Human Factors Lecture & ID Studio Collaboration

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Study Introduction

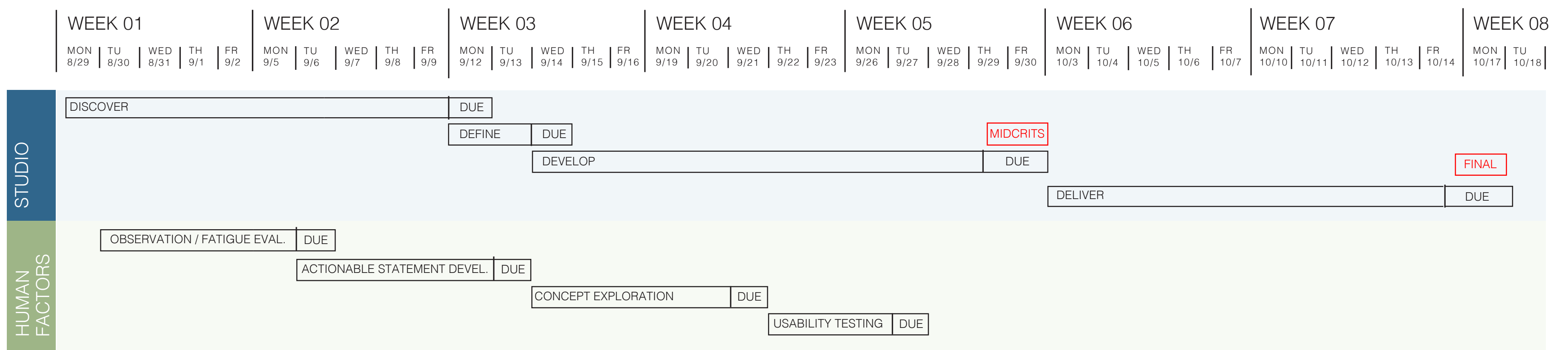HUMAN FACTORS IN INDUSTRIAL DESIGN ⟷ INDUSTRIAL DESIGN STUDIO PROJECT

- **Background**: lecture-studio collaboration
  (Four Topics in Human Factors in ID Lecture & 3rd year ID Studio in 2023)
- **Purpose**: to understand the opportunities, benefits, and drawbacks of such collaboration in design education
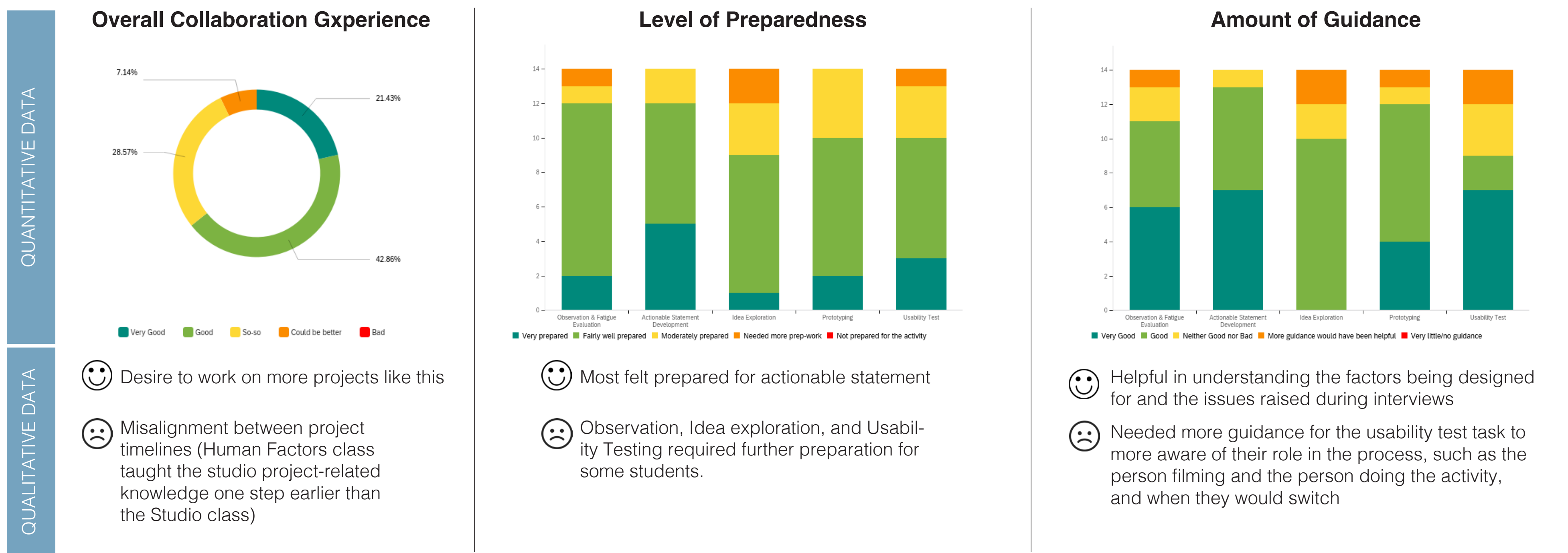
Methods

- Study conducted over an **eight-week period**
- Integration of anthropometrics, ergonomics, and usability studies principles into a studio project (**refillable container and tool design for professional detailers**)
- Alignment of timing and content of human factors course with the studio project
  Survey Design (IRB Protocol number: 11411):
    – Evaluation through an online survey at the end of the eight-week project
    – Aimed to gather both quantitative and qualitative feedback from students including:
    – Overall experience on a scale from very good to bad
    – Positive/ negative aspects and suggestions for improvement in each project phase
    – Students' perceived preparedness for the activity
    – Amount of guidance provided during the project

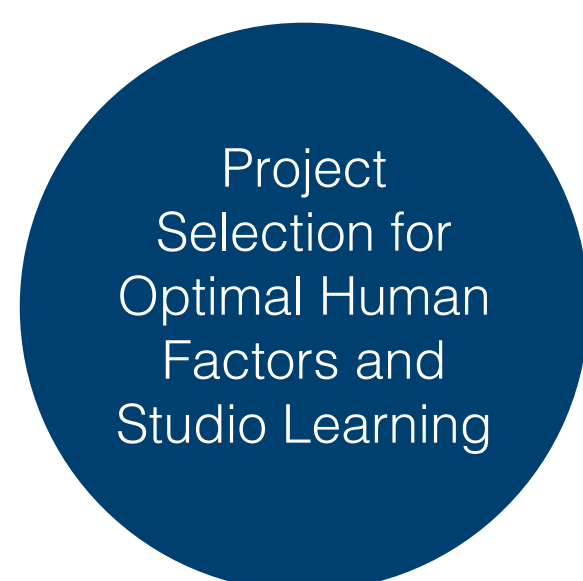## Overview of Collaboration Timeline

	WEEK 01	WEEK 02	WEEK 03	WEEK 04	WEEK 05	WEEK 06	WEEK 07	WEEK 08
	MON 8/29 · TU 8/30 · WED 8/31 · TH 9/1 · FR 9/2	MON 9/5 · TU 9/6 · WED 9/7 · TH 9/8 · FR 9/9	MON 9/12 · TU 9/13 · WED 9/14 · TH 9/15 · FR 9/16	MON 9/19 · TU 9/20 · WED 9/21 · TH 9/22 · FR 9/23	MON 9/26 · TU 9/27 · WED 9/28 · TH 9/29 · FR 9/30	MON 10/3 · TU 10/4 · WED 10/5 · TH 10/6 · FR 10/7	MON 10/10 · TU 10/11 · WED 10/12 · TH 10/13 · FR 10/14	MON 10/17 · TU 10/18

STUDIO
- DISCOVER — DUE
- DEFINE — DUE
- DEVELOP — DUE / MIDCRITS
- DELIVER — DUE / FINAL

HUMAN FACTORS
- OBSERVATION / FATIGUE EVAL. — DUE
- ACTIONABLE STATEMENT DEVEL. — DUE
- CONCEPT EXPLORATION — DUE
- USABILITY TESTING — DUE

Selected Survey Results
14 out of 15 students completed the survey (third-year Industrial Design program)

QUANTITATIVE DATA

Overall Collaboration Gxperience

7.14%
21.43%
28.57%
42.86%

Very Good · Good · So-so · Could be better · Bad

Level of Preparedness

Observation & Fatigue Evaluation · Actionable Statement Development · Idea Exploration · Prototyping · Usability Test

Very prepared · Fairly well prepared · Moderately prepared · Needed more prep-work · Not prepared for the activity

Amount of Guidance

Observation & Fatigue Evaluation · Actionable Statement Development · Idea Exploration · Prototyping · Usability Test

Very Good · Good · Neither Good nor Bad · More guidance would have been helpful · Very little/no guidance

QUALITATIVE DATA

🙂 Desire to work on more projects like this

🙁 Misalignment between project timelines (Human Factors class taught the studio project-related knowledge one step earlier than the Studio class)

🙂 Most felt prepared for actionable statement

🙁 Observation, Idea exploration, and Usability Testing required further preparation for some students.

🙂 Helpful in understanding the factors being designed for and the issues raised during interviews

🙁 Needed more guidance for the usability test task to more aware of their role in the process, such as the person filming and the person doing the activity, and when they would switch

Findings & Discussions

Enhancing User-Centered Design in the Studio
- Incorporation of human factors considerations throughout the design phase
- Integration of human factors contributed to the overall success of designs.

Project Selection for Optimal Human Factors and Studio Learning
Projects should address:
- Muscle fatigue or non-neutral posture during product use;
- Physical aspects frequently interacted with using hands

Collaboration Challenges and Improving Alignment between Courses
- Difficulties in constant sharing of progress between the two courses
- Flexible curriculum needed to synchronize lecture content with the studio project

Aligning Lecture Content with Studio Project
- Suggestion to provide more context on how assignments relate to the studio project
- Focusing on one or two topics related to the studio project instead of five