

UDECIDE: AN INTERACTIVE TRANSMEDIA STORY FOR SEXUAL HEALTH AND
WELLNESS EDUCATION

A CREATIVE PROJECT

SUBMITTED TO THE GRADUATE SCHOOL

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Abstract

CREATIVE PROJECT: UDecide: An Interactive Transmedia Story for Sexual Health and Wellness

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This study presents research that provides a critical overview of the ways to utilize emerging technologies and immersive storytelling to engage college students with sexual health and wellness education. The evidence suggests that intertwining education, technology, and storytelling can work to eliminate the stigma around sexual health and encourage students to think more deeply about their sexual health and relationship choices. *UDecide: The Interactive Transmedia Story* transforms the traditional classroom into an interactive podcast, character social media accounts, and an augmented reality (AR) experience that educates college students on sexual health and wellness topics.

Keywords: Transmedia, sexual health, wellness, multimedia, education, interactive, digital storytelling, podcast, social media, augmented reality, college, usability

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Introduction

Sexual health and wellness are significant areas of concern for young adults. According to Johnson & Jackson (2021), college-aged students have the highest prevalence of sexually transmitted diseases (STDs) compared to all other age groups. Hartford Healthcare (2020) extends that point by explaining that 1 out of 4 college students have an STD. The Center for Disease Control (CDC) (2008) reports that women ages 15 to 24 are at the highest risk for unwanted pregnancy. The United States Department of Justice (2014) reports that sexual violence is more prevalent on college campuses than other crimes, leading to more than 13% of students experiencing sexual violence during their college years.

Sexual health and wellness practices by American college students possibly result from the lack of comprehensive and affirmative sexual health education in primary schools. According to Bell (2009), American sexual education fails to compare to most European countries that require comprehensive sexual health education. Not prioritizing sexual health education perpetuates its stigma, ultimately affecting the sexual health of college students.

There is an opportunity to innovate ways to engage college students with sexual health education. To address this opportunity, I ask through this project: How might interactive narratives promote engagement with sexual health topics for college students? *UDecide: An Interactive Transmedia Story* seeks to promote sexual health education by inviting college students to explore sexual health topics using emerging technology. Through an interactive narrative podcast, character social media profiles, and an augmented reality (AR) experience,

college students will take an immersive journey through sexual health and wellness and familiarize themselves with their university's campus resources. *UDecide's* mission is to provide an entertaining and engaging learning experience that encourages students to think more about their sexual health and discover resources in their community.

Audience engagement is encouraged through the use of immersive technologies and storytelling systems. The interactive podcast mirrors the bystander effect by allowing the listener to become the protagonist. She chooses the narrative direction through binary options at the end of each episode. The podcast focuses primarily on sharing essential facts, statistics, and best practices for safer sexual health and wellness. The Instagram profiles help give visuals to the podcast narrative. Learning more about the characters' background, relationship to other characters, and feelings towards the various situations immerse the listener in the storyworld. The AR experience brings the podcast narrative and character profiles into the real world as the user "hunts" for sexual health resources on a Midwestern college campus. All three elements work together as tools to mitigate the stigma around learning about and discussing sexual health topics.

A cognitive walkthrough determined the overall usability and effectiveness of the transmedia experience. Participants received prompts or tasks to complete while thinking out loud. The tasks related to how the participant should experience the entire transmedia storyworld, from the first podcast episode to locating hotspots around campus. The usability test found the gaps in the experience and made design considerations for future project iterations.

Although it is relatively challenging to make legislation and regulations for implementing comprehensive sexual health education in primary and high-education institutions, creating a

transmedia story experience can potentially break down the stigma. It could make learning about sexual health more approachable. It is essential to continue making such experiences to encourage college students to take their sexual health seriously. The *UDecide* prototype takes sexual health education out of the classroom and puts it into the hands of the people who need it most: college students.

Literature Review

This literature review includes a collection of research regarding sexual health education, interactive narratives, transmedia storytelling, educational podcasts, and augmented reality that helps to inform and provide context for the production of *UDecide*. The prior research discussed here highlights the current zeitgeist in the fields of sexual health education, educational podcasts, and augmented reality, and explains how the emerging media forms of transmedia storytelling and interactive narratives can provide innovative ways to approach education. Additionally, this review showcases two examples of interactive sexual health education projects that are similar to *UDecide*, and explains how the *UDecide* project stands apart.

Sexual Health Education in Primary and Higher-Ed Institutions

Research discussing the rise in STDs and sexual violence on college campuses illustrates that comprehensive sexual health education for college students is crucial. Castillo et al. (2016) explain that STD rates increase for 15- to 24-year-olds, as half of all new infections occur among this age group. The lack of consensus on sexual health curricula in American primary schools only exacerbates this problem. Referencing an informal review of 51 accredited American schools of public health, Austin (2016) shares that 20% of the universities reviewed have a

department for nutrition. However, none of the schools have a department for sexual health (Austin, 2016). This research implies that sexual health education is not as important as other subjects. However, Subbarao & Akhilesh (2017) explain that a majority of the college students who participated in their study feel that they would have a better understanding of sexual health topics if they were educated about sexual health issues at a younger age. Educating young students about sexual health topics can give them time to digest and internalize the information to make better, healthier decisions in their adulthood. Subbaro & Akhilesh (2017) point out that only 63% of the students in their sexual health study knew about STDs other than HIV; moreover, only 40% of students knew about the symptoms of STDs. These numbers demonstrate that while some students know sexual health topics, it is not comprehensive and widespread for all college students.

Higher educational institutions are responding to the students' need for sexual health education. Habel et al. (2015) report that 70.6% of colleges have a student health center. Three-quarters of them offer STD diagnosis and treatment services (Habel et al., 2015). However, such resources are only offered by 10.3% of university health centers, leaving most students to rely on outside services to avoid high deductibles and copays (Habel et al., 2015). In addition to the financial impediments, there are concerns regarding spreading awareness of these health centers and services. Cassidy et al. (2018) found that most students learn about their university's resources during orientation. However, first-year undergraduate students were so overloaded with information during that time that they found it difficult to remember information related to sexual health services (Cassidy et al., 2018). Not knowing what is available, the culture of partying and hooking up, and the social stigma of seeking sexual health resources lead to the

avoidance of sexual health services on college campuses (Cassidy et al., 2018). It is imperative that universities prioritize promoting on-campus health care services and making those resources accessible to all students.

Sexual Health Education for Marginalized Identities.

Gilliam et al. (2014) explain that social, cultural, economic, and political factors affect the accessibility and effectiveness of sexual education. When intersecting sexual health with marginalized identities, the systemic factors become apparent. Communities of color are disproportionately affected by adolescent pregnancy, STDs, HIV, and abortion (Gilliam et al., 2014). Additionally, Adams-Curtis & Forbes (2004) explain American women are at greater risk, with 15% to 38% experiencing a sexual assault or rape during their lifetime. There is an increased risk for young adults and marginalized identities, making it crucial for higher education institutions to prioritize sexual health.

Affirmative Approach for Sexual Health Education.

Higher education institutions need to ensure they are taking a comprehensive approach to address the socio-cultural factors affecting students (Edison et al., 2021). According to Austin (2016), open and safe discussions around sexual health in and out of the classroom need to take an affirmative approach to remove the shame and stigma. An affirmative approach to sexual health centers the conversation on sexual well-being, sexual diversity, self-expression, and healthy relationships (Austin, 2016). The affirmative approach is critical for marginalized identities and sexually diverse individuals. Keuroghlian et al. (2017) point out that there were no standardized education systems or standardized texts that provided information about sexual health care for the LGBTQ+ community until about a decade ago. The research indicates a

significant gap in the health care options for LGBTQ+ individuals. It is critical for more development in competencies that include knowledge, skills, and mindsets to create an environment that provides welcoming and affirmative care for the LGBTQ+ community (Keuroghlian et al., 2017). Because of the disparity of affirming options, many LGBTQ+ individuals are discouraged from accessing the quality care and attention they need (Keuroghlian et al., 2017). This becomes especially concerning when marginalized identities are at a greater risk for adverse sexual health outcomes. Cassidy et al. (2018) point out that non-heterosexual university students are significantly less likely to seek sexual health services, with non-straight female students being 63% less likely and non-straight males being 79% less likely. Campuses must take an affirmative approach to their services, initiatives, and programs. Having health care providers trained to help members of the LGBTQ+ community and promoting a safe environment that affirms and respects the students' identities needing health services, are examples of taking an affirmative approach (Cassidy et al., 2018). Craig et al. (2019) propose that following the affirmative approach fosters positive health behaviors. The affirmative approach can help identify less healthy behaviors and teach minority individuals to cope and heal from sexual-health-related stress (Craig et al., 2019).

The affirmative approach ensures that the experiences and feelings of marginalized people are validated. The affirmative approach should also explore how individuals cope with stressors related to their diversity, develop alternative paths of thinking, and create personalized sexual safety plans that affirm the situations of marginalized individuals (Craig et al., 2019). It is apparent that affirmative sexual health education can improve the wellness of students.

Sexual Health Education Topics.

Yeo & Chu (2017) point out that young adults have sexual concerns regarding “condom use, avoiding pain, birth control, sexually transmitted infections, and body appearance” (p. 753). Yeo & Chu point out that young adults also have relational concerns regarding “sexual practices, expectations, and needs -- predominately within dating relationships and include not wanting to have sex” (p. 753). Edison et al. (2021) emphasize that the ability to discuss using a condom with sexual partners and gaining verbal consent are also two topics that concern many college students. Sexual health education should go beyond biology but also provide information about sexual lifestyles and healthy relationships. Weaver et al. (2002) explain that when it comes to sexual health education, parents of young adults advocate for topics that explore sexual decision-making and sexual enjoyment. When it comes to topics for college students, safety and pleasure are two areas that are very relevant to college students (Thorpe et al., 2019). The above research demonstrates ample space for comprehensive sexual health education for college students.

Interactive Narratives

Ryan (2009) defines *interactivity* as a type of play and *narrativity* as a type of meaning. When the two components are combined, they produce two forms: the narrative game, where the story enhances the game, and the playable story, where the gameplay creates the story (Ryan, 2009). Green & Jenkins (2014) explain that interactivity and narrativity can evoke psychological responses. The user in interactive narratives has the agency to choose the character’s actions, increasing a sense of responsibility for the story’s outcomes. Clark et al. (2017) add that interactive narratives invite audiences to analyze real-life problems, work together to develop possible responses, and pose the question of who has the responsibility to act.

Although the user has some control over the narrative, a framework still binds the pieces together. Steinemann et al. (2017) note that narratives in interactive stories aim to teach and encourage prosocial behavior. The literary techniques used in storytelling can persuade audiences to alter their beliefs or actions. Wang & Singhal (2016) further explain that narratives can significantly impact users' attitudes, intentions, and behaviors. The narratives embed "educational messages in entertainment narratives creating a genre of implicit persuasion" (p. 1003). The educational messages can become more easily absorbed when the user is the protagonist of the story. Bell and Ensslin (2011) share that the present tense and imperatives work together to create an illusion of presence constructed by the user's creative collaboration with the system. The higher the level of immersion, the more the user will identify themselves with the story. The textual *you* is the protagonist and role played by the user. By combining the implicit persuasion of narrative and the use of second-person, interactive narratives prove an ideal medium to educate audiences about prosocial topics.

While narrativity is the first component of an interactive narrative, the second component is interactivity. Ryan (2009) explains hypertext fiction is "a genre that limits the user to selecting an item from a menu of possible choices" (p. 44) Hypertext fiction, an interactive narrative that connects by clicking a link to another webpage, is easy to create and navigate. However, it loses fluidity because the user has to pause the narrative flow to choose what happens next (Ryan, 2009). The loss of fluidity can impede immersion and persuasion. The genre can still be valuable because it stages physical action changing the fictional world and influencing users' thoughts, motivating them to take action (Ryan, 2009).

Transmedia Storytelling

Transmedia storytelling allows for *UDecide* to take on emerging media forms and meet listeners at different entry points. Jenkins (2011) explains that transmedia storytelling creates an entertainment experience by pulling together elements of fiction and systemically dispersing them across delivery channels. Separating integral elements of the story encourages a sense of “hunting and gathering” that stimulates participants to seek out the content across various media (Jenkins, 2011). Immersion plays a crucial role in the relationship between transmedia storytelling and education because it encourages engagement and active participation (Rodrigues & Bidarra, 2014). With transmedia storytelling, students become immersed in the world and the work it takes to discover it.

Educational Podcasts

Mcnamara & Drew (2019) explain that educational podcasts have affordances that allow learners to determine how and when to engage with the content. Drew (2017) points out that students have been seeking “on-demand” education that they can complete virtually at their own pace. Educational podcasts can encourage teachers and students to connect, especially over long distances (Drew, 2017). Educational podcasts can fit into many areas of higher education. However, Fernandez et al. (2014) argue that the primary function of educational podcasts should be to review concepts and themes instead of as a way to introduce new lessons. Educational podcasts introduce many benefits for adult learners in higher education. Riddell et al. (2020) explain that podcasts enable adult learners to fit lessons into their busy schedules and foster a seemingly shared experience. Although individuals are listening to the podcast asynchronously, people indicate a sense of a shared listening experience that connects them to a larger community

of fellow listeners (Riddell et al., 2020). Podcasts have features such as rewind and pausing that allow the listener to play them in new spaces and ways vastly different from the traditional classroom (Riddell et al., 2020). Educational podcasts can be a way to reflect and internalize previously acquired knowledge. It can also be a studying technique to review information.

Educational podcasts come in three shapes: the Quick Burst, Narrative, and Chat Show (Drew, 2017). The Quick Burst caters to busy people on the go looking for brevity. The quick burst podcast facilitates lower cognitive processing, like fact recalling, but is insufficient for deep learning and decision making (Drew, 2017).

The narrative form can be compared to broadcast radio's episodic format (Drew, 2017). The narrative form works similarly to an audiobook where the narrator uses storytelling to facilitate learning. A rhetorical key to keeping the listeners engaged with a longer-form story is by including various voice articulations to emphasize crucial moments in the story similar to the rhetorical steps of soliloquy in theater (Drew, 2017). The narrative form does more than provide new information or entertain listeners but rather promotes the genre's pedagogical essence to shape stories for education through the affective power of sound (Drew, 2017). Additionally, signposting and cross-linking are characteristics of this genre (Drew, 2017). Cross-linking refers to the connections between podcasts and the outside internet to help develop cognitive links between the lesson's content and the podcast's narrative (Drew, 2017). Signposting encourages listeners to pause, rewind, and return to other episodes at will (Drew, 2017). Together, signposting and cross-linking supports engagement and self-directed learning (Drew, 2017).

The third podcast form is the chat show in which guests or regular narrators conversationally discuss various topics. Conversation and wit are two critical themes in the chat

show podcast. It helps keep the listener interested in the episode and helps them feel more connected to the speakers (Drew, 2017). These three podcast forms have been proven popular by educators and students to encourage engagement and motivation for learning (Drew, 2017).

Regardless of the podcast genre, Fernandez et al. (2014) recommend that podcasts intended to cover specific details and facts should stay at less than 30 minutes in length. Longer podcasts can result in attention loss and cognitive overload, decreasing comprehension (Fernandez et al., 2014). Educational podcasts require active listening. Shorter podcasts are more approachable and encourage revisiting. The designers should use short phrases to explain the concepts instead of long paragraphs (Fernandez et al., 2014). Quick and direct educational podcasts can also work to avoid the number of distractions the listeners experience. Riddell et al. (2020) found that although educational podcasts make learning on the go possible, listeners struggle to internalize the learning material when distracted by other activities, people, and events around them. If educational podcasts are limited in episode runtime, they can help narrow the window for distraction. Research demonstrates that there is room for educational podcasts in the emerging virtual classroom. However, as McNamara & Drew (2019) point out, most research on educational podcasts center on the enjoyment and motivations of listeners, leaving a gap in research that measures cognitive learning outcomes. Despite the lack of research on the learning outcomes, other research indicates that educational podcasts can be an immersive way to engage learners across large distances and encourage a shared learning experience between listeners.

Augmented Reality

The popular location-based augmented reality (AR) mobile game *Pokémon GO* demonstrates the potential that AR experiences have to capture user attention. Georgiou & Kyza

(2017) identify that immersion should have audiences experiencing a suspension of disbelief and feel as though they are inside the digital setting. Paavilainen et al. (2017) share that the game encourages users to step outdoors and search for pokémon, the fantastical characters on which the transmedia story centers. Players indicated that sociability and the hunting mechanic keep their interest and motivate them to continually return to the game. The success of *Pokémon GO* demonstrates that location-based AR experiences can be a way to engage people in a story world.

Rodrigues & Bidarra (2014) argue that augmented reality can also be a valuable tool for education. Cabero-Almenara & Roig-Vila (2019) echo that sentiment by explaining that AR facilitates learning and acquiring knowledge. More specifically, AR helps students visualize abstract concepts, develop their scientific inquiry, creativity, and design thinking skills (Rodrigues & Bidarra, 2014). Emerging media like AR can make learning topics like sexual health more engaging and approachable. According to Buchner & Zumbach (2018), another benefit of using augmented reality in an educational space is that it encourages autonomous learning and the feeling of competence. Buchner & Zumbach (2018) highlight the theory of self-determination in that AR can help promote intrinsic motivation. Intrinsic motivation can help students to not rely so much on institutions to teach them about sexual health but rather seek it out on their own.

Khan et al. (2019) argue that AR can benefit student motivations. They studied students experiencing an augmented reality application that teaches anatomy. Compared to traditional teaching methods, students report feeling slightly more motivated to learn about anatomy when using the AR anatomy application (Khan et al., 2019). More specifically, when the students used the AR system, they experienced an increase in motivation by 14% (Khan et al., 2019). The

students report increased attention, confidence, and satisfaction after experiencing the AR antimony application.

Similar Projects

East Los High and *The Contraceptive Scavenger Hunt* are two interactive experiences that discuss sexual health and wellness for young adults. Wang & Singhal (2016) define *East Los High* as “the first transmedia program purposefully designed as edutainment to tackle sexual and reproductive health issues” (p. 1003). Understanding that comprehensive sex education is lacking in communities of color, the series targets young Latinx Americans. The series branched off to a website where participants can view bonus clips, watch extended scenes, and find resources for local health clinics. After experiencing *East Los High*, participants shared that they learned new information and demonstrated high levels of behavioral changes (Wang & Singhal, 2016). *East Los High* proves that an entertaining educational narrative about sexual health can be highly receptive and effective. However, *East Los High* is not an interactive narrative or a podcast. Those differences are what make *UDecide* a unique addition to the landscape of media about youth sexual health.

Another similar project is *Contraceptive Scavenger Hunt*. Castillo et al. (2017) worked to help college students become more familiar with contraception and where and how to gain access to it. The scavenger hunt involved students locating sexual health and contraceptive items in their local markets and pharmacies. After completing the assignment, students demonstrated increased contraceptive knowledge and a shift in attitudes. The assignment transforms the traditional teaching method about sexual health into a learning exercise that promotes personal exposure to sexual health information. The scavenger hunt differs from *UDecide* because it does

not follow a traditional narrative form, however. Stories have long been considered mental practice for living (Gottschall, 2013). By engaging college students in an immersive and narrative storyworld with relatable characters, *UDecide* will fill the gap between interactive transmedia narratives and sexual health education.

Project Design

Overview

The guiding question for this study is “how might interactive narratives promote comprehensive sex education for college students?” This project implements transmedia storytelling and usability testing to keep users at the center of the design. Moloney (2022) will be implemented as the framework for building a transmedia storytelling campaign. Podcast listener experience testing, and cognitive walkthroughs will also be implemented to answer the research question. The listener experience testing will reveal the level of immersion and satisfaction with the narrative for the *UDecide* podcast. The cognitive walkthrough will test the usability of the overall project including listening to the podcast, engaging with the Instagram profiles, and exploring the augmented reality experience. The framework and testing will reveal what is working well and identify areas of improvement for the project and boost engagement with sexual health topics.

Participant Recruitment

I recruited a convenience sample of Ball State University students aged 18-26. Using the Ball State Communication Center and recommendations from professors, six Ball State University students were recruited to participate in the time-demanding content and usability

testing. Although sample sizes are small, the techniques used require a time commitment from participants and reveal a depth of information not provided by broader surveys. With this creative project, I set a goal of designing and building a testable prototype, and these methods reflect practices of human-centered design processes. Use of them is not intended to yield transferable results.

Transmedia Design, Usability, and User Experience Methods

Moloney (2022) informs the creation of the interactive podcast and overall transmedia narrative. The flexible framework makes it easy to adapt to any socially concerned transmedia story. The framework offers recommendations in eight areas of transmedia storytelling. Meeting this outline will lead to an immersive transmedia design for the project's storytelling.

1) Context

Context explores the historical or socio-political history of a project's subject. Doing so, helps the project avoid veering away from the subject. Detailing the context also helps to inform an essential step in design thinking: the problem space.

2) Empathy Research

It is imperative to take a human-centered approach to the production of a socially-concerned transmedia storyworld. Taking a human-centered approach is important because it provides the perspective of stakeholders and inspires innovative solutions that keep the intended audience at the center of the design. This could look like conducting interviews and/or surveys of experts, the target audience, or story subjects.

3) Storyworld

A storyworld includes stories that connect together to create a wide network of stories, subjects, and interactions. This stage can be described as the scope of coverage where the project designer must outline which subjects and stories will be included in the overall storyworld and which are out of the range of the story. This is also the point in the design where the starting-point stories should be determined. The starting-point stories are the entry point to the overall transmedia experience where the audience can start to explore the wider network of stories.

4) Targeting

Targeting is the design phase where the producer must determine the various media channels for the stories trying to be told. The media channel is where the stories within the larger transmedia network will be encountered by the target audience such as mobile apps, websites, magazines, game consoles, etc. Choosing the media channels is made easy when implementing design thinking because each channel is intended to have different target audiences. Using design thinking to determine the media channels is important because it provides empirical support for the decision-making instead of convenience leading the decision.

5) Aesthetics (Media Form)

Once the media channels are decided through empathy research, evaluating the project's media forms works to ensure the effective communication of the content and appeal to the target audience. All media forms demonstrate specific storytelling techniques. This is also the time in the design process where the cohesion of aesthetics is essential to convey the connection between all individual media forms.

6) Story Network

The story network explores how the audience's attention to the subject of the storyworld becomes stronger as they move through the various media forms. When producing a transmedia story, it is effective to think through how the stories connect to each other and how an audience member can enter from any point yet still be able to navigate the storyworld. However, for a socially-concerned story, it is important that each story can stand on its own and provide value individually. A primary goal of transmedia storytelling is encouraging engagement therefore the audience member should have the opportunity to build expertise in the story's subject by exploring all the media forms.

7) User Contribution

As stated previously, a primary goal of transmedia storytelling is to encourage audience participation and engagement. Creating a space in the storyworld for user contribution works to inspire a sense of ownership. User contributions can be implemented by design or emerge over time. Interested audiences want to feel as though they are more than a passive consumer but rather an active stakeholder who gets to interact with the storyworld.

8) Results Testing

There are multiple methods for testing the results of a transmedia experience. The project producers can perform a simple analysis using key progress indicators (KPIs) such as likes, views, unique visitors, and other foundational digital analytics. A much deeper understanding of the success of a transmedia story comes from deploying design thinking, usability, or user experience testing. Testing the media content, the audience's interest and engagement are ideal ways to gauge if the campaign successfully accomplished its goal.

I developed the transmedia design for *the UDecide* project within the Moloney (2022) framework. The transmedia design for the project includes an interactive podcast, character Instagram profiles, and an AR experience. Each element is a mid-fidelity prototype that demonstrates how the pieces would work together in the real world. Before creating the mid-fidelity prototypes used for usability and content testing, each element went through three iterations. The first prototype iteration for the podcast is a map of the major plot points, characters, and sexual health topics for each episode (see *Figure 1*). The affirmative approach influenced the inclusion of an episode with LGBTQ characters. The episode pulls from the Trevor Project, a nonprofit organization focused on suicide prevention for LGBTQ+ youth, to inform audiences on the definitions of various sexual and gender identities as well as discusses the potential experiences LGBTQ of college students. The use of the second-person point-of-view also illustrates an affirmative approach. The second-person point-of-view allows for a gender-neutral perspective that — no matter the listener's gender identity — allows them to still feel immersed and included in the storytelling experience. The first prototype of the character Instagram profiles is a character persona chart (see *Figure 2*) detailing various personality traits, goals, and habits of each character in the podcast. The chart helps guide the characters' behavior in the podcast episodes and the overall aesthetic of their Instagram profiles. The first prototype of the AR experience is a sketch of the experience (see *Figure 3*). The graphic provides a visual for the user journey.

The ideas from the first iteration of the podcast were incorporated in the next phase of prototypes which includes a script for each episode. The script connects the plot points, characters, and sexual health topics. The second iteration of the character Instagram profiles was

developed using mockups created with the Canva graphic design website. The mockup replicates the user interface of Instagram to craft the pictures and profile information to match the project aesthetic. The second iteration of the AR experience is also a mockup using Canva. Similar to the Instagram profiles, the mockup allows for a visualization of the app's user interface.

The final prototype iteration — the mid-fidelity prototype — includes seven recorded and engineered interactive episodes for the podcast. Using the music streaming platform SoundCloud, the episodes are online and available for the public listening. The podcast is hosted on SoundCloud because of its compatibility with audio files and its ability to connect the branching narrative and the other transmedia pieces together in the description box of each episode. The prototyping software, Figma, hosts mid-fidelity prototypes for the character Instagram profiles and the AR experience. Graphic elements from Canva are imported into Figma to create the user interfaces for both experiences. Using Figma allows the transmedia elements to be interactive and perform similarly to an actual mobile application.

A defining factor to transmedia storytelling is that every piece connects together so that the audience can enter the storyworld from any point. Each element provides clickable links that drive the audience to the following media element. The mid-fidelity prototypes for the interactive podcast, the character Instagram profiles, and the AR experience test the user experience.

To test the usability of the overall transmedia experience, six Ball State students were recruited to participate in the listening experience and usability testing. Three participants were instructed to listen to three podcast episodes and provide written feedback on the audio quality, overall narrative, sexual health education, interactivity, and immersion (see *Figure 4*). Three additional participants were instructed to participate in a cognitive walkthrough of the transmedia

story's prototype user journey. During the walkthrough, participants were given a series of tasks that are associated with experiencing *UDecide* (see *Figure 5*). As the participants made their way through the tasks, they were instructed to think out loud and share their thoughts throughout the process. Their thoughts and opinions were recorded for analysis. Each cognitive walkthrough session was conducted virtually, via Zoom internet conferencing software, for twenty-five minutes. The goal of the listening experience and usability testing is to determine what aspects of *UDecide* worked well to engage the student in the sexual health learning process and what areas needed more development.

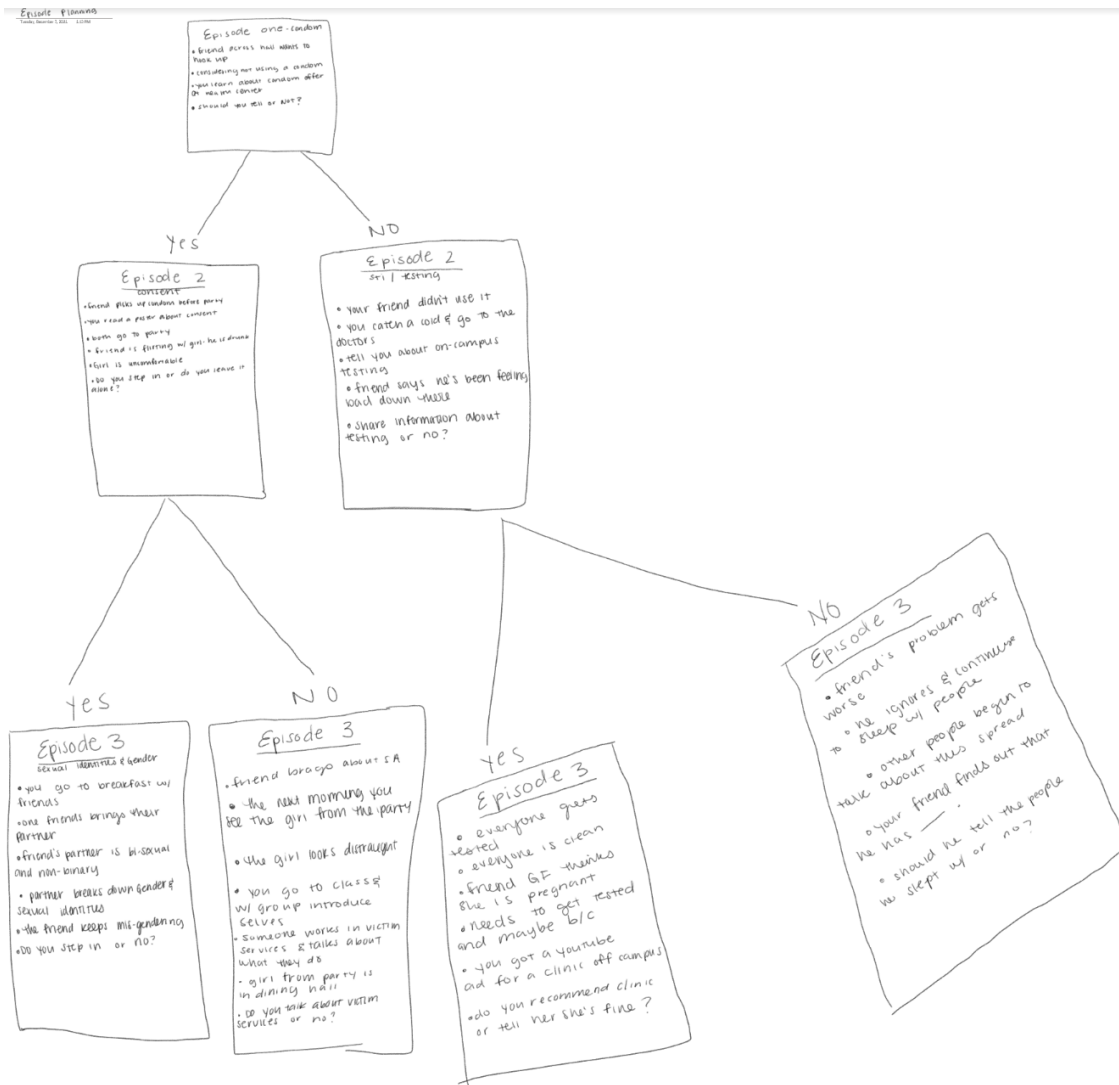


Figure 1. The Podcast Episode Content Map is the first iteration of the podcast prototype. The map organizes plot ideas and sexual health topics for each episode. Mapping the content also helps visualize how each episode connects.

[Insert Name]

Age:
Gender:
Major:
Work:
Location:

[Insert Potential Instagram Bio]

[Insert Profile Picture]

[Insert Catchphrase]

Personality
Introvert Extrovert
Analytical Creative
Busy Time Rich
Messy Organized
Independent Team Player

Motivations
Incentive
Fear
Achievement
Growth
Power
Social
Eco-friendly
Convenience

Needs

Hobbies/Favorites

Goals

Frustrations

[Insert Adjectives] [Insert Adjectives]
[Insert Adjectives]

Favorite Brands:

Figure 2. The Character Profile Chart is the first iteration of the character Instagram account prototype. The chart details personality traits of the characters featured in the podcast episodes.

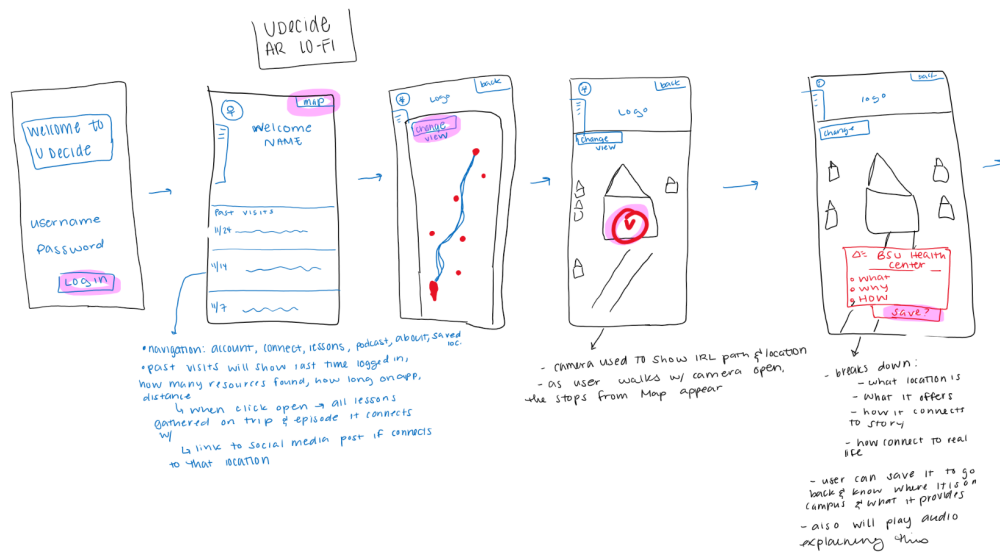


Figure 3. The AR sketch is the first iteration of the mid-fidelity prototype. The sketch works to illustrate the user interface and user journey of the AR experience.

Podcast Listener Experience Testing Suggested Prompts
<ol style="list-style-type: none">1. Describe the audio quality of the podcast2. Describe the overall podcast narrative3. Describe the informative moments happening within the podcast episodes4. Describe the interactive element of choosing the narrative direction5. Rate the level of immersion from 1 - 5 (1 = not immersed at all; 5= completely immersed in the storyworld)6. Describe the overall listening experience

Figure 4. The Podcast Listener Experience Test Suggested Prompts aid the feedback process by highlighting significant areas of design within the podcast experience. The suggested prompts consider topics for a detailed analysis.

Cognitive Walkthrough Task List
<ol style="list-style-type: none">1. Find and click on Podcast Ep. 12. Listen to Podcast Ep. 1 then find the description box3. Click the link for how you want the story to progress4. Go to the description box and click the link to visit the UDecide Instagram profiles5. Go to Oscar's profile and scroll through the photos6. Go to Opal's profile and scroll through her photos7. Click the link in Opal's profile bio8. Log in to the AR experience and go to the "Map"9. Begin search and click the first UDecide emblem you see10. Go back to the homepage and click the UDecide Podcast button

Figure 5. The cognitive walkthrough task list guides the user through the journey of experiencing the major interaction spots of the AR experience. The task list highlights areas of the user experience that need reevaluation.

The saturate and group design thinking method was implemented to analyze the feedback and major insights from the testing. The feedback and major insights were gathered on a separate document using text boxes, saturating the page with ideas. A goal of the *UDecide* project is to immerse participants into the storyworld through descriptive storytelling, auditory cues, and the interactivity of choosing the direction of the narrative. Any point of feedback that met the project's goals, expressed a new perspective, answered the project's guiding question, or presented user experience errors within the transmedia system were listed as major insights from the sessions. Once those major insights were recorded, they were then grouped by theme. The themes include immersion and interactivity, educational elements, narrative, and system usability.

Results

Sexual health and wellness are significant areas of concern for college students. Research indicates an opportunity to engage college-aged students with sexual health topics using emerging technology. The project asks how interactive narratives might promote engagement with sexual health topics for college students. *UDecide: The Interactive Transmedia Story* prototypes a design to promote sexual health education by immersing college students in an interactive podcast narrative that encourages engagement through social media and exploration of resources on their college campus.

This mid-fidelity prototype demonstrates the vision of the *UDecide* experience and includes seven interactive podcast episodes, a mockup of the characters' Instagram accounts, and an augmented reality prototype. Listener experience testing and cognitive walkthroughs explored

content and the potential immersion of listeners into a storyworld that could educate them on various sexual health topics. Both also test the usability of the various systems that connect the transmedia story elements.

The results divide into four sections: immersion and interactivity, informative elements, overall narrative, and system usability. Each section reports the most insightful and important findings related to the effectiveness of the experience.

Immersion and Interactivity

Descriptive storytelling, auditory cues, and the interactivity of choosing the direction of the narrative are essential aspects of the *UDecide* project. Sound effects like birds, bees, and background conversations support the storytelling in the podcast. Participants found the background sound effects to be beneficial for immersion. Participants agree that the background music helped tell the story and add to the imagery.

In addition to the sound effects, participants enjoyed the interactivity of choosing how the story progresses. However, the binary options suggest that there is one correct answer. In many choose-your-own-adventure stories, there is a balance to the options. Participants indicated that the *UDecide* options communicate one “right” choice, and choosing a different route makes them feel like the “bad guy” in the story. Otherwise, the participants commented on how much they enjoyed choosing their own narrative and felt like the timing was well placed.

Educational Elements

The primary focus of the *UDecide* project is to promote sexual health education and identify resources that could be relevant to college students. Each podcast episode has a moment where the narrative “you” character receives information regarding a sexual health topic. When

listening to the podcast, participants thought the informative moments occurred naturally. The participants also found that most of the informative bits were presented in situations that felt natural to the experiences of college students. Participants shared that they related to the situations in the podcast and how the main character became informed. The participants believed that the educational instances were a usual way to learn about sexual health topics and that the moments were realistic and not cheesy or exaggerated.

The participants reported the information presented in the podcast to be targeted toward and more helpful for first-year college students than students who've been in college longer or who are older. Additionally, they also thought it best to have an auditory indicator when presenting important information. Participants suggested fading out the music or adding an auditory cue such as a bell to notify listeners that they are approaching an educational moment. Additional suggestions include closely connecting the educational moments to the character's social media profiles and AR experience. Therefore, the listener can learn more about the information while listening to the podcast. Other than that, the participants found the times of presenting definitions and citations to be clear and helpful.

Narrative

The goal of the overall narrative is to take the listener on a journey through the highs and lows of sexual life at a university. The narrative uses the second-person perspective to help the listener feel more connected to the story and be more inclined to participate in the interactivity. Listening experience testing participants enjoyed the second-person point of view and concluded that it makes the story's perspective gender-neutral. The gender-neutral perspective helps the

listener envision themselves in the role of the main character no matter what their gender identity is.

Despite the interest in the second-person perspective, participants wished for a more dynamic narrator. They also found that some episodes had more realistic circumstances than others. Though the narrator is omniscient, participants wanted the narrator's tone to emulate the emotions and thoughts the listener would be feeling in the episode's situations. Participants also pointed out some inconsistencies and unrealistic circumstances in some episodes. Participants believed that the main character's interactions with Oscar were not realistic for two people who had just met.

System Usability

The goal of the cognitive walkthrough was to identify any usability errors with the user journey of the entire transmedia experience. The cognitive walkthrough had participants listen to the podcast, find the characters' Instagram profiles, and finally explore the AR experience. During the cognitive walkthrough, participants found usability issues with the podcast host site, SoundCloud. SoundCloud had trouble loading the podcast for some laptops but worked perfectly on a mobile device. When those participants tried to use their computers, they received an error message indicating that their connection was not secure. SoundCloud's user interface also presented issues for some of the participants. Two participants had trouble finding the description box, and SoundCloud does not have a label for its description box. Although one person who was very familiar with YouTube's user interface had no issues with the description box, the remaining participants assumed that the display area that included descriptive text was the description box.

The description box introduced another usability issue. The formatting of the description box made it difficult for the participants to feel confident that they were clicking the correct links for the binary options and the other transmedia elements. The links in the description box were close together and the headings were not bolded, capitalized, or underlined to give a visual indicator that the links lead to various experiences. The participants suggest separating the links and making them more transparent for the listener to select.

Similar to SoundCloud, the host site for the AR and Instagram prototypes, Figma, introduced other usability issues. Despite knowing the prototypes were interactive, one participant opted to use the arrows at the bottom of the screen to navigate various pages. Although it was brought to their attention that they should click on the actual prototype to interact with the experience, they instinctively continued to use the arrow keys to complete the tasks. The Instagram prototype was also created in Figma. Although the prototype simulates Instagram, it is not a perfect reflection. Because of this, the participants began to interact with the prototype as though it was the actual Instagram app. This became cumbersome as not every icon was functional, causing the participants to become confused about why they could not interact with the prototype like they would the actual app on their phone. For instance, when looking for Oscar's profile, a participant wanted to click the search icon and type in their name. On the Instagram app, searching a profile by the username would lead the participant to the character's profile. However, they could only get to Oscar's profile in the prototype by clicking the "following" button or clicking his profile picture from the drop-down menu. When finding another character's profile, a participant's instinct was to click the character's username. On the app, clicking an account's username will open the account's profile. Participants could only go to

a character's profile on the prototype by clicking the profile picture. These inaccuracies interrupted the flow of the participant's experience and caused confusion.

The augmented reality experience also introduced some accessibility issues. One of the participants experiences color blindness and communicated that the red UDecide emblem was challenging to see. The participants had to adjust the blue light on their computer to see the emblem on the map. The participant suggested changing the color of the emblem to have high contrast, such as black and white, to make the experience more accessible for colorblind users.

Discussion

College students are disproportionately affected by sexually transmitted diseases, sexual violence, and other sexual health and wellness issues. *UDecide: The Interactive Transmedia Story* prototypes a response to this problem by promoting sexual health and wellness education through emerging media and transmedia storytelling. Usability and listening experience testing evaluated the functionality of this prototype.

The user testing reports critical findings in five main areas: immersion and interactivity, educational elements, overall narrative, and system usability. Participants stated that the background sound effects in the podcast increased their feeling of immersion in the storyworld. Participants also reported enjoying the interactivity of the podcast and choosing the direction of the narrative. However, the interactive binary options suggested there was one correct path to the narrative, thus influencing the participants' decision-making.

When it comes to the podcast's sexual health storyline, participants shared that the information comes naturally and emulates situations a college student could experience.

Participants suggested including an auditory cue when informing listeners on sexual health topics. Participants explained that the second-person point of view allowed for a gender-neutral perspective for the overall narrative, which helps all listeners feel immersed in the world. However, the narrative needs consistency in the realism of circumstances across all episodes and a more expressive narrator.

Although participants could navigate through the transmedia story system, there were a few usability errors, mostly having to do with the functionality of host websites rather than the project interface itself. The *UDecide* podcast is on the website SoundCloud. SoundCloud's user interface made it difficult for participants to find the description box. The description box is essential because it connects them to the binary options for the next episode, the characters' Instagram profiles, and the augmented reality experience. In addition to SoundCloud, Figma, the host website for the social media and AR prototypes, also caused usability errors. Participants experienced challenges when searching for character accounts, navigating through both prototypes, and seeing the red *UDecide* emblem on the AR experience.

An alternative explanation for the usability errors could be that the tasks in the cognitive walkthrough were not straightforward, and the functionality of the host sites was not explained clearly. The tasks in the cognitive walkthrough were intended to be simple and reflect the ideal user journey a listener would experience. However, some tasks had more small steps, which could have confused the participants. Since the tasks did not clearly state that the Instagram profiles and the AR experience were interactive prototypes, the participants instinctively wanted to explore the systems as though they were the actual app. With a more precise explanation of the functionality of the systems, the participants could have had a cleaner usability experience.

Additional rounds of prototyping would transition the character Instagram profiles from the wireframing software to a live Instagram account. Therefore, the audience can engage with the accounts as they would with any friend account by navigating the application, following the accounts, liking posts, and leaving comments. Additional rounds of prototyping would also explore other host sites for the podcast that could be more hospitable for a branching narrative.

Although the study presents various insightful findings, there are some clear limitations. Most importantly, every element of the transmedia story (the podcast, Instagram profiles, and AR experience) is a mid-fidelity prototype. None of the elements are in their completed, finished stage, which inevitably makes room for usability errors and insufficient content. For instance, there are only seven available podcast episodes. Each character's Instagram profile only has six posts. The AR experience only shows two examples of resources that the user can find. Time and lack of funding play significant roles in the reasoning behind only producing mid-fidelity prototypes. The project only had a year for development and production and a staff of one, causing some details to be overlooked and decreased content. The project also had no outside funding to gather many participants, hire a team of designers and coders, or buy software to make the elements tangible and completely functional. Another limitation is that the results from qualitative research, such as the listener's experience evaluation of the narrative, can not be verifiable or transferable. Lack of time and prototype development didn't allow for testing of the content itself or the learning that resulted from it.

For future iterations of the project, I would like to conduct pre and post- tests to evaluate the knowledge retention and learning fueled by the project. A longitudinal study would also be beneficial for future iterations. Offering a pre/post-test during the participants' first-year of

college then testing the participants again after four years would be an insightful way to test knowledge retention overtime, and to see if the transmedia story influenced behavioral change. Additionally, future iterations should consider connecting the podcast episodes and overall transmedia content to pop-culture. Considerations include connecting the podcast episode to events or characters occurring in popular, modern television shows such as Netflix's *Sex Education* or HBO Max's *Eurphoria*. These shows discuss relationships, wellness, and sexual health related topics for a young adult audience in a way that is captivating and dramatized. Connecting this project with pop-culture increases the story's network and attention from its target audience. Despite the limitations, the findings in this study indicate that there is potential for using emerging technology to promote sexual health education for college students.

Conclusion

Sexual health and wellness is a significant area of concern for college students who are at a higher risk of contracting sexually transmitted diseases and experiencing sexual violence on campus. Through an interactive podcast, character Instagram profiles, and an augmented reality experience, *UDecide: The Interactive Transmedia Story* aims to promote sexual health education by immersing college students in a storyworld that encourages interactivity, engagement, and exploration of sexual health topics and resources. User experience evaluation methods were implemented to gain feedback on the overall experience, and usability methods tested the various intertwining systems. Participants reported high levels of immersion and engagement with the project due to the story's relatable situations and ability to choose the direction of the narrative. However, there were usability errors when navigating the various systems. *UDecide* exemplifies

how utilizing emerging media can encourage college students to learn about sexual health and wellness outside the traditional classroom setting. Stories are impactful and reflect real-world situations. *UDecide's* transmedia story explores the possibility of transforming sexual health education into a multi-faceted, technological experience, transcending the traditional understanding of learning. Introducing unique storytelling and educational methods could foster empathy, deeper understanding, and change behaviors to promote safer sex and relationship practices.

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