**Research Plan & Findings Report**

**Project:** NeuroQuest: Adventures in Neuroscience

**Project Phase:** Proof-of-Concept (POC) Testing

**User(s):** Higher Education Instructors

**Researcher(s):** Alex Turvy

*Target Date: Interviews during the week of 8/18/25*

### STAKEHOLDERS

* **Kymberlie Schellin** - Subject Matter Expert
* **Jennifer Ferralli** - Stakeholder
* **Adam Whitehurst** - Stakeholder
* **Andrea Page** - Stakeholder
* **Jacob Hansen** - UX Designer
* **Alex Turvy** -UX Researcher + Interviewer
* **Sarah Freitag** – UX Researcher + Interviewer

### BACKGROUND

Instructors often face the challenge of teaching neuroscience concepts to introductory psychology students who may lack a foundational understanding of biology and find the topic intimidating. Furthermore, many instructors teaching these courses are not neuroscience specialists themselves and struggle to make the material engaging.

To address this, the "NeuroQuest" project aims to create an immersive, **gaming-inspired suite of learning activities** that moves beyond the static 3D models of competitors. The vision is a "quest through the brain" that helps students not just learn, but *appreciate* neuroscience through interactivity and approachability. The suite is planned to include **four discrete, separately assignable activities**: three that comprise the Neuron (structure, action potential, neural communication) and one larger activity on the Brain.

The core philosophy is to shift from rote memorization to **authentic, performance-based assessment** where students apply concepts to relatable, real-world scenarios (e.g., the biological and emotional response to vaping). This research phase will test the initial concept with instructors from both **Introductory Psychology** and **Brain and Behavior** courses to validate the desirability of this approach and gather feedback to guide future development.

### ASSUMPTIONS

* An interactive, gaming-inspired approach will be more valuable to instructors and more engaging for students than traditional methods or more static 3D model-only methods.
* Assessment that allows students to meaningfully apply the concepts provides valuable differentiation against existing solutions.
* The current concepts and wireframes are a starting point that will be refined based on instructor feedback.
* Providing discrete, assignable activities offers valuable curriculum flexibility for instructors in different courses (e.g., Intro Psych, Brain & Behavior).

### RESEARCH GOAL

Our primary goal is to illuminate the path forward for the NeuroQuest project. We seek to understand how the core vision of an immersive, scenario-based neuroscience experience resonates with instructors, ensuring we honor the initial concept while gathering the insights needed to collaboratively shape its future development.

Note: The moderator should redirect specific questions about content back to the participant to gauge importance (e.g., "How important is it that we cover that topic?").

Specifically, this research aims to:

* Uncover which elements of the plan most effectively communicate the project's unique value for increasing both **student engagement** and **instructor confidence**.
* Identify opportunities to refine the narrative journey and assessment model to best align with instructors' real-world teaching practices and course goals.
* Gather specific, actionable feedback that will empower the team to make informed decisions on development priorities, ensuring the final product brings their innovative vision to life.

### RESEARCH QUESTIONS

##### **Overall Impressions & Value**

* What are your initial impressions of this concept? What do you like most and least?
* What are your thoughts on the overall gaming-inspired approach to teaching this **complex science**?
* We're exploring branding concepts like the name "NeuroQuest" and calling students "Neuronauts." What's your reaction to this type of branding?
* How valuable would a suite of activities like this be for your Introductory Psychology or Brain and Behavior course?
* Does this prototype seem as though it addresses the needs of students to effectively understand and apply neuroscience concepts?

##### **Use Cases & Flexibility**

* We've designed these as four discrete activities (Neuron-Structure, Neuron-Action Potential, Neuron-Communication, and The Brain) that can be assigned separately. How valuable is that flexibility for your course?
* Which of these components feel necessary for your course, and why?
* How do you see these activities integrating into your current teaching practices (e.g., as a **homework activity**, in-class activity, exam replacement)?
* How does this concept compare to the tools and resources you use now (e.g., 3D models, slides, physical models, videos, websites)?

##### **Assessment**

##### How do you currently assess student performance on this material?

##### How effective do you think the "build-then-apply" model shown would be as an assessment tool?

##### **UXR Metrics Questions**

We will ask the standardized UXR metric questions to quantitatively measure:

* **Delight:** How well does this concept meet your needs? How pleasantly surprised are you by it?
* **Adoption Impact:** How much would this influence your decision to consider or adopt a new courseware tool?
* **Ease of Use:** How would this impact the ease of teaching the neuroscience section of your course?

### Interview Flow (60 minutes)

This flow is structured around the 5 components we’ve discussed, starting with the big picture.

* **5 min:** Introductions & background questions.
* **10 min:** **Screen 1: The Full Suite.** We'll start by introducing the "NeuroQuest" suite, showing it contains four distinct lessons and can be extended to higher-level courses.
* **15 min:** **Screens 2 & 3: The Core Activity.** We'll then drill down into the "Neuron" activity, showing how students first build a 3D neuron, and then apply that knowledge by describing the effect of a relatable stimulus (e.g., checking their phone for a notification).
* **10 min:** **Screens 4 & 5: The Broader Vision (Verbal Description).** We will verbally describe the vision for threading concepts through later chapters and the expansion to advanced courses, using the visuals as a backdrop.
* **20 min:** Overall discussion, feedback on branding/tone, and administration of the UXR Metrics questions.

### NeuroQuest Instructor Interview Guide

**Objective:** To understand instructor reactions to the NeuroQuest concept, validate its core value propositions, and gather actionable feedback to guide future development.

#### ***Introduction & Background (5-7 minutes)***

*[Moderator's Goal: Build rapport, set expectations, and understand the instructor's current context before showing the prototype.]*

"Hi **[Participant Name]**, thank you for your time. My name is **[Moderator Name]**, and I’m a UX researcher. Also on the call today are a few members of the project team who will be observing quietly.

Today, we're exploring an early concept for teaching and assessing in neuroscience courses... We're not testing you; we’re testing our ideas... Is it okay if I record?"

I want to emphasize that there are no right or wrong answers here. We are not testing you; we’re testing our ideas, so please be open and honest. The session should take about 60 minutes. Is it okay with you if I record our conversation for note-taking purposes?

*[Wait for consent]*

Great. To start, I’d love to learn a little bit about your experience teaching this topic.

* "Can you tell me a bit about how you currently approach the neuroscience or biology of the brain chapter in your **Introductory Psychology or Brain and Behavior course**?"
* "What do you find are the biggest challenges for your students with this material? What about for you as an instructor?"
* "What kinds of tools or resources, if any, do you currently use to help teach these concepts?"

#### **Concept Presentation & Feedback (40 minutes)**

*[Moderator's Goal: Walk the participant through the 5-part stimulus, pausing after each key concept to gather targeted feedback.]*

"Wonderful. Now I’m going to share some visuals of our concept. The idea is to show you the big picture first, and then drill down into an example. I’ll pause along the way to ask about your thoughts.

**Screen 1: The Full Suite (10 min)**

*[Show the wireframe illustrating the four activities: Neuron (Structure, AP, Communication) and The Brain.]*

*"This is 'NeuroQuest,' a suite of four activities designed to cover the core neuroscience chapter. A key feature is that an instructor could assign all four, or just one or two, depending on their course needs. For instance, an Intro Psych professor might skip the neural communication part, while a Brain & Behavior professor would use all of them."*

* "What's your initial reaction to this **component-based** approach?"
* "Which of these components would you be most likely to assign in your course, and why?"
* "How does this compare to the resources you currently use, like 3D brain apps, videos, or physical models?"

**Screens 2 & 3: The Core Activity (15 min)**

*[Show the wireframes for the 3D neuron builder and the stimulus-response activity.]*

"Great. Now let's look at an example. In one activity, students would first build their own 3D neuron, dragging and dropping the parts to learn the structure. Then, they’d be shown a scenario— vaping or like checking their phone after getting a notification—and asked to explain what’s happening with their neuron."

* "What are your thoughts on this 'build-then-apply' model?"
* "How do you currently assess student learning on this material?"
* "How effective do you think this approach would be as an assessment tool?"
* "How does the scenario you see here resonate with you as a teaching example, compared to a more traditional biological reflex?"

**Screens 4 & 5: The Broader Vision & Branding (15 min)**

*[Keep stimulus on screen as a backdrop for a more open-ended discussion.]*

"So, looking at the whole concept, the vision is to create a more gaming-style 'quest' to make this topic less intimidating. We’ve even tossed around names like 'NeuroQuest' for the suite and calling students 'Neuronauts' on their journey."

* "What do you think of this overall 'gaming' or 'quest' approach to teaching a complex science?"
* "What's your reaction to names like 'NeuroQuest' where the students as explorers would be called 'Neuronauts'? Do they add to the appeal or detract from it?"
* "We also envision threading these concepts through later chapters. For example, referencing this activity when discussing emotion or memory later in the course. How valuable is that to you?"
* "How do you currently connect this foundational chapter to later topics in your course, if at all?"

#### Overall Feedback & Metrics (15 minutes)

*[Moderator's Goal: Get final summary thoughts and capture the standardized UXR metrics.]*

"Thank you, this has been incredibly helpful. Now that you've seen the whole vision, I have a few final wrap-up questions for you."

* "Of everything we've looked at today, what was the single most interesting or valuable part for you?"
* "If you were to design your ideal solution for teaching this topic, what would you take from what you saw today? Is there anything you would leave behind?"

"Great. And now, I'm going to ask four specific questions that we ask for all new concepts we test. Please use a scale of 1 to 5, where 1 is 'not at all' and 5 is 'extremely'."

1. **[Need]** "How well does this NeuroQuest concept meet your needs for teaching this topic?"
2. **[Surprise]** "How pleasantly surprised do you feel by this concept?"
3. **[Adoption Impact]** "How much would a tool like this influence your decision to consider or adopt a new courseware tool?"
4. **[Ease of Use]** "How would a tool like this impact the ease of teaching the neuroscience section of your course?"

"That is everything I have for you. Your feedback today was fantastic and will be a huge help to our team as we figure out our next steps. Thank you again for your time and expertise."