"There are No Boundaries or Borders in the Digital Age":
Intertwining Digital Tools and Conventional Writing Skills in the Classroom

By Emma Hoyer

An integral component of education, from an educator's perspective, is developing literacy skills in students. Although the push for students to read at higher levels and faster rates is incredibly prevalent in American schools, it's arguable that acquiring information through reading is only one part of a process that all students need to be proficient with to succeed in a 21st century world. With the rise of technology, "the emphasis shifts [from reading] to writing as our society becomes increasingly interested in what people can do with information after they have acquired it" (Peha 4). However, the current approach educators take in teaching writing to students does not take advantage of the advancements in technology that are present in modern society. Many educators settle for a "one-size-fits-all" approach to teaching writing, such as implementing the five-paragraph essay format throughout their entire curriculum. Students are rarely given the chance to venture into topics that interest them, and they are typically required to demonstrate their understanding and make meaning with a pencil and paper – two items that rarely make an appearance in an out-of-school setting. To combat those issues and more, educators, particularly those who align their pedagogy with the cognitivism and/or constructivism theories for education, should make use of digital tools, like Twine, to promote the development of writing skills in their students in meaningful, diverse, and engaging ways.

Constructivism and Cognitivism in the Classroom

Pedagogy and beliefs about how learning occurs come in many different forms, often in combinations. Two of the predominant theories for education, which encompass both learning and teaching, are cognitivism, which is a theory that focuses on developmental levels of students and schemas (i.e. the way information is organized in our brain), and constructivism, which is a

theory that focuses on scaffolding and active learning. In both theories, the role of the teacher is that of a guide, rather than a "sage on the stage" (University College Dublin). Both of these theories are growing to be more popular and necessary in education, and they are both conducive to beneficial, meaningful, and diverse technology use within a classroom context. They also happen to be the two theories that make up my own personal pedagogy, and thus, I believe digital tools are best suited within the framework of these two in combination.

Jean Piaget is credited for contributing his theories on developmental levels and schema to cognitivism, which are the two central facets of the theory that promote technology use in the classroom. The gist of his theory on developmental levels is that, as children grow older, they work towards being able to understand and interact with more concrete aspects of the world (i.e. what's present in the "here and now" and can be readily seen, touched, etc.), followed by, around the age of 12, being able to delve into abstract thoughts and concepts (i.e. thinking about a concept as a generality, having the ability to reflect on experiences, or being able to relate what's occurring in the "here and now" to something that has happened or will happen) (Keesee). Piaget also introduced the notion of a "schema," which describes the organization of information within a person's brain (Keesee). Everything we have encountered, experienced, and learned is organized in our brain into "files," of sorts. When we encounter something new, we either assimilate that new information into one of our pre-existing files, or we create a new file in our brain to accommodate the new information (Keesee). When we learn, we draw from our schema and activate what is typically referenced as "background knowledge" (i.e. the material already in the files in our brain). That activation of background knowledge is particularly important in cognitivism, because it allows students to relate new knowledge to something they are already

familiar with. Jumping in to something new and failing to make those connections is detrimental to progress in learning.

Concerning teachers, Piaget defined their role as a "guide to children's learning processes" (Keesee). Ideally, "the curriculum should be adapted to individual needs and developmental levels" (Keesee), but that is easier theorized than implemented consistently, especially considering the vast diversity of the many classrooms across the nation. Students need a variety of different things in order to be productive in the classroom, as well as to understand new information. Individualizing instruction to every student is impossible, given the time and materials allotted to teachers, but it's important to differentiate instruction to meet as many needs as possible. This typically means that new strategies or new ways of explaining information should be used regularly in relation to the same concepts. Additionally, it also means that students should be allowed to show their understanding in a way that's meaningful to them.

Constructivism reflects many of the same ideas of cognitivism, due to its main theorist, Lev Vygotsky, building off of Piaget's work. This also means that, like cognitivism, constructivism promotes a couple main facets – scaffolding and active learning, as well as peer teaching – that promote technology use in the classroom. In addition to the notion of schemas, Vygotsky added the idea of the Zone of Proximal Development (ZPD), which can be defined as "the difference between the developmental level of a child and the developmental level a child could reach with the right amount of guidance" (University College Dublin). Vygotsky indicated that teachers could, through using the notion of ZPD actively in their instruction, which is commonly referred to as scaffolding could, "foster learning, independence, and growth among students" (University College Dublin). If a student were a building, scaffolding would be the support that is built around the outside in order to help it reach the desired height (i.e. the

student's potential). Bit by bit, the building (student) grows and reaches new heights, all thanks to the supports around the outside that allow the new material (information) to be added on top of what is already in place.

It's important to note that using scaffolding in the classroom promotes a very "hands-off" type of learning, in terms of the role of the teacher. Constructivism, at its core, is a theory that urges students to be "actively involved in their own process of learning" (University College Dublin). Instead of passively receiving information, students must have a role in discovering information, processing material, and solving problems. It's even popularized that students should guide each other as well, and the teacher should "provide opportunities for more expert and less expert participants to learn from each other" in the classroom across the curriculum (University College Dublin). This allows peer interaction and teamwork to grow in the classroom, which are skills students need to navigate the world in the future.

Teachers who utilize constructivism view their students' learning within the following concepts. They understand first and foremost that "what the student currently believes, whether correct or incorrect, is important" (University College Dublin). Knowledge is always changing and shifting to accommodate new information, especially in a rapidly changing society. Constructivist teachers acknowledge that and use it to benefit their students by allowing students to learn in meaningful, realistic, "real-world" ways. The teachers also understand that, "Despite having the same learning experience, each individual will base their learning on the understanding and meaning personal to them" (University College Dublin). What students have experienced and learned thus far in their lives affects the way they learn in the present (i.e. background knowledge and schema from cognitivism). They view material, interpret new

knowledge, as well as sensory material, and construct meaning in their brains in a way that's totally unique to them.

What Needs to Change

The current issue in education is when teachers don't allow that unique construction of meaning to occur in the classroom, regardless of concept or subject. The ways in which modern students tend to construct meaning often involves someone sort of digital tool, social network, or other form of technology. Today's students were born into the world never knowing what life without massive innovations in technology looks, feels, or sounds like. When teachers insist on taking away or limiting that technology use, in favor of what some call "traditional" methods of teaching and learning, they are going against the constructivist and cognitivist views. This is because teachers are not activating background knowledge and creating a classroom environment that allows familiarity to aid students in the pursuit of new knowledge. This limiting of technology, or rather, not allowing it to grow to its full potential, occurs the most with teaching students how to write, which is already a daunting task when considering the number of writing conventions that exist in the English language. Teaching literacy has become incredibly important in education, but it's curious to consider why the methods through which writing is taught do not incorporate technology in an attempt to differentiate instruction, especially when "traditional" methods often do not work or disengage a student entirely.

Many teachers are more in favor of students writing a five-paragraph essay, or perhaps are simply more comfortable administering knowledge that seems, in theory, to work generally across the board. Individualizing curriculum for students is a difficult, time-consuming task, and thus, the five-paragraph essay looks attractive to teachers. The problem is that it *doesn't* work across the board; many students end up viewing themselves as non-writers, simply because the

five-paragraph essay format is not something that makes sense to them in a meaningful way. In order to remedy such issues, it's important to consider the student first, rather than what's easiest for the teacher. When students are outside of school, technology is in the palm of their hands, literally, and they compose tweets, Facebook posts, and Instagram captions full of puns, clever references and allusions, lyrics, and more without blinking an eye. Video games hold their own cognitive benefits, and there is a plethora of tools that exist online that allow students to express their creative talents in a variety of different formats. The world has made it easy for students to show what they know; education is holding them back.

Part of the reason education is holding students back is rooted in fear of the unknown, as well as public perception. Schools are hesitant to incorporate technology into the classroom in meaningful, impactful ways. There's a stigma that Marcelle Haddix and Yolanda Sealey-Ruiz, both assistant professors at Syracuse University and Columbia University, respectively, describe in their article "Cultivating Digital and Popular Literacies as Empowering and Emancipatory Acts among Urban Youth," by which "the use of digital tools is sometimes viewed as 'dumbing down' students' literacy skills or practices" (Haddix and Sealey-Ruiz 190). However, the extent of digital tools that are allocated for student use typically include, as Jesse Gainer, an associate professor in the Department of Curriculum and Instruction at Texas State University, asserts in his article "Critical Thinking: Foundational for Digital Literacies and Democracy," "computer and software to produce traditional school products" (15). Educators make sure that students know the technical skills, like how to type on a keyboard and enter terms in the Google search bar, but "less attention has been paid to critical literacies associated with multimodal production and consumption" (Gainer 15). In other words, technology, as it exists currently in the classroom, does not allow students to think about or create works with musical accompaniment,

visual transitions, branching narratives, non-linear thought, recorded dialogue, and more key literacies that are often found in the digital material consumed by students in their everyday life. The influence and potential for technology in the learning process, particularly with writing, has been kept to a bare minimum. Instead of using digital tools and narratives as natural scaffolding for understanding writing conventions, they are excluded, discounted, feared, and substituted for word processing systems and basic Internet searches.

Typing in a word document is not much different, cognitively, than writing words on a page, and thus, education needs to dig a little deeper. Educators need to start incorporating digital tools into their classrooms that allow students the freedom and ability to creatively show their understanding. Students need to be able to write in ways that allow them to construct unique meaning, and there's a web-based tool that would allow all students to do that. It's called Twine, and it's free for use.

Now, before Twine is discussed, it's important to make a very clear distinction for its use, as well as the use of other digital tools:

> Using digital tools does not exclude or supplant teaching the writing process, facilitating writing workshops, focusing on writing conventions and grammar, or preparing students for writing on demand. Instead, digital tools serve as a powerful way for teachers to draw on students' out-of-school practices and talents when composing in school and on academic tasks. (Haddix and Sealey-Ruiz 191-192)

It is still absolutely necessary to have explicit instruction on writing conventions and grammar in the classroom, and removing that would be more detrimental than not allowing technology to enhance the experience of writing. However, once those basic skills are in place, digital tools

open up new horizons and possibilities for students. They extend the process into something far more engaging and familiar. Additionally, as Steve Peha, president of Teaching that Makes Sense, Inc., a company that offers tools, training, and technology support for educators, indicates, "by teaching students how to write well, by showing them how to focus their intellectual energy in this unique and wonderful way, we give them a key that helps them unlock the complicated ideas and complex emotions we expect them to master as they mature" (4). That is an incredibly integral part of the educational process that is often overlooked and certainly not achieved through simply requiring students to write five-paragraph essays. Digital tools, like Twine, have the potential to remedy many of issues that crop up on widespread scale.

So, What is Twine?
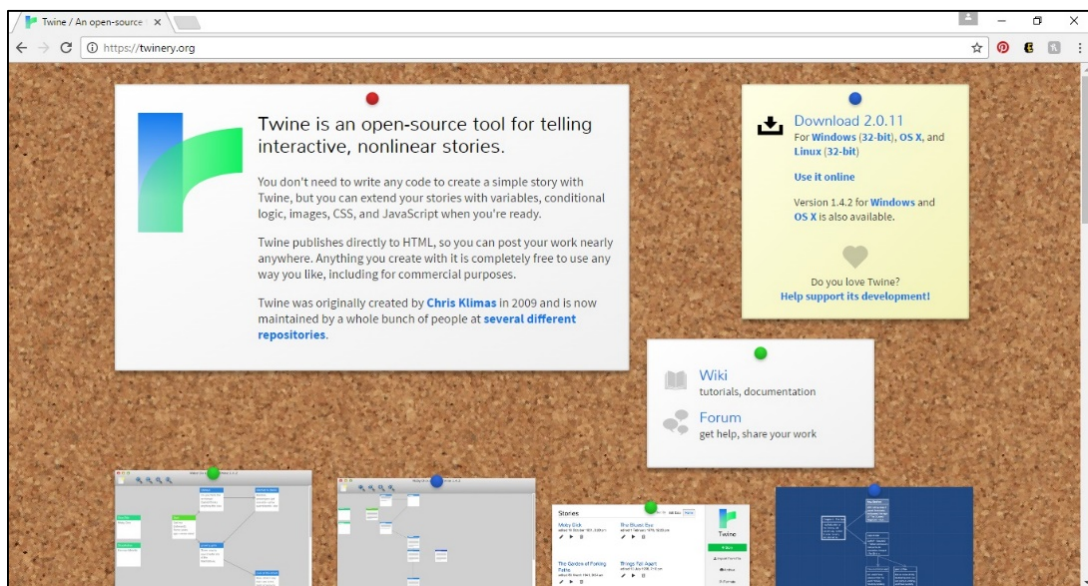
As the picture above indicates, Twine is a web-based tool that features a variety of attributes that are particularly beneficial for classroom use. There's a choice to either use Twine online, or it can be downloaded to use on Windows, OS X, and Linux. Twine does not come without resources; it's not the type of tool that forces users to figure things out as they go along. There's an entire Wiki page and forum that allow potential users to get their bearings before
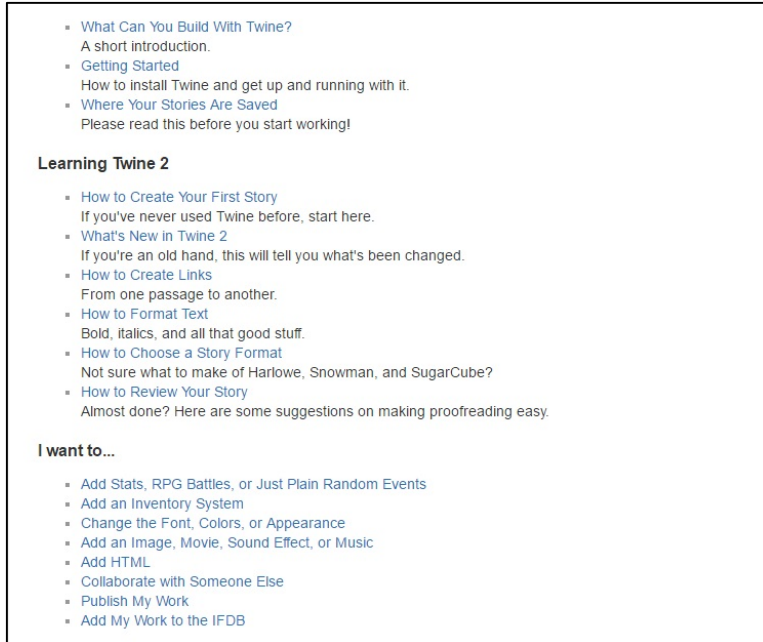
using Twine. Featured on that Wiki are entries that are catered to all levels of users – which speaks to Twine's endless capabilities. Anyone can use Twine, because how a person uses Twine and what they create is based upon their prior knowledge and experiences with digital tools, at least at first.

There is basic information on how to start creating a story, which gives you three options. The default option for Twine is a format called "Harlowe." It's easy to understand, very basic to use, and does not require much more than consulting a few more Wiki entries to get started (such as how to format bold, italics, and how to create connections between passages, called links). Another option for story format is called "Snowman," and any user who has background with coding, as well as any user who desires to create something more than just a branching, choice-based narrative, should use this format. While Harlowe does not exclude the potential to add visuals and sounds, Snowman is far more conducive and receptive to those types of additions to a story. The coding languages that can be used with the Snowman format include HTML,
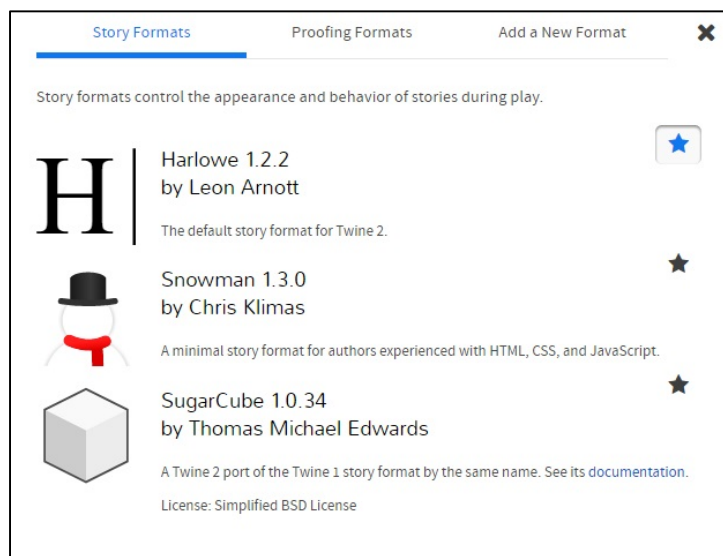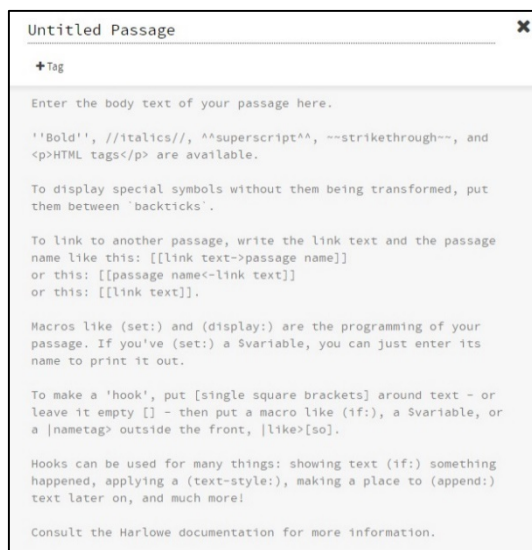
CSS, and JavaScript. Last, but not least, there is a third format that users can use, called "SugarCube." However, this format was created for users who have prior experience with the previous version of Twine's formatting, and thus, any new user would not benefit from this format.

The first step in creating something in Twine is to create a passage. The picture above shows what a passage looks like when it's first opened, and clearly, it's a blank slate. The user can name it whatever they please, they can add tags to associate and link different passages, and they can begin typing text in the box right away. If a user removes the text currently shown in the picture above (i.e. "Double-click this passage to edit it."), they will see the picture below. This is a "cheat sheet" of sorts of the basic coding skills Harlowe users need to format their story. The language used here is very advanced and showcases a lot of the capabilities of Twine, but the basic information any typical (rather than advanced) user needs is formatting bold and italics, as well as how to create links between passages. This information, as mentioned before, is also found on the Wiki, but it's also repeated here, especially for new users.

For advanced users, the capabilities of Twine are truly endless; the bounds of the user's creativity

are the only limitation. On the Wiki, there are entries titled, "Add Stats, RPG Battles, or Just

Plain Random Events," "Add an Image, Movie, Sound Effect, or Music," and "Change the Fonts,

Colors, or Appearance." Through basic coding skills that are outlined for anyone in the Twine

community to use, users can create a story that showcases any number of talents, skills, or goals.

Multimodal composition can be achieved through using Twine, and basic writing skills can

benefit from using Twine, even for academic purposes. Personally, I am in the process of

working on a very basic, choice-based, fictional narrative that currently uses the default colors

and conventions of Twine. I'm including some pictures and explanations below to showcase

what Twine can be used for at the most basic level.
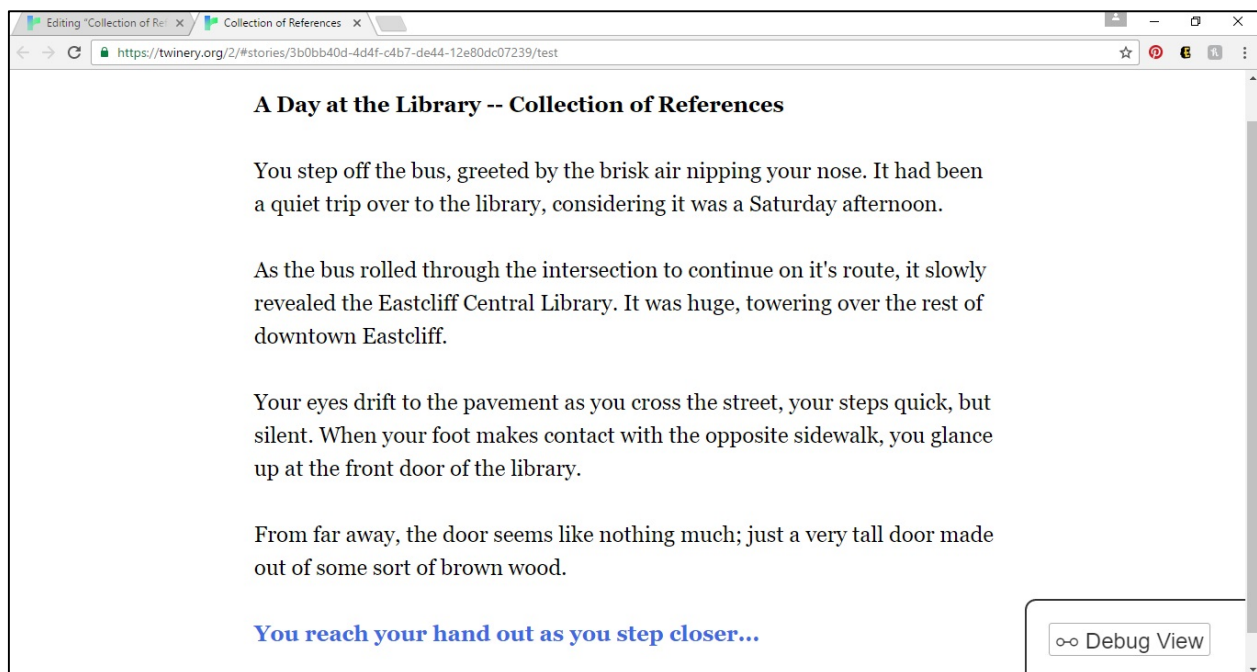
Above is what my Twine narrative looks like when it's opened on a browser. All stories

on Twine can be published directly to HTML, which allows any story or writing created with

Twine to be used in a browser. In order to progress through the story, the reader must click on

the blue text, which will take them to the next passage in the story. This is the way in which

academic writing, or just very basic writing, can take place within Twine. Students can still use

technology to aid the writing process, and the connections between their points and ideas are visually represented on a screen for them. There is also a conscious process of linking their points to one another through basic coding, which could help students understand transitions, logical flow, and more when it comes to writing academically. Students could even use Twine for brainstorming, followed by fleshing out their points, while still maintaining their original connections. They would be completing, at the very least, the same cognitive tasks that writing in Microsoft Word requires, but the format is far more "game-like," and thus, more engaging.

Authors can also implement multiple choices of blue text for readers to click, and in order to progress through the story, the reader must choose one. Depending on what they choose, the story could give them a unique course through the narrative. They will not read the same story as anyone else, unless they pick the exact same choices. How they choose changes the way the story unfolds and allows each reader to glean something unique from the story as a whole. This is where Twine diverges from academic writing and starts to build potential for creative and abstract, higher-order – which simply refers to questions and ways of thinking that activate more cognitive processes (i.e. asking students to apply what they've learned or create something entirely new, rather than answer a basic comprehension question) – writing.

Take the following passage (to the right) from my Twine, which is part of the relationship drama route readers can take throughout my story. The text leading up to "Was it…" at the bottom of the passage is black, normal text that adds to the story. Once the reader reaches the bottom of the

Positive 1

+Tag

"Hello, earth to Captain Douchebag! Are you even listening to me?"

Laura sat shell-shocked, not sure of what to do or say. Chris still hadn't replied, but instead, sat scared and unsure of how to respond to what just happened.

The woman grew impatient and turned to the side with a huff. She glanced at Laura briefly before saying, "Nevermind, you're a waste of space anyway, Chris."

She turned to Laura and said, "I hope you find a better use for him than I did," before stomping her way back from whence she came.

Once she had left, Chris finally managed to find his voice. He tried to explain what had just happened, but as he rambled on about this past woman's involvement in his life, Laura began to detect something in his voice.

Was it...

[[Nervousness?->Nervous]]

[[He's unsure of himself?->Unsure]]

[[This guy's a damn liar?->Liar]]

passage, the text is blue, and thus, they have a choice to make. If a reader chooses

"Nervousness," the story takes them to a passage titled "Nervous." They will only be able to read

the passages that are along the route that makes choices to follow. Depending on what they pick

throughout the story, each reader will arrive at a different ending, if it's designed that way. The

particular story line from the picture to the right has 12 different versions of endings, while

another storyline within this same narrative arrives at three possible endings. How the story

looks, sounds, and ends is all part of the choices the writer can make.

This notion of choice and the potential for personalized, unique reading experiences

opens up horizons on the part of the writer. While narratives or other writing created with Twine

are easily recognized as personalized, unique experiences for the reader, it's arguably a more

personalized and unique experience for the writer/creator. Crafting a story that branches into

many different paths takes time, but it also requires higher-order thinking, consideration of

audience, consideration of purpose, time and thought dedicated to character and setting development, and many other literacy skills that teachers must instill

Story Statistics ✖

102,892 Characters
18,181 Words
85 Passages
120 Links
0 Broken Links

This story was last changed at 2016-11-19T18:51:24.450Z

The IFID for this story is 7259FB9D-5F0B-4125-BD74-52EFF01B1DEA. (What's an IFID?)

within students throughout their educational careers. In the end, even with a basic, digital tool

and creativity, students can produce a far more substantial piece of writing than they would ever

be able to with just a pencil and paper or a keyboard and word processing program.

Twine's Benefits in the Classroom

What Twine can provide for a classroom and its curriculum, when used productively and efficiently by an educator, is almost limitless. However, within the context of constructivist and cognitivist classrooms, there are three major benefits that Twine provides. Each of these benefits allows issues that currently plague education to be remedied, at least in part, and thus, it's use in the classroom is that much more justified.

First and foremost, Twine is more engaging than simply having students write, either creatively or academically, in a Word document or on paper, which is important because keeping students engaged is a constant struggle for teachers nationwide. The visual and digital nature that Twine has is more familiar to students, due to their status as digital natives. It's no secret that students "are already using websites to practice every aspect of learning" (Keesee), and that's occurring outside of the classroom more often than teachers might expect. Aligning education with the learning that naturally and organically takes place outside of the classroom is a surefire way to promote student engagement and activate background knowledge within students. They are not being asked to sacrifice enjoyment and familiarity for the sake of academic pursuits in this way, and thus, reluctance is more likely removed.

Tied in with engagement is the notion of empowerment, because "through the use of digital tools and popular literacies, it is clear that students are empowered to be producers and creators of knowledge within the classroom" (Haddix and Sealey-Ruiz 190). Creating a narrative through Twine allows students to take ownership of something that almost seems alive. It can be shared with the world easily, due to Twine allowing all content to be published into an HTML file, and it can take whatever form the student chooses, thanks to the variety of formats and features available. There is empowerment in the face of true freedom and unlimited choice. As

Peha argues, "We all write better when we have some control over what we write and the form in which we present our ideas. Professional writers usually have some say in their choice of topics, and that makes a tremendous difference in the quality of what they produce" (8). Twine's variety and openness allows that to become a reality for students who might otherwise feel constrained.

Further, Twine has immense cross-curricular potential. This is a current need in education, as there is a push for non-language arts teachers to implement writing into their curriculum. As Peha puts it:

> Don't students write enough in Language Arts? Well, in a word: no. At least not enough to meet the demands of the current work world. With the proliferation of e-mail, desktop publishing, and the Internet, writing is now more important than ever. We've realized that we can no longer make distinctions between "writers" and "non-writers." Every student must be able to write—in every subject. (3)

As mentioned before, students tend to view themselves as non-writers when teachers fail to implement technology into the classrooms. Having to compose their thoughts using just a pencil and paper, or having to limit their creativity to what they can type in a Word document, promotes that view among the majority of students. In order to combat that, not only could digital tools, like Twine, be used in language arts classes for writing composition, since there's potential to produce both academic and creative works, but Twine could be used across subjects, especially when students are asked to showcase their learning in history, science, and math classes. In these subjects, "written output is a great way to assess student knowledge" (Peha 4), but crafting an essay on a war or writing a report on a scientific process doesn't sound engaging to most students (if any). Instead, teachers could require students to create something unique in Twine to

show that they understand and can explain, demonstrate, or extrapolate with the concepts at hand.

     In making that statement, I am refusing to create instructions on how to do this, so as to not put constraints, expectations, and limits on teachers or students. There are no standards for how to accomplish this, nor is there a fool-proof way to implement this seamlessly. Additionally, if teachers are truly invested in incorporating active learning from constructivism into the classroom, the freedom in the options explored in the examples that follow allow students to have ownership of their own learning in the way that Vygotsky imagined. After initial guidance and instruction on Twine, so as to activate background knowledge or add new information into the students' schemas (thus incorporating cognitivism's ideals into instruction), what's discussed below would truly allow the classroom to embody the ideals of constructivism.
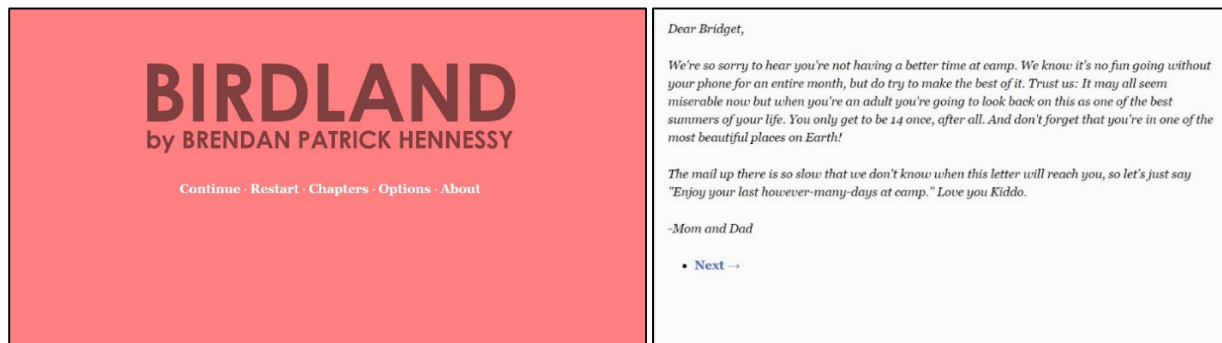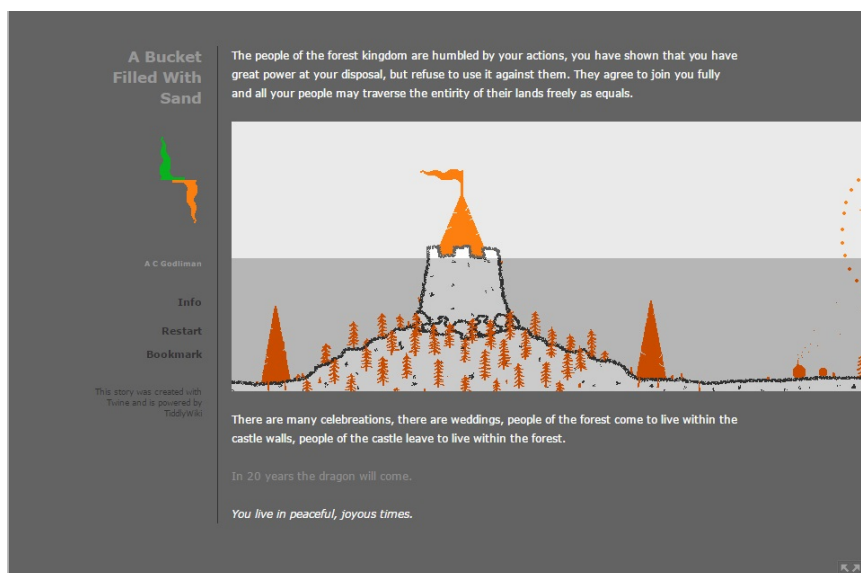

     To start small, *Birdland*, by Brendan Patrick Hennessy, is a narrative that tells of the sci-fi experience of a girl named Bridget at summer camp. While the story is far more detailed and involved in tropes and themes that craft a beautifully written piece, it serves as an example of the type of content that could be created using Twine for a language arts class. Let's think of Bridget as a character from a novel that students have read in class. Twine could allow students to write a story from Bridget's perspective as she reacts to an event in the novel, or how she functions and reacts in the aftermath of the novel. Students could take Bridget as a character, place her in a new

situation, and write a story from that perspective, while still keeping her same characteristics and tendencies. To branch into another subject, we could think of Bridget as a historical figure. Students could take what they have learned about a historical figure and create a story for that figure (with factors like time period and surrounding characters totally at their discretion). In any of those situations, students could create choices, thus producing a branching narrative, or they could keep things linear and simple, while still implementing higher-order thinking in having to maintain a person's characteristics and tendencies (as well as what they have learned otherwise about the character/historical figure) as they write.

That higher-order thinking and imagining could be explicitly replicated in other subjects, like history. The picture below is a screenshot from another digital narrative called *A Bucket Filled with Sand*, by A. C. Godliman. This story allows readers to make choices on what to do during 100 years before a dragon comes to the kingdom they have created by turning over a bucket of sand (should they choose to do so). Based on the choices a reader makes, the dragon is either successful in its plight, or the kingdom prevails. The choices that readers have to make cover economic struggles, class relations, and many other issues that often contribute to historical events or turning points in history, which allows this digital narrative to have clear connections to what Twine could accomplish in a history class. Through crafting something in Twine,

students could explore choices made throughout history, leading up to a major event like a war or new era. This type of narrative could be framed as a "What If?" scenario, where students could craft what the world would be like if, for example, Hitler never rose to power, or a surge of money prevented the Great Depression from occurring. These examples are just a couple of the limitless amounts of historical scenarios students could explore and change (through imagination) using Twine. A well-crafted narrative in this case would show that students understand how events in history affected others, and they would be dealing in the abstract, as well as reflecting on how the present is shaped by what has happened thus far in history.

Another way that students could be required to show an in-depth understanding is through creating content with Twine for a science and/or math class. The two following digital narratives are *Castle Doomstone*, by Strangelander, and *It Is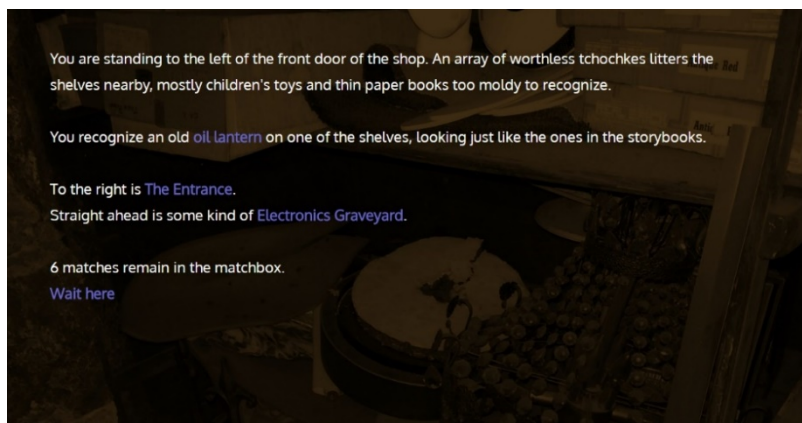 Pitch Black*, by Caelyn Sandel. *Castle Doomstone* is a trial-and-error-based narrative, in which the objective is to get a bicycle back from a dragon who lives in Castle Doomstone. *It Is Pitch Black* is also a trial-and-error-based narrative in which a child who lives on the streets, named
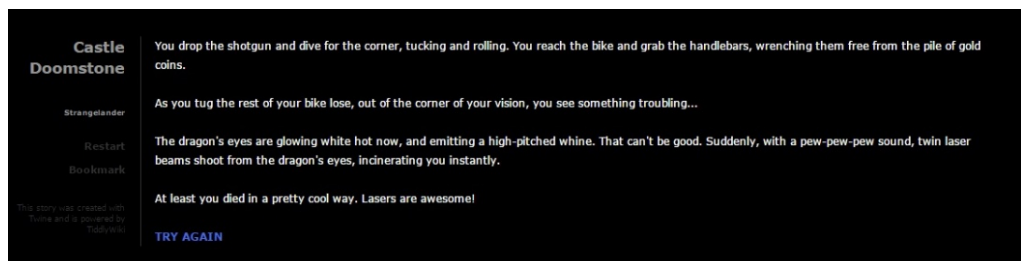
Zee, is dared by friends to walk 5 steps into a run-down store (where a dangerous creature supposedly lives) and stay there for 15 seconds. Zee gets trapped in the store and has to survive while finding a way out. In both stories, readers will make mistakes and have to try again. There's a very small chance that in the first read-through, readers can make it through the whole story without having to restart or try again. That process mirrors the processes of learning that often occur in science and math classrooms, especially when students are learning new concepts.

You are standing to the left of the front door of the shop. An array of worthless tchochkes litters the shelves nearby, mostly children's toys and thin paper books too moldy to recognize.

You recognize an old oil lantern on one of the shelves, looking just like the ones in the storybooks.

To the right is The Entrance.
Straight ahead is some kind of Electronics Graveyard.

6 matches remain in the matchbox.
Wait here

Not many students understand how to use a quadratic equation the first time they learn it, nor are they able to complete the process of titration the first time they try it.

Thus, these two stories serve as inspiration for how Twine can be used in science and math classrooms. Instead of having students explain in their own words how to do something, which is a request/command that becomes repetitive and a source of disengagement for students in the long run, Twine could allow students to create a scenario in which the reader could make mistakes with a scientific process or math equation and have to start over. This would require students to have an in-depth understanding of the process or equation, as well as consideration of possible errors that could be made. Pictures could be implemented as well, either found or created by the student. Once these types of project were complete, not only could they serve to show the student understands the process or equation, but they could then be used as a teaching tool for future students, or even their current peers.

Yet another example of how Twine could be used for academic writing can be seen when examining another narrative called *Cis Gaze*, also by Caelyn Sandel. When working through this digital narrative, the reader discovers links to outside sources, which are references that the reader needs in order to understand the story in some cases (like the definition of cisgender). Additionally, there is more text that supplements ideas within this narrative when the reader clicks on the blue text (as you can see in the picture on the next page). These two attributes serve as inspiration for what a student may be able to do with Twine for a research project. Students
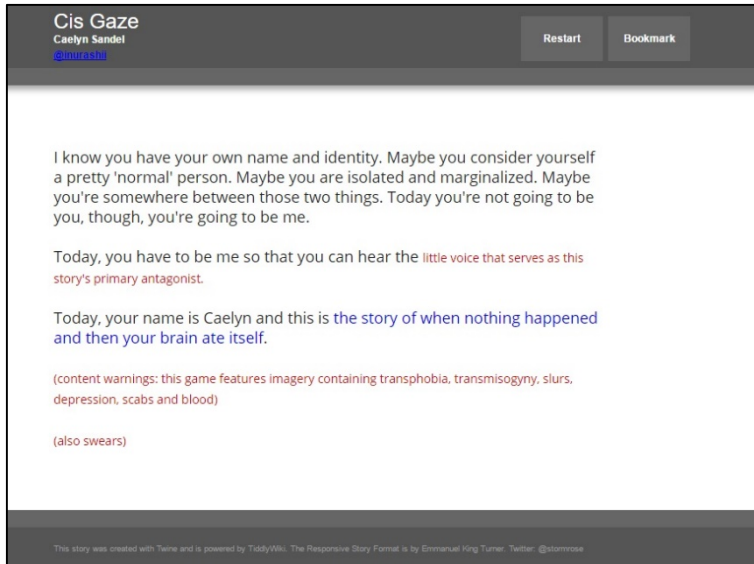
could choose any topic, even write about something they personally struggle with or are interested in, and they could format it much the same way that Sandel has formatted this story. They could link their sources directly into the story (while still maintaining a works cited page at the end), and they could add their supplemental points (or possible afterthoughts, questions to consider, etc.) as text that can be clicked on. This leaves the option to see more information and the personality of the writer, while still being able to read the research project's main content as a whole.

It's also worth noting that *Cis Gaze* deals with a unique, but presently important, topic, and so does another narrative called *Flash in the Pan* by Thom Simonson. As you can see in the picture below, the text of *Flash in the Pan* has a plethora of purple words, each one signifying a distraction that someone with ADHD may encounter during their daily routines. The reader doesn't realize this until the very end, but as the reader begins interacting with this narrative, the little text bubbles (there's one in the picture that says "On time, for a change.") pop up when their mouse scrolls over the purple words. Instead of progressing
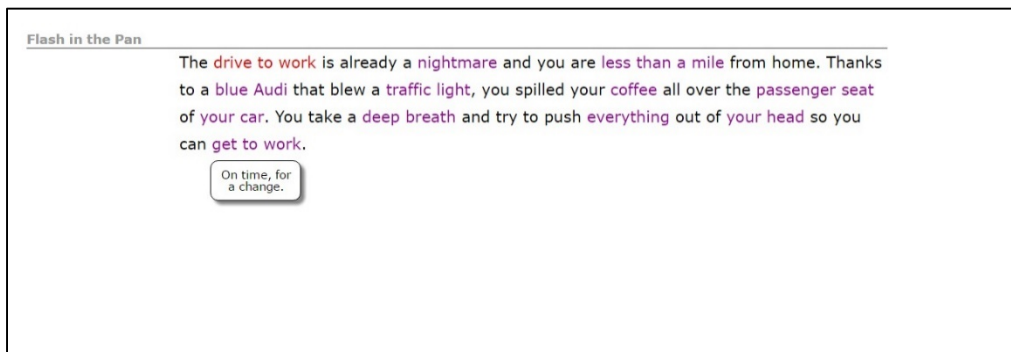
through the story efficiently, the reader thus gets distracted with all the text boxes and what they have to add to the story. This is what people with ADHD experience: distractions. They cannot efficiently move through the world in the way others can, and the experience is replicated in this narrative. While this would be particularly ambitious, it would be worthwhile to offer students the opportunity to bring awareness to mental health, or even physical health, issues that matter to them. Perhaps they have them, or someone in their family has them, but Twine would allow them, should they feel up to the task, to create experiences or narrative for those who struggle with or need to learn more about a particular health issue or mental illness. *Flash in the Pan* would be a great example to showcase for students who would be interested in this type of endeavor.

Last, but not least, *Kotodama*, by Aidan Doyle shows how culture can be brought into the classroom using Twine. The main plot of *Kotodama* is advertised as, "A robot is sent to deal
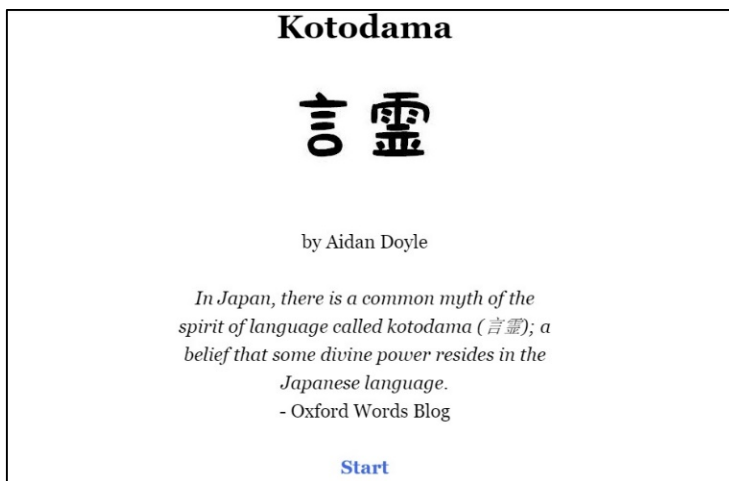
with an outbreak of poetry in Tokyo," but the story itself delves into the concept of Kotodama, which is expressed in the picture to the left as "a belief that some divine power resides in the Japanese language." The story gives reverence and

importance to the Japanese language, although there are fictional elements intertwined to provide entertainment. Students, along this same vein, could create a work that shares stories, symbols, folk tales, native language, or any other meaningful aspect of culture that they wish to share with the class and with the world. Since Twine allows images, sounds, and other forms of multimedia to be included in a narrative, students have the option to include recorded native language to their narrative, perhaps from their parents or grandparents. The possibilities of this are endless, and it would allow the student the freedom to craft something meaningful to them and to their family to represent their cultural identity.

Another benefit for classrooms is that Twine inherently has levels of scaffolding incorporated into its inner workings. Users can either create a basic story, where readers simply click on blue text to proceed to the next passage, or they can create something that's almost similar to a video game. There are levels of knowledge that allow more complex narratives to take form, but students do not have to have extensive knowledge of coding to create narratives in Twine that showcase their understanding and learning. Even if they do have that extensive knowledge of coding, Twine is still so vast and limitless that students could still create something at their level. Everyone can use Twine at their own developmental and skill levels, which is important if a teacher is truly invested in implementing the concepts of cognitivism. Piaget advocates for curriculum to take place at the developmental levels of the students in the classroom, and using Twine allows that to occur across the board. Students who are still unable to delve into the abstract will be able to create linear narratives with Twine, although, with comfort and familiarity, branching narratives are still within reach for those students, due to the visual nature of this digital tool.

With those differences in developmental and skill levels among students comes another opportunity to incorporate constructivism's ideals in the classroom. Should a student have knowledge of coding and catch on to how Twine works faster than some of their peers, constructivism advocates for that student to act as a mentor or advisor to students, but also to the teacher (University College Dublin). Giving that student the opportunity to act as a teacher activates complex cognitive processes, and thus, allows their schema to be fine-tuned in the areas they are activating during their time teaching others what they know. Teachers should not feel intimidated by students who hold more knowledge, but instead, embrace that and use it to the benefit of the whole classroom. That student should not only be challenged to create their best work, but they can, should they feel comfortable, help others create their best work and help remedy problems or issues with technology. Teachers can learn just as much from students, as students learn from them.

To further showcase the variety of final products (since the previous section highlighted a lot of differences already) that can be created using Twine, here are some more examples. *King of Bees in Fantasyland*, also by Brendan Patrick Hennessy, is reminiscent of classic, 8-bit video games, in terms of font and colors, as well as the way in which the reader makes choices. This is a typical branching narrative, much like the one I created, but it looks much different. There aren't multiple

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YOU POINT AT OUTSIDE AND GIVE ORDER TO
DEPART.

THE CREW GOES AND SURVEYS CRASHED
ZONE. SPACE POD BITS ARE INSIDE THE
GROUND. GROUND IS BENEATH A BRIGHT
PINK SKY. THROUGH SKY YOU SEE A
DISTANT BEE FORT IN A FAR MOUNTAIN
RANGE.

BEE HUMS ARE THE AREA SOUND. "THERE
ARE LIKELY TO BE BEES ABOUT," SAYS
FIRST OFFICER.

1 - GO FOR BEE FORT
2 - GET INFO
3 - ITEM SALVAGE
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choices per passage. Instead, after the reader makes a choice (say they choose "GO FOR BEE FORT" in the picture above), they are taken down a unique path until they reach the end.

However, writers can easily create narratives that have only one path to the end, such as with *do not forget*, by lectronice. As readers of this narrative progress, there are often two or three options per passage. However, only one of those options will allow readers to advance

through the game. For example, in the picture, the yellow words are what the reader has an option to click on. If they click "beach," they will start over where the story began. If they click "prairie," they progress forward and meet a new character. Readers often have to go back and try again, but in the end, if they continue to make the right choices, they will reach the end. This narrative is the most "video-game-like" example I could find, and it's easy to see that in the picture. The graphics and the text look like they come from a typical video game, but readers cannot freely move the little rabbit. Although, readers do get to name the rabbit whatever they want (and the rabbit will introduce itself as that name to new characters frequently), which adds another layer of "video-game-ness" to this narrative.

The last example of what can be created using Twine is a narrative called *Ghosts Are Good Hosts*, by Leonid Pilchin. Due to not wanting to give much about this narrative away, the basic picture readers see throughout this story is this picture.

Ghosts Are Good Hosts by Leonid Pilchin

Readers are able to click on the woman, whose name is Annabel, and the ghosts. Clicking on

them opens up an opportunity to talk with them. Through that dialogue, readers figure out the

story, as well as the personalities of each character present in the picture. An example of what

readers see when they click on a character is below. There are multiple options present per

passage, just as with many

of the other narratives, but

the style in which the

story is conveyed is

incredibly unique by

comparison. Visuals are vital in this narrative, which is not the case with most of the other

narratives that have been included in this overview. When it comes to creating these types of

narratives, it's up to the writer to determine what type of story they want to tell, figure out what

they need or want to include, and then acquire the knowledge to be able to incorporate it all

using Twine. In a classroom setting, there are plenty of resources that can aid with that process,

including students.

So What?

While there are many benefits for using Twine, especially to remedy issues presently in

education, there are two more reasons why Twine needs to take hold in the classroom. The first

of these reasons speaks, once again, to Twine's versatility. Most of the examples given in this

paper of how Twine can be used in the classroom require students to be able to delve into the

abstract and apply higher-order thinking to a concept or project. If teachers truly root their

pedagogy in cognitivism and constructivism, that would mean that the youngest age that students

could begin to use Twine to its full potential is 12. However, there have been some examples of

how Twine can be used at a basic level, for things like brainstorming, seeing explicit connections

between pieces of information, and crafting linear narratives. Twine, in those basic level

activities, arguably could be used for students as young as 10. That means that students who are

in the fourth grade and above could use Twine, thus having the same form of technology present

in their writing curriculum for nearly a decade. As students advance through their education, the

ways in which they use Twine could increase in complexity and difficulty. The familiarity and

benefits of using Twine for all those years has limitless potential, such as building coding skills

for students to use in their future jobs, crafting creative writing inspiration, and developing

students into teachers (or designers!) of this type of technology for the future generations.

The second reason Twine has a place in the classroom is due to the disparity that exists

between male students, particularly in urban settings, and other students. Male students are far

more likely to view themselves as non-writers, and they are far more likely to be disengaged

with the writing process as it occurs in classrooms today. Digital tools, like Twine, have the

potential "to reengage adolescent males who [have] been 'pushed aside' and positioned

marginally within the official school context" (Haddix and Sealey-Ruiz 189). The way in which

to do that lies in the fact that Twine is a digital tool that incorporates the types of "literacies that

[are] ever present in the everyday, out-of-school lives of male students" (Haddix and Sealey-

Ruiz 189). Through the engagement, the freedom, the empowerment, and the familiarity that

Twine provides, all students, but especially male students, can not only become great writers, but

believe they are as well. In order for students to be truly prepared for the future, this needs to

become commonplace.

Regardless if Twine becomes regularly implemented in the classroom, education needs to

change. Technology, in many different forms, has a place in the classroom in all aspects of

learning, and teachers cannot continue to deny that fact, as well as the experience. Writing and other forms of literacy can take place in a variety of settings, and it's time for teachers to empower students as writers, whether the student is writing a grocery list or an academic essay. In order to believe in the future, students need to be able to believe in themselves as readers, writers, and critical thinkers. They need diverse experiences while in the classroom, and they need to know no bounds to their imaginations and creativity. We need to make the sky the limit, and Twine can help teachers accomplish that.

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