

**BARTLEY ARGO, NICHOLAS DEARMAS, AMANDA HILL,
SARA RAFFEL, AND SHELLY WELCH**
UNIVERSITY OF CENTRAL FLORIDA (U.S.A.)

THE WAY IT USED TO BE: EXPLORING CULTURAL HERITAGE THROUGH THE AUGMENTED REALITY STORY OF A NEIGHBORHOOD SOUL FOOD RESTAURANT

ABSTRACT

This article documents the planning, creation, and user testing of a situated mobile story using the ARIS platform. The game, "Getting a Job at Nikki's Place," focuses on a neighborhood restaurant in Orlando, Florida and the life of its current owner, Nick Aiken. Our team used the historical and community aspects of soul food to connect Aiken's story to the broader story of urban revitalization in the Parramore neighborhood. This article illustrates the knowledge our team gained from the experience of mobile storytelling and articulates it into a call for educators to create digital stories with their own students.¹

KEYWORDS

Digital storytelling; interactive narrative; mobile storytelling; augmented reality; cultural heritage

**BARTLEY ARGO, NICHOLAS DEARMAS, AMANDA HILL,
SARA RAFFEL, AND SHELLY WELCH**

The authors are colleagues from the interdisciplinary Texts and Technology Ph.D. and Digital Media M.A. programs at the University of Central Florida in Orlando. They bring

¹ Aiming to help students find and tell their own community stories, the team wrote *Mobile Storytelling: A Guidebook For Teaching Students How To Tell Community-Based Mobile Stories In The Classroom*. The guidebook is available online at http://create.cah.ucf.edu/files/Mobile_Cookbook.pdf

varied backgrounds in digital storytelling, film, media studies, rhetoric, theatre, and user experience to the project, and were supervised throughout all phases by Dr. Natalie Underberg-Goode, associate professor in the School of Visual Arts and Design. For more information on the individual authors, visit: tandt.cah.ucf.edu/students.php

INTRODUCTION

In the Parramore neighborhood, near downtown Orlando, Florida one can taste, “Southern cuisine the way it used to be,” at Nikki’s Place. The catch phrase only hints at the historical importance of the plain, mirrored storefront in Parramore. Though it has gone through a few different incarnations, Nikki’s Place has been a popular destination since the area thrived in the 1950s. The original owner, Roser Mae Jones, or “Mama Rose,” as she was known locally, groomed a young Nick Aiken to take over her restaurant named Roser’s Restaurant. Aiken, owner of Nikki’s Place, has thus witnessed the ways Parramore has changed over the last sixty-some years. Today, few locals know this formerly thriving community hosted civil rights activists and members of the famous musical Chitlin’ Circuit; rather, much of that history now lives only in the memories of long-time residents like Aiken, as Parramore became an underserved area that one can, quite literally, drive over on the way to the Amway Center. One of Orlando’s main toll roads, the State Road 408, or the East-West Expressway, bisects the series of boarded-up, disintegrating buildings that once held businesses and now, for the most part, stand empty. Aiken knows well the tragic decline of his home. Our team aimed to illuminate Aiken’s sense of loss in his community by showing, through a historically accurate mobile narrative, the vibrant businesses and personalities that once inhabited the area. We tempered the melancholic reality by recognizing the hope that still lives in Parramore; after all, community gathering places like Nikki’s Place still exist.

At the restaurant, one can still enjoy the company of a man who believes in a community where scant evidence of its once-thriving past remains visible, and one can still enjoy a savory sweet potato pie served from a sixty-year-old recipe. With the town’s history in mind, our team set out to create a situated mobile documentary using the ARIS platform (www.arisgames.org). “Getting a Job at Nikki’s Place” focuses on the story of Nikki’s Place and the life of its current owner, Nick Aiken. Our team used the historical and community aspects of soul food to connect to the broader story of urban revitalization in the Parramore neighborhood. The project consisted of two phases. For the first phase, the team conducted initial historical research. Using that research, the team then created a prototype of an interactive mobile story using the ARIS platform, as well as a digital story about Aiken, which would serve as the denouement to the mobile narrative.² We designed the story to educate elementary school students in the fourth and fifth grades about the history of the Parramore neighborhood. In the second phase, the team revised the story and fixed bugs, optimizing the mobile game in a newer version of ARIS. Then, the team asked fourth and fifth grade students from Nap Ford Community school to test the game and provide feedback on the story and gameplay. This paper seeks to demystify the process of mobile story creation by pinpointing the challenges, design decisions, and ultimate aims of all facets of the “Getting a Job at Nikki’s Place” project.

² To view the digital story, “Welcome to Nikki’s Place,” please visit: create.cah.ucf.edu/projects_mobilestory.php.

DESIGNING “GETTING A JOB AT NIKKI’S PLACE”

For the creation of the story, we followed Carolyn Miller’s (2014) steps for narrative development in digital storytelling. She stresses the importance of the development period to forming a coherent and meaningful product. We began the development of the situated documentary, “Getting a Job at Nikki’s Place” as Miller does by asking the fundamental question: “What is the premise and purpose?” (Miller 2014: 189).

There were limitless directions the interactive project could take, including, but not limited to: a general history, urban planning, economic disparities, architectural changes, food ways, politics, and civil rights. However, after interviewing our subject, Aiken, and researching the history of his environment, the Holden-Parramore and Callahan neighborhoods of Orlando, Florida, our team shaped the story as a heritage-based project. We honed in on the aspects more closely associated with personal, everyday life as a business owner in the neighborhood, as opposed to larger, more socio-political narratives. Early on, the question of which story to tell confronted us. Even within the restaurant, there were many potential stories since the gathering place embodies the cultural story of a community. Through interviews with Aiken and his wife, Elaine, we determined the most common themes to be the physical changes in the neighborhood and the importance of education in the lives of its citizens. Indeed, Aiken stressed education and mentoring were essential to his survival. The changes that occurred in the Parramore neighborhood—gentrification, highways dividing the town, slow decay of buildings and concurrent decline of a once bustling culture—were of great concern to him. The project’s premise, therefore, supports education and mentoring of community youth, so the positive aspects of a community’s past can be realized in its future. We achieved this by informing the user about the life and success of Aiken, who came before them and experienced their neighborhood in a strikingly different way from how the player sees it today.

Another crucial consideration on Miller’s checklist is the “Audience and Market.” Historical documentation of the Parramore District is still in its infancy. Further, there has been substantial physical change in the area through the demolition of the majority of the businesses and homes that once helped define it. Hence, there is potential for this situated documentary to appeal to multiple demographics, including anyone unfamiliar with the history of the area. However, building off of our premise’s themes, we developed the project as an educational tool. We determined our target audience as fourth and fifth grade grammar school students from the neighborhoods represented in the project. As such, we had to address certain considerations. We determined, as authors who were not from the area, to keep our presence out of the final product as much as possible. Since the interpretation of the material presented depends largely on the user’s demographic (the framework with which they process visual and literary language, as well

as their current understanding of the physical environment), a reasonably familiar, demographically correct community omniscience should be perceived as the creator of the project. Aiken's words of wisdom aim to influence younger generations of the neighborhood's population, so it made sense for youth to be the target audience with regard to design and story formation. In his view, for positive change to happen in the community, children must become active citizens of their society. When developing the narrative and gaming elements, we considered another section of Miller's checklist concurrently with audience, the user's role and point of view, which go hand-in-hand with story development.

Further, we determined the user should experience what life was like in the neighborhood before the razing of the majority of its structures. It was an attempt to simulate life in Parramore as experienced by Nick Aiken. By using Aiken's story as a framework, we allowed the passage of time to indicate how Parramore changed from a progressive and vibrant community, to today's Parramore, a region dotted with physical desolation and a fragmented cultural identity. One of the more impactful narrative decisions we made was to utilize State Road 408 as a time travel tool. Passing underneath the highway became a symbolic passage, bringing the reader from the past into the present and from searching for ingredients to actually making the sweet potato pie. Thus, the transition brings the traditions from the past into the present. Through this transition, we found a powerful, yet subtle, way to attest to the complicated nature of the cultural history of Parramore. The story took shape and became accessible with this change in temporality. By using augmented reality, and incorporating video, audio, archive images, and text into the story, we could show the community's metamorphosis. The rich and immersive nature of multimedia shows how the construction of State Road 408 affected the community in a more impactful way than if our audience read the story or heard it orally. Furthermore, through the use of game-like elements, we hoped to encourage fun and deeper engagement into community history.

One of our primary concerns, however, was to avoid misrepresentation, as we are outsiders to the community. We wanted to make sure we acknowledged the rich, complicated history of Parramore without glossing over controversial moments in history with euphemisms or privilege. Wrapped up in this project are histories—both personal and public—interactions, physical space, and imagined space. We compiled the viewpoints, interpretations, and representations of a community into our narrative. As such, we strove to gather a plethora of perspectives in our research and maintain historical integrity during the story development. We understood, of course, that we needed elements of fantasy and creativity to further engage the target audience. We needed to allow names, events, and locations to be authentic, but in a hypothetical chronology. By inserting a time-traveling motif, we were able to take the user to the past, where these disparate stories exist.

This meant we could take a bit more license with the people players encounter, and when and where they meet. Historical photos that correspond with plot points from Aiken's personal interview match historically significant buildings, which helped us devise the physical journey travelled by our players. Tailoring our story to combine different eras and events allows the story to represent Parramore's past and present with a more engaging and coherent feel. For example, the player visits the former location of the South Street Casino, an important musical venue during the Segregation Era. The casino burned down in the 1980s, but Mama Rose sends the player on an errand to the casino in the 1950s. The errand gave us the opportunity to show a photo of the casino in the past while the player stands before its former location in the present. More importantly, it provided a narrative reason to explain the importance of the juke joint as a gathering space, and allowed the implicit introduction of the wider social narrative of segregated entertainment. Ultimately, the time-travel narrative aspects allow a framework for the gaming elements to make sense, for the goals to be accomplished, and for the inclusion of educational and historical themes throughout the story.

The arrangement of the story elements is another of Miller's considerations. Though the player travels through time, the game's tasks occur sequentially, and completing tasks allows the linear three-act storyline to unfold. We created a physical path for the project that is relatively circular, based on a navigable map of the area, and followed a basic three-act structure for the story. The first act occurs in the present; Aiken speaks to the player and sets the goals and background for the project. The second act begins when Aiken takes the user into the past. He introduces the player to his mentor, Mama Rose, and sends the player on errands for a catering event held at the restaurant. The errands allow the player to follow in Aiken's footsteps as a young man working at Roser's Restaurant. Together, Aiken and the player travel to different historical and current locations, and the augmented reality shows Parramore as it is and as it once was. Having completed all of the errands, Aiken returns the player to the present day to begin the third act. In this final section of the story, the player returns to the present to perform the final task, baking a virtual sweet potato pie with Aiken using the ingredients gathered on their errands. Thus, acts one and three are in the present and provide the impetus for and rewards of the journey. The journey is set in a generalized past and is narrated by Aiken. The time traveling device is appropriate for conveying history and adds an element of whimsy, hopefully increasing user engagement. By creating this idealized past, we laid the foundations for folklore. For their efforts, players achieve the game's highest honor, a job at Nikki's Place. The conclusion linked the two worlds, past and the present. As a first generation telling of Aiken's story, this situated documentary serves as personal ethnographic study. Yet, once reset, re-visioned, and retold, it takes on fable-like

dimensions expressing cultural details unique to the area and the generalized time period of “the past.” The photographs provide architectural details and generational differences like attire and activities. Dialogue provides vernacular traits and audio clips give insight to the day-to-day activities of the community. In short, the past looks strikingly different from the present and heightens the sense of being in a fantasy world or place of lore.

Miller also stresses the role of characters as an important consideration. Indeed, in the development of our project, we scrutinized various aspects of our characters. We determined that our player and Aiken would share duties as main characters. Aiken represents the older generations of the community, thus supporting the mentor/protégé relationship. The secondary characters of the story represent the cultural significance of Parramore and its citizens. There are artists, religious figures, entrepreneurs, and chefs. We felt these were the parts of Aiken’s story we needed to represent, and we allowed the characters to embody aspects of community life, giving the user a closer relationship to Parramore’s history and culture. We used Aiken’s history with Parramore to guide the interactions of the player and these characters, making their interactions support the idea of the community working together for positive change. The secondary characters mirror the voice of Aiken through their decisive and ordered behaviors. These sorts of decisions were made based on research, which served as a character bible. Instead of creating and implying a completely fictionalized collection of character traits, we used our knowledge of real community members to determine their behaviors as they would be interpreted by Aiken. By maintaining Aiken’s single voice, even as a tool to inform the purpose and demeanor of other characters, we allow the user to focus on meeting individuals who make up a community and culture. Education, work ethic, religion, food, and music are all ingredients in Parramore’s cultural recipe. Making the sweet potato pie with Aiken at the end of the game becomes a symbolic action, one that incorporates a community’s rich history and traditions into its composition.

CREATING A MOBILE STORY PROTOTYPE

Having crafted a narrative structure, characters, and dialogue, our team explored possible augmented reality programs for creating our mobile locative story. We considered the affordances and constraints of various platforms, eventually using an authoring tool called ARIS. ARIS has one downfall: one cannot use it on any device other than an iOS mobile device, such as an iPhone or iPad. Before beginning the project, our project team raised concerns about whether the dependency on iOS would limit the audiences who would have access to our game. However, we decided to move forward with our prototype using ARIS, as we determined school groups or visitors to a nearby museum could play it guided by an instructor or docent with more access to or with shared technology. Students and groups could share devices, mitigating the cost of the technology.

ARIS was a particularly good choice for our group, since we did not have a software developer or programmer on our team. Because ARIS is middleware, it allowed us to develop our prototype using a content management system, rather than coding from the ground up. The interface, GPS, and QR code technologies were already integrated into the platform, so we could focus on the story itself with relative ease. ARIS was also, as an augmented reality tool, a platform through which the user “could perceive both real and virtual information” (Falk Anderson et al. 2010: 15), giving us the ability to show the reality of Parramore today juxtaposed with the halcyon days of Parramore past. For our team, which was working on an abbreviated schedule, these aspects of the platform outweighed the constraints.

The constraints of ARIS platform were not detrimental to the gameplay experience, and were outweighed by the benefits and ease of designing with middleware. We nevertheless felt we should consider them, given that they would determine how our game could or could not be used in the future (Ritchie 2014: 53). In our case, the constraints seemed to be mostly media-related. For example, we were concerned about the ability to upload videos of a certain size to be played in the ARIS game, so we initially needed to place an outside link to the digital story within the game. We also had to alter some of our planned media into audio voiceovers with accompanying photographs, rather than video montages. We were able to communicate with the developers at the University of Wisconsin-Madison about our issues. Consequently, with the release of version 2.0, we found this process more efficient, and were able to modify some of our media to decrease loading time and improve the playability of our narrative.

However, we encountered some constraints using ARIS that we have not yet solved. First, following our initial discussions about reaching a wide audience, we hope ARIS will eventually develop a version of the platform for Android or other mobile operating systems, since other mobile devices now own a high portion of market share. Secondly, conversations with characters can, right now, only be conducted in text. Though we tried to write dialogue with distinctive voices, as discussed above, the content would feel richer if we could create a voiceover for characters so they could feel more personal and be more engaging when they hold a conversation with the user. These features would additionally allow more inclusive access for players with visual or learning disabilities. These improvements would also assist future teams designing similar projects.

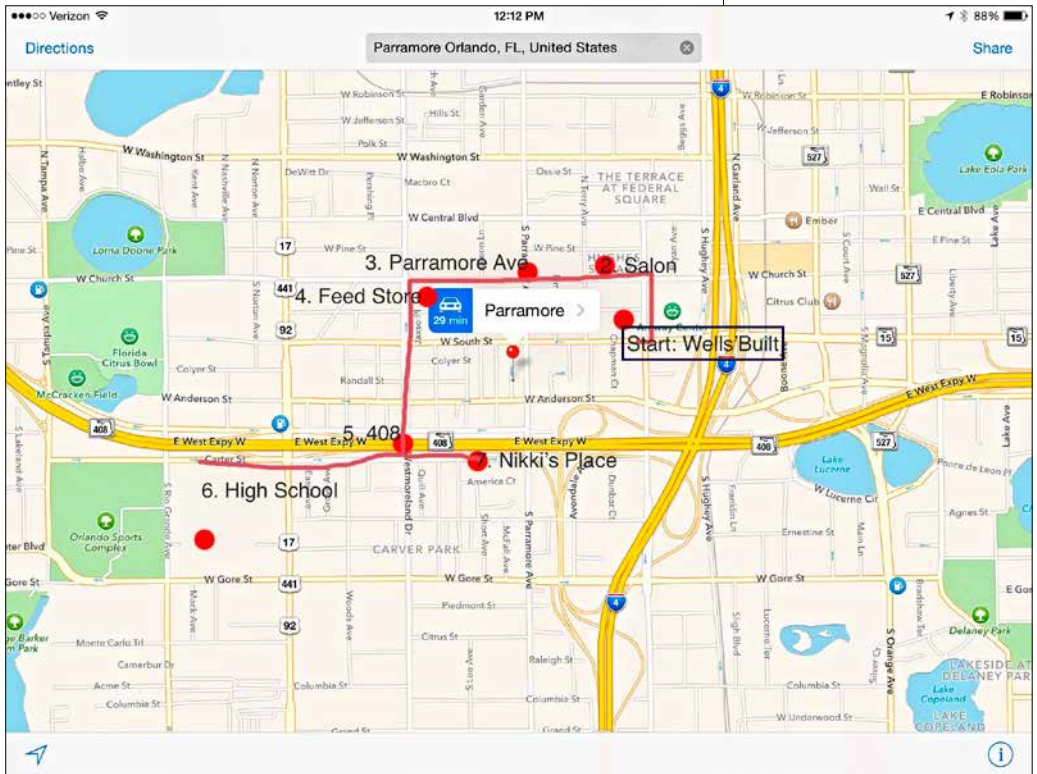
With our technological platform chosen and evaluated, our team began to think about mapping the project. Our first major decision was to take the user onto the streets of the neighborhood and describe, through the game, places that used to inhabit many of the now-empty buildings.

Jeff Ritchie, in his chapter, “The Affordances and Constraints of Mobile Locative Narratives,” states readers or users

of transmedia stories—tales told across a number of different media—“must perceive the rewards of the narrative to exceed the effort” (Ritchie 2014: 54). The audience necessitates the story, meaning it will not happen if the user does not bring it into being (Ritchie 2014: 56). Therefore, if we expected users to walk around the neighborhood and end at Nikki’s Place, we needed to make the map manageable enough that the user would be “willing to expend effort to travel and find narrative bridges” (Ritchie 2014: 57). We developed our initial map, shown in Figure 1 below, after a research trip to the neighborhood. This map took users out of the vicinity of Nikki’s Place in an effort to get to one of the story locations, Jones High School, and then forced them to double-back on their previous path to go back to the restaurant.

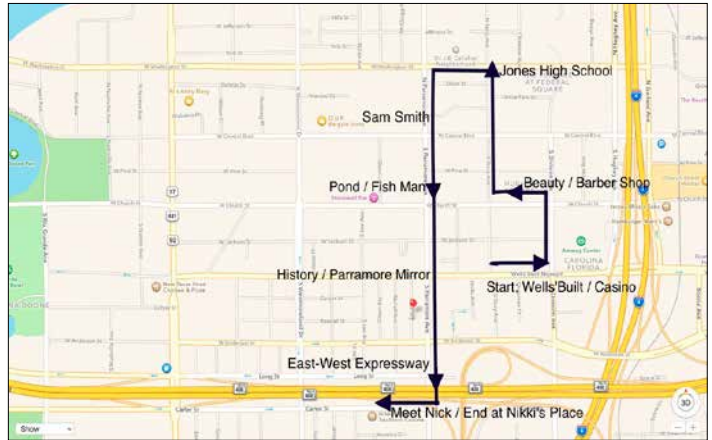
We felt this was not conducive to a good story experience, and redid the map prototype to create our final walking path, shown in Figure 2 below.

FIGURE 1. INITIAL DRAFT MAP OF “GETTING A JOB AT NIKKI’S PLACE” NARRATIVE NODES AND WALKING PATH.



This turned the game’s play area into something akin to an upside-down “U” where users start at the Wells’Built Museum, walk north to the original location of Jones High School, turn one block west, then turn back down Parramore Avenue, finally traversing under State Road 408 at one of its two underpasses to arrive at Nikki’s place, where the user experiences a digital story in the style of StoryCenter, about Aiken, the neighborhood, and the importance of soul food. When formulating the map, we also considered the importance of the setting within the narrative.

FIGURE 2 - FINAL MAP OF LOCATIVE STORY NODES FOR "GETTING A JOB AT NIKKI'S PLACE."



In *Playing with the Past* (2011), Erik Champion suggests the creators of culturally and socially based interactive media must “layer the place with the beliefs, intentions, and interactions of past inhabitants” (Champion 2011: 69). He then outlines three questions one must answer if one plans to create a sense of cultural presence within the media: “How is cultural coding possible?”; “How is it [entertainment] value adding?”; and “How is it educationally significant when delivered through digital media?” (Champion 2011: 70). In regards to the first question, we were able to display a semblance of past Parramore culture through the eyes of our main subject, Aiken, and through research, finding photographs and stories of former landmarks and people. The use of the walking tour was value-adding in that it displays an aspect of culture that the viewer would otherwise miss, and it is educationally significant through digital media because, as mentioned above, the media adds a layer of virtual reality to what would otherwise be a walking tour with little link to the past, since most of the past has been demolished and is only accessible through the mediated tour.

This use of food history and the importance of soul food cuisine further codes the culture by encouraging the user to taste its richness, playing to the entire range of human experiences and appealing to all the senses, rather than just the sight and sound as seen on the mobile device. Ken Jordan and Randall Packer suggest, in *Multimedia: From Wagner to Virtual Reality* (2001), that this hybrid form of expression heightens the artistic experience for the audience. As mentioned below in the “Results” section, some students who participated in user testing expressed interest in baking the sweet potato pie, rather than simply simulating the process. This additional sensory involvement would, following Sarah Pink’s assertions, create a more “coherent multisensory world, where sounds, smells, tastes, lights, and touches amalgamate” (Pink 2009: 28). However, because “Getting a Job at Nikki’s Place” is intended as a locative narrative, and the discussion of the importance of soul food occurs while exploring the Parramore neighborhood, we first ask the player to imagine and play through the baking process as they are experiencing the history of the neighborhood through the history of the restaurant.

We suggest via language and visuals that players can smell the pie as they take their virtual product out of the oven. Susanne Kuehling argues verbal or written descriptions of senses can impart only a partial meaning. However, supplementary images can help fill in sensory context and “help those who have experienced a scent recall it, and those who have not experienced a scent to imagine it” (Kuehling 2009: 14). When the game is over and players find themselves at Nikki’s Place, they have the option of turning imagination or memory into reality by ordering the sweet potato pie that Aiken prepares according to Mama Rose instructions. Pink argues, “I take imagining to be a more emplaced everyday practice carried out in relation to the multisensoriality of our actual social and material relations” (Pink 2009: 39). In the case of our narrative, the point is not necessarily to successfully cook the sweet potato pie—though we encourage the player to try it with their friends or family—but to learn about cooking and how the tradition of soul food can bring communities and people together. As Aiken narrates, food represents an opportunity to connect the current Parramore community to its history, as the restaurant has long been a gathering place for community members.

Therefore, though the narrative does not ensure the player will attempt to cook the sweet potato pie, the continued virtual presence of cultural food tells a more positive and upbeat story for our young audience than the urbanization of the neighborhood, and allows us to bridge the past and present. We wanted to include the digital story about Mr. Aiken and the restaurant itself so that the game would end with a note of promise and future-orientation, and the sweet potato pie lends a strong sensory representation of Aiken and Nikki’s Place. Alberto S. Galindo, in his essay, “Mobile Media After 9/11,” discusses mobile media as a form of memorialization, a way of preserving the history or memory of a site through a narrative ceremony (Galindo 2014). While our story does not focus on an event as tragic or involving such an extreme loss of life and shift in the culture of the entire country, it does help discuss the issues surrounding the shaping of the contemporary history of a particular site that has undergone drastic changes (Galindo 2014). Also, because the device allows someone touched by the changes in the neighborhood, Aiken, to tell the story, it fosters a sense of immediacy and intimacy the audience could not otherwise achieve by touring the neighborhood with an inanimate map of historical sites (Galindo 2014). This sense of intimacy highlights what Jean Burgess, in “Hearing Ordinary Voices: Cultural Studies, Vernacular Creativity, and Digital Storytelling” (2006), calls “ordinary participation through everyday cultural practices” (Burgess 2006: 205). With our project, we did not aim to come from a place of resistance or aesthetic innovation; rather, we hoped to communicate the experience of a changing Parramore neighborhood through “vernacular creativity,” making our digital story publically accessible and focusing, first and foremost, on the man that we saw as a strong voice within the community, Mr. Aiken.

Burgess recommends that, to create a digital story that has both emotional impact and cultural relevance, one should keep it brief and let “formal constraints force elegance” (Burgess 2006: 207). This suggestion helped us pare down the story for the game, and creates a great argument for the usefulness of the brief digital story as both a capstone and stand-alone piece of media. The digital story is effective and could be useful to Nikki’s Place and Mr. Aiken even simply as a marketing piece to share on the restaurant’s Website. We discussed creating a QR code associated with the video only; Aiken could print this on flyers or post it in the restaurant to share some of his own personal history.

After completing the prototype and playing through the game in ARIS, we identified several issues within the program that needed resolution prior to testing. For example, media loaded very slowly. We built the initial prototype using a single ARIS scene, which probably contributed to this issue, and was also causing the game to get stuck or loop back to a conversation that the user had already seen. We had to resolve this prior to testing, so our technical lead rebuilt the game from scratch using the scene functionality provided in ARIS. This ended up repairing the game logic and making the game much more playable, especially as the ARIS team released a major software update during this process, taking version two of the tool out of beta testing and releasing the updated version for general use. Having created a working prototype, we were ready to test it with the intended audience.

ENGAGING SCHOOL CHILDREN AS PROJECT USERS

Testing

We conducted User Experience (UX) testing to determine if the interactive mobile format effectively communicated the story to its audience. While UX has been defined to include “all elements that together make up that interface,” for the sake of this project UX had to be defined even more specifically (User Experience Professionals Association 2012). In order to best understand UX in this case, elements of the story needed to be considered. We expanded the definition of UX to include elements of both the mobile story and mobile device. We defined mobile story as any element of the plot or narrative, designed to support the project’s objective and included the following: characters, pacing, length, narrative, plot, story items (i.e., sweet potatoes, catfish, money to pay the band, etc.), and story content (i.e., the historical references as they relate to the project and its objective/s). We defined mobile device more traditionally as the iPad used during testing. Some additional hardware and software elements, which would normally be included in UX testing, were restricted by the ARIS platform. This included, but was not limited to, elements such as layout, visual design, button size and color. Therefore, these elements were excluded from analysis.

In order to determine the game’s effectiveness, we developed a specific methodology. First, we defined a sample population that included fourth and fifth grade students from NAP Ford Community School, located in the Parramore area. The University of Central Florida (UCF) IRB approved testing, and consent was received from students’ parents or guardians prior to testing.

We conducted testing in the UCF CREATE Lab, located in the UCF Center for Emerging Media in downtown Orlando, Florida on Wednesday, April 8, 2015. While the prototype was originally designed to be viewed within the Parramore area, with story segments activated by GPS technology, testing on-location wasn’t feasible at the time. Instead, we used QR codes as a substitute for the location-based technology. While this wasn’t optimal, the repercussions of this decision were carefully considered as we developed the methodology. One such consideration was the placement of QR codes throughout the UCF CREATE Lab in order to simulate the user’s movement throughout the space as if actually on the walking-tour of Parramore. A diagram of QR code placement is shown in Figure 3 below.

Furthermore, we displayed each QR code with an associated story image and name in order to replicate a sense of place as the students activated new story segments. We also carefully considered the story scripts to promote flow between the story segments as well as fill in any contextual gaps in the narrative due to the change in location-based technologies.

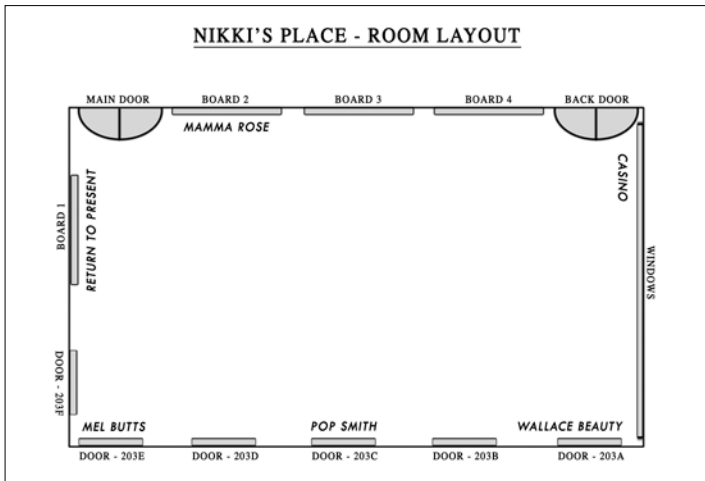


FIGURE 3 - DIAGRAM OF THE TESTING LOCATION (UCF CREATE LAB) AND QR CODE PLACEMENT, REPRESENTED BY STORY SEGMENT TITLE.

We borrowed five iPads from UCF in order to complete testing. We additionally gave each student a set of headphones and used audio-jack splitters to allow each headset to be used.

We recorded observation notes using digital tablets and pen and paper. Students took surveys using pen and paper and we later inputted their answers into a computer for data analysis. We did not record audio and video of the testing.

The entire testing session lasted approximately 45 minutes. In order to promote optimal group dynamics and mitigate any undue

influence, the students divided themselves into groups of two with the help of their teacher. We gave each student group an iPad with the ARIS platform pre-installed and the prototype loaded, and gave each group their own set of headphones for use during the research session. The student groups completed the story at their own pace. After the student groups finished the story, each individual student filled out a survey regarding the experience.

In addition to the prototype, we used several measures to determine the outcome of each student's experience. Students completed a survey about their game play following the entire test population's completion of the game. The survey included 26 rating scale questions and 7 free response questions. We based the survey on the System Usability Survey (SUS) and modified it for our case study (U.S. Department of Health & Human Services 2015).

Proctors used scripts and followed observation rubrics in order to guide research notes without biasing gameplay. The rubric included observing students for physical reactions, length and frequency of technical assistance (when applicable), and group dynamics. The script we used had two sections: a script to be read verbatim to the participating students before gameplay, and an informative section that guided interactions during testing should users require technical assistance.

We based survey scoring on the SUS and modified for this case study (U.S. Department of Health & Human Services 2015). We numbered survey items for data analysis only. Of the 26 rating scale questions, 10 were positive-keyed items and 6 were negative-keyed items. We calculated the total score for the surveys by taking the sum of the score contributions from each item. Each item's score contribution ranges from 0 to 4.

For items A1-A10, A12-A13, A16-A19, A21, A23, A25-A26 the score contribution is the scale position minus 1. For items A11, A14, A15, A20, A22, A24, the score contribution is 5 minus the scale position. We obtained the overall value of the survey score by subtracting the sum of the scores by 4. Survey scores have a range of 0 to 100. We considered a score above 68 to be above average, and a score below 68 to be below average. In scale position responses for positive-keyed items, we considered a 4-5 a positive response, 1-2 a negative response, and 3 a neutral response. In scale position responses for negative-keyed items, we considered 1-2 a positive, response 4-5 a negative response, and 3 a neutral response. An above average outcome was considered for positive, negative or neutral response categories over 60%. We conducted data analysis utilizing Google Forms and Microsoft Excel. We did not consider "Normalizing" the scores and we did not use statistical software in the data analysis.

Results

We recruited a total of 10 students (n=10) for research. The scale position scores for the rating scale survey responses are shown in Table 1 below. We indicate negative-keyed items with an asterisk (*).

We indicate items based on the SUS and modified for this case study with a double asterisk (**). We analyzed the data using Google Forms based on the scale position score for the rating scale survey responses, and we divided responses into two categories: mobile story, and mobile device.

The mobile story category had an above average outcome, with positive responses on all questions except item A13, which had a negative response of 50%, a positive response of 40% and a neutral response of 10%.

The bar graph for scale-position responses on item A13 can be viewed in Figure 4 below.

TABLE 1. SCALE POSITION SCORE FOR LIKERT-SCALE SURVEY RESPONSES.

Participant Code	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11*	A12	A13	A14*	A15*	A16	A17	A18	A19	A20*	A21	A22*	A23	A24*	A25	A26
1	5	5	4	4	5	3	4	5	5	5	1	5	3	2	2	4	5	5	4	1	5	5	4	1	5	4
2	5	4	5	5	5	4	5	5	5	5	1	5	4	1	1	3	5	5	5	1	5	1	5	1	4	5
3	5	3	4	5	5	4	4	5	4	5	1	5	5	1	2	3	5	4	5	1	4	2	5	1	4	5
4	4	4	5	5	5	4	5	5	5	5	2	4	5	2	2	3	5	5	5	1	5	4	5	1	5	5
5	4	5	5	5	5	5	5	5	5	5	1	5	1	1	1	3	5	5	5	1	5	1	5	1	5	5
6	5	5	3	5	5	4	5	4	5	5	1	5	1	1	1	2	5	5	5	1	5	1	5	1	5	5
7	5	5	4	5	5	4	4	5	5	5	1	5	1	1	1	2	5	5	5	1	5	1	4	2	4	5
8	4	4	5	5	3	3	3	5	3	5	4	2	2	1	2	5	3	3	3	1	5	1	2	1	3	1
9	3	4	3	5	3	3	2	3	4	5	1	5	2	1	1	2	5	5	3	1	3	2	2	1	5	3
10	3	4	4	5	5	4	5	5	5	4	1	5	5	1	3	1	5	4	5	1	5	1	5	1	5	4
Average Score	4.3	4.3	4.2	4.9	4.6	3.9	4.2	4.6	4.6	4.9	1.4	4.6	2.9	1.2	1.6	2.8	4.8	4.6	4.5	1.0	4.7	1.9	4.2	1.1	4.5	4.2

Note 1: Negative-keyed items are indicated with an asterisk.

The mobile device category had an above average outcome, with positive responses on all questions except item A16, which had a negative response of 40%, a neutral response of 30% and a positive response of 20%. The bar graph for scale-position responses on item A16 can be viewed in Figure 5 below.

We calculated the total survey score using the scoring method outlined previously and displayed it on a scale of 0-100. The mean score was 84, the highest score was 94, and the lowest score was 65. Overall, the story can be considered above average, as all but one score being above 68. The total survey scores for each user are shown in Table 2.

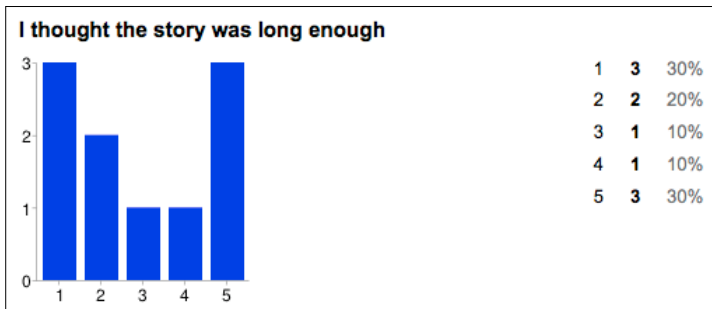
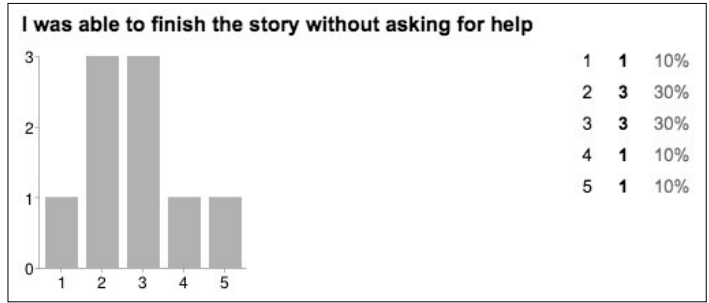


FIGURE 4. SCALE-POSITION RESPONSES FOR ITEM A13: "I THOUGHT THE STORY WAS LONG ENOUGH."

In the free response questions, all students who responded listed a game or gaming system for item B1. The most frequent games listed for item B1 include: *My Talking Tom/Angela* (a virtual pet game), *Angry Birds*, and racing games. The most frequent responses for item B2 were+ to make the pie featured in the final story segment and for the application to be in color.

FIGURE 5 - SCALE-POSITION RESPONSES FOR ITEM A16: "I WAS ABLE TO FINISH THE STORY WITHOUT ASKING FOR HELP."



For item B3, three students responded that they would not improve the mobile story, giving a response of "No." Additional responses included: "needing help with the back button," "lower the malfunctions," and "a smaller device and more interactive things."

The most memorable feature, listed in item B4, was the final gameplay segment where the students make sweet potato pie with

TABLE 2 - TOTAL SCORE FOR LIKERT-SCALE SURVEY RESPONSES.

Participant Code	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11*	A12	A13	A14*	A15*	A16	A17	A18	A19	A20*	A21	A22*	A23	A24*	A25	A26	Total Score
1	4	4	3	3	4	2	3	4	4	4	4	4	2	3	3	3	4	4	3	4	4	0	3	4	4	3	83
2	4	3	4	4	4	3	4	4	4	4	4	4	3	4	4	2	4	4	4	4	4	4	4	4	4	3	94
3	4	2	3	4	4	3	3	4	3	4	4	4	4	4	3	2	4	3	4	4	3	3	4	4	3	4	87
4	3	3	4	4	4	3	4	4	4	4	3	3	4	3	3	2	4	4	4	4	4	1	4	4	4	4	88
5	3	4	4	4	4	4	4	4	4	4	4	4	0	4	4	2	4	4	4	4	4	4	4	4	4	4	93
6	4	4	2	4	4	3	4	3	4	4	4	4	0	4	4	1	4	4	4	4	4	4	4	4	4	4	89
7	4	4	3	4	4	4	3	3	4	4	4	4	0	4	4	1	4	4	4	4	4	4	3	3	3	4	87
8	3	3	4	4	2	2	2	4	2	4	1	1	1	4	3	4	2	2	2	4	4	4	1	4	2	0	85
9	2	3	2	4	2	2	1	2	3	4	4	4	1	4	4	1	4	4	2	4	2	3	1	4	4	2	69
10	2	3	3	4	4	3	4	4	4	3	4	4	4	4	2	0	4	3	4	4	4	4	4	4	4	3	86
Total Possible	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	100

Note 1: Negative-keyed items are indicated with an asterisk.
 Note 2: The total score displayed is out of 100.

Aiken as well as the fisherman's, Mel Butts, story segment and the videos included in the gameplay. For item B5, most students expected to either make the pie or play a game. The most useful or helpful features from item B6 were: the videos, the QR code scanner, and the menu. For item B7, students most frequently wished they could make the pie or wished the mobile story were longer. We based the observation notes on the observation rubric. We compiled our notes and removed proctor names in order to keep data analysis anonymous.

There were several observations of confusion within the story narrative. One frequent area of confusion seemed to be the transition between the Mel Butts story segment and the Pop Smith story segment in which students viewed a brief video about State Road 408 (referred to as "408 video" in the observation notes). Another area of confusion seemed to be at the first video regarding the casino (referred to as "first video" or "casino" in the observation notes). Additionally, there were some observed occurrences of students having issues with ARIS user interface, such as the "quest completed circle", and the "back button" as described in the observation notes.

Some observations regarding usability that were not anticipated include: "the iPad cases were helpful for protecting the

iPad, but the flap hindered some students while trying to scan the QR codes,” and “one group knew innately to raise the volume using the slider in the app.”

Discussion

Prior to testing, we anticipated some of the areas of confusion we observed during testing, and created solutions in an attempt to mitigate these issues. We knew most of the ARIS user interface issues prior to testing and as our team could not easily fix them, we created the “workshop” segment of the proctor script in order to assist students during testing. We scripted our responses as much as possible in order to limit influencing the students’ responses. Some observations we did not anticipate, included the issue with the iPad cases, which hindered usability. However, not all unanticipated observations hindered usability. For example, we observed one group raising the volume using the built-in application slider. Originally, we anticipated students having issues adjusting the volume and we took measures to address this in the proctor script. Yet this did not seem to be the case. This could be due to the fact that the equipment used was property of NAP Ford School. Although students had not used the ARIS software or seen the game prototype prior to testing, the students may have already been familiar with some of the mobile devices’ features, such as the volume. This could also be due to the large percentage of youth who are predisposed to mobile devices on a daily basis (Lenhart 2005).

One of the limitations present when testing our story was the change in location-based technology used. Originally, we designed the story to function using GPS technology, which would allow users to navigate through the Parramore area using their mobile devices to activate segments of the story as they approached specific locations. Unfortunately, it wasn’t feasible to complete testing utilizing this technology due to time constraints as well as complications in organizing and leading students through a large off-site area. In order to allow for an optimal testing environment, we chose to modify the prototype to allow for QR code activation of various predetermined locations throughout the UCF CREATE Lab, changing the distance traveled from several miles to a few feet. Obvious reasons for this include convenience, limitations on location options, and promoting optimal group dynamics. However, there are several reasons why this change, albeit necessary, could be both good and bad. Jeff Ritchie (2014), speaks of “really nontrivial effort”, in which he suggests locative narratives could be harder to understand because they span both physical spaces and story spaces.

In the case of our project, perhaps Ritchie would support the change to QR codes, seeing this taking “far less perceived effort than moving through physical space and attempting to identify a narrative element or narrative bridge” (Ritchie 2014: 56). Additionally, there are other challenges inherent to locative narratives that require movement across physical spaces.

Ritchie goes on to list several other limitations, such as constraints on narrative pacing caused by the passage through time

and space as well as the Kuleshov effect, in which the order of narrative elements can have an effect on perceptions later on. While these limitations are by no means an excuse to avoid the challenge altogether, they are worth considering when developing and testing location-based mobile stories.

Additionally, because we originally wrote the story to be viewed in the physical space, we had to rework several narrative elements, including narrative bridges, in order for the story to be less jarring for the user. We noted several students had trouble following some of the narrative elements. Specifically, in the story, students speak to Mel Butts and then jump to a QR code and view a video that talks about the influence the development of State Road 408 had on the Parramore community.

Originally, this QR code would have been replaced by a GPS coordinate in which the student would walk through an area where State Road 408 now stands, viewing photographs in the video depicting businesses that no longer exist. This was to function as a narrative bridge. In this case, students accessed this narrative segment utilizing a QR code in a computer lab instead of a GPS location, lacking both affordances and constraints present in the physical space. So although changes were made to the narrative bridges to mitigate these limitations in advance, the repercussions of this change, albeit necessary for testing, interrupt the story's sense of being real, much like Ritchie describes in the example of *The Tale of Two Roommates* (Ritchie 2014). Finally, many students made comments suggesting the addition of an audio narrative. The use of headphones may have spawned this suggestion; the absence of headphones may not have resulted in the same feedback. Either way, it suggests potential for the future of this project. Perhaps an elaborate soundscape could be integrated into the story narrative. The students may have merely suggested adding a narrator that reads the story text along with displaying it in the text prompts on screen. Regardless, insight gained as a result of testing suggests locative narratives may have so much more potential. What else could be afforded to the story by being more present? Perhaps future versions of our project could include more elaborate soundscapes, like the soft murmur of Parramore pedestrians as you walk past what is now a bustling freeway, or the sounds of sweet potato pie batter mixing in the kitchen while Aiken guides users on making their own. By using more elaborate soundscapes to encourage users' attentive listening, the story could become a deeper experience for the memory and history of Parramore.

OUR NARRATIVE: KID-TESTED

At the end of our process, the narrative we built was shaped in part by the information, stories and photos we collected from the Aiken family, the Parramore community members, the archives we researched, Professor Underberg-Goode's guidance, and the feedback we received from user experience testing. What follows is a brief summary of the finished sto-

ryline for “Getting a Job at Nikki’s Place.” The game consists of three acts: a to-do-list quest, a test of culinary skill, and the final reward of employment at Nikki’s Place.

The game opens with a welcome message that informs the player that they must help Mr. Aiken “prep for tonight’s big event.” The opening message promises that, once this to-do-list is completed, the player will be given a chance to “prove your worth,” earning a job at Nikki’s place the way Mr. Aiken did. Here is where the game begins.

In dialogue, the player speaks with modern day Mr. Aiken, inquiring about a job opportunity at Nikki’s Place. Mr. Aiken confirms that he has a job opening but that the player must prove themselves worthy of cooking in his kitchen first. This dialogue concludes with the assignment of very important errands that Mr. Aiken needs the player to accomplish. This moment begins the player’s quest through Parramore’s past; in order to prove their worth, the player is charged with completing a to-do-list for Mama Rose, who ran the restaurant when Mr. Aiken was young. The errands the player runs brings the player into conversation with many historic figures from Parramore’s past. The to-do-list quest the player must complete includes four tasks: paying the blues band scheduled for the night’s event, taking Mama Rose to the beauty salon, picking up sweet potatoes from Pop Smith, and retrieving catfish from Mel Butts.

The player then sets out on the quest, engaging in dialogue with Mama Rose, as she helps to tell the story of Parramore’s rich musical history. The first stop the player must make is to pay the band at the South Street Casino (now the Wells’Built Museum), a stop on the famous Chitlin’ Circuit. Once the player pays the band, the player then moves on to the second task on the list: escorting Mama Rose to Wallace’s Beauty Mill to get her hair done for tonight’s event. After the player has dropped off Mama Rose, the player must then collect some sweet potatoes from Pop Smith, near historic Jones High School.

This completes the third item on the list. Finally, the player must get some catfish from Mel Butts, who is fishing in the pond off Church Street. In the locative versions of the game, the traveling time between tasks on the list is narrated by Mr. Aiken during a slide show full of archival photos—showing what life was like in the Parramore of the past, reflecting on the effects of the construction of the highway through the community. Then the player has returned successfully to the restaurant with the to-do-list completed. Once these four tasks have been completed, the player must hurry back to Nikki’s Place to move on to the next quest, a culinary test.

Now that the player has proved their worth outside the kitchen, the player must prove their worth inside it to. On the way to the restaurant, the player is challenged to make a sweet potato pie with Mr. Aiken.

It is important to note that, as the player arrives back at Nikki’s Place, the player has transitioned back to present day

Parramore. At this point, Mr. Aiken narrates a recipe: a picture-filled step by step instruction for making Mama Rose's sweet potato pie. The recipe has pictures of Mr. Aiken making the pie himself, and is prompted with questions for the player to answer about the way the recipe is made. As the player makes the pie with Mr. Aiken, he imparts some wisdom to the player, explaining the value of soul food and its connection to their community. Once the player has successfully made a sweet potato pie with Mr. Aiken, the player has proved his/her worth to the satisfaction of Mr. Aiken.

At the conclusion of the game, the player finds out that not only do they get a job, but also a sweet potato pie of their very own to enjoy with the ones they love, reinforcing the connection of soul food to the value of community. Along with the knowledge of the recipe, the player receives a digital chef's hat as a trophy for successfully completing the game, the same chef's hat Mr. Aiken has worn in his avatar photo throughout the game. This completes the game's storyline, leading the player to a link to the digital story "Welcome to Nikki's Place."

DO TRY THIS AT HOME

In his introductory chapter to *The Mobile Story: Narrative Practices with Locative Technologies*, Jason Farman notes, mobile stories "reimagine our relationship to technology, place, and our own sense of self in the spaces through which we move" (Farman 2014: 5).³ This project forced us to use our own digital design and testing experiences to create our own digital mobile stories. Taking Farman's words to heart, we want to encourage educators to explore the value of the stories and voices in their communities so that they might make students aware of the important and sometimes underrepresented stories alive in their communities. One of the most important effects of this project was its emphasis on the connection between community and its future generations. When we give students many ways to contextualize their communities, they have a better understanding of their role within a community, whether or not they ultimately decide to live in the same community they were raised.

Farman explains mobile storytelling often leads to "a deeper sense of place and a stronger understanding of our own position within that place" (Farman 2014: 5). Especially with youth, it is important to help them discover how they can best interact and live in their environments.

This includes knowing the many diverse populations and peoples they might encounter within a community. Having an ability to understand, accept, and relate to different community members will make it easier for youth to adapt to new places as they move through life. Understanding the ways in which a community operates and its history can help students learn about the community's past while imagining its future.

Community stories can take many different forms, and it is important to recognize the story being told and acknowledge the ways you want to develop it. In our project, it was important

³ For a more in depth exploration of how educators can use mobile storytelling for their benefit, and gain the benefit of our own documented experience with this project, check out the guidebook we created as a result of this project: *Mobile Storytelling: A Guidebook for Teaching Students How to Tell Community-Based Mobile Stories in the Classroom*. The guidebook, located at create.cah.ucf.edu/files/Mobile_Cookbook.pdf, focuses on helping educators find community stories to tell with their students and pays specific attention to telling stories using ARIS and other free, open-source tools.

to recognize we were narrating multiple stories simultaneously: Aiken's story, the story of Parramore, and the story in which the player seeks a job. Community stories have multiple dimensions and perspectives. As Adriana de Souza e Silva and Jordan Frith write in "Re-Narrating the City through the Presentation of Location," "urban spaces might be represented and narrated in many different ways, producing multiple maps, each of which contains different elements and perspectives" (de Souza e Silva and Frith 2014: 41). The fragmentation they mention points to the multiplicity of identities and points of view that exist in one place and even within a single story. They conclude that it is impossible "to draw only one map of a city" (de Souza e Silva and Frith 2014: 41). Because of the multitude of stories available with any given community, we encourage educators to think inclusively as well as to take a look at one community story from multiple points of view. It is important to acknowledge different ways to approach historical contexts and to find historical materials in the community, in order to identify what contexts and stories are most relevant to the educators' projects. "The meaning of a story is affected by the place in which the story is told and, similarly, the meaning of a place tends to be told through stories," Farman explains (Farman 2014: 6).

Through the process of creating "Getting a Job at Nikki's Place" we hope that we have shown the need for standards in mobile story production. We hope to show that digital media can be used to tell community stories. We hope we found a way to explain our creation process to non-specialists in digital media production, making the medium accessible to them. In asking educators to use digital media tools as a means of creating community-based mobile stories, we are asking them to reimagine the traditional process of storytelling. Farman explains, "By linking mobile storytelling projects to the larger history of attaching narrative to specific places, these projects build on practices that have been done for millennia" (Farman 2014: 3). In essence, by asking educators to think about the larger story of their community and how best to relay that story, we are actually connecting them to a larger storytelling practice that has existed throughout history and has recently begun to delve into telling stories using digital mediums.

Farman uses the term "medium-specific analysis" to explain the process of determining what tools to use when storytelling. He writes, "such an approach asks us to understand the medium's unique capabilities (and constraints). These affordances and constraints will significantly affect the content of the story and the experience of it. Farman links this idea to Marshall McLuhan's seminal proclamation that "the medium is the message," and furthers his own explanation to include how the medium will additionally change the way the story is distributed. While "Getting a Job at Nikki's Place" is ultimately immersive and augments the player's perspective of the space they are in, it is important to recognize that not every mobile story needs to be immersive in this way, and further, that this is not possible for every group.

CONCLUSION

Throughout this process, we wanted to provide a way for grammar school students to learn about the history of their area without merely reporting facts. This project seeks to embody critical methodology in its very make up. Instead of providing disconnected dates and names, an engaging story speaks to larger concepts of community involvement and maintaining cultural identity in a world where globalization can inadvertently strip us of our sense of place. We simultaneously celebrate the cultural heritage of Parramore and soul food, while encouraging a strong work ethic and the value of education and tradition, without turning the story into an elegy for a bygone era. Our journey was a search for cultural and historical ingredients. Once they were collected, we could fully immerse ourselves in making the story. This story speaks, not only to a community history, but also to the richness of stories that revolve around food as access points to cultural heritage. Aiken's message on the importance of education and active participation for the community's future can now be passed on to another generation. The seed is planted and hopefully, the community will grow.

In developing the mobile narrative, "Getting a Job at Nikki's Place," creating a short digital story about the restaurant, and crafting an educational guidebook, we aimed to create an effective and engaging transmedia story to inspire others to tell their community stories in unique and compelling ways that invigorate community histories and allow for greater access to often under-represented narratives. Over the course of nine months, our team developed a story based in historical records and personal stories, crafted a digital story and mobile game, tested game play with students, and gathered educational resources for classroom educators. Through this project, we aimed to bring the Parramore area's story to light in a way that may today be overlooked, much in the same way commuters bypass the town using State Road 408. In showing the vibrancy of past businesses and people that inhabited the area, we hoped to inspire students to question the histories told of their communities and to complete historiographical records by including citizen voices within their collections. By connecting the narrative of changes in Parramore to the still-present narrative of time-honored soul food, we were able to show how Parramore's culture still lives within the neighborhood. Using this project as a starting point and continuing to encourage educators, scholars, and practitioners on the feasibility and effectiveness of transmedia mobile storytelling, we hope to ignite others to share their community stories.

AFTERWARD

In March 2015, during the completion of this project, Nikki's Place suffered fire damage that forced the restaurant to close for an extended period of time. At the time of this article's authorship, the restaurant remains closed, but hopes to reopen

in 2016 thanks to financial assistance from Orlando's Minority/Women Entrepreneur Business Assistance (MEBA) Program. Members of the project team have stayed in contact with the family, offered support where possible, and have been spreading the word about the situation via social media.

REFERENCES

BURGESS, Jean

2006 Hearing Ordinary Voices: Cultural Studies, Vernacular Creativity and Digital storytelling. *Continuum: Journal of Media & Cultural Studies*, 20(2): 201-214.

CHAMPION, Erik

2011 *Playing with the Past*. London: Springer-Verlag.

DE SOUZA E SILVA, Adriana - FRITH, Jordan

2014 Re-Narrating the City through the Presentation of Location. In *The Mobile Story: Narrative Practices with Locative Technologies*. Jason Farman (ed). New York: Taylor and Francis. Pp. 34-50.

FALK ANDERSON, Eike - MCLOUGHLIN Leigh - LIAROKPIS

Fotis, PETERS Christopher - PETRIDIS Panagiotis -

DE FREITAS Sara

2010 Developing Serious Games for Cultural Heritage: A State-of-the-Art Review. *Virtual Reality*, 14(4): 1-34.

FARMAN, Jason

2014 *The Mobile Story: Narrative Practices with Locative Technologies*. New York: Taylor and Francis.

GALINDO, Alberto S

2014 Mobile Media After 9/11. In *The Mobile Story: Narrative Practices with Locative Technologies*. Jason Farman (ed). New York: Taylor and Francis. Pp. 263-278.

JORDAN, Ken - PACKER, Randall

2001 *Multimedia: From Wagner to Virtual Reality*. New York: W.W. Norton.

KUEHLING, Susanne

2009 Capturing Scent Through Image: Oceanic Experiences of Family and Home. *Anthropology News*, April 2009: 14.

LENHART, Amanda

2015 *Teen, Social Media and Technology Overview 2015*. Accessed online, November 28, 2015: www.pewinternet.org/2015/04/09/teens-social-media-technology-2015

MILLER, Carolyn

2014 *Digital storytelling: A Creator's Guide to Interactive Entertainment*. Burlington: Focal Press.

PINK, Sarah

2009 *Doing Sensory Ethnography*. London: Sage.

RITCHIE, Jeff

2014 The Affordances and Constraints of Mobile Locative Narratives. In *The Mobile Story: Narrative Practices with Locative Technologies*. Jason Farman (ed). New York: Taylor and Francis. Pp. 53-67.

USER EXPERIENCE PROFESSIONALS' ASSOCIATION

2012 *Usability Body of Knowledge Glossary*. Accessed online, November 28, 2015: www.usabilitybok.org/glossary

U.S DEPARTMENT OF HEALTH AND HUMAN SERVICES

2015 *System Usability Scale*. Accessed online, November 28, 2015: www.usability.gov/how-to-and-tools/methods/system-usability-scale.html