



TEAM MEMBERS
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Understanding Researching by Reflecting on Designing a Low-Cost, Smart Compost System

OU Mentors
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PROBLEM

Background

- Undergraduates with the First Year Research Experience (FYRE)
- Despite the engineering theme of the project, neither of us are engineering majors.

Why We Chose this Project

- This project was designed to improve understanding of research
- Gaining an understanding early on can help us determine if research is something we want to pursue further and can put us on the right track.

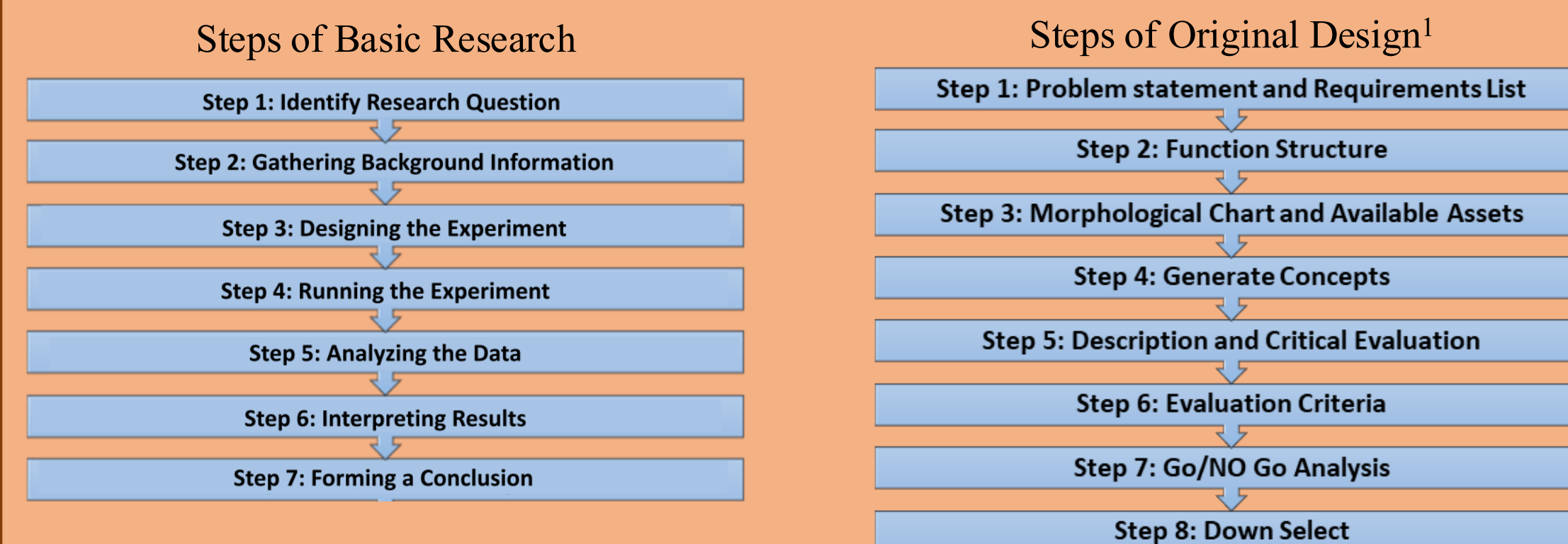
Initial idea of Researching and Designing

- Jackson's Initial Idea:** Initially, I thought of research and design as two entirely different straight-forward processes. I didn't think that each one had subsections that each focused on different aspects.
- Anthony's Initial Idea:** When I started with FYRE, I thought research meant simply asking a question and solving it. I had not considered that it could be divided into distinct categories-or that designing and researching are different processes.

DESIGN METHOD

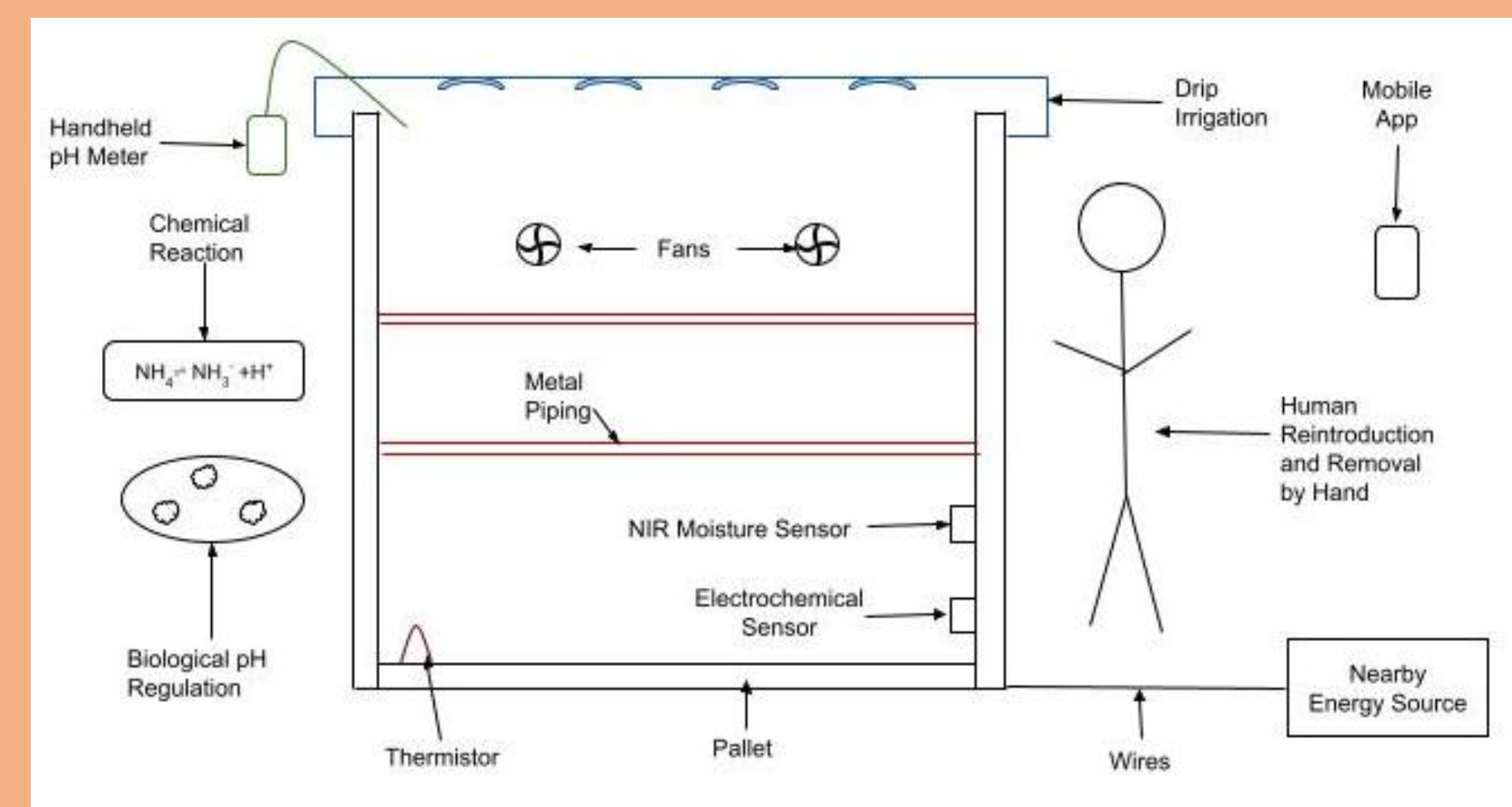
Parallels Between Designing and Researching

- Research Focuses on Gap in Knowledge
 - What is not known, what knowledge are we trying to gain.
- Design Focuses on Gap in Capability
 - What can we not do, how do we give ourselves the ability to do it.



Designing a Low-Cost, Smart Compost System

- Outlined the Problem
- Generated Potential Solutions
- Critically Evaluated Solutions
- Down Selected to one Concept



Takeaways Relating Designing to Researching

- By going through the process of original design, we formed takeaways that influenced our larger idea of research
 - Jackson's Takeaway:** Through working on the Plus Minus Interesting and Program Decision Process Chart, I found out that I do not enjoy working on the steps associated with basic research, which will help me guide my future towards something I enjoy like applied research.
 - Anthony's Takeaway:** By understanding co-locations, I have gained deeper insight into how the aspects of designing interacts with the world and connects to basic research.

DATA / OUTCOMES

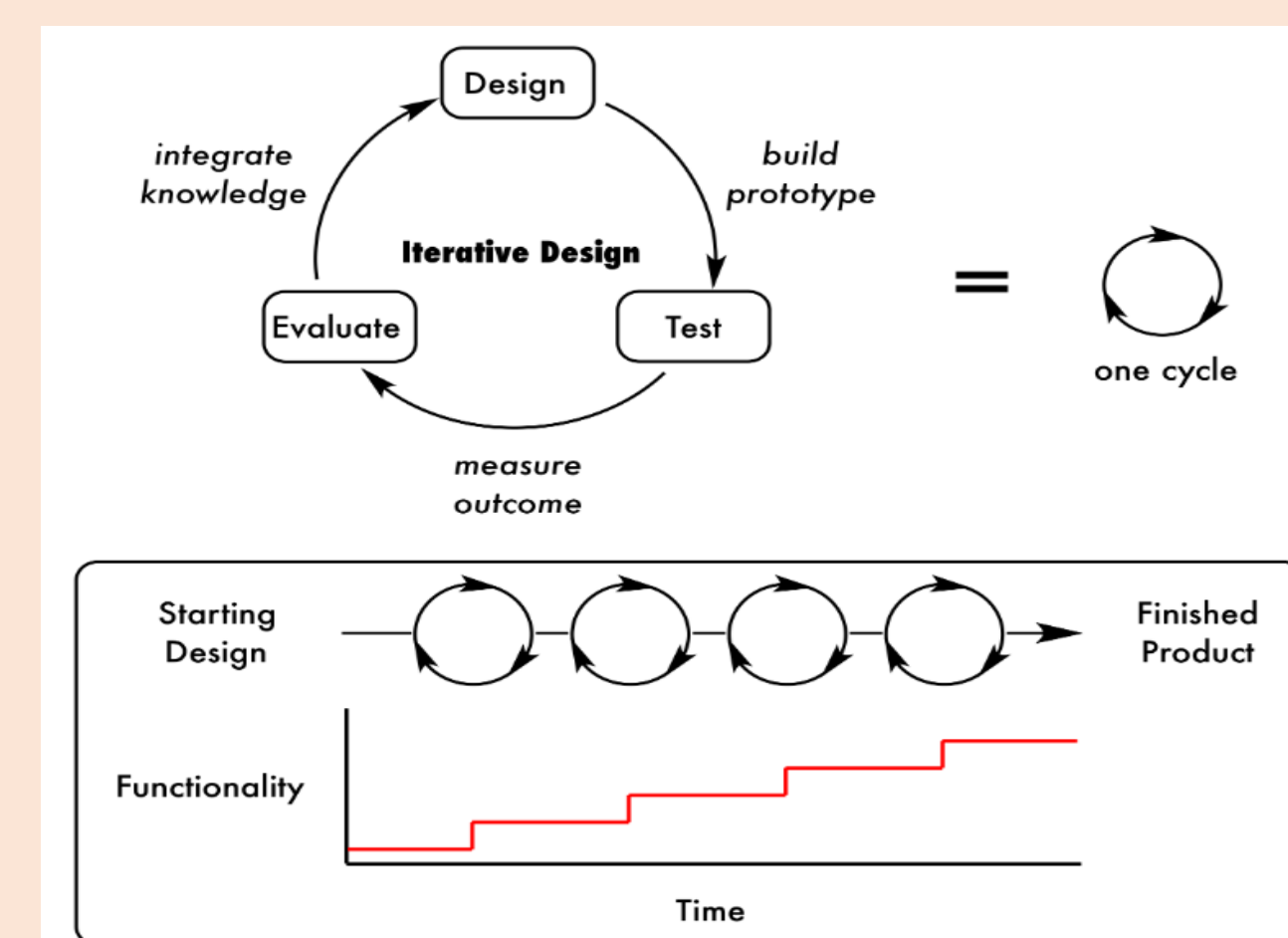
What Did We Gain

Jackson's Value: I learned about the different aspects of research, including which aspects I liked and disliked. I gained a better understanding of research, which I can use to serve as a foundation for future research projects.

Anthony's Value: I learned more about myself and how I process new topics. I now understand that breaking down learning into distinct phases mirrors the iterative nature of both research and design, enabling me to absorb and apply new ideas more effectively.

New Idea of Researching

- Research is the systematic process of creating new knowledge and procedures. Basic Research is specifically about creating new knowledge, while applied research uses knowledge to solve practical problems.



The Iterative Design Process²

Future with Researching

- Jackson's Future Plans:** I enjoyed the problem-solving aspect of the design process, so I am pursuing applied research in the field of chemistry. I have changed my major to chemical engineering to give myself more opportunities to pursue applied research.
- Anthony's Future Plans:** I found the process of basic research incredibly engaging, and I look forward to delving even deeper into further studies. As a meteorology major, I am excited about exploring how basic research connects to my field and am now considering pursuing a PhD.

Images used

- Nagarkoti, Neha, et al. DESIGNING a NEONATAL TRANSPORT INCUBATOR for RURAL INDIA.
- Blogger. (2024b, May 25). The Iterative Design Process: A Full Guide for UX Designers.

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