



# ESSA Evidence Packet

LXD Research

# Understanding ESSA Evidence

**Evidence requirements under the Every Student Succeeds Act (ESSA) are designed to ensure that states, districts, and schools can identify programs, practices, products, and policies that work across various populations.**

Every Student Succeeds Act (ESSA) guidelines require that education programs provide evidence of effectiveness and impact to inform purchasing decisions. The U.S. Department of Education's Office of Educational Technology provides standards

to assess the strength of research for education products. The categories for ESSA Evidence are strong, moderate, and promising evidence of effectiveness or demonstrates a rationale to be effective.



**This product meets the requirements for Level 2: Moderate for the following reasons.**

- ✓ Multiple quasi-experimental studies compared treatment groups to comparison groups.
- ✓ Studies included pretest data to establish initial equivalence.
- ✓ Dependent variables include a quantitative measure of academic achievement.
- ✓ Studies have at least two teachers and 30 students per condition.
- ✓ Studies use a form of a program that could, in principle, be replicated.
- ✓ Studies have at least one statistically significant, positive finding.

*When product designers leverage learning sciences to design their products, educators can better target instruction, and students' skills soar. Through the execution of multiple studies to examine its impact on student reading and writing, Pixton aligns with ESSA Level 2, Moderate Evidence.*

*– Rachel Schechter, Ph.D.,  
Founder of LXD Research*



Learning Experience Design (LXD)  
Research & Consulting  
a division of Charles River Media Group, LLC

# About Pixton

Pixton enables everyone, regardless of artistic ability, to tell their stories – no matter the purpose.



## Captions and Speech Type

Choose from speech, thought, shout, and whisper bubbles to communicate a clear message and convey emotion. Comics are a great way to write dialogue and tackle ESL/ELL/language learning. Add text by typing or with the speech-to-text feature.

## Thousands of Backgrounds

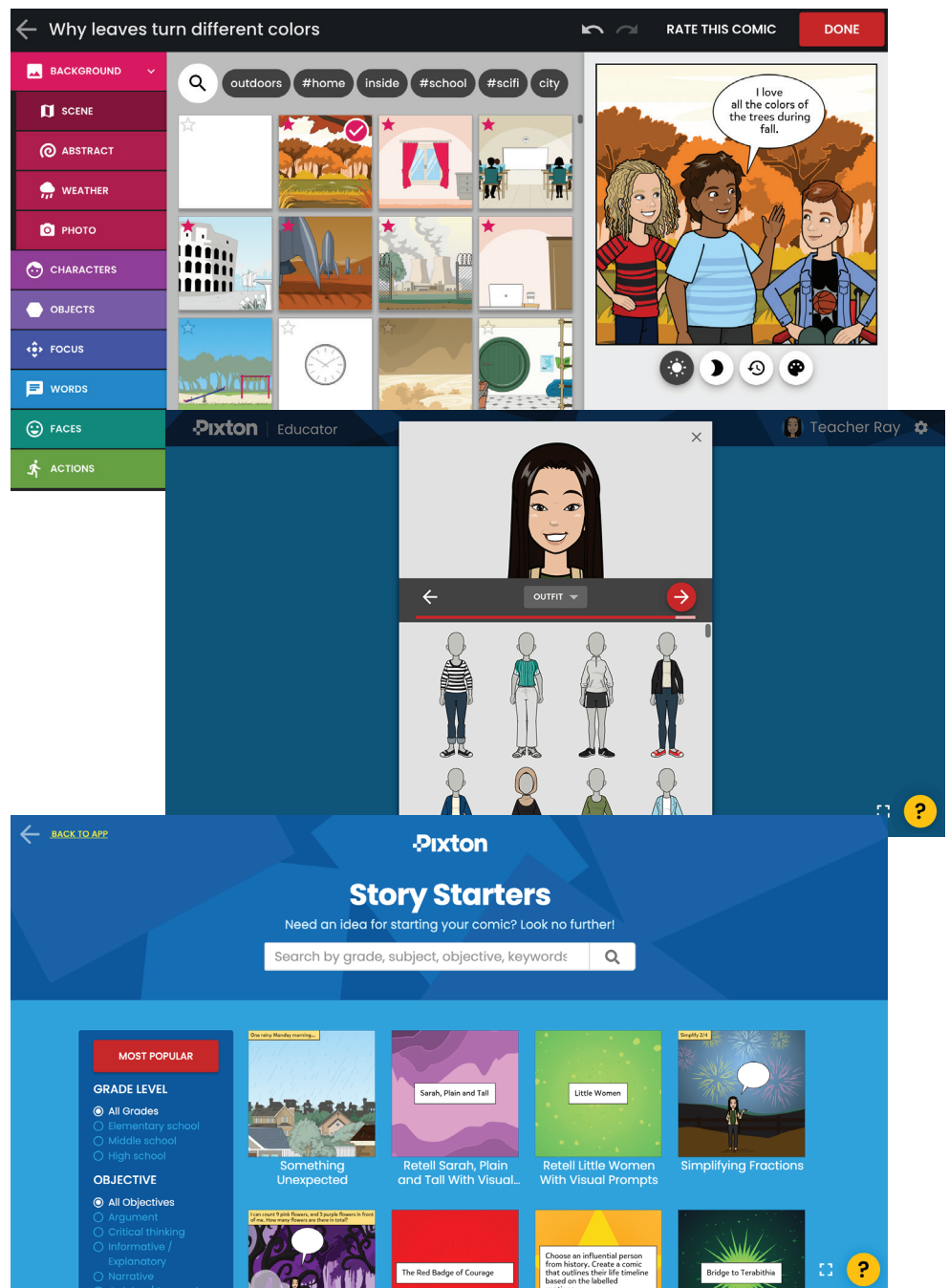
From school to home, the great outdoors, outer space, other worlds – and everywhere in between – Pixton has the background. Students can also upload their own images. They are limited only by their imaginations when it comes to creating a scene.

## Facial Expressions

Facial expressions are an important part of communicating and the comic maker has almost every expression imaginable. This makes Pixton a powerful SEL (social-emotional learning) tool.

## Story Starters

Pixton has a library of writing prompts to help students begin their stories. Story Starters can help them retell a classic story like *To Kill A Mockingbird*, create a math word problem, or explain the hydrologic cycle.



## Pixton is a comic creation platform where learners can tap into their creativity and build stories customized to their interests.

Pixton can be used as a writing tool to improve English learning, add fun to grammar and vocabulary lessons, and help learners understand how to organize ideas into coherent writing. The platform enables learners of all ages and abilities to develop essential writing and critical thinking skills. Pixton is designed to be used across the curriculum to help students build knowledge, become better multi-modal com-

municators, demonstrate understanding, and develop positive social and emotional skills.

Lesson Ideas, Story Starters, and printable resources ensure that teachers and students have everything they need for success. Pixton includes more than 300 standards-aligned Lesson Ideas searchable by keyword, grade level, objective, and subject. Each lesson includes an activity, a

sample comic, links to suggested resources and content packs, and differentiation strategies. Related ideas are also presented. These classroom-tested activities were created and refined by a team of educators, and new lessons are added continually.

Pixton's design is informed by research in several areas of early development, drawing on work to create a platform that supports learners cognitively, socially, and emotionally, designed with learner variability in mind.



*At Pixton, we listen diligently to our learners and teachers to create the most useful and engaging comic maker. Our goal is to have every student be able to see themselves and their community in the comics they make.*

– Clive Goodinson | Founder, CEO

## Cognitive Benefits of Comic Structures

Pixton harnesses the power of comics to enhance classroom learning. There are several advantages to using comics in language teaching (Williams, 1995). For example, unlike movies, cartoons have a permanent visual component. Characters also interact in the here and now, and much of what the comic characters are saying can be inferred from facial expressions or from posture. In addition, comic book language falls in a middle ground between spoken and “written” English. Finally, comic book language follows a particular character or set of characters who have particular speech habits specific

to them, which allows readers to adjust to their habits before generalizing more broadly.

The unique structure of comics not only aids students in refining their writing skills but also bolsters grammar and vocabulary when comics are integrated as a form of practicing and applying content (Cabrera et al., 2018). The inherent design of comics can significantly enhance classroom learning because comics are concrete and have a consistent structure (Azman et al., 2015). The concreteness of comics allows stories to either emerge naturally or be crafted from scratch. With their consistent structure, comics present a dependable and predictable framework for students. This not only introduces

students to the relationship between narrative and description but also empowers them to construct stories based on the comic format. Comics help highlight causal connections between story elements, aiding students in understanding the foundational structure of narrative writing, such as every story having a beginning, middle, and end. Comics can be scaffolded for more difficult ideas (Yang, 2003). Teachers can also use comics as pre-writing activities, such as storyboarding, to help students develop characters, settings, and narratives (Cary, 2004).

Incorporating comics into classroom instruction also improves student comprehension. The “comic strip effect” has

been shown to produce a positive impact on students' reading comprehension, regardless of students' reading proficiency levels (Merc & Kampusu, 2013). Technical content is also better comprehended when presented as an illustration than mere text (Purnell & Solman, 1991), suggesting that combining text and illustrative forms is especially beneficial for learning. Fourth-grade students' comprehension also benefited the most when they were instructed with a com-

bination of mental imagery and attention to relevant illustrations (Gambrell & Jawitz, 1993). Pixton drew on this evidence to design a platform that offers an intuitive way for students to create comics without getting bogged down by intricate image design. Instead, students can concentrate on crafting their narrative, selecting appropriate scenes, characters, and actions to convey their story. The comic's inherent structure supports easy adaptation, unlike traditional

pencil-and-paper methods that may lack a clear framework. Teachers can also find creative ways to use comics in various subjects, such as creating speech bubbles with missing words for reading comprehension or using visual cues to reinforce math concepts. Comics provide a flexible tool for writing across the curriculum, allowing students to demonstrate their understanding of different subject areas.



Pixton Comic School Modules

## Standards-Aligned Storytelling

Pixton designed features such as the content packs and Story Starters to center on renowned books and literature to immerse students in literary worlds and amplify their interest in reading and writing. Carefully curated content packs address topics such as energy, ancient Egypt, the skeletal system, the Solar System, World War II, Greek mythology,

superheroes, and fairy tales. In addition, content packs related to the themes and books found in the most popular literacy programs are released weekly. Teachers can provide students with various content packs related to their curriculum, such as those specific to a book, historical period, or theme. These content packs contain related backgrounds, outfits, characters, and facial features that students can use to create comics and stories.

Pixton also includes Story Starters. Story Starters provide backgrounds and prompts and help scaffold content. This includes helping students retell or summarize stories they are reading, create alternate endings to familiar stories, provide a starting point for creative writing, or prompt them to talk about their feelings. These prompts help scaffold content, allowing students who struggle with writing to be given prompts to help them



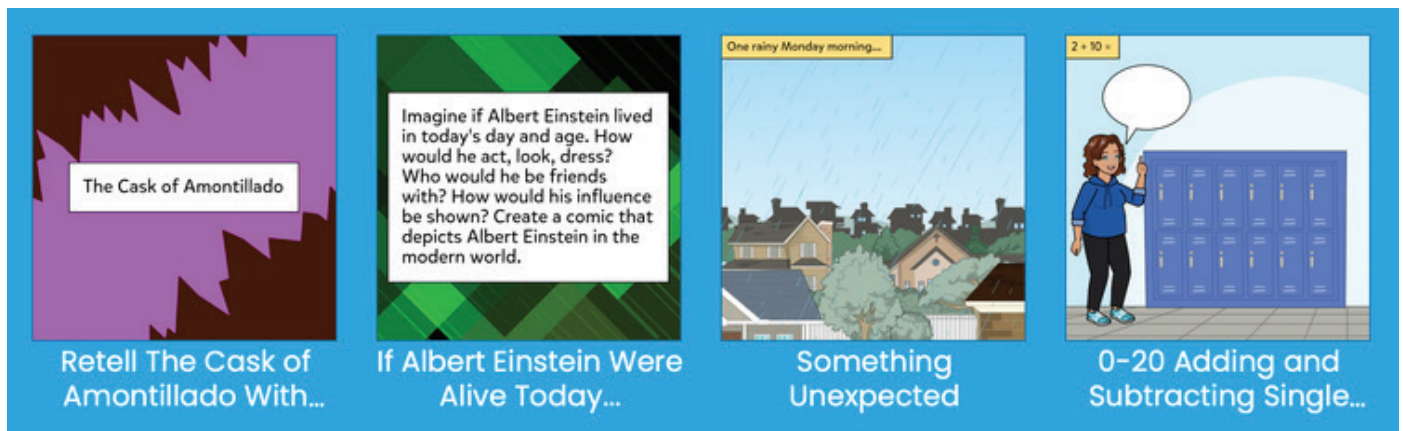
start their story. Many different Story Starter options can be used with students needing additional assistance or as a time-saving device for all students. These story supports are intended to make writing more attainable and enjoyable and to help foster a lifelong love for writing.

Comics also foster collaboration, creating an avenue for students to work together constructively. When students collaborate during the writing process, the quality of their work improves significantly (Graham et al., 2015). Children who wrote collaboratively showed significantly higher improvements in their writing

quality than those who wrote individually. Additionally, working in pairs helped students attain a more positive self-view as writers (Yarrow & Topping, 2010).

Pixton offers an exciting opportunity for collaborative writing. The engaging interface encourages students to immerse themselves in the writing journey collaboratively. The platform provides space for initial drafting, facilitates the crucial stages of revising and editing, and allows students to work together in a collaborative writing process. Students and teachers can create an endless number of comics using Pixton and, if they choose, they can give

other users the ability to “remix” these comics. This feature is enabled in every Lesson Idea, making it easy for teachers to modify the sample comic to meet their students’ needs. When used by students, the remix feature provides an effective way to work collaboratively with their peers. Pixton, as a storytelling tool, allows for the expression of users’ imagination, where children, teenagers, and even adults can work together and create stories within the platform. This focus in the Pixton design intends to help to rekindle students’ enthusiasm for reading and literature.



Pixton Story Starters

## Meaningful Social Engagement by Learning with Comics

Despite the importance of proficient writing skills beyond the classroom, there has been a rapid decrease in students’ interest in reading and writing (Thompson & McIlnay, 2019). Using comics in instruction is one way to help rejuvenate interest in reading and writing, since these visual and engaging mediums can significantly boost students’ writing

motivation (Thompson & McIlnay, 2019). Comics provide an alternative format for storytelling and cater to different learning preferences, making reading and writing a more inclusive and enjoyable experience for a broader range of students. Leveraging the appeal of comics can help rekindle students’ interest in reading. Indeed, when students create comic strips, they show educational and emotional gains, suggesting the motivational effect of gamification in learning (Pitura & Chmielarz, 2017).

Comics in instruction allow for ‘culturally responsive teaching,’ a pedagogical approach that recognizes and centers the importance of students’ unique backgrounds in the learning process (Gay, 2018). Providing visual representations in the form of comics in the classroom setting can help students feel like they are represented and part of the conversation. When students feel they are incorporated in the texts, images, and curricula, this can enhance students’ engagement

and lead to more meaningful conversations and learnings. The creators of Pixton drew on this culturally responsive teaching approach as a guide to support students' ability to express and see themselves and their communities fully and accurately in the comics they create. Pixton intentionally developed the platform for individual customization. Students can design avatars that

look like themselves, with a variety of options from which to choose, including a range of skin tones, facial features, hairstyles, body types, gender, clothing options, and even hearing aids and wheelchairs. Pixton also includes customizable backgrounds, props, poses, and facial expressions that allow students to let their personality and interests shine through. Students can then use

their unique avatars to insert themselves into their stories and projects. Educators can also opt-in for age-appropriate content so students of all ages can safely and effectively use Pixton.

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## Providing Authentic Audiences and Purposes

Creating an environment where students feel authenticity and relevance about their work empowers them to delve deeply into their writing and fosters interactions centered around literacy. Providing spaces where students can share and showcase their creations not only boosts their excitement for the craft but also sharpens their literary skills. One possible extension that the Pixton platform enables is to go beyond the creation of comics and into the reading and sharing of their creations with other students. Teachers can implement this practice of sharing at the end of a lesson, or at different points where they may determine students would benefit from a structured sharing. For example, upon finishing a classroom comic project, students can gather around to read their comic creations in parts, such as in reader's theater. Reader's theater is a format in which students can practice reading by reading parts in scripts with classmates.



Engaging in this type of practice with reading can motivate students as they gain increased experience with reading, and can significantly improve students' reading fluency, especially in word recognition automaticity and prosody (Young & Rasinski, 2017).

Engaging in reader's theater in the classroom not only allows for practice with reading fluency but also allows for students to share their own work. Because students can easily come up with their creations in Pixton, many students are eager to share their narratives visually and enthusiastic about

vocalizing them. Students can take turns narrating their stories, or this space can be built into the end of a lesson for students to convene in this sort of setting. This provides a space and opportunity for students to recite the tales they have crafted in Pixton. While reader's theater or other specific sharing practices are not a built-in feature in Pixton, it provides one of many potential examples through which students can benefit from their Pixton creations.

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## Building Social and Emotional Learning Skills

Increased emphasis has been placed on the importance of incorporating social and emotional skills in education, especially in terms of promoting effective and equitable social and emotional learning in educational settings (Jones et al., 2021). Social and emotional learning (SEL) broadly refers to the process by which individuals learn to apply skills and competencies related to their interactions and understanding of themselves and others (Jones et al., 2021). These skills and competencies fall into six broad domains, including cognitive, social, emotional, values, perspectives, and identity domains. Social and emotional programs positively impact students' lives, such as physical and mental well-being, academic outcomes, and college and career readiness (Jones et al., 2021).

In the Pixton platform, students can practice their SEL skills by communicating with gestures and facial expressions, with a level of granular control over the facial expressions in the comic (tears, eyes, mouth, cheeks), which helps students learn about emotional expressions. Students can also feel a sense of belonging because of their ability to see themselves reflected in the characters they create (looks like me, has clothes we wear), and the customizable nature that allows their creations to align with and reflect their unique interests.

With the importance of SEL in mind, Pixton also designed a library of 56 Lesson Ideas related to SEL skill building that is both comprehensive and

**Walk in My Shoes**

Students will create a comic to demonstrate their understanding of empathy...

**Thinking Critically**

Students will represent how critical thinking skills can be used in and out of school.

**Personal Traditions**

Students will create comics about personal traditions they celebrate outside of...

**Responsibility: What Would You Do?**

Students will explore

**The Art of Apologizing**

Through this sample comic, students will learn to use

**Digital Habits Quiz**

Students will take a true or false quiz to test their

adaptable. These lessons incorporate actionable strategies and exercises that educators can readily integrate into their curriculum. The SEL Lesson Ideas can serve as stand alone modules or be used with other SEL and Out-of-School Time (OST) programs. The versatility of these Lesson Ideas means that they can be adapted to different age groups, learning environments, and individual needs. Educators can go onto the platform and utilize these resources to implement in their classroom on demand. The lessons allow educators to cater to diverse learning needs and instructional approaches, whether prioritizing character traits, emotional understanding, or identity development. By offering this library, Pixton provides tools to address the pressing need for educators

and institutions to identify and implement evidence-based SEL programs and adapt them to their unique educational contexts and regulatory frameworks.

Given its flexible framework, Pixton was designed with learner variability in mind. Each user has unique needs as well as existing experiences that they bring to the platform. For example, while Pixton eliminates the need for drawing ability, learners can create and upload their own images to incorporate into their comics. Pixton also supports the ability to practice a new language in a context that is fun and engaging and allows for customization and accessibility to support all learners.

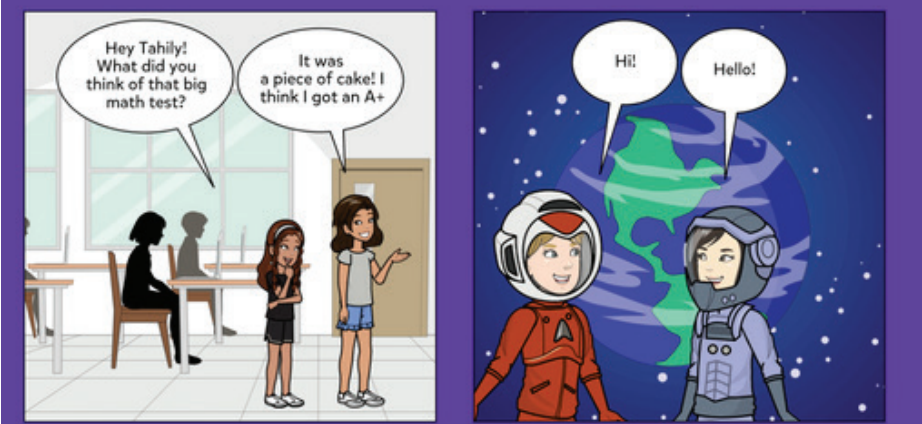


## Meeting the Needs of English Learners

English Language Learners (ELL) may have additional challenges and frustrations when it comes to learning to write in English (Eryaman, 2008), and comics could help support students in these challenges (Cary, 2004). Grammar plays an important role in second language acquisition, as grammar rules are important for learners to understand to formulate sentences that accurately express their ideas (Mart, 2013). Vocabulary is also important in second language acquisition, providing the building blocks to communicate (Nunan, 1991).

Comic strips are an effective way to teach both grammar and vocabulary to students learning a foreign language, given the motivational aspects and visual aids in comic strips that make learning appealing (Cimermanová, 2015; Derrick, 2008; Merc & Kampusu, 2013; Vassilikopoulou et al., 2011). The visual aids in comics can help encourage effective learning in ELL students (Azman et al., 2015). Creating comics can also help learners generate their ideas while practicing the retrieval of new vocabulary and applying grammar concepts to form sentences (Megawati & Anugerahwati, 2012).

Pixton is particularly valuable for English language learning, given that the software allows for personalization without requiring students to build each component from scratch. This allows for a low barrier to using the tool and makes it a useful tool for monitoring students' comprehension of vocabulary and grammar in the language they are learning (McMeekin et al., 2016). Pixton enables students to practice their



**Idioms**  
Students will explain the meaning of common idioms.

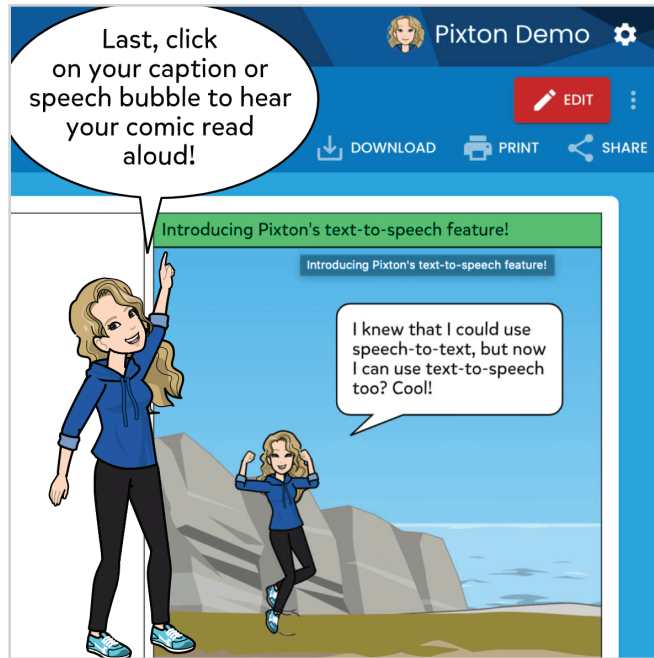
**Greetings!**  
Students will practice formal and informal phrases for greetings, making...

vocabulary and grammar skills in a motivational and interesting context (Kilickaya & Krajka, 2012). For students who are learning English, it can be important to understand how the language is used in conversation, such as the use of idioms and expressions that are used more informally, beyond the rules of grammar. Pixton provides opportunities for students to practice more conversational language since the writing in a comic contains dialogue and interactions that can be more conversational in nature than writing an essay, for example. This provides practice for students to use language functionally and to converse with their peers. The Pixton platform also allows for interactions and sharing with peers to receive feedback and grow their skills, which embeds practice conversations for ELL students with the creation of comics.

## Speech-to-Text and Text-to-Speech Increases Accessibility

Pixton also recognizes and centers the importance of accessibility and multi-modal features in its platform design. Pixton includes both speech-to-text and text-to-speech capabilities within the platform, to enable students to have their spoken words turned into text for their comics, as well as to have written text read aloud to them. To determine how to make the text-to-speech feature most useful for students, Pixton turned to research on the impact of text-to-speech software versus human voice recordings on learning.

Participants using modern text-to-speech software learn content equally well as participants hearing a recorded human voice, suggesting that software technologies can provide effective and authentic narration in multimedia educational contexts (Craig & Schroeder, 2017). Given these findings, Pixton integrated a voiceover feature in the platform employing computer-generated voices. It was important to Pixton that the text-to-speech features be flexible and allow any new creations to be narrated so that students can have their comic creations read aloud, which would not be feasible if human recordings were required for every new comic creation. Activating this feature also enhances Pixton's accessibility. For example, the text-to-speech functions empower students with learning disabilities, allowing them to interact with the platform features and create comics just like their peers.



The speech-to-text feature also allows students to engage with the platform, even if they are still building their writing skills. Using speech-to-text in writing can help children with reading and writing difficulties to leave fewer errors in their writing compared to when they just use a keyboard (Kraft, 2023). Speech-to-text capabilities make the platform more accessible as it can help students who are learning English to express themselves in the platform, as well as help students who are still learning how sounds map onto spellings. Both the speech-to-text and text-to-speech features were incorporated into Pixton to ensure inclusivity, enabling all students to enjoy creating and sharing comics with their classmates.

## Conclusion

Ideal for classroom activities, projects, or presentations, Pixton simplifies complex topics through visual storytelling. The platform boasts various user-friendly features, such as varied speech bubbles, a wide range of backgrounds, and deeply customizable facial expressions. Its point-and-click interface allows for easy character, scene, and dialogue creation. Additionally, the platform offers unique “Story Starters,” animal avatars, and dynamic actions to ignite creative processes. What sets this platform apart is its ability to help educators transform traditional classroom content into interactive, visually appealing formats. This engages students and enriches their learning experience by allowing them to practice relevant skills in an immersive way. Educators will find it particularly beneficial for crafting interactive and visually captivating educational materials.

Pixton’s design is founded in research and continues to draw on research to inform its design. Creating comics in Pixton helps engage and excite students about writing, while also leading to improved comprehension and engagement through collaboration. Pixton also enables students to customize their stories to reflect their own narratives and interests, and provides opportunities to extend learning beyond the creations, such as through students sharing their creations with one another. Students also build social and emotional skills, and Pixton makes learning accessible through inclusive platform design. Pixton helps students transfer the writing skills they learn through using Pixton Comic Maker to all subject areas, deepening their literacy knowledge and skills, with the goal of rekindling students’ enthusiasm for reading and literature.

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# LOGIC MODEL FOR PIXTON

## PROBLEM STATEMENT

College and career-ready reading and writing skills, especially in the U.S., are falling short of community expectations. In order to facilitate significant improvement in both reading and writing, teachers need tools that leverage digital technology to increase student engagement while practicing skills in both domains.

### RESOURCES

#### What resources are available?

- Access to the internet
- Access to a digital device such as a laptop
- Expert-developed learning content
- Pixton Comic Maker
- Posable and rotatable characters
- Story Starters
- Teacher training materials on how to incorporate Pixton Comic Maker to support literacy development across all subject areas

### STRATEGIES & ACTIVITIES

#### What will the activities, events, and such be?

- Students engage with grammar rules and practice writing through examples and peer-review
- Teachers access materials aligned with their curriculum on the topics they need
- Students create, edit and present a variety of different written products such as argumentative, critical-thinking, informative/explanatory, narrative, and opinion/persuasive text
- Students produce unique written products with expressive, purposeful artwork
- Students use speech-to-text capabilities
- Story Starters support the selection of meaningful topics to create a comic
- Students create their own personalized avatar and can fully customize all characters in their stories

### OUTPUTS

#### What are the initial products of these activities?

- Students design culturally relevant images that reflect their communities
- Students chunk stories into meaningful sections with images and text
- Students design pictures that represent actions, gestures, and situations with aligned vocabulary
- Students practice grammatical rules by changing direct speech in the speech balloon into indirect speech
- Students practice writing in a single tense (comics are always written in the "here and now")
- Students have a wide range of choice in creating their narratives through writing and visual art
- Students have multiple instances of retrieval practice as they write additional pieces in a structured, sequential approach
- Teachers give interactive lessons

## SHORT-TERM AND INTERMEDIATE OUTCOMES

- Students transfer the writing skills they learn through using Pixton Comic Maker to all subject areas
- Students more rapidly develop and deepen their literacy knowledge and skills, including critical thinking and problem solving
- Students' self-confidence in reading and writing increases
- Students' engagement and motivation to write increases
- Students are more likely to seek out opportunities to read and write for pleasure
- Teachers become stronger facilitators to support more autonomous student learning experiences
- Teachers gain stronger insight into student understanding, and can adjust teaching to meet the developmental needs of each student
- Teachers become more confident in their ability to empower students to become college-and-career-ready

## LONG-TERM OUTCOMES AND IMPACTS

- Students increase their self-confidence and self-efficacy with regards to life-long literacy
- Students improve their multi-modal communication skills
- Students improve their media and digital literacy skills
- Students achieve their desired goals, live to their full potential, and participate in our democratic governance
- Economic and social benefits of having strong literacy skills, such as reducing drop-out rate and increased employment opportunities appear

## ASSUMPTIONS

- Teachers have time to explore training and support materials to utilize Pixton Comic Maker in their classrooms
- Students have equitable access to digital devices such as laptops to provide unfettered access to Pixton Comic Maker



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