Part 1: Master-Apprentice Interview

A company is interested in improving their manufacturing assembly line due to complaints from some workers that some tasks are challenging to complete and lead to errors necessitating the repetition of tasks or scraping of parts.

a. Explain how the master-apprentice interview could be used in this scenario and why it would be helpful.

The master-apprentice interview approach would be useful in this scenario as it aims to understand how users currently complete their tasks. Seeing as workers are filing complaints that tasks are too challenging and lead to errors that cost the company time and resources, this approach is especially valuable in identifying the issues at hand. It aims to better understand what they currently use to do their job, and the reasoning behind why they do things the way that they do. This would be especially helpful for determining what makes tasks at the assembly line challenging, whether it's due to the tools available or poor training on proper operation of the assembly line. Being able to collect and analyze data on the current situation would help to better understand what is needed to perform their tasks better, whether it's more knowledge and training or different tools.

b. Fully describe the master-apprentice interview session that you would run, including goal, approach, data collection method and protocol, and data analysis method.

Goal:
- Better understand what is making tasks difficult to complete on the assembly line.

Approach: Interviews and Direct Observation
- Interviews would take place during observation, so that the apprentice would be able to ask meaningful questions as they come up while watching the master run through their tasks.

Method:
- Data Collection:
  - during interviews and observation, take note of what workers flag as challenging (through written notes, videos, and photos)
  - ask questions that encourage the employee to describe their work flow, including tools and processes used
  - use questions to get background on the employees, such as training, experience with the job, ect.
- Analysis:
  - create task flow diagrams that flag areas that workers found to be challenging
  - use an affinity diagram recognize patterns in data collected during observation and interviews to identify the areas and tasks pointed out by workers as particularly challenging

- sort these based on common themes, such as inadequate training, delays, or wrong tools, etc…
    - narrows down where the issues are found
    - ask 'masters' for further clarification and confirmation on items noted during data collection and analysis

Protocol:
- Conduct interviews on site to ensure that relevant questions are asked as they come up, and the master is able to explain them with visual aids (helps with photographing the process too)
    - take written notes and photos of areas of importance
    - use video to record the workflow and certain processes to be able to review later upon analysis
- During the session ask questions that prompt the user to go in depth with the workflow and show how the work is done
    - ex// "could you show me how x machine is used?"
    - "how do you usually complete x task?"
    - "tell me about the tasks that you're responsible for each day"
- Use questions and observation to pinpoint where the difficulties arise from
    - "which processes do you find are the easiest to make errors while doing?"
    - "tell me more about x task."
    - "are there others that work with you on x task?"
    - "describe how comfortable you are with x task"
    - "do you feel that you have adequate knowledge on how to safely complete task x?"
- During analysis
    - don't predefine categories of error, categorize them as they come up based on identifying the issues, insights, and elements involved

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Part 2: Persona Development

a. Create a proto-persona for a 'SYDE Virtual Learner' based on your own experiences so far this term. Use the same format as the SYDE student persona briefs from the Student Background Questionnaire. One of these persona briefs from the questionnaire is provided below.

SYDE Virtual Learner: Student is most likely living at home with parents or in student housing with roommates. They find it difficult to maintain attention span and motivation due to the lack of separation between spaces for work and rest. Virtual learning can be challenging at times due to the lack of structure in a day, the many learning platforms to navigate, as well as the lack of social interaction due to the pandemic. One perk of virtual learning is that less time is lost due to commuting, however this is typically counteracted by the extended time spent self-teaching topics.

- SYDE Strength: Resourcefully finds answers to their own questions using online materials due to the inability to attend in-person office hours
- UX Goal: Help the SYDE Virtual Learner develop habits to maintain work-life balance while studying online.

b. If you now needed to create a full persona, you would need to collect information and data about SYDE virtual learners (instead of assuming everyone's virtual learning experiences match your own). Recommend <u>two</u> methods/techniques you could use to collect this data and explain why they are appropriate.

Information Collection Method	Explanation
Market Research - Questionnaire	This method would be ideal since it would provide statistics on entire SYDE cohorts rather than individual points of view, meaning that the most common personas would be identified without bias. For example, the questionnaire could include a long-answer question which requires students to describe their strength(s) as a virtual learner. Then, the most common category of response could be listed as a strength in the persona.
Contextual Inquiry - Shadowing	In order to adhere to public health guidelines, shadowing could be completed remotely by recording a day-long zoom call with participants, in which they turn on their cameras and share their screens for the duration of a day of studying. This way, a more individual pool of data about the user experience could be gathered in contrast to the general information gathered in a questionnaire. This is an appropriate method of gathering data because it allows for concrete evidence of a student's day of virtual studies. This is important because the gathering of information does not rely on student recall of their own experience since data is recorded by observation, thus providing greater accuracy.

Part 3: Question Development

Create <u>one</u> question that you could include in a questionnaire as part of your data gathering process to develop a full persona of a virtual learner. Fill out the template and table below to complete the following:

- Draft the full question (including formatting).
- Identify the type of question.
- Explain the purpose of the question (What are you trying to learn and why is this important information?).
- Evaluate your question against the seven basic principles for question design.

Template for answering Part C
Question: What percentage of posted asynchronous lectures do you watch?

    a. **0-25%**
    b. **25-50%**
    c. **50-75%**

d. 75-100%

Question Type: multiple selection
Options: Open-ended, classification, <mark>multiple selection</mark>, rank, rating)

Question Purpose: To quantify the effectiveness of and engagement with asynchronous lectures.
Table 1. Evaluation of Question against the Basic Principles for Question Design

Principle	Met Fully (✔), Partially Met (-), or Not Met at All (x)	Explanation for how principle is or is not met
Maintain Relevance	✔	Since effectiveness of lectures can be quantified by student engagement with video lectures, gathering data on this statistic is relevant to the purpose of the question.
Use Basic Vocabulary	✔	This question doesn't use any language that should be unfamiliar to those who have participated in online learning (asynchronous is a fairly common term)
Keep it Short	✔	Very straightforward, and doesn't ask for much from the person submitting the questionnaire
Use Positive Phrasing	✔	Easy to answer and no negative terms
Avoid Double-Barreled Questions	✔	There is only one possible way to answer the question, i.e. there is only one question to answer.
Avoid Designer Bias	✔	The question does not imply that there is a correct answer, since it asks for a percentage number.
Avoid Question Wording that Evokes Strong Emotion	✔	The question is gender neutral and not uncomfortable to answer.