answer option is flagged as correct or wrong.
- Any time you create multiple answer options for a student to respond with, you will need to pay attention to which options are marked as correct or wrong.
- To change whether an option is correct or wrong, simply select the answer option and then click on either "correct" or "wrong" to set how that option will be graded.

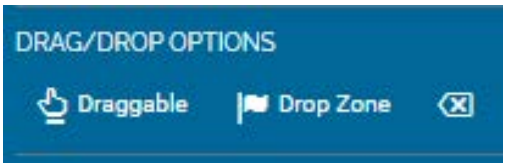
- 



- A red border is outlining any and all answer options which are marked as wrong and a green border around any that have been marked as correct.
- The option to **Outline** your answer will appear next to the Correct and Wrong options once you have an answer option selected.
- By default, an outline will appear showing students if the option was correct or not. You can remove that outline by selecting the answer option and then clicking on "Outline" to remove it. Similarly, you can click to put the outline back if you change your mind.

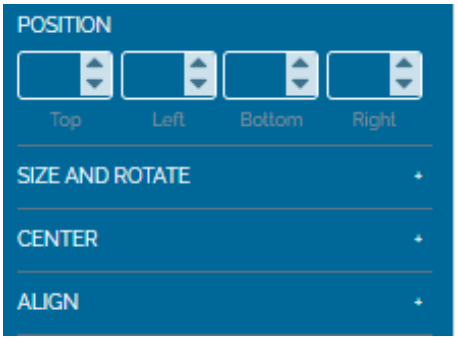
10. Use case: Creating Drag/Drop Options

- The **Drag/Drop Options** section, found on the right side toolbar, is where you find the tools to flag an option as a drop zone and how you make an item draggable so that it can be moved and placed in the drop zone.



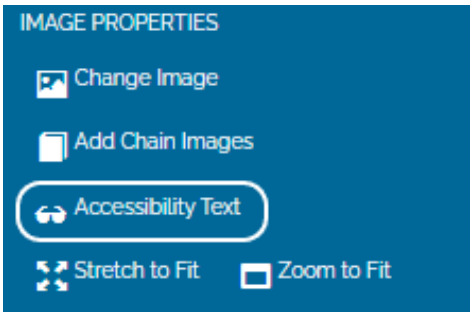
- This section works together with the answer options when you create drag and drop style answers.
- For example, once you've made several possible answers that are all draggable and created a drop zone for them, you can flag the correct option(s) as correct, and the incorrect option(s) as wrong. This way, students are able to select and move any of the options, but only moving the correct one into the drop zone will mark their answer as correct for that Slide.
- Under the **Copy/Delete** section, you can Duplicate or Delete an item on your Slide.

- You can use the Position, Size and Rotate, Center, and Align tools to adjust where buttons, images, and text appear on the Slide.



- The Border feature allows you to change details, such as the color and width, of the border. Similarly, the background feature allows you to edit the background image and color of an object.

- You can add alt text to your images using the image properties panel click on "Accessibility Text."
- Screen readers will read the ALT text of the image, allowing the student to understand the image's content or its context in the Slide. Without descriptive text, the program may skip the image altogether or offer a notice to the user that no description is offered.
-
- All sets have a default set of sounds: a "ding" for correct answers as well as a "whoops" for incorrect answers. Techers can create sets with their own customized sounds



11. Use case: Adding video to TechSpace slides

- Videos can be embedded in slides using the option in the left toolbar. Only published videos

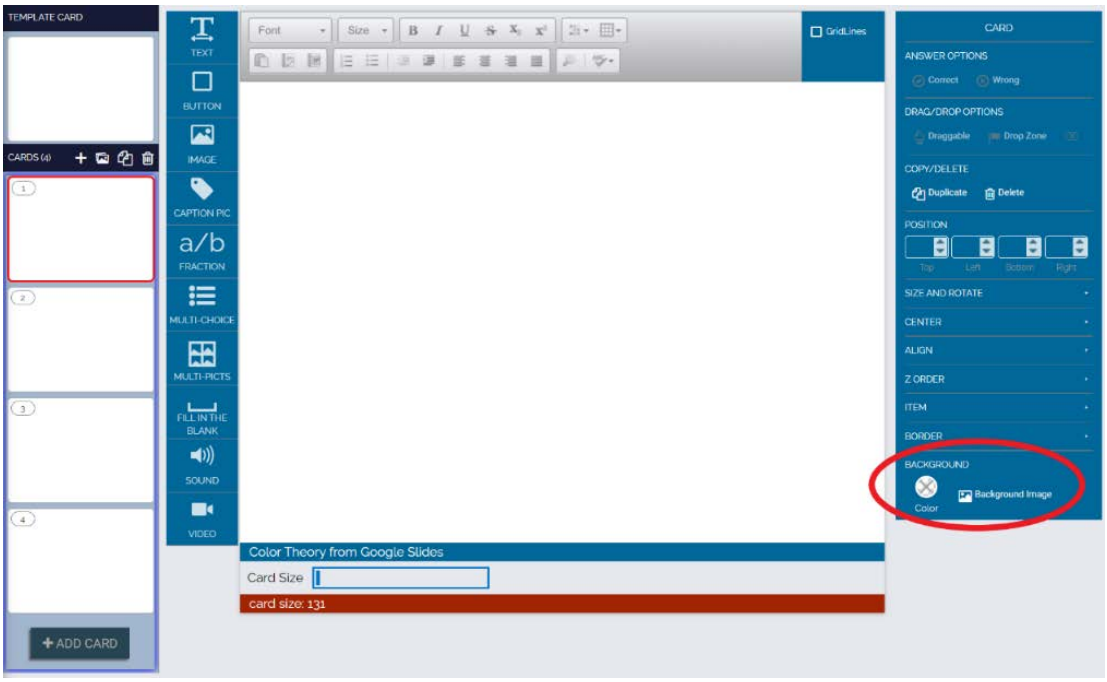
with URL link can be used. Compatible platforms are Youtube, Vimeo etc..

- Use case: Convert Google Slides/Power Point Slides to TeachSpace Slides
- Google Slides, like PowerPoint, is a way to create backgrounds and layouts for TeachSpace Slides.
- Google/PPT Slides need to be set to the right slide size/resolution to fit with the size of TeachSpace slides, 7x5 is our recommended aspect ratio
- To convert Google/PPT Slides Slides to TeachSpace Slides, choose "Download as JPEG image" or "Download as a PNG image."
- Once the files are saved to your computer, open the TeachSpace Set you want to work on in your Studio.
- Upload your Images to TeachSpace

12. Use case: Creating Playable Slide from Google/PPT Slide

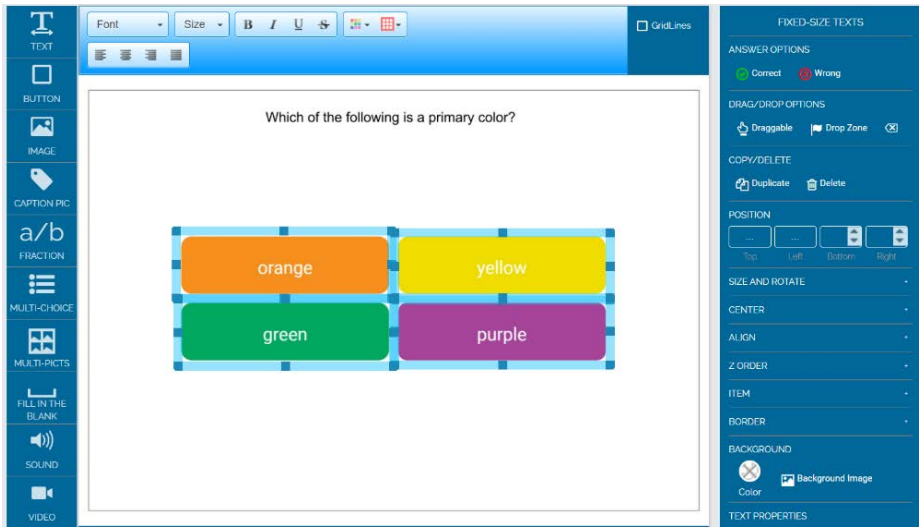
In this case, the teacher will be using a brand new set with all of the default settings, to create a simple multiple-choice question from a Google Slide.

- To upload a Google/PPT slide, select a slide in your set and click "background image."

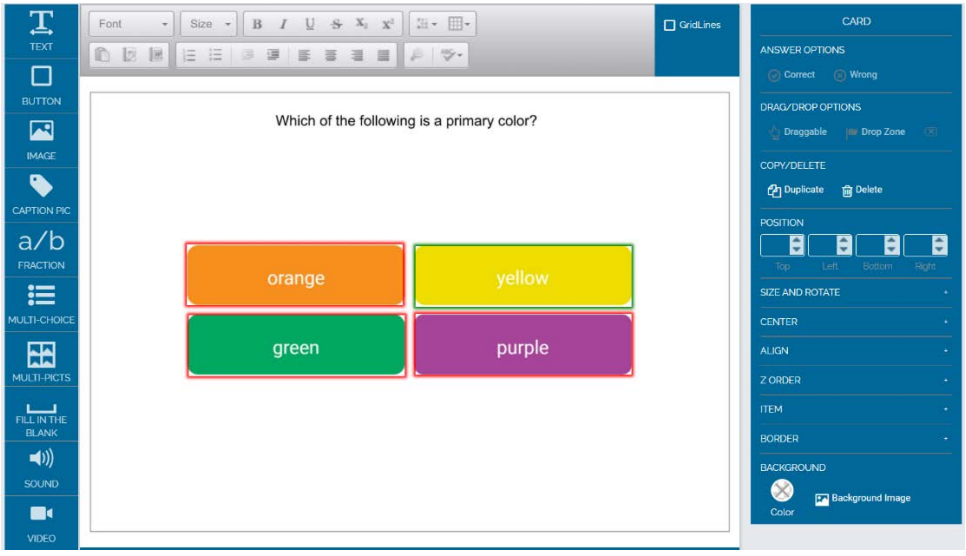


- In the pop-up menu that appears, select "Upload" and find the images you downloaded from Google Slides on your computer.

- Once the file is uploaded, select it from the list of images in your TeachSpace Library. You will then see your slide as the background of your TeachSpace Slide.
- Next all we need to do is set it up to accept an answer.
- Place four empty text boxes over the buttons from the background image.

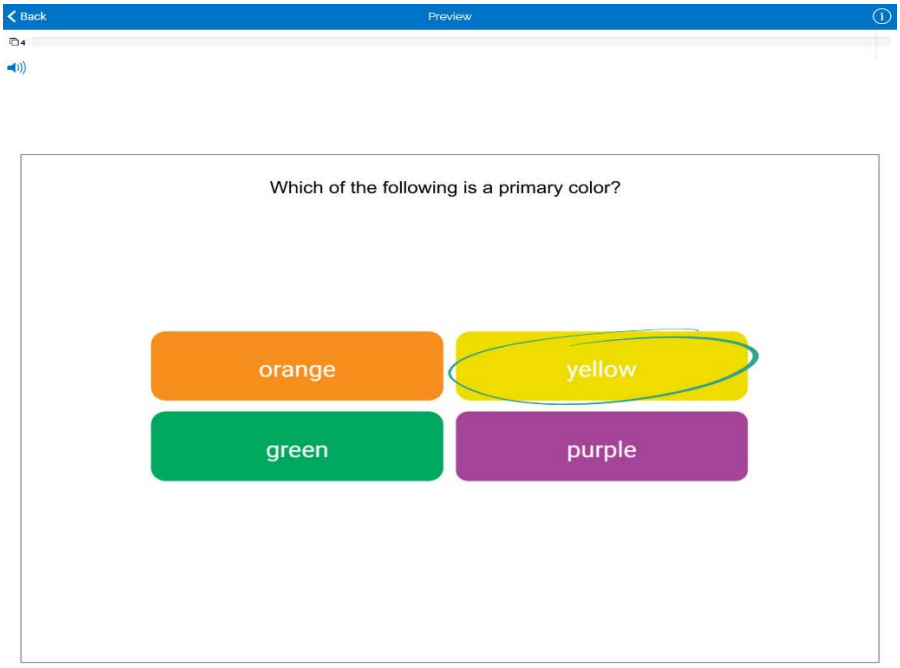


- Then, select each of the text boxes and mark them as Correct or Wrong in the "Answer Options" panel. In this question, the answer is "Yellow," so it is marked as Correct and the rest as Wrong. In the end, the Slide will look like this:



- Next the teacher can test the Slide to make sure it works as intended. In the preview, they select the "Yellow" button and the answer is marked as correct and the Set Player proceeds to

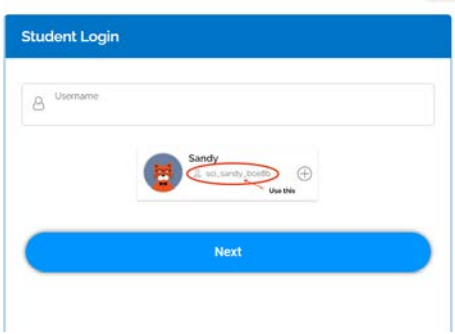
the next Slide. If any of the other options are selected, the Slide will be marked as Wrong, and not proceed to the next Slide.



- Repeat this process as necessary for the rest of the Slides in your Set.

Use cases: Student

13. Use case: Student Login



14. Use case: Student Account Tour

- Once they have logged on, students access a simple dashboard where they will find their assignments and settings sections. In the assignments list there are any and all of the sets assigned to them. Once they start playing through sets of TeachSpace Slides, they will also see

gems, lightning bolts, and grades here. We'll talk about those later in this document.

- Next to their assigned sets, students will find their progress on a Set as well as the number of gems they have earned from it so far. You will also see the red "Sign Out" button on the Dashboard, so you can easily log off.

15. Use case: Playing TeachSpace

- Students can find the sets assigned to them by logging in.
- TeachSpace are all about interaction. There can be different elements on a Slide that thay can click/tap on, drag around, listen to, or even type an answer into.
- They can save their work and quit any time you need. Their work is auto saved every 60 sec. They can also play a Set as many times as they want until the teacher un-assigns it.
- The options on the left sidebar are limited (to avoid distractions), as shown in the image on the left
- The Progress bar in on top of the slide

16. Use case: TeachSpace Slide Scores and Grades

- TeachSpace give students instant feedback as they play through the Set. As soon as they select an answer, they 'll find out if it was the right one or not. They can also see your scores on any Set that is currently assigned to them.
- Students can see how they are doing overall at the top of their "Assignments" page. Correct answers earn students' gems, and every Set in the assignment list will show a score right next to it.
- As soon as they try playing a Set, a green circle will show up next to the Set in their Assignments list. The light green circle fills up with dark green as they play through the Set. When they 've finished a Set, they 'll see a checkmark inside the dark green circle.

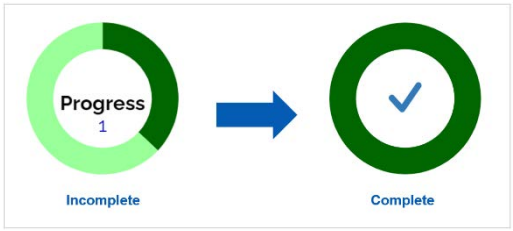
- Every right answer earns the student gems. They'll see a blue circle next to the green one. Inside the blue circle will be the number of gems they 've earned out of the total number of gems they could get from that Set. They can play a Set many times until you earn all of the gems.

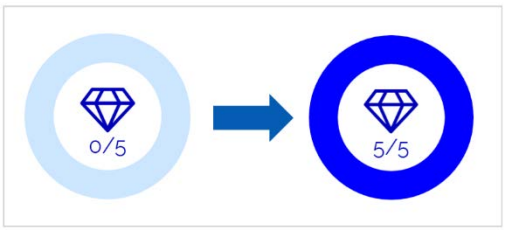
Non-functional details

Gamification

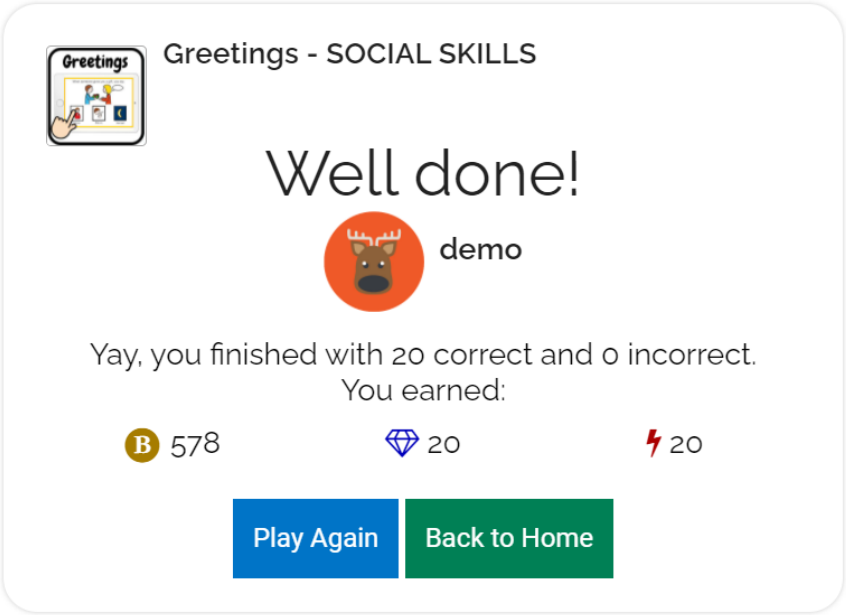
We gamify the student learning experience to encourage mastery, struggle, and repetition. Dark and light green show progress through the total number of Slides in the Set. Students can tell they have played every Slide when the circle changes from **light green** to **dark green**.

The gems circle shows how many total Slides need to be mastered. Students earn Gems for mastering content.





This is what the students will see when they finish playing a Set:



1. Coins

Coins are rewards for persistence and struggle. More coins are awarded for harder questions. Students get bonus coins by logging in frequently and for extra lives left at the end of the Set. For example, more points are given for a multiple-choice with more options than one with fewer. Fill in the blank is worth more than multiple choice.

2. Gems

A **gem** is earned when a student correctly answers a question with no wrong answers attempted. If they answered incorrectly on a previous try, they can still get earn the gem for a Slide by getting it right on a subsequent play. When the number of gems earned matches the number of Slides, a student has mastered the content for the Set. Dark green shows the progress towards mastery. Students can tell they have mastered the material when the light green circle has completely changed to dark green. The number in the center is the number of Slides mastered.

Please note: *We don't display to the student how many times they have played, but that information is available in the teacher report interface.*

3. Pulses

Pulses (the lightning bolt) reward "over-learning" behaviors (the concept that learning past mastery leads to automaticity). A pulse is earned each time a question is answered correctly, even if it has been answered correctly before.

4. Avatars

What can students do with their Coins?

Coins can be "spent" by the student to buy new Avatars. Have your student click their avatar picture and follow the instructions there. They can choose from the "free" avatars or the expansion pack. Gems and Pulses are rewards to be collected. They are not a currency to spend.

Accessibility within TeachSpace Learning

In the current section we define the guidelines that ensure accessibility in digital learning with TeachSpace. Our knowledge base is grounded in information brought forth by stakeholders (focus groups participants) as well as relevant concepts of web content accessibility and inclusive design referred in the Focus Groups Discussion Report. This report was contemplated and produced in the Planning and Requirement Analysis Stage described earlier in this document.

Here we define general guiding principles and detailed design specifications for the development of interfaces accessible to learners with ASC and ID. The general guiding principles address the development of accessible digital learning tools and content that allow for integration of inclusive and SEN teaching practices. Design specifications address the physical, intellectual and social dimensions of web accessibility and allow the developers to know specifically what to consider when developing the TeachSpace application.

General guiding principles

- Enable provision of prompts and reinforcement.
- Enable errorless teaching – enabling the wrong answer to become non-tappable/non-clickable.
- Provide alternative ways of representation of information (using text, sound, visualization)
- Enable various ways of interaction with the content, user's actions and expression.
- Enable personalization and customization for each student, considering learning styles and visual or auditory sensitivities.
- Enable diverse content creation in support of various area of development in addition to academics, such as social and communication skills, and various teaching strategies (social stories, scripts, modeling, communication books, visual schedules etc.)
- Provide an organized and searchable platform for various shared content.
- Provide technical and methodological instructions for teachers and parents.
- Provide different user roles (student, teacher).
- Enable data tracking, for insight in to user's progress.

Physical accessibility design specifications

- Provide a selection of color palettes, including one with a dark background and one with a light background, to accommodate color and contrast sensitivity, i.e. at least one low-contrast neutral color palette option.

- Completely avoid using red color for accents, as well as black for body text. Instead opt for soft pink and darker pink shades and blue/navy.
- Provide simple consistent navigation and highly consistent site behavior (similar elements and interaction must produce similar, consistent and predictable results for increased ease of operation.
- Remove or visually tone down horizontal lines as separators and instead increase use of white/blank space between Web page elements to separate different contents or focus the user attention on a specific content.
- Avoid using elements that distract or interfere in focus and attention. In case you use it, provide options to suppress those elements on screen. For example: avoid textured backgrounds, moving images, decorative elements, and other visual or auditory elements that do not convey information.
- Use a plain accessible sans-serif font (e.g., Arial) for ease of readability.
- Provide smaller font sizes in addition to larger ones; large font sizes may make the page appear cluttered and difficult to read, whereas smaller font sizes may be illegible for some individuals.
- Avoid the use of disturbing and explosive sounds, like sirens or fireworks.
- Allow for volume control – options to adjust the volume of audio content being played, including options to turn off the sound altogether, that are separate from the overall system settings.
- Use bigger icons, buttons and form controls that provide appropriate click/tap area and ensure that the elements look clickable.
- Use the simplest interface possible for ease of understanding.
- Provide options to customize the amount of element in the interface, their arrangement and enable features personalization where necessary.
- Avoid automatic page redirects or expiration time for tasks. The user is who should control navigation and time to perform a task.
- Allow critical actions to be reverted, cancelled, undone or confirmed.
- Enable compatibility with touch screen technology, for example avoid the hover action.
- Touch screen interactions should have the appropriate sensibility and prevent errors in selections and accidental touch in interface elements
- Provide easy to use and secure authentication, a simple and secure way to log to increase ease of operation.
- Provide native language localization.

Intellectual accessibility design specifications

- Use icons or images to communicate redundant information with text, and accommodate

multiple ways of understanding information. Provide information in multiple/alternative representation, such as text, video, audio and image for better content and vocabulary understanding, also helping users focus on content.

- Symbols, pictograms and icons should present a textual equivalent near to facilitate symbol understanding and contribute to enrich user's vocabulary.
- Use a simple and concrete visual and textual language, avoid jargons, spelling errors, abbreviations and acronyms, using terms, expressions, names and symbols familiar to users' context.
- Provide concrete examples where applicable to accommodate difficulties in understanding abstractions or generalizations.
- Be succinct, avoid writing long paragraphs, make content as short as possible without sacrificing precision and specificity, to reduce cognitive burden.
- Use markups that facilitate the reading flow such as lists and heading titles.
- Enable a reading or printing mode for activities involving reading and concentration.
- Icons, images and label of menus and actions should be compatible to real world, representing concrete actions and everyday life activities in order to be easily recognized.
- Provide options to customize information visualization with custom images, sound and text according to individual user's preferences (allow uploading images and other pre-prepared digital content, audio files or recording sound).
- Provide a simplified and consistent navigation between pages, use location and progress indicators and present global navigation buttons (Exit, Back to home page, help) on every page. Clearly label site elements with their purpose everywhere on the site, even if it seems redundant, to make navigation and site functionality easier to follow.
- Show all important features and site navigation (as opposed to within combo box drop-down areas) so the user does not need to rely on assumptions to guess whether the item exists and how to access it. For example, completely visible list boxes or radio buttons can be used instead of combo boxes.
- Minimize scrolling so the user does not need to rely on assumptions about content to guess what might be on the page.
- Present appropriate instructions how to interact with interface elements.
- Provide immediate instructions and feedback over an interaction restriction with the system or a certain interface element
- Provide feedback to confirm correct actions or alerting about potential mistakes and use audio, text and images to represent the message, avoiding icons with emotions or facial expressions
- In interactive lessons and educational activities, it is recommended allow up to five attempts before showing the correct answer.

Social accessibility design specifications

- Be specific and precise in language use; avoid colloquialisms, idioms, and ambiguity to accommodate difficulties with language pragmatics.
- Avoid icons with emotions or facial expressions.
- Explain the reason behind any nonstandard instructions or unusual information; provide additional pragmatic context to accommodate difficulties with language pragmatics.
- Use FAQ formats to organize complex information to enhance clarity as to why the information might be useful to the user and how it connects to their life.
- Define terms that might have different meanings depending on social context, or which might be jargon related to a specialized field (e.g., ‘‘drug interactions’’ and ‘‘health care providers’’), to accommodate difficulties with language pragmatics.
- Be mindful of autistic culture and community preferences, including the language used to describe autism and how community-based symbols and history might influence content and perception of site credibility.