Creating, viewing, and assessing: Fluid roles of the student self in digital storytelling

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This paper presents findings of a mixed-methods study of students as creators and viewers of digital storytelling projects in the intermediate technology classroom (students ages 9-11) and two middle school libraries (students ages 11-13). The study was designed to investigate how the interactive, participatory roles of listeners in traditional library storytelling might be extended to the digital storytelling space. During the construction of digital storytelling projects, students fluidly and independently shifted roles from creator to "listener-viewer" and back again. These dual roles students assumed as creators and viewers in the formative, or work-in-progress, stage of digital storytelling afford opportunities for self-assessment, a key skill for school librarians to support and teach.

Introduction

One "Storytelling" in the library context may call to mind children gathered to hear a librarian tell stories, where the librarian enchants the listeners with stories from the oral tradition, perhaps enhancing the story with "media" like felt board or puppets, accompanied by the sounds of singing, clapping, or maybe a beating a drum. The story experience captures the children's imaginations, and they envision the characters and scenes of the tale as it is told aloud. The children shape the story that unfolds that day by inherent qualities they bring (like their ages) and through the actions they demonstrate (like leaning forward to show interest or chanting along to rhymes and special exclamations) (Lipman, 1999). They step away from this unique storytelling event having participated in the story through the role of the listener, enlightened by a story and perhaps, inspired to tell or read new stories.

The many iterations of multimedia-based narratives known as "digital storytelling" bear some similarities to the traditional form of library storytelling for children. In this paper, digital storytelling is a short, multimedia presentation of a story, created by students, under the guidance of school librarians or teachers. Like traditional storytelling scenarios, school- or library-situated digital storytelling lessons or programs have tellers who present narratives, oftentimes concluding with a showcase where a live audience views the story. However, in digital storytelling, the tellers are usually the students – who take turns as the audience, too – and the narratives are constructed by selecting and adding media content to a technology-based application to shape a digital production viewed on a big screen or computer.

The National Storytelling Network defines storytelling as, "the interactive art of using words and actions to reveal the elements and images of a story while encouraging the listener's imagination" (National Storytelling Network, n.d.). It is this dynamic nature of live storytelling that becomes a little murky when attempting a comparison between traditional and digital storytelling. What happens to the familiar roles of storyteller and listener? Is digital storytelling interactive? That is, are audience-members able to participate in a digital storytelling event and can storytellers adjust in the moment as they are able to do with traditional storytelling?

This study sought to investigate these questions about digital storytelling in the school library and intermediate technology classroom setting, with an emphasis on learning about the experience of the audience, or "listener-viewers" as they respond to and engage in digital storytelling. The study was conducted in three school settings using a mixed-methods approach, primarily based on participant-observation of the librarians' and teachers' instruction and students' work time and presentation of digital stories. This paper examines one particularly notable finding of the school library- and classroom-situated digital storytelling in this research, wherein a new "audience" became apparent: the self. The findings of this study suggest that students as viewers of their own work is a central characteristic of digital storytelling, from which an opportunity emerges for school librarians to build students' skills in self-assessment, an important skill in 21-st century learning.

Literature Review

Digital Storytelling as Library and Classroom Learning Activity

In the educational setting of a classroom, school library, or public library, digital storytelling is a creative, multimedia activity that utilizes numerous technology applications to serve a range of storytelling purposes, including sharing personal narratives and pursuing and presenting research and curricular content.   Digital stories in the school library or classroom setting can be produced with such software as iMovie, Windows Movie Maker, and Photo Story, programs which do not require Internet access, and web-based applications such as Xtranormal, Voicethread, and Animoto (Fredricks, 2009; Sheneman, 2010).

Whichever technology tools might be used, Robin (2012) provides this helpful definition of digital storytelling as "the practice of using computer-based tools to tell stories," and "as with traditional storytelling, most digital stories focus on a specific topic and contain a particular point of view" (n.p.). Many examples of school library or classroom-based digital storytelling activities align learning objectives with content knowledge constructed through the process of creating the digital story, such as a historical inquiry of World War II and the Holocaust (Borneman & Gibson, 2011) and the writing of traditional-style myths and legends in connection with character education (Ohler, 2008).

Digital storytelling may be considered a multimodal text, meaning that more than one format of media or text is presented, e.g., words, video, images, music, and voice-over, and that the act of shifting among multiple modes of interaction with the media is required to "read" and engage with the text. Erstad and Silseth (2008) identify complexities in the construction and "reading" of multimodal texts, as readers must switch among varied modes of attending to and interpreting the content.

Storytelling as Event

The exchange and immediacy of live storytelling establishes some lofty expectations for replication in the digital storytelling space, particularly with regard to the audience's experience and participation. As described by the National Storytelling Network, "the responses of the listeners influence the telling of the story. In fact, storytelling emerges from the interaction and cooperative, coordinated efforts of teller and audience" (National Storytelling Network, n.d.). Further, storyteller and author Margaret Read MacDonald describes storytelling as "an audience-shaped art form," in which "the tale is only one part of the story event" (1993, p. 93, 31).

Humanities Professor Robert Georges (1969) described storytelling as a "complex, communicative event" constructed by a unique social experience at a given space and time. Storyteller and author Jack Maguire (1988) proposes benefits of storytelling for listeners, including the positive exchange of ideas and interactions between listener and storyteller, with imperfect human pauses or stumbles as opportunities to open space for the imagination and envisioning of the story in the mind's eye.

Self-Assessment as Part of School Library and Classroom Learning

This study introduces self-assessment as part of the listening and viewing process for students creating digital stories. One of the four strands of the American Association of School Librarians (AASL) Standards for the 21-st Century Learner is self-assessment, described as both self-monitoring, e.g., "how am I doing?" and metacognition, e.g., "how am I thinking?" The Standards for the 21-st Century Learner also introduce social aspects of self-assessment, including considering feedback from others, assessing individual contributions to collaborative efforts, and being intentional in the application of responsibilities and dispositions of learning. (AASL, 2007, 2009).

In the Understanding by Design approach to unit planning, Wiggins and McTighe (2005) identify self-understanding as "arguably the most important facet of understanding for lifelong learning." Wiggins and McTighe (2011) also explain that designing instruction for understanding really means preparing students to transfer content, principles, or methods to novel situations, effectively and eventually, independently. Through "metacognitive moments," or explicit attention to self-monitoring and learning about learning, teachers can model and make a regular habit of self-assessing (Wiggins & McTighe, 2005).

In the subject-specific classroom context, student self-assessment is commonly described in writing lessons in the language arts classroom. Tompkins (1992) suggests self-assessment as an important component of the writing process (along with strategies of checklists and conferences), which teachers should reference in grading student writing, as a way to take into account process, and not only the quality of the end-product of writing. Andrade and Boulay (2003) offer rubric-based, formal self-assessment as a potential strategy for improving student essay writing. Although empirical evidence in one study of seventh- and eighth-graders did not show consistent measurable effect of rubrics on writing, the authors suggest promise for self-assessment via rubrics with supportive classroom conditions, including teacher guidance and co-writing rubrics with students (Andrade & Boulay, 2003).

Yancey contends that "students aren't used to providing an assessment of their own work, particularly when they are asked to evaluate or judge the quality of the work; typically they see that kind of judgment as belonging to the teacher," and further, that teachers are less inclined to ask students to self-assess (Yancey, 1998, p. 13). Yancey suggests two (different) frameworks for incorporating self-assessment into writing. The first, adapted from Faigley, Cherry, Joliffe, and

Skinner, identifies levels of sophistication in students' process logs for writing, as follows (Yancey, 1998, p. 15):

1. General-intention responses (describes effort without specifics)
2. General-strategy responses (describes tasks and approaches)
3. Task-specific-strategy responses (explains task and motivation)

The second framework proposed by Yancey offers a sequence for exploring what students know and like about their work as part of a progression of considering what others might like or not, in order to to revise accordingly (Yancey, 1998, p. 16). The stages are as follows:

- Knowing (regarding the writer's familiarity with the text)
- Liking (are the writer's reasons for liking a text in concert with what others might think?)
- Critiquing (can the writer identify changes and intended outcomes of changes?)
- Applying (can the writer see through the path for revision?)

Regarding self-assessment and multimedia-based student learning products, Ostenson (2012) explains that having students write reflections at the conclusion of projects offers insight into their choices, such as transition, camera angles, and other media components discussed in class. The reflections inform Ostenson's instruction and the assessment of student work (Ostenson, 2012). In accord with the idea of gaining unique perspectives on student learning through self-assessment, Fu and Lamme (2002) note that in studies of third-grade students', teachers', and parents' views of their writing growth that self-assessments, "demonstrate not only that children can assess their writing abilities accurately, but also that they can provide insights into their own learning that others cannot perceive right away" (p. 247).

In school library literature, Harada and Yoshina (2010) consider students as "central partners" as an underlying assumption of assessment as a tool that serves instructors as well as students. Further, they recommend that teachers facilitate the development of students' self-responsibility and self-appraisal by guiding them through varied means of reflection, so that students may recognize and grow from their strengths and needs as learners (Harada & Yoshina, 2010). Likewise, the AASL Standards for the 21-st Century Learner in Action suggest that a variety of teaching strategies be used to support self-assessment, including direct instruction, modeling exemplary performance, and scaffolding (AASL, 2009).

Theoretical Framework

This studied was inspired by and analyzed through the lenses of several prominent theories of interactions with text and story. Louise Rosenblatt's transactional response to reading employs a continuum to describe how readers engage with texts. Efferent reading, from the Latin "efferre," or "to carry away," pertains to that which readers take away from the experience. Efferent reading is reading for finding and remembering facts and information, i.e., "concepts to be retained, ideas to be tested, actions to be performed after the reading" (1978, p. 24). Aesthetic reading describes the process which takes place during the reading event, the lived experience of reading. The same individual reader may approach different texts or the same texts from different points on the continuum, at different times (Rosenblatt, 1978).

In the storytelling literature, Sturm (2000) has identified the "storylistening trance" as a state of mind into which listeners enter during a storytelling experience, and he has proposed six categories to represent the listener's experience with the storylistening trance: realism, lack of awareness of surroundings or other mental processes, engaged receptive channels, control, placeness, and time distortion. Sturm also relates the storylistening trance to teaching methods

which support engaged student learning, including connecting students "personally and completely" with learning (Sturm, 1999).

In a different realm of connecting with media, Margaret Mackey (2007) writes about attention in her studies of students and multimedia, emphasizing that finite human attention restricts concentration on multiple tasks, though it is possible to switch across tasks quickly. This switching becomes relevant when considering the tasks involved with creating and viewing digital stories. These include technology skills (such as recording a narrated script or adding content to "frames" of a digital story), as well as the tasks inherent in attending to and building meaning from the sound, images, written text, and video that comprise digital stories.

"Text tinkering" is Mackey's term for describing an "initial, playful" level of engagement with a text, which she observed in studies of students' exploration of multimedia texts. Mackey suggests that text tinkering may fulfill varied needs for users (depending on their determination of the task's purpose and importance), from a preliminary interaction that acquaints a user with a format, to a state of play for the sake of play (Mackey, 2007, p. 25).

Method

Design & Data Collection Overview

This study employed a mixed-methods design, with a process of collecting data by "observing, noting, reading, thinking, observing, and noting," the recursive nature of which characterizes ethnographic research (Heath & Street, 2008). The primary method of data collection was participant-observation of school librarian- and teacher-led digital storytelling activities. I observed one class group in each of three school settings for the duration of the learning experiences, which ranged from 6 to 13 sessions. In addition to the field notes from the classroom observations, data came from student focus groups and surveys, teacher and librarian interviews, and learning artifacts, which included the digital story media files and classroom materials, such as student logs, photographs of the learning environments and students, and teacher rubrics.

Selection of the Study Population

Three school settings were selected for the study by convenience sample, a nonprobability sample in which the researcher selects from groups that are readily available for study (Herek, 2009). In this case, the groups were identified through professional contacts with school principals, teachers, and librarians. In the proposal for this research study, I indicated that I would seek two study sites and one pre-test site where I would test one data collection tool, the student survey. After querying contacts at seven school districts for interest, feasibility, and permission, the process resulted in three actual study sites with no pre-test site, due to these three factors:

(1) The teachers and librarians were planning to teach or facilitate a digital storytelling activity with their students as part of the regular school curriculum in the Spring 2011 school year.

With an interest in learning how librarians and teachers were currently incorporating digital storytelling activities into curriculum, and how students were interacting as viewers and listeners of these stories, it was essential to identify groups already "doing" digital storytelling. As a researcher, my involvement did not include presenting an experimental or pre-designed digital storytelling lesson for observation. Such a research design may be the focus of future studies, but was outside the scope of this exploratory investigation. This design is the reason that we see three distinct representations of digital storytelling across the three classroom settings.

(2) The school district administration permitted me to conduct the study as part of these existing learning activities;

At a district where I asked to conduct the pre-test, the middle school building principal declined outright, stating district policy that no dissertation studies were to be conducted in their schools.

(3) The permission process (administrative level and parent consent) would work with the schedule of the planned digital storytelling lesson.

In two schools contacted for interest in the study, digital storytelling lessons were planned and teachers/librarians were interested, but the activities were scheduled too soon to obtain the required administrative approval process and parent consent.

As the complexity in attaining permission to conduct research in the school setting became apparent, I pursued formal approval processes in three schools with interested teachers and librarians, hoping that at least two sites would be approved. Once two approvals were granted, I was reluctant to stop a permission process already in progress at the third school, or to revise the content of my request to reflect the parameters of a pre-test. As such, with observation schedules that overlapped to some extent, this exploratory study represents all three sites, with no pre-test site. After the permissions were obtained, the teachers and librarians selected the classes (i.e., the groups of students) that were invited to take part in the study. The demographics of the school settings are presented in the next section.

Demographics

School 1 is a sixth grade class (ages 11 and 12). The school is a suburban, public middle school with just under 1500 students in grades 5-8. The National Center for Education Statistics (NCES) describes the student population as 60.3% African-American, 37.6% White, and less than 1% Asian/Pacific Islander, Native American/Alaskan, and Hispanic. The class demographics reflected that of the school. Fifty-three percent of the student body is eligible for free or reduced lunch (National Center for Education Statistics (NCES), n.d.).

School 2 is an independent urban school with 297 students in grades K-8 in one building. The National Center for Education Statistics (NCES) Private School Universe Survey (PSS) describes the student population as 63.64% White, 13.47% Asian, 5.39% Black, 5.05% Hispanic, 12.46% two or more races, 0% Native Hawaiian/Pacific Islander, and 0% American Indian/Alaska Native (NCES, n.d.). Information is not provided by NCES as to number of students receiving free or reduced lunch at this school. The school is comprised of several arrangements of self-contained or multi-grade level, multi-age level classrooms. The class in the study is a fourth and fifth grade class, in which the students self-reported ages of 9, 10, and 11 years old. The number of students from Asian backgrounds in this class represented a higher number than the percentage school-wide; with this exception, the class represented the racial and ethnic demographics of the school at large.

School 3 is a seventh grade language arts class in a suburban middle school that houses grades 6-8. The enrollment of the school is 474, as reported by the school librarian (via her circulation and student management software). The student body at School 3 is primarily White, with less than three percent students who are American Indian/Alaskan, Asian/Pacific Islander, African-American, and Hispanic, according to information from the National Center for Education Statistics ("National Center for Education Statistics (NCES), n.d.). The class that I observed for the study was more diverse than the general student body. Twenty-two and one-half percent of the students are eligible for free or reduced lunch.

Collecting Data in the Schools

The scenarios for the digital storytelling activities are presented in Table 1. Two of the digital storytelling activities were derived directly from curricular content: the sixth grade group (ages 11-12) at School 1 developed "Photo Story" presentations about their geography unit on Ancient China, with the digital storytelling activities co-planned and co-taught by the school librarian and classroom teacher. The mixed-grade level group at School 2 (ages 9-11) made iMovie "book trailers" (in the style of movie previews of books they had read) in a cross-curricular technology and language arts unit. The language arts component was taught prior to the technology portion by the classroom teacher. Following the classroom instruction, the students visited the technology lab for the digital storytelling part, instructed by the technology teacher, with consultation from the classroom teacher.

The digital storytelling project at School 3 was an extension of a classroom activity in the seventh grade language arts class. During their study period, a group of three students ages 12-13 worked collaboratively on an iMovie that would introduce the incoming class of students to the experience of being on a seventh grade "team," the organizational unit of teachers and students at that school. The classroom teacher and school librarian provided content guidance, permission and resources to work, and technology support, but not direct instruction.

Although the sequence and duration of activities varied across visits, typical learning activities that I observed included the following: whole group instruction or demonstrations by teachers and librarians, individual help or redirection from teachers, students using technology and library resources to develop their projects independently or collaboratively with group partners or classmates working on different projects, and closure or wrap-up at the end of sessions, sometimes with student logs or plans for the next class.

With learning activities developed by the librarians and teachers in each of the schools (and not via research design), the length of time spent in each setting varied, with durations of six, ten, and thirteen class visits. The observation sessions include student days spent developing the digital storytelling projects and also viewing the projects as a class. This approach to studying students' digital storytelling activities over a relatively short time period may be characterized as "focused ethnography, " an event-based research method with short-ranged field visits, intensive, multimedia data collection and a focused attention on certain aspect of the participants' activities (Knoblauch, 2005).

Table 1. Scenarios for digital storytelling projects

School	Grades Levels & Ages	Subject Area	Activity	Students in Study	Educators in Study	Observation Sessions
1	Grade 6, ages 11-12	Social Studies	Ancient China Photo Story	15	1 teacher, 1 school librarian, 1 para-professional	13
2	Grades 4-5, ages 9-11	Technology/ Language Arts	Digital Book Trailers / iMovie	17	1 teacher	10
3	Grade 7, ages 12-13	Language Arts	Team Podcast/ iMovie	22	1 teacher, 1 school librarian	6

Analysis of Data

Field notes, artifacts, and interview and survey results were transcribed and reviewed during and after the research activities. As part of this recursive process, QSR NVivo qualitative analysis software was used for coding and querying of data. The exploratory nature of this study did not correspond to an existing coding scheme, so the data were coded for original, emergent categories, or in vivo codes, those themes which emerge in real-life data (Marshall & Rossman, 2011). Initially, the data were coded with broad "parent" codes in the following categories:

- Student(s) create(s) digital story
- Student(s) view(s) completed stories
- Teachers
- Researcher roles

Then, in repeated reviews and refining of codes, "child" categories were added as a second level hierarchy of the "parent" categories to capture more specific attributes of the students' and teachers' actions and discussions. For example, under the parent code "student(s) create(s) digital story," child codes included "student research and information gathering approaches" and "student views or listens to work-in-progress." In the iterative process of coding, third- and fourth-level codes were also added to some categories of the hierarchy, to represent more granular aspects of the activities.

To study the relationship among codes, the data were interrogated through code queries, as well as through several formats of text queries and word frequency queries (e.g., tag clouds, word trees, tree maps, and cluster analyses). The development and analysis of the coding scheme and relationships across codes helped to shape the themes and conceptual model.

In analyzing and synthesizing the results of the three different study populations, the three sample groups can be compared to the extent that the data from students and teachers/librarians begins to provide a picture of how students interact with media and peers during classroom- and school library-situated digital storytelling activities. The similarities across groups, such as the incidence and commonalities in the students' formative, or work-in-progress viewing, set up clear focal points for future investigations, potentially with more controlled study conditions or a single classroom setting. The differences in assigned student tasks, technology applications (iMovie versus Photo Story), demographics, grade levels, and teaching and learning environments should be noted. Direct comparisons, such as how a certain age group or gender responds to "x" type of story, were not attempted here. However, the development and analysis of the coding scheme led to the identification and organization of themes in an initial conceptual model of student engagement in digital storytelling as a classroom and library activity.

Triangulation, the checking for consistency among the data collection methods, was established through member checking (checking accuracy of my understanding with the students and educators), and peer debriefing (sharing and discussing findings with a colleague). These approaches were used to help ensure complete and credible findings (Marshall & Rossman, 2011).

Findings & Discussion

Fluid, Dual Roles as Storytellers and Participating Audience

The role of student as "listener-viewer" was initially proposed in the study as the digital storytelling counterpart to the audience in a traditional, live storytelling event. With much of the literature and practice about classroom and school library digital storytelling attending to the

learning attained by the creators of the stories, and with so much emphasis on the listener benefits and roles in traditional storytelling, the focal point of this study was a different aspect: the engagement and response of students as audience members in digital storytelling. However, as the analysis showed, the roles of creating and telling a story and viewing a digital storytelling performance are less defined and less separated than in traditional storytelling. A question that shaped this study - "is digital storytelling interactive" - perhaps should have been, "when is digital storytelling interactive?" in light of the many dimensions and opportunities for experiencing the stories. The directional exchanges of interactions with story included student-to-student, student-to-peer, student-to-instructor, and student-to-group.

In addition, it became clear through the participant-observation process and data analysis that the "performance" of digital storytelling events did not only take place at the end of the projects, in the large group showcase setting. Instead, the students conducted numerous "mini-performances" of their stories for themselves and sometimes in impromptu sharing with peers. This work-in-progress, or formative, viewing was observed at all three schools, without specific directives from the teachers to adopt this approach to editing.

One occasion for "mini-performances" was in the students' exploration of new tools, usefully viewed through Mackey's concept of text tinkering (Mackey, 2007). Also as noted in the review of literature, the switching among modes of attention (e.g., listening to narration or music, viewing images, reading text) characterizes engagement with multimodal texts, such as digital stories (Erstad & Silseth, 2008). As they switched modes of attending to text, students experimented and played with recording and playback of music, and images, especially transitions and special effects, to help guide their editing processes.

Simultaneous to the process of shifting across modes of attention and engagement (listening, watching, and reading digital stories while viewing), students were also shifting between roles of viewer (or audience) and editor (or storyteller). This finding sets apart digital storytelling from traditional storytelling, in that in this stage of the story, the audience and storyteller are "one" and not separate groups or individuals.

In the viewer role, students seemed to engage with the stories for enjoyment or content learning. As editor, they seemed to attend to the stories with a critical eye for story development, video editing, and general quality. In the editor role in particular, students demonstrated comments and reflections related to self-assessment, even when not formally prompted by teachers. For instance, at School 3, seventh-grader Regan describes what it feels like to sit among classmates and watch videos she has made:

Regan: It's kind of cool, cause if it's a good one, you're like - yeah. That's my video. But if it's a bad one, you're just like, oh god. Here we go.

The "editor" role is examined further in the discussion of informal self-assessment in the next section.

Informal Self-Assessment

Although only one of the three classroom activities included a formal, teacher-designed self-evaluation, students in all three settings took part in or talked about self-reflection or self-assessment to some extent during the development of the projects. This work-in-progress viewing and editing consisted mostly of frequent, quick reviewing of the digital storytelling frames (segments of the production) using an automatic preview or play function, or sometimes by manually clicking through a sequence of frames. Some students talked through these processes aloud, and they made mention of content to add next or corrections to make. For example, this School 1 student's explains her re-rerecording of a narration about Marco Polo. In the analysis,

this section was coded with parent code, "student creates digital story" and level 2 and 3 child codes, "student views or listens to work-in-progress" and "student self-assessment."

> *Tanya records her script (reading from her lined paper, take #1) for about 45 seconds, and after pausing for a moment, she stops recording.*
>
> *Researcher: What do you think? (as Tanya plays back the audio in her headphones)*
>
> *Tanya: That was not good.*
>
> *Researcher: Why?*
>
> *Tanya: It sounded like a robot.*
>
> *Tanya records again (#2), not stopping between slides. She does one long take.*
>
> *Researcher: Did you like it this time?*
>
> *Tanya: Yeah.*
>
> *Researcher: What's better?*
>
> *Tanya: I did it more straight. (She moves her hand to show a smooth motion).*
>
> *Tanya adds "by Tanya M" to the title.*
>
> *Tanya: I did the whole story on one picture. She reviews the pictures and sound.*
>
> *Tanya: I'm one off. I forgot one stupid fact.*
>
> *Researcher: Do you need to write it down?*
>
> *Tanya: No, I'll just delete it [an image of Marco Polo]. I already got one of him.*
>
> *She records again (take #3).*
>
> *Tanya: Done. Perfect.*
>
> *Tanya has done one take (straight through the script without stopping) three times.*
>
> *She plays the story back on headphone.*
>
> *Tanya watches full story.*
>
> *Tanya: Yes, I'm smart.*

Tanya's editing process is similar to that which Tompkins (1992) describes in student self-assessment of writing, in which they "learn to stand back and evaluate themselves as writers and their writing as someone else might" (p. 245). Similarly, Kaya (a student at the same school), describes her efforts to keep her story short:

> *Kaya: I want something that people can watch and not get bored cause we have to watch a lot of* them.

Students' engagement with their own stories as texts might also be interpreted through the lens of Rosenblatt's (1978) transactional response to reading. Students seemed to demonstrate enjoyment of their stories during formative viewing, which may represent aesthetic qualities of interacting with texts. In response to a survey question about "a favorite story you just viewed," some students wrote that their own story was their favorite on the survey. Some students asked directly if it was ok "to say mine was my favorite." At School 1 (the Ancient China Photo Story assignment), two students responded "mine" to this question. One student wrote (uncorrected for conventions), *"I liked my storyteller my story teller was on Confucius i liked my storyteller because my music matched with my story........."*

Students also viewed with an eye for editing, which reflects an efferent interaction of engaging with the text to derive information, in this instance, information that guides the next steps in their story construction.   And yet, some interactions might reveal "reading" across the continuum of information- and pleasure-deriving reading, as suggested by these enthusiastic, evaluative comments from a School 2 group, reporting on an updated version of their book trailer after figuring out how to add a favorite song: *It was good. It was fantastic. It was awesome.*

As noted in the literature review, Yancey (1998) recommends frameworks for structuring self-assessment strategies of student writing. In one of these frameworks, this process begins by considering whether or how deeply the student knows his or her own work, then inquiring about what students like about it, examining how others might perceive the work, and deciding what to change. These steps were observed (though outside of any formal instruction) in many students' digital storytelling work across all three settings.   As such, Yancey's frameworks for self-assessment of student writing may be applied for use by teachers in facilitating digital storytelling by taking advantage of what seems to be students' inclination to self-assess somewhat continuously during the process of digital storytelling.

Supporting this approach is Yancey's affirmation that self-assessment "initiate[s] a kind of dialog that is characteristic of writers and readers, writers and respondents . . ." (Yancey, 1998, p. 16). There are many dialogs happening in digital storytelling: between student and teacher, between student and self (as "audience" or viewer of the story), and between student and audience-at-large, usually the other students in the class.   A dialog-oriented, ongoing implementation of self-assessment would differ from the more formalized, written criterion-referenced process described by Andrade and Boulay (2003), in which students compared performance criteria on a rubric with evidence from their writing, and used highlighting and notes to record items that matched the requirements or were identified as revisions or additions to drafts of writing.

Yancey's frameworks may also be usefully incorporated into coding schemes for future research on self-assessment in digital storytelling; for instance, comments like the ones above exclaiming that something was "good," "fantastic," and "awesome," might be characterized as "general intention responses" and probably represent a lower tier of sophistication, with room for student growth. (This possible coding is used for discussion purposes and is outside the scope of analysis for this study).

Conceptual Model of Student Engagement

Finally, to situate this discussion of self-assessment into the study's broader findings on how students respond to and engage in digital storytelling as listeners and viewers, the following conceptual model is suggested. This model is unique in digital storytelling research, and will be used to extract new study questions, to apply to practice, and to contribute to research on digital storytelling, particularly in regard to classroom learning. The model was constructed from these six categories of student response and engagement, which emerged from the coding process: (Morris, 2011, 2012):

- What draws students' attention when listening/viewing
- What students do when listening/viewing
- How students feel when listening/viewing
- What students learn and get out of digital storytelling
- What experiences students think are similar to digital storytelling
- What students want to do next with digital storytelling

The themes as pictured in the conceptual model convey the multidirectional and simultaneous processes and roles of students. The current discussion pertains primarily to the circular "Viewing and Creating" part of the conceptual model, where self-assessment tendencies emerged in the dual roles of creator and viewer. Also of significant interest to the current discussion are the self-assessment activities occurring in the stages of Learning and Next Steps. The model is overviewed below, with more detail reported in Morris (2011).
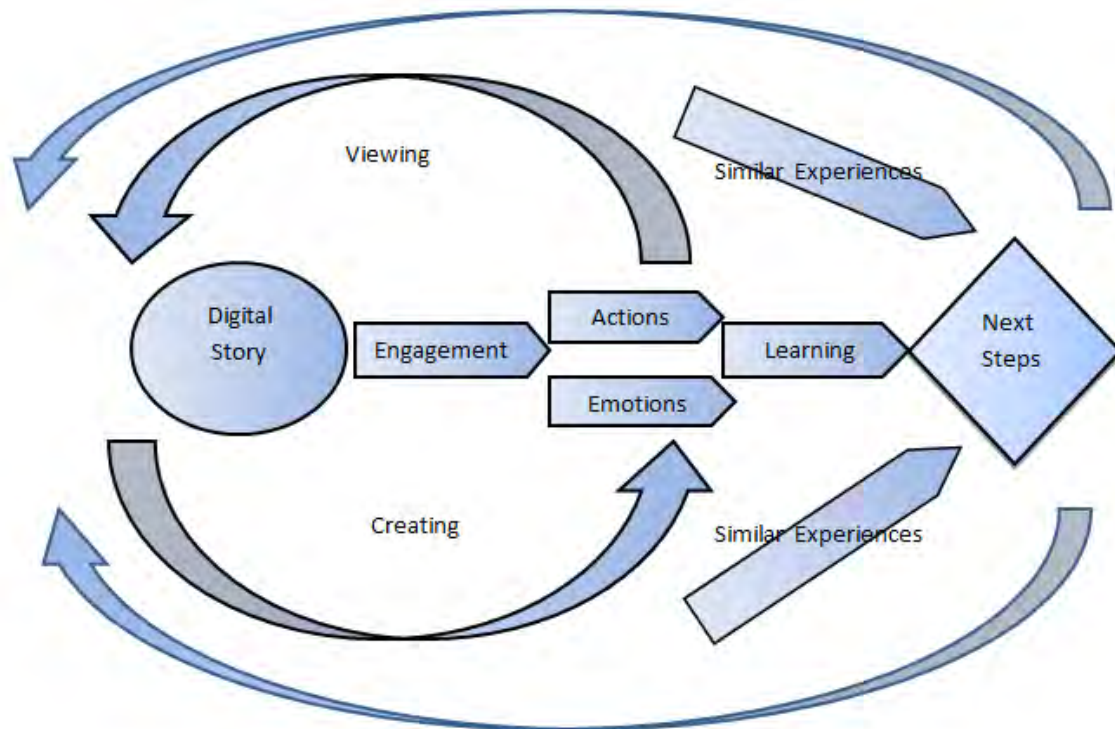
Figure 1. Conceptual model of student engagement in digital storytelling in school library and classroom

During the processes of Viewing and Creating, students engage with digital stories in numerous ways, some easier to observe and identify than others. The state of "Engagement" is drawn in part from Sturm's studies of the storylistening trance (Sturm, 1999, 2000). Here, Engagement represent students' responses to characteristics of the digital stories, including personal relevance, entertainment value, story, sound, images, and whether their friends appear in or made digital stories. "Actions" are the observable manifestations of engagement, e.g., body language, comments, and peer interactions. Actions reveal and represent "Emotions," the part of the model which describes feelings of pride, shyness, embarrassment, happiness, and social connections with peers, as observed or directly expressed by students during or after the viewing and creating processes. Actions and Emotions are related and occur simultaneously.

Learning represents content knowledge as well as technology skills required to construct the digital stories. Learning is informed by Similar Experiences, which includes previous school and informal learning and related media experiences, such as gaming, movies, and social media. What students want to do next with digital storytelling is shown simply as Next Steps, which points back to the Digital Story. Specific responses that shaped the "Next Steps" category included new ideas for digital stories, suggestions of other classroom topics that would fit this type of activity, desire for more advanced story creation opportunities, and interest in reading the books or sequels to books introduced in book trailers (from School 2).

Limitations & Future Research

This study involved working with teachers and librarians who had already planned digital storytelling lessons which I observed as the researcher, so selecting the format or genre of the digital storytelling activity was not part of the research design. Certain applications or genres of digital storytelling, informational versus fiction, for example, may lend differently to the development of self-assessment strategies and instruction. The focused ethnographic approach

seems suited to observing digital storytelling units, though the varied lengths of time spent observing in each setting could be considered a limitation.

Entering this research, I thought that perhaps the elements of collaborative creative processes, varied technology skills, and shared authorship might be the new means of forging connections between audience and story in the digital space. Instead, the fluid, dual roles of self-assessing creator and viewer seemed to emerge as a unique quality of classroom- and school library-situated digital storytelling. Future studies may be designed to observe more specifically students as viewers and editors of their own digital stories, with data codes that build upon the coding schema used here in the analysis process, and potentially integrate self-assessment techniques borrowed from the writing classroom, such as Yancey's framework that aligns revisions with considerations related to "liking" a piece of one's own writing (Yancey, 1998).

Self-knowledge is among the "Six Facets of Understanding" proposed by Wiggins and McTighe (2011) to help teachers see and assess how students build understanding through learning products and behaviors. Applying questions about self-knowledge, e.g., "how do I know x," (Wiggins & McTighe, 2011) to digital storytelling experiences may deepen the formative viewing process to incorporate not only performance qualities but also critical thinking about the content knowledge that students are constructing through their storytelling. To this end, further research might also incorporate student think-alouds as a data collection method to study how students are actively constructing their story development and editing.

Harada describes metacognition and reflection as "practices to be thoughtfully and intentionally cultivated in students" (2010, p. 13). With findings that indicate reflection is a seemingly natural step for students creating digital stories, it makes sense for school librarians to attend to self-assessment in facilitating digital storytelling. Essentially, students are already "doing" self-assessment with their formative viewing processes. With this in mind, a next step is learning how to guide this process to be most effective not only for the context of constructing a digital story, but for students' growth as self-directed, motivated learners across settings. As recommended by Harada and Yoshina (2010) and the *Standards for the 21st-Century Learner in Action* (AASL, 2009), school librarians can employ varied techniques to integrate self-assessment into digital storytelling, including direct explanations of the rationale for self-assessment; modeling of prompts and self-talk; and scaffolding students' critiques and viewing of their work into suggestions for revisions. As discussed in this paper, this process can be informed by relevant strategies suggested in the language arts literature. Considering that digital storytelling may be considered a form of performance, future research and practice might also expand literature references into performance-based applications of self-assessment, such as that practiced in the teaching of music, drama, physical education, or foreign language.

In a student survey question that didn't specify or request self-assessment (instead, asking students to describe how they felt when viewing all stories, theirs and their peers'), a School 1 student responded, *YES IT MADE ME PROUD OF MY WORK.* This study, and perhaps this student, suggest that school librarians can harness what may be a natural disposition toward self-assessment in digital storytelling to guide students in self-reflection, critical thinking, and metacognition.

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