

Jason Boursier  
EDCI 672  
11/1/2024

## Case Analysis: Designing a Kiosk Learning Platform for The Aquarium

### Stakeholders and Their Interests

#### 1. Lynn Dixon (Instructional Designer)

- **Role:** She is an American designer working at an Australian company and has a master's degree in instructional design.
- **Interests/Concerns:** Her goal is to create an effective, engaging learning solution on an unfamiliar medium (an interactive touch screen kiosk) while mediating the expectations of the clients and her sales team that has the tendency to overpromise without accounting for budget constraints.

#### 2. Laura Barton (Audience/Client/Project Sponsor)

- **Role:** Works at government agency responsible for The Aquarium where the kiosk will be installed and contracted the software work separately from the hardware work.
- **Interests/Concerns:** Is busy with other projects so wants to be involved with only major reviews and signing off on portions of the project, not day-to-day activities. She wants to add more content about regional wetlands and the role wetlands play in Aboriginal culture and heritage, and wants to make sure that the variety of visitors including different languages are accounted for in the kiosk development.

### 3. Ben Williams (Education Manager/Client/Subject Matter Expert)

- **Role:** Works at The Aquarium and is the Subject Matter Expert (SME) on wetlands.
- **Interests/Concerns:** He wants to make sure there are interactive game elements or “fancy animations” to highlight the impact that urban growth is having on the wetlands. The core requirement he needs in the exhibit is to demonstrate the relationships and interconnectedness of the Great Barrier Reef, the wetlands, and the catchment areas.

### 4. Janette Parks (Head of Sales at Telopea Learning)

- **Role:** She secures project work for new and existing clients.
- **Interests/Concerns:** She manages the client and billing side of the project and potentially overpromises features without aligning with design capabilities or budget constraints. The Statement of Work she agreed to specify the content time to be 20 minutes with interactivity levels being “medium” across the modules in the kiosk.

### 5. Aquarium Visitors (End Users)

- **Role:** Audience
- **Interests/Concerns:** There will be a diverse group of users ranging from children to senior citizens to experts and “world authorities” on wetlands. There will also be a wide array of international visitors with limited English proficiency. All parties seek an informative and engaging experience.

### 6. Government Department and Regional Centers

- **Role:** Funders/Stakeholders/Audience
- **Interests/Concerns:** Require acknowledgment in the tool due to their funding contributions. Expect measurable impact and utilization evidence with possibility to expanding to other aquariums.

## Key Instructional Design Challenges:

### 1. Designing for a Very Diverse Audience

- **Description:** The audience includes varied age groups, educational backgrounds, languages, and expertise levels. The main challenge is that the ID needs to create a learning experience that is accessible and engaging for all visitors.
- **ID Process Phase:** This challenge falls into the analysis and design phases of the ADDIE model and focuses on learner analysis and defining instructional strategies.

### 2. Selecting a Design Strategy that Compliments the Kiosk Delivery Method

- **Description:** Lynn needs to be creative in developing learning modules on this brand-new medium (for her), while satisfying all the parameters laid down by her clients and her sales lead while considering the wide scope of the audience. There are budget and time constraints, and she will need to develop a high amount of interactivity while still compelling the users to achieve the learning objectives that the client has suggested.
- **ID Process Phase:** Design and development phases, involving content development strategies.

## Case-Specific Challenges Impacting Design:

### 1. **Managing Client Expectations and Internal Company Dynamics**

- Lynn needs to speak with Jannette about reigning in the expectations of Ben and Laura, so the onus isn't entirely on the instructional designer to fit every promise into the final product without the proper amount of budgeting. Lynn has trouble saying "no" and that is the job of the sales lead to communicate and set proper expectations. They need to align the Statement of Work with the design document and make sure everyone is on the same page before any work on the development stage starts so they don't go over budget. Nobody likes working for free!

### 2. **Time Constraints, Level of Expertise, and Workload**

- Lynn has never designed a kiosk and needs help with basic questions regarding buttons and links on the screen. This is not her only current project so can only dedicate a certain amount of time, and with every meeting the scope of the project keeps expanding (like adding game elements) so she is essentially digging herself into a deeper hole by being agreeable and overpromising without any commitments from the clients for an increased budget.

### 3. **Cultural and Accessibility Considerations**

- Inclusion of Aboriginal stories will require sensitivity and appropriate representation, which will involve more resources that Ben and his team are unwilling to pay extra for. The scope of the variety of users will need to be addressed so the team knows exactly what languages are needed, and what

knowledge levels of information will be included for the most inclusive experience possible.

## Prioritization of Challenges

### 1. **Designing for a Diverse Audience**

- a. The project needs to include design solutions that cater to the wide variety of users' knowledge so each group gains insight from the experience about the connection between the wetlands and the ocean.

### 2. **Selecting an Appropriate Design Strategy for the Kiosk**

- a. Lynn will need to commit to a strategy early on to establish the design to keep within the constraints she has so development can start. She will need time to conduct user testing on each of the demographics of the audience and end user.

### 3. **Managing Client Expectations and Internal Company Dynamics**

- a. Lynn needs to establish ground rules with her sales lead Janette to save face for Telopea so they don't overpromise and under deliver. There needs to be more "Hell yes we'll do it" or "Hell no we won't" decision-making, and less "Mmm..OK sure" in the process with clear lines and protocols so the ID doesn't have to look like the bad guy. In the end there is the reputation of the company on the line.

### 4. **Cultural and Accessibility Considerations**

- a. The respectful incorporation of accurate Aboriginal content will need to be addressed early, as well as the language and gamification elements for the wide educational background of the end users of the kiosk.

## 5. Time Constraints and Workload

- a. Once all the challenges are addressed, Lynn needs to prioritize her time to concentrate on tasks associated with The Aquarium project and how they fit into her existing workload.

## Reflection on Readings and Previous Experiences

### Assigned Readings:

#### 1. Instructional Animations affecting Learning Outcomes

This analysis by Höffler and Leutner (2007) investigated the learning impact of instructional animations compared to static images across 26 studies and shows a positive effect of animations on learning outcomes. The authors analyzed the effects of animation type, realism level, knowledge type, and instructional roles to help determine when animations are more beneficial over still images. They found the realistic, video-based animations yielded the strongest effect. Procedural-motor tasks showed the highest benefit from animations, declarative knowledge also slightly benefited, and problem-solving tasks showed the least improvement. Representational animations significantly outperformed animations that were decorative, while realistic animations like real-life videos helped learners form mental models and reduced cognitive load.

- **Contribution to Understanding:** This analysis highlighted useful animation strategies for Lynn and the team to incorporate to produce the desired learning

outcomes. Knowing that realistic images are more powerful, Lynn can focus her efforts on accessing realistic content and incorporating these types of animations into the design over simply using still images.

## 2. **Instructive Graphics and the Coherence Principle**

In their study, Sung and Mayer (2012) examine how different types of graphics affect student satisfaction and learning in online lessons. They categorize graphics into three types labeled instructive, seductive, and decorative. They suggest that graphics should be relevant to the instructional content, while extraneous graphics may cause cognitive overload and reduce the focus on key information needed to achieve learning objectives.

- **Contribution to Understanding:** Lynn will need to choose her graphics very carefully, so they don't fall into the seductive and decorative categories that may distract learners. Since she has no experience designing a kiosk, and will need to adhere to proven multimedia principles instead of relying on what she knows from designing instruction for traditional computer screens.

## Previous Experiences

### 1. **Recently Visited the New Orleans Aquarium and Mandalay Bay Aquarium**

On two trips with my wife, we visited these aquariums and can say the most memorable experiences were when we spoke and connected to the team members who walked us through their specific area of expertise. They were so passionate

about leaf-cutter ants, and piranhas that I will never forget these experiences and perhaps can transfer this into my solutions for this case.

- **Contribution to Understanding:** I can imagine where these kiosks could be in relation to the exhibits and really put myself in the shoes of the audience since this is something I like to do when on vacation.

## 2. Sales Manager at Courtesy Ford

I have always envisioned designing a virtual program that guides new customers through the sales process using the most accurate and comprehensive information available. This way, even if they encounter a less experienced salesperson, they can still access all the details needed to make the best decision for their family—without feeling pressured into choosing a car that doesn't meet their needs or lacks the features they want.

- **Contribution to Understanding:** People from all walks of life buy cars, and I sold to many non-English-speaking customers. For those customers, I would slow down my pitch, while for those with extensive knowledge, I would speed it up to match their pace. This experience is relevant to my case analysis because it highlights the importance of tailoring how information is presented to different individuals in real time. One of the most effective strategies I used was mirroring their communication style to build rapport and ensure clarity.

## Possible Solutions



## Solution 1: Multiple path Modular Interactive Kiosk

- **Description:** The team will develop an on-site kiosk application with various modular content tailored to different audience segments that each fit into the 20-minute timeframe. The interface will offer multiple pathways that are specific to the diverse learners instead of one pathway:
  - **"Exploring for Kiddos":** Simple content about the connections between waterways with more animations and games, and high interactivity. The storyline will be simple and be more of a history lesson, taking the user from the Aboriginal origins to the current threat of overdevelopment in a “choose your own adventure” style of narrative.
  - **"Discovery for Teens and Families":** Intermediate content geared towards parents and teenagers that have a medium amount of interactivity. The storyline will be based on real-life issues and will more emotive, allowing the user to immerse themselves in the connections between the wetlands, and how current development is harming the stories of the lives of the real-life Aboriginal tribespeople. Animations will be more representative, but the content will not be developed to go over anyone’s head in this demographic.
  - **"Deep Dive for Leaders and Experts":** Advanced content backed by research with low interactivity, this module will cater to thought leaders on the subject of connecting the wetlands and stories of the Aboriginal people. The kiosk will seem a bit dry but provide intellectual stimulation with more pictures and sounds over animations compared to the previous modules.

- **Addresses Challenges:**
  - **Designing for Diverse Audience:** This solution offers tailored experiences for different user groups.
  - **Select Appropriate Design Strategy:** This solution doesn't convolute the various learners by subjecting them to inconsequential or irrelevant content that is piled into one module.
  - **Managing Client Expectations and Cultural Dynamics:** All of the content will be included to appease the client for the various audiences. The kiosk will include various translations to reach a broad audience without alienating any one intellectual level because there are three pathways for completion.
  - **Cultural Considerations:** Includes dedicated sections for Aboriginal stories, potentially with audio narration.
- **Pros:**
  - **Accessibility:** Available to all visitors regardless of familiarity with topics.
  - **User-Friendly:** Simple navigation tailored to different age groups and language proficiencies with more gamified elements for the children module.
  - **Cost-Effective:** The development will be controlled more efficiently without having to consider various language abilities in one module.
- **Cons:**
  - **Limited Interactivity:** May not fully satisfy Ben's desire for high-end animations and games.

- **Development Time:** Developing three different 20-minute modules may take too much time for Lynn as she is overcommitted with other projects.
- **Workload:** The SMEs may need to get involved to develop the content as Ben offered his services and Lynn may need to take him up on that as an unpaid role to balance out her workload, which would give her less creative control and perhaps be too time extensive.

## **Solution 2: Interactive Touchscreen Kiosk with Tiered Content Levels**

- **Description:** Develop an interactive touchscreen kiosk with a single, adaptable module that caters to all the diverse skill levels. The singular module will use tiered content layers to adjust variously and in a more dynamic way based on user selections. Visitors will start with a common introduction, move towards intermediate content, and then can choose to "dive deeper" into more advanced topics or stick to more basic and gamified information.
- **Addressing Challenges:**
  - **Designing for a Diverse Audience:** The tiered approach will cater to all visitors, from children to experts, who will have a more relevant experience. Basic content will provide accessible information, and "deep dive" paths will offer more detailed insights for advanced learners.
  - **Select Appropriate Design Strategy:** Lynn will have one module with many pathways, so will only have to focus on one design as opposed to three.

- **Managing Client Expectations and Cultural Dynamics:** Kiosk will include a variety of interactive elements like clickable hotspots, simple animations, and visual storytelling, to satisfy Ben's enthusiasm for engaging, dynamic content. The kiosk will take learners on a ride!
- **Cultural Considerations:** Aboriginal Dreamtime storytelling will be integrated into the tiered content, with audio narration available at multiple levels to ensure accessibility and representation.
- **Pros:**
  - **Inclusive Design:** Tailors the learning experience to individual user needs without creating separate modules, reducing development time and cost.
  - **Resource Efficient:** A single module reduces the complexity and workload compared to multiple discrete modules.
  - **Culturally Sensitive:** Users will be able to experience the Aboriginal stories from low-level to high level and have the entire user group involved instead of segmenting it out.
- **Cons:**
  - **Balancing Content Depth:** The module must balance simplicity and depth, so the content is not too shallow for experts or too complex for novices.
  - **Development Complexity:** Designing a tiered content structure that flows seamlessly and intuitively requires careful planning and user testing. Lynn will have to make sure learning objectives are met despite the user taking different

pathways and contain options to “go back” to previous screens which will make the course time longer than the 20-minute limit.

- o **Time Constraints:** Although it’s a single module, creating a cohesive experience with tiered content layers may still require significant effort to implement well.

## Final Recommendation

### **Chosen Solution: Multiple Path Modular Interactive Kiosk**

#### **Justification:**

The multiple-path solution effectively addresses the project's primary challenges and constraints for several reasons. Lynn can maintain creative control by developing instructive graphics and animations that are realistic and video-based, allowing them to be used across all modules. This approach limits development time because only the text, audio, and gaming content will vary between modules. Additionally, there is no guessing whether the learner has chosen the correct path for their age or intellectual level, as they select the appropriate module at the beginning.

- **Designing for Diverse Audience:** By offering tailored content modules, the kiosk will accommodate various user needs without overwhelming any particular group.
- **Budget and Time Considerations:** Development costs will be more predictable and controllable, aligning with budget constraints while still offering interactive features.

- **Client Expectations:** While it may not include all of Ben's grand ideas, the solution can incorporate engaging elements tailored to each learner segment and intellectual level and provide a balance between lofty vision and practicality.

#### **Addressing Cons:**

- **Limited Interactivity:** The high-impact features will be within budget because interactivity will be varied with overall interactivity being medium. There can even be a simplified version of the bird's eye animation using existing graphics and historical pictures of the wetlands, or adaptations from Google Earth to get flyovers.
- **Development Time:** Development can be streamlined without having to engineer multiple pathways. Learning objectives can be obtained easier with one clear pathway for each learner segment.
- **Workload Constraints:** Work with the SME Ben to provide as much content as possible for each segment so he can get all the information he needs in each module without overwhelming Lynn with nuanced details that need to be argued over. This way there can be more ownership of the project by the client and create more satisfaction with the final product.

By selecting this solution, Lynn will be able to deliver an effective learning tool that meets the clients' objectives, will engage the diverse audience of The Aquarium, and will stay within budget and time constraints for Telopea and provide solace for her own well-being.

## References:

Ertmer, P. A., Glazewski, K. D., Koehler, A. A., & Stefaniak, J. E. (2024). *The ID CaseBook : Case Studies in Instructional Design*. (6th ed.). Taylor & Francis Group

Höffler, T. N., & Leutner, D. (2007). Instructional animation versus static pictures: A meta-analysis. *Learning and Instruction, 17*(6), 722–738.

<https://doi.org/10.1016/j.learninstruc.2007.09.013>

Sung, E., & Mayer, R. E. (2012). When graphics improve liking but not learning from online lessons. *Computers in Human Behavior, 28*(5), 1618–1625.

<https://doi.org/10.1016/j.chb.2012.03.026>