

# Interactive AED Training Experience

DESN 18654 Interaction Design: Behaviours

Professor: Ryan Price

Student: Yundi Guo

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# Persona



## Emily L.

Second-year nursing student preparing for emergency response training

22 years old

It is late at night, and Emily sits at her desk reviewing emergency response procedures for an upcoming skills assessment. She has already attended lectures about CPR and AED use, but when she tries to study independently, she feels frustrated.

Most learning materials consist of long blocks of text or dense medical explanations. She reads the same paragraph multiple times but still struggles to visualize the sequence of actions clearly. Sometimes she watches training videos, but they move too quickly or assume she already understands the logic behind each step.

As fatigue sets in, Emily finds herself losing focus. She worries that in a real emergency, she might hesitate or forget a critical step. She wants a way to actively engage with the material instead of passively reading — something that allows her to test herself, recognize common mistakes early, and build confidence through practice.

Despite her strong motivation to become competent in emergency care, the current learning process feels repetitive, overwhelming, and mentally draining.

## Emily's goals and motivations:

- Clearly understand the step-by-step logic of AED procedures
- Feel confident recalling actions under pressure
- Practice recognizing correct decisions, not just memorizing text
- Review efficiently without feeling overwhelmed


## The hardest parts of learning for Emily:

- Long text-heavy materials reduce focus and engagement
- Difficult to visualize procedural flow from written descriptions
- Limited opportunities for active practice or self-testing
- Hard to identify common mistakes until formal testing

## What Emily wishes learning tools could provide:

- Structured and visual step-by-step explanations
- Interactive practice questions
- Clear highlighting of critical steps and common errors
- Short, focused learning segments that maintain attention

# Prototype

 **AED Training Module**  
Learn the correct sequence - Practice - Final assessment

Reset

### Step Checklist

- Scenario
- Guided Learning
- Interactive Practice
- Final Assessment
- Complete


### Step Checklist

- Step 1 - Power on AED
- Step 2 - Expose & dry the chest
- Step 3 - Apply AED pads
- Step 4 - Connect electrode cable
- Step 5 - Clear the patient for analysis
- Step 6 - Announce 'Clear!' before shock
- Step 7 - Deliver the shock
- Step 8 - Resume CPR immediately

Checkmark = completed, filled circle = current, empty circle = upcoming

## Scenario: Sudden Collapse

A person collapses and is unresponsive. An AED arrives. Your job is to follow the correct step sequence safely and confidently.



### What you will do

- Learn the AED sequence step-by-step (with guidance).
- Practice with small questions and fewer hints.
- Complete a final assessment by ordering the steps from memory.

### Why sequence matters

In high-stress situations, people make slips and mistakes. Good interfaces reduce cognitive load, prevent critical errors, and support recovery.

### Common mistakes we will prevent

- Delayed power-on
- Pads placed incorrectly
- Touching patient during analysis
- Not clearing before shock

Tip: Use [Back](#) to review anytime.

Start Learning

## Prototype Overview:

The prototype presents the complete learning interface for the AED training module.

The system is organized into a structured learning flow that guides the learner from understanding the scenario to completing the procedure independently.

The interface includes:

- Scenario introduction
- Guided step-by-step learning
- Interactive practice activities
- Final recall-based assessment
- Completion feedback and performance summary

This structure allows learners to gradually build procedural knowledge while reducing cognitive load and reinforcing key safety steps.

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Learn the correct sequence - Practice - Final assessment

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**Step 1: Power on AED**

Turn on the AED immediately when it arrives.

**GOAL**  
Ensure the AED is ready to provide voice prompts and begin rhythm analysis without delay.

Place AED near the patient's head (opposite side). Open the case and press Power (or open lid). Follow voice prompts.

**Safety Reminder**

- Delayed power-on (waiting to finish CPR cycle first).

**Quick Check**  
Why should you power on the AED immediately?  
To avoid delaying rhythm analysis and treatment  
Because pads can only stick if the AED is on  
So you can shock right away without analysis

Back

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**Step 2: Expose & dry the chest**

Remove clothing. Dry sweat/water. Shave if needed.

**GOAL**  
Ensure the patient's chest is bare and dry for optimal pad adhesion and accurate rhythm detection.

Remove clothing from chest for direct skin contact. If wet, dry with towel. If excessive hair interferes, use razor from AED kit to shave pad sites.

**Safety Reminder**

- Poor pad adhesion (pads not pressed firmly / wet chest).

**Quick Check**  
What is the main reason to dry the chest?  
Better pad adhesion and fewer pad errors  
So the AED can detect breathing  
To reduce chest compressions pain

Back

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**Step 3: Apply AED pads**

Place pads exactly as illustrated on packaging.

**GOAL**  
Position electrode pads correctly to enable effective current flow through the heart.

Apply self-adhesive pads to bare chest. One on upper right chest (infraclavicular). One on lower left side (mid-axillary line).

**Safety Reminder**

- Pads placed too close together / reversed.
- Incorrect pad placement can reduce effectiveness.

**Quick Check**  
Which pad placement is correct?  
Upper right chest + lower left side  
Both pads centered on sternum  
Both pads on left chest near each other

Back

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**Step 4: Connect electrode cable**

Connect pads cable if not pre-connected.

**GOAL**  
Establish electrical connection between pads and AED to enable rhythm analysis.

Connect electrode cable to AED unit (if needed). Prepare to stop CPR for analysis.

**Quick Check**  
When do you connect the cable?  
After pads are applied (if not pre-connected)  
Only after shock is advised  
Before turning on the AED

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**Step 5: Clear the patient for analysis**

Stop CPR. Do not touch the patient.

**GOAL**  
Allow the AED to accurately detect the patient's cardiac rhythm without interference.

Ensure all rescuers stop CPR and clear the patient. Let AED analyze rhythm for several seconds to determine shockable rhythm.

**Safety Reminder**

- Touching the patient during analysis.

**Quick Check**  
What MUST you do during rhythm analysis?  
Do not touch the patient  
Continue CPR to keep blood flowing  
Check pulse immediately

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**Step 6: Announce 'Clear!' before shock**

Make sure nobody touches patient or conductive surfaces.

**GOAL**  
Prevent accidental shock to rescuers and ensure safe delivery of electrical current.

If shock advised, visually sweep and loudly state: 'I'm clear, you're clear, everybody's clear!' Ensure no contact with patient.

**Safety Reminder**

- Failing to clear during discharge.

**Quick Check**  
Why announce 'Clear' out loud?  
To prevent someone from touching the patient during shock  
To help the AED charge faster  
To make the patient wake up

Back

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**Step 7: Deliver the shock**

Press the Shock button when advised.

**GOAL**  
Deliver defibrillation shock at the right moment to restore normal heart rhythm.

Press Shock button (often flashing orange/red). Maintain visual contact to ensure no one touches patient during shock.

**Safety Reminder**

- Shock with uncontrolled oxygen source nearby.

**Quick Check**  
What should you monitor during the shock?  
Make sure nobody touches the patient  
Count chest compressions out loud  
Remove pads immediately after shock

Back

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**Step 8: Resume CPR immediately**

Do not wait for prompts or check pulse first.

**GOAL**  
Maintain blood circulation immediately after defibrillation to maximize survival chances.

Immediately resume high-quality chest compressions. AED typically sets a 2-minute CPR timer before next analysis cycle.

**Safety Reminder**

- Waiting for a new prompt before resuming CPR.

**Quick Check**  
After shock, what should you do next?  
Resume CPR immediately  
Wait for next AED prompt before doing anything  
Check pulse for 30 seconds

Back

## Guided Learning: Step-by-Step AED Procedure:

The guided learning section introduces the AED procedure through a structured step-by-step flow.

Each screen focuses on a single action in the emergency sequence, such as powering on the AED, exposing the chest, applying the pads, or clearing the patient before analysis.

This design uses progressive disclosure, allowing learners to concentrate on one task at a time while gradually building a complete understanding of the procedure.

Supporting elements such as visual instructions, safety reminders, and quick checks help reinforce critical actions and prevent common mistakes.

## Interactive Practice:

After completing the guided learning stage, learners move into an interactive practice mode.

In this stage, users answer questions related to each step of the AED procedure.

These activities encourage active recall, helping learners reinforce their understanding and identify mistakes before moving to the final assessment.

The practice stage reduces instructional guidance compared to the previous section, allowing learners to begin applying their knowledge more independently.

**AED Training Module**  
Learn the correct sequence - Practice - Final assessment

Reset

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Checkmark = completed, filled circle = current, empty circle = upcoming

**Training Complete ✓**

You have completed all practice steps. Review your performance below before moving to the final assessment.

**Accuracy Score**  
38%  
First-attempt correct

**Correct First Try**  
3 / 8  
Steps mastered

**Retries Needed**  
14  
Total attempts

**Behavior-based Feedback**  
Consider reviewing the material. Focus on safety-critical timing steps.

**Steps Needing Review**

- Power on AED — 3 errors
- Deliver the shock — 3 errors
- Apply AED pads — 2 errors
- Connect electrode cable — 2 errors
- Clear the patient for analysis — 2 errors
- Announce 'Clear!' before shock — 2 errors

**Next: Final Assessment**  
The final assessment will test your recall without any visual cues. You'll need to arrange all steps in the correct order from memory.

Back to Practice Start Final Assessment

**AED Training Module**  
Learn the correct sequence - Practice - Final assessment

Reset

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- Step 8 - Resume CPR immediately

Checkmark = completed, filled circle = current, empty circle = upcoming

**Final Assessment**

All visible cues are removed. Drag steps into the correct order from memory. No hints — this tests true recall.

**Step Cards**  
Drag cards into the slots on the right.

- Resume CPR immediately
- Announce 'Clear!' before shock
- Connect electrode cable
- Apply AED pads
- Expose & dry the chest
- Clear the patient for analysis
- Power on AED
- Deliver the shock

**Order Slots**  
Fill all slots, then click **Check Order**.

- Drop a step here Clear
- Drop a step here Clear
- Drop a step here Clear
- Drop a step here Clear
- Drop a step here Clear
- Drop a step here Clear
- Drop a step here Clear
- Drop a step here Clear

Check Order Reset Assessment

**Safety Focus**  
The correct sequence prevents critical errors (e.g., touching patient during analysis or failing to clear before shock).

**AED Training Module**  
Learn the correct sequence - Practice - Final assessment

Reset

**Step Checklist**

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All visible cues are removed. Drag steps into the correct order from memory. No hints — this tests true recall.

**Step Cards**  
Drag cards into the slots on the right.

**Order Slots**  
Fill all slots, then click **Check Order**.

- Power on AED Clear
- Expose & dry the chest Clear
- Apply AED pads Clear
- Connect electrode cable Clear
- Clear the patient for analysis Clear
- Announce 'Clear!' before shock Clear
- Deliver the shock Clear
- Resume CPR immediately Clear

Check Order Reset Assessment

**Safety Focus**  
The correct sequence prevents critical errors (e.g., touching patient during analysis or failing to clear before shock).

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Checkmark = completed, filled circle = current, empty circle = upcoming

**Module Complete!**

Congratulations! You've successfully completed the **AED Training Module**. You've demonstrated mastery of the complete AED protocol from scenario to final recall assessment.

**8** Steps Mastered

**100%** First-Try Accuracy

**Perfect** Final Assessment

**What You Accomplished**

- Scenario: Understood the emergency context and why AED sequence matters
- Guided Learning: Learned all 8 steps with visual aids and encoding checks
- Interactive Practice: Practiced with fewer hints to build procedural fluency
- Final Assessment: Demonstrated pure recall by ordering steps from memory

**Real-World Impact**

In a cardiac emergency, every second counts. You now know the critical sequence that can **double or triple** a victim's chance of survival. This knowledge empowers you to act confidently when it matters most.

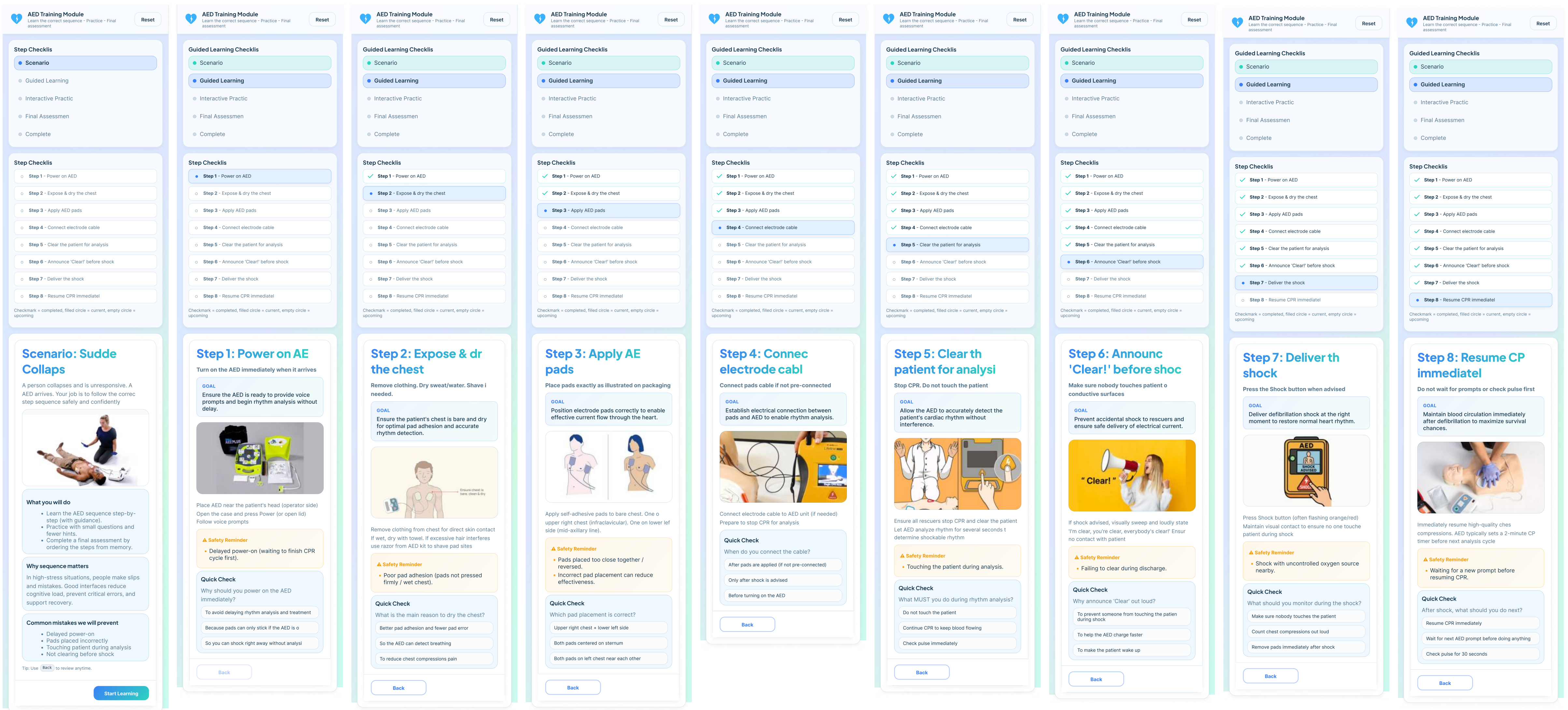
⚠ Important: This module is for educational demonstration. Always follow certified training and local protocols.

## Final Assessment:

The final assessment evaluates whether the learner can recall the correct sequence of the AED procedure without guidance.

Users must arrange the steps in the correct order based on their memory of the training process.

This activity tests the learner's procedural understanding and confirms whether they can apply the knowledge independently in an emergency scenario.



## Mobile Learning Interface:

A mobile-friendly version of the interface was designed to support learning on smaller screens.

The mobile layout maintains the same learning flow as the desktop version while adapting spacing, hierarchy, and interaction patterns to improve readability and usability on mobile devices.

This ensures that learners can review and practice the AED procedure across different devices.

## AED Training Module

Learn the correct sequence - Practice - Final assessment

Reset

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### Practice Checklis

- Scenario
- Guided Learning
- Interactive Practic
- Final Assesmen
- Complete

### Step Checklis

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Checkmark = completed, filled circle = current, empty circle = upcoming

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Checkmark = completed, filled circle = current, empty circle = upcoming

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## Practice: Step

Power on AED

**GOAL**  
Ensure the AED is ready to provide voice prompts and begin rhythm analysis without delay.



Fewer hints now. Choose the best answer to sho you understand the step

**Practice Question**  
Why should you power on the AED immediately?

- To avoid delaying rhythm analysis and treatment
- Because pads can only stick if the AED is o
- So you can shock right away without analysi

**Micro-support**  
Tip: If you get stuck, think about safety and what the AED needs before it can shock.

Back

## Practice: Step

Expose & dry the ches

**GOAL**  
Ensure the patient's chest is bare and dry for optimal pad adhesion and accurate rhythm detection.



**Practice Question**  
What is the main reason to dry the chest?

- Better pad adhesion and fewer pad error
- So the AED can detect breathing
- To reduce chest compressions pain

**Micro-support**  
Tip: If you get stuck, think about safety and what the AED needs before it can shock.

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## Practice: Step

Apply AED pads

**GOAL**  
Position electrode pads correctly to enable effective current flow through the heart.



**Practice Question**  
Which pad placement is correct?

- Upper right chest + lower left side
- Both pads centered on sternum
- Both pads on left chest near each other

**Micro-support**  
Tip: If you get stuck, think about safety and what the AED needs before it can shock.

Back

## Practice: Step

Connect electrode cabl

**GOAL**  
Establish electrical connection between pads and AED to enable rhythm analysis.



**Practice Question**  
When do you connect the cable?

- After pads are applied (if not pre-connected)
- Only after shock is advised
- Before turning on the AED

**Micro-support**  
Tip: If you get stuck, think about safety and what the AED needs before it can shock.

Back

## Practice: Step

Clear the patient for analysi

**GOAL**  
Allow the AED to accurately detect the patient's cardiac rhythm without interference.



**Practice Question**  
What MUST you do during rhythm analysis?

- Do not touch the patient
- Continue CPR to keep blood flowing
- Check pulse immediately

**Micro-support**  
Tip: If you get stuck, think about safety and what the AED needs before it can shock.

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## Practice: Step

Announce 'Clear!' before choc

**GOAL**  
Prevent accidental shock to rescuers and ensure safe delivery of electrical current.



**Practice Question**  
Why announce 'Clear' out loud?

- To prevent someone from touching the patient during shock
- To help the AED charge faster
- To make the patient wake up

**Micro-support**  
Tip: If you get stuck, think about safety and what the AED needs before it can shock.

Back

## Practice: Step

Deliver the shock

**GOAL**  
Deliver defibrillation shock at the right moment to restore normal heart rhythm.



**Practice Question**  
What should you monitor during the shock?

- Make sure nobody touches the patient
- Count chest compressions out loud
- Remove pads immediately after shock

**Micro-support**  
Tip: If you get stuck, think about safety and what the AED needs before it can shock.

Back

## Practice: Step

Resume CPR immediatel

**GOAL**  
Maintain blood circulation immediately after defibrillation to maximize survival chances.



**Practice Question**  
After shock, what should you do next?

- Resume CPR immediately
- Wait for next AED prompt before doing anything
- Check pulse for 30 seconds

**Micro-support**  
Tip: If you get stuck, think about safety and what the AED needs before it can shock.

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## Training Complete

You have completed all practice steps. Revie your performance below before moving to th final assessment

Accuracy Score

100%

First-attempt correct

Correct First Try

8 / 8

Steps mastered

Retries Needed

0

Total attempts

Back to Practice
Start Final Assessment

**AED Training Module**  
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Reset

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**Final Assessmen**

All visible cues are removed. Drag steps into th correct order from memory. No hints — this test true recall.

**Step Cards**  
Drag cards into the slots on the right.

- Connect electrode cable
- Expose & dry the chest
- Deliver the shock
- Announce 'Clear!' before shock
- Apply AED pads
- Clear the patient for analysis
- Resume CPR immediately
- Power on AED

**Order Slots**  
Fill all slots, then click **Check Order**.

- Drop a step here
- Drop a step here
- Drop a step here
- Drop a step here
- Drop a step here
- Drop a step here
- Drop a step here
- Drop a step here

**Check Order**

**Reset Assessment**

**Safety Focus**  
The correct sequence prevents critical errors (e.g., touching patient during analysis or failing to clear before shock).

**Final Assessmen**

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**Step Cards**  
Drag cards into the slots on the right.

- Connect electrode cable
- Expose & dry the chest
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- Clear the patient for analysis
- Resume CPR immediately
- Power on AED

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Fill all slots, then click **Check Order**.

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**Reset Assessment**

**Safety Focus**  
The correct sequence prevents critical errors (e.g., touching patient during analysis or failing to clear before shock).

**Module Complete**

Congratulations! You've successfully completed the AED Training Module. You've demonstrated mastery of the complete AED protocol from scenario to final recall assessment.

- 8 Steps Mastered
- 100% First-Try Accuracy
- Perfect Final Assessment

**What You Accomplished**

- Scenario:** Understood the emergency context and why AED sequenc matters
- Guided Learning:** Learned all 8 steps with visual aids and encoding check
- Interactive Practice:** Practiced with fewer hints to build procedural fluency
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**Correct**

Great job! You followed the AED protooco correctly.

**Continue**

Place AED near the patient's head (operator side). Open the case and press Power (or open lid). Follow voice prompts.

**Safety Reminder**  
Delayed power-on (waiting to finish CPR cycle first).

**Quick Check**  
Why should you power on the AED immediately?  
To avoid delaying rhythm analysis and treatment.  
Because pads can only stick if the AED is a  
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**Try Again**

**Review the key safety rule**  
AED guides you. Turning it on immediately start prompts and analysis sooner

**Retry**

Place AED near the patient's head (operator side). Open the case and press Power (or open lid). Follow voice prompts.

**Safety Reminder**  
Delayed power-on (waiting to finish CPR cycle first).

**Quick Check**  
Why should you power on the AED immediately?  
To avoid delaying rhythm analysis and treatment.  
Because pads can only stick if the AED is a  
So you can shock right away without analysi

**AED Training Module**  
Learn the correct sequence - Practice - Final assessment

Reset

**Guided Learning Checklis**

- Scenario
- Guided Learning**
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- Step 1 - Power on AED
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**Quick Check**  
Why should you power on the AED immediately?  
To avoid delaying rhythm analysis and treatment.  
Because pads can only stick if the AED is a  
So you can shock right away without analysi

## Learning Experience Overview:

This AED training module is designed to guide learners through a complete learning journey — from understanding an emergency scenario to practicing the correct procedure and completing a final assessment.

The interface focuses on:

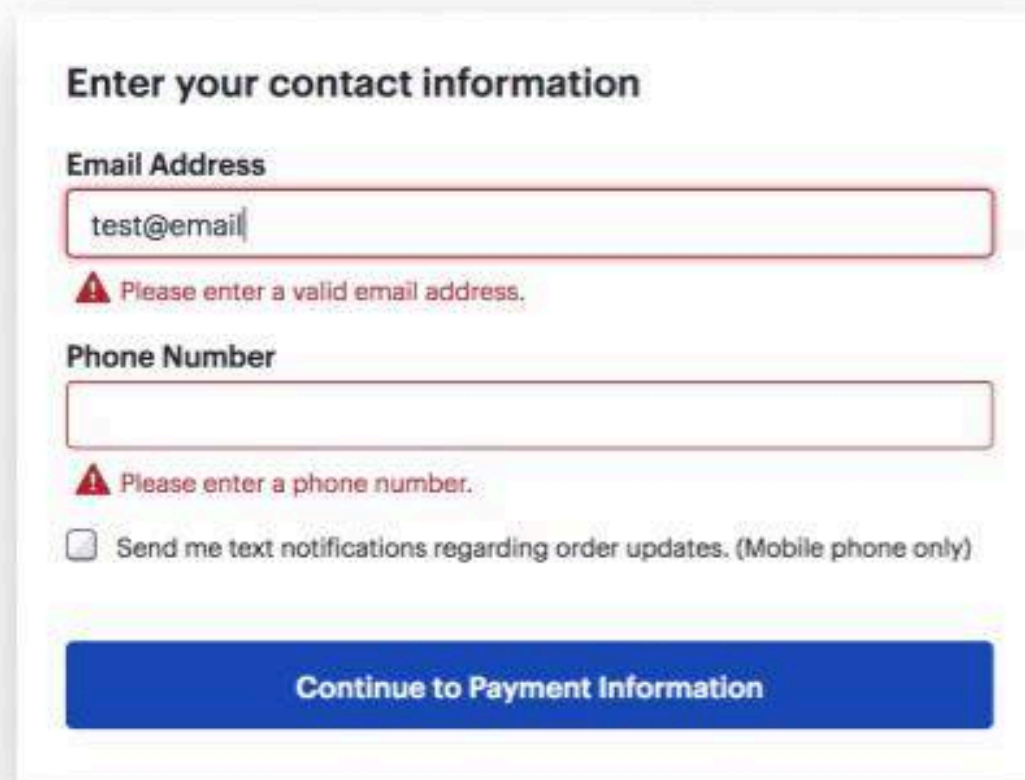
- Progressive step-by-step learning
- Reduced cognitive load
- Interactive practice activities
- Immediate feedback and error prevention

By combining guided instruction, practice interactions, and recall-based assessment, the system helps learners build confidence and correctly perform the AED procedure in emergency situations.

# Language and Emotion in Error Messages

project activity

1



Enter your contact information

Email Address  
test@email|  
⚠ Please enter a valid email address.

Phone Number  
|  
⚠ Please enter a phone number.

Send me text notifications regarding order updates. (Mobile phone only)

Continue to Payment Information

**Write 3 versions of  
an error message**

## Error Message Versions

### 1. Punishing (blaming tone)

- 2 A. Invalid email address.  
You entered the wrong format.  
B. This email is incorrect.  
Please fix the mistake before continuing.

### 2. Neutral (informational tone)

- A. Please enter a valid email address.  
B. The email format is not valid.  
Please check and try again.

### 3. Supportive (helpful tone)

- A. That email doesn't look quite right.  
Try entering something like name@email.com  
B. Oops! Something seems missing.  
Please check your email address and try again.

**1 Punishing**

**2 Neutral**

**3 Supportive**

## Emotional Impact

3

### Punishing message:

This type of message may make users feel blamed or frustrated. It can increase stress and make users feel like they did something wrong.

### Neutral message:

Neutral messages clearly explain the problem without blaming the user. They help users understand what went wrong and try again.

### Supportive message:

Supportive messages make users feel guided rather than judged. They reduce frustration and encourage users to fix the problem.

**Discuss emotional  
impact in pairs**

Error message design can strongly influence how users feel when they make mistakes.

During this activity, we compared punishing, neutral, and supportive message styles.

Punishing messages often make users feel blamed or stressed, while supportive messages guide users toward correcting the problem.

This idea influenced the design of feedback messages in my AED training module.

Instead of simply telling learners that an answer is wrong, the system provides supportive guidance and safety reminders to help them understand why the correct step matters.

## Initial Research

project activity

1

**From the medical training scenarios draw a simple screen flow of how you might teach the content**  
(20 min)

2

**Now take time to look for opportunities within here to test the learners knowledge. Write down annotations of ideas** (20 min)

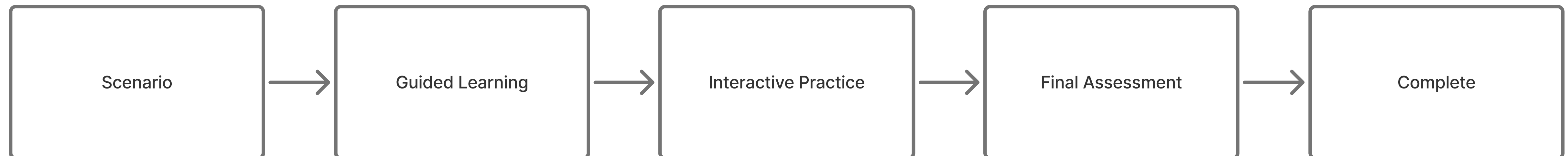
3

**Discuss your flow and ideas with your partner and then swap. Be critical of each other** (20 min)

2. One opportunity to test knowledge is during the interactive practice section, where learners must choose the correct steps for using an AED. Another opportunity is in the final assessment, where learners answer questions based on what they learned in the module. These checkpoints help reinforce the correct procedure and make sure learners understand the sequence of actions.

3. When discussing with my partner, we talked about whether the learning steps should include more feedback when users make mistakes. My partner suggested adding small hints or guidance so learners can understand why an answer is incorrect. We also discussed that interactive practice helps learners remember the AED steps better than just reading instructions. We also thought the module could include more realistic scenarios to make the learning experience more engaging.

1. The learner first sees a scenario screen that introduces an emergency situation. Next, they move to guided learning, where the system explains the AED steps one by one. After that, the learner enters interactive practice, where they must choose the correct actions. Then they complete a final assessment to test what they learned. Finally, they reach the completion screen.



# Assessment Mechanics Activity

project activity

1

**Recognition Phase:** Initially, provide visual cues or "reminders just in time" (e.g., ghosted icons of the equipment)

2

**Recall Phase:** For the final assessment, remove all visible cues. Require the user to manually order the 6-10 steps from memory.

Note: If your scenario has sub-tasks, mix them up to ensure the user truly understands the sequence rather than just repeating a pattern.

2

**Have a peer attempt to order the steps.** Note if they used "chunking" or "mnemonics" and determine if your interface should provide these memory supports.

AED Training Module  
Learn the correct sequence - Practice - Final assessment

Reset

Guided Learning Checklist

- Scenario
- Guided Learning**
- Interactive Practice
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Step Checklist


- Step 1 - Power on AED**
- Step 2 - Expose & dry the chest
- Step 3 - Apply AED pads
- Step 4 - Connect electrode cable
- Step 5 - Clear the patient for analysis
- Step 6 - Announce 'Clear!' before shock
- Step 7 - Deliver the shock
- Step 8 - Resume CPR immediately

Checkmark = completed, filled circle = current, empty circle = upcoming

## Step 1: Power on AED

Turn on the AED immediately when it arrives.

**GOAL**  
Ensure the AED is ready to provide voice prompts and begin rhythm analysis without delay.



Place AED near the patient's head (operator side). Open the case and press Power (or open lid). Follow voice prompts.

**Safety Reminder**

- Delayed power-on (waiting to finish CPR cycle first).

**Quick Check**  
Why should you power on the AED immediately?

- To avoid delaying rhythm analysis and treatment
- Because pads can only stick if the AED is on
- So you can shock right away without analysis

Back

AED Training Module  
Learn the correct sequence - Practice - Final assessment

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Step Checklist

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Step Checklist

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- Step 7 - Deliver the shock
- Step 8 - Resume CPR immediately

Checkmark = completed, filled circle = current, empty circle = upcoming

## Final Assessment

All visible cues are removed. Drag steps into the correct order from memory. No hints — this tests true recall.

**Step Cards**  
Drag cards into the slots on the right.

- Announce 'Clear!' before shock
- Resume CPR immediately
- Connect electrode cable
- Deliver the shock
- Expose & dry the chest
- Clear the patient for analysis
- Power on AED
- Apply AED pads

**Order Slots**  
Fill all slots, then click 'Check Order'.

- 1 Drop a step here Clear
- 2 Drop a step here Clear
- 3 Drop a step here Clear
- 4 Drop a step here Clear
- 5 Drop a step here Clear
- 6 Drop a step here Clear
- 7 Drop a step here Clear
- 8 Drop a step here Clear

Check Order Reset Assessment

**Safety Focus**  
The correct sequence prevents critical errors (e.g., touching patient during analysis or failing to clear before shock).

## Recognition Phase

During the learning phase, the interface provides clear visual guidance and step-by-step explanations for the AED procedure.

Learners can recognize the correct actions through structured instructions, images, and safety reminders.

This stage focuses on helping learners understand the process before they are tested.

## Recall Phase

In the final assessment, all visual cues are removed.

Learners must arrange the AED steps from memory, demonstrating that they truly understand the sequence rather than simply recognizing it.

## Peer Attempt Observation

When a peer attempts the task, observing their strategy can reveal how learners remember the sequence.

Some may group steps together or rely on patterns.

These observations help identify whether the interface should provide clearer grouping or memory supports earlier in the learning process.

**AED Training Module**  
Learn the correct sequence - Practice - Final assessment

Reset

**Step Checklist**

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**Step Checklist**

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- Step 3 - Apply AED pads
- Step 4 - Connect electrode cable
- Step 5 - Clear the patient for analysis
- Step 6 - Announce "Clear" before shock
- Step 7 - Deliver the shock
- Step 8 - Resume CPR immediately

Checkmark = completed, filled circle = current, empty circle = upcoming

### Scenario: Sudden Collapse

A person collapses and is unresponsive. An AED arrives. Your job is to follow the correct step sequence safely and confidently.



**What you will do**

- Learn the AED sequence step-by-step (with guidance).
- Practice with small questions and fewer hints.
- Complete a final assessment by ordering the steps from memory.

**Why sequence matters**

In high-stress situations, people make slips and mistakes. Good interfaces reduce cognitive load, prevent critical errors, and support recovery.

**Common mistakes we will prevent**

- Delayed power-on
- Pads placed incorrectly
- Touching patient during analysis
- Not clearing before shock

Tip: Use "Back" to review anytime.

[Start Learning](#)

**AED Training Module**  
Learn the correct sequence - Practice - Final assessment

Reset

**Guided Learning Checklist**

- Scenario
- Guided Learning
- Interactive Practice
- Final Assessment
- Complete

**Step Checklist**


- Step 1 - Power on AED
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Turn on the AED immediately when it arrives.

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Place AED near the patient's head (operator side). Open the case and press Power (or open lid). Follow voice prompts.

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- Delayed power-on (waiting to finish CPR cycle first).

**Quick Check**

Why should you power on the AED immediately?

To avoid delaying rhythm analysis and treatment

Because pads can only stick if the AED is on

So you can shock right away without analysis

[Back](#)

**AED Training Module**  
Learn the correct sequence - Practice - Final assessment

Reset

**Practice Checklist**

- Scenario
- Guided Learning
- Interactive Practice
- Final Assessment
- Complete

**Step Checklist**


- Step 1 - Power on AED
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Checkmark = completed, filled circle = current, empty circle = upcoming

### Practice: Step 1

Power on AED

**GOAL**  
Ensure the AED is ready to provide voice prompts and begin rhythm analysis without delay.



Fewer hints now. Choose the best answer to show you understand the step.

**Practice Question**

Why should you power on the AED immediately?

To avoid delaying rhythm analysis and treatment

Because pads can only stick if the AED is on

So you can shock right away without analysis

**Micro-support**

Tip: If you get stuck, think about safety and what the AED needs before it can shock.

[Back](#)

## Training Strategy Activity

project activity

**1**

Map out a tutorial flow based on the ideal flow model:  
Model the task →  
Try with help →  
Fade help →  
Independent use.

**2**

**Modeling:** show the steps being performed correctly

**Scaffolding & Progressive Disclosure:** show only the information needed for the current step, reducing cognitive load

**Encoding:** prompt the user to "explain the step in their own words" (mental check) before moving on

**2**

Share your flow with a peer and ask: "At which step did you feel overwhelmed?"

Use their **feedback** to adjust your progressive disclosure timing.

## Tutorial Flow

The tutorial begins with a short emergency scenario to establish context and explain why using an AED is important.

The system then demonstrates the correct procedure step by step.

Learners later move into interactive practice where they apply the steps themselves.

As the tutorial progresses, the level of guidance gradually decreases, encouraging learners to rely more on their own understanding.

## Learning Strategy

The module applies several instructional strategies:

- Modeling the correct procedure before practice
- Scaffolding through structured guidance
- Gradually reducing support as learners gain confidence

This approach helps learners move from guided learning to independent performance.

## Peer Feedback

When a classmate reviewed the flow, they found the structure easy to follow, particularly the scenario introduction.

However, they suggested that some learning steps could be broken into smaller segments to improve readability and pacing.

This feedback highlighted the importance of pacing information in procedural learning.

# Feedback and Remediation

project activity

1

Create a **Feedback Loop** for when a user makes a mistake during the retrieval/assessment phase.

2

Add in interactions for:

- **Remediation** (reflection on the error)
- **Error Prevention**

2

Ask a peer to intentionally make an error.  
Does the feedback help them “**consolidate**”, or is it just frustrating?

Try Again

Review the key safety rule:

AED guides you. Turning it on immediately starts prompts and analysis sooner.

Retry

Try Again

Review the key safety rule:

Wet skin or hair can reduce adhesion and trigger 'Check Pads' delays.

Retry

Try Again

Review the key safety rule:

High-quality CPR resumes circulation while AED prepares for next analysis.

Retry

Try Again

Review the key safety rule:

AED guides you. Turning it on immediately starts prompts and analysis sooner.

Check the Safety Reminder section above for more details.

Retry

Try Again

Review the key safety rule:

Wet skin or hair can reduce adhesion and trigger 'Check Pads' delays.

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Retry

Try Again

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Check the Safety Reminder section above for more details.

Retry

AED Training Module  
Learn the correct sequence - Practice - Final assessment

Reset

Complete

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- Step 7 - Deliver the shock
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Checkmark = completed, filled circle = current, empty circle = upcoming

1 Power on AED Clear

2 Expose & dry the chest Clear

3 Apply AED pads Clear

4 Connect electrode cable Clear

5 Clear the patient for analysis Clear

6 Announce 'Clear!' before shock Clear

7 Resume CPR immediately Clear

8 Deliver the shock Clear

Check Order Reset Assessment

Not yet. Review the sequence and try again.

## Feedback Loop

When a learner makes a mistake, the interface immediately provides visual feedback.

The incorrect step is highlighted, and a message encourages the learner to try again.

Instead of only indicating that the answer is wrong, the system includes a short safety reminder explaining the reasoning behind the correct step.

This creates a feedback loop that helps learners quickly understand and correct their mistakes.

## Remediation and Error Prevention

The feedback system also supports learning through remediation.

If learners repeatedly make the same mistake, the interface provides additional hints that direct them back to relevant safety rules or explanations.

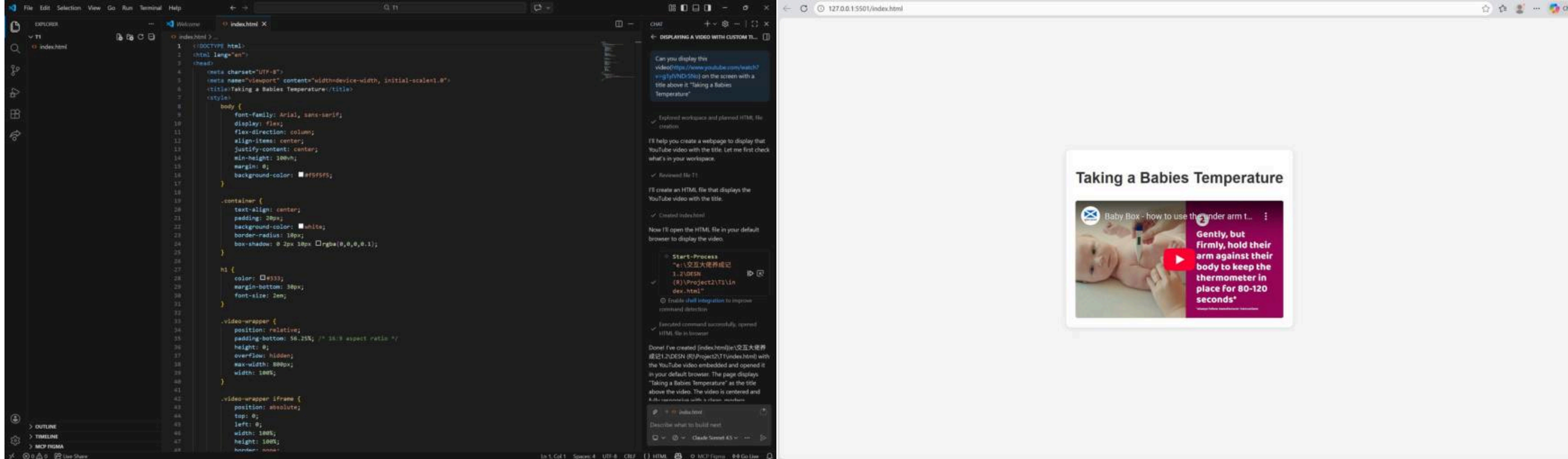
This approach helps reinforce the learning content while preventing repeated errors.

## Peer Test Reflection

During peer testing, classmates intentionally made mistakes to observe the feedback.

They reported that the feedback felt supportive rather than frustrating.

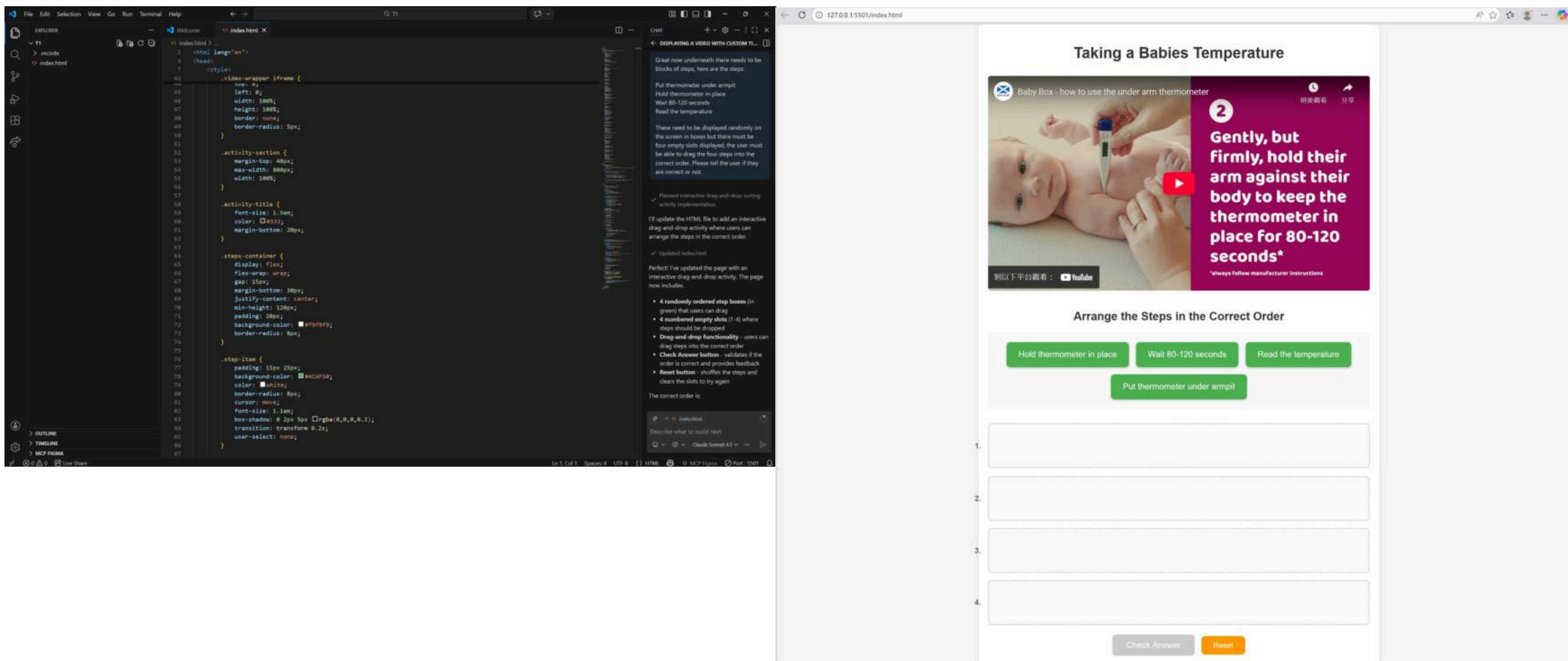
The visual highlights helped identify incorrect steps, while the safety explanations clarified why the correct action was important.



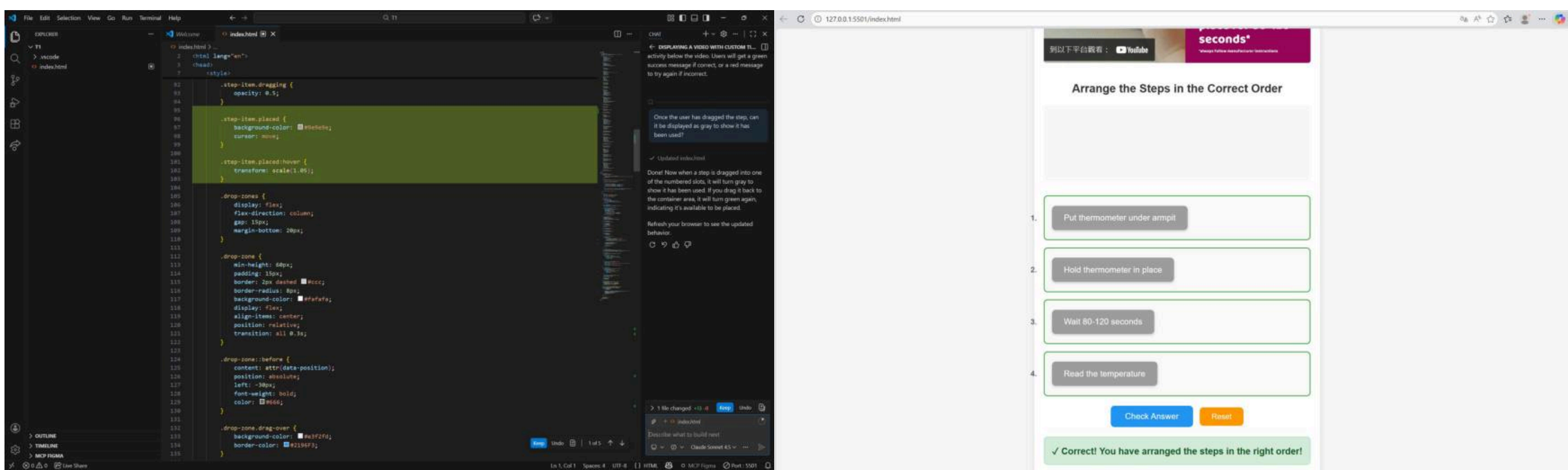
In this AI Vibe Coding activity, I explored how AI can assist with building interactive web components through step-by-step prompting.

Instead of asking AI to generate the entire interface at once, I intentionally worked incrementally using three prompts.

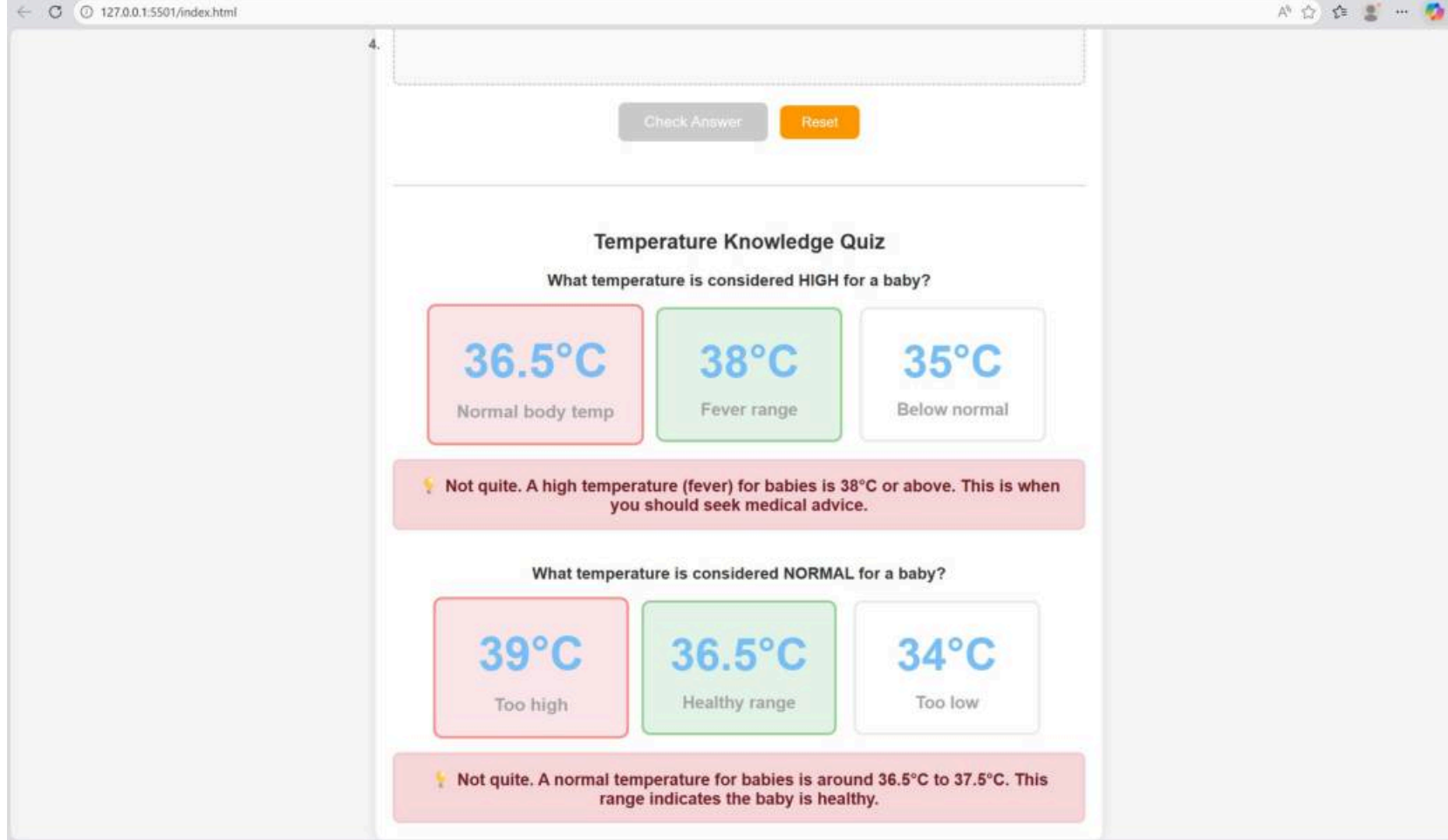
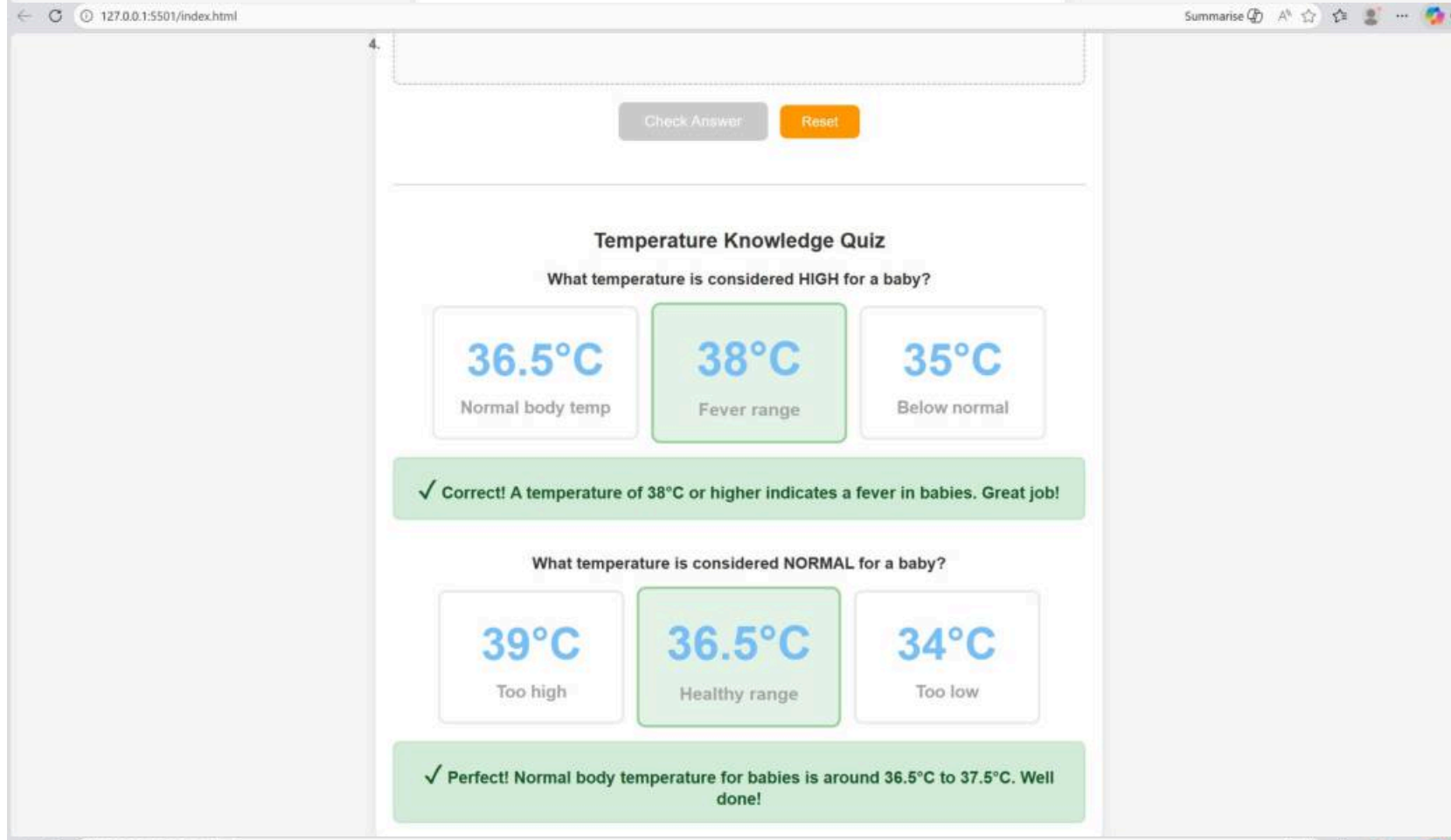
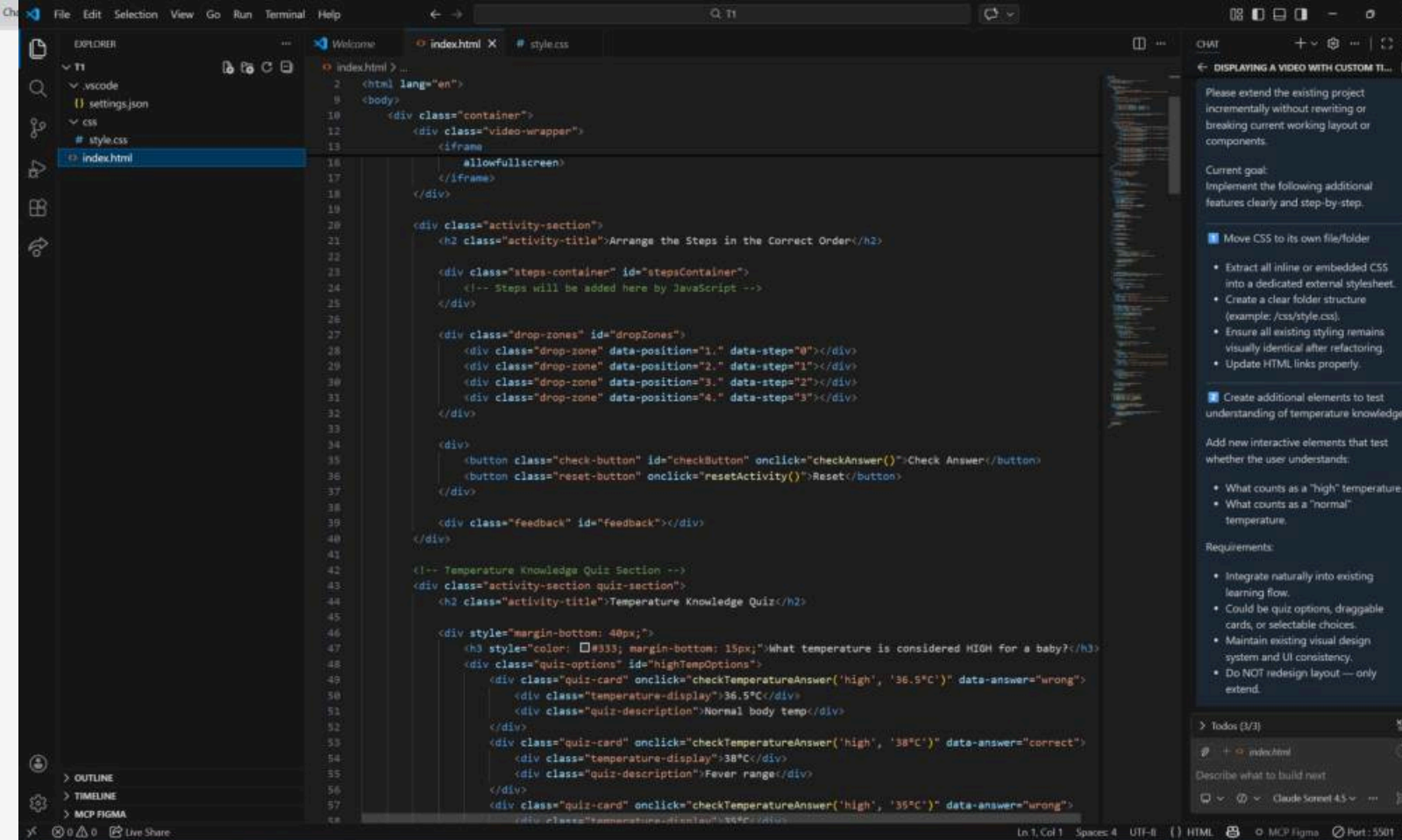
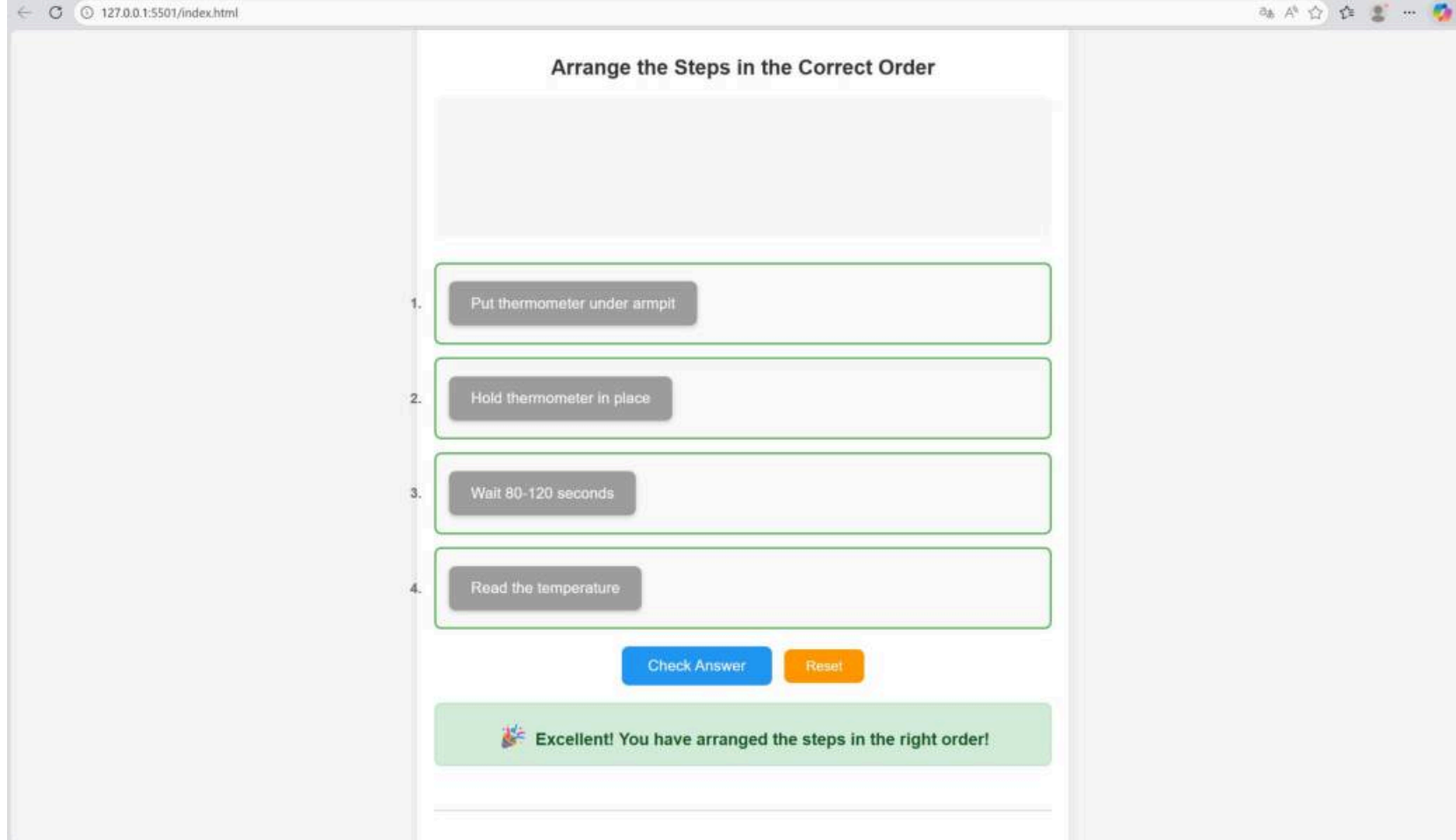
In Prompt 1, I asked AI to display a learning video with a title. This served as a simple starting point to test whether AI could follow basic UI instructions and generate a clear layout structure.



In Prompt 2, I introduced the core interaction. I asked AI to create draggable step blocks that appear in random order, allowing users to drag them into the correct sequence. During this stage, I realized that if instructions were too vague, AI would misinterpret the interaction logic. I therefore began specifying clearer constraints, such as defining the number of slots and requiring the system to validate the order.



In Prompt 3, I improved the user experience by adding visual feedback. When a step is dragged into place, it turns gray to indicate that it has been used. This small visual change helps users understand the system state and interact with more confidence.



In the Challenge Corner, I extended the original prototype without redesigning the entire interface.

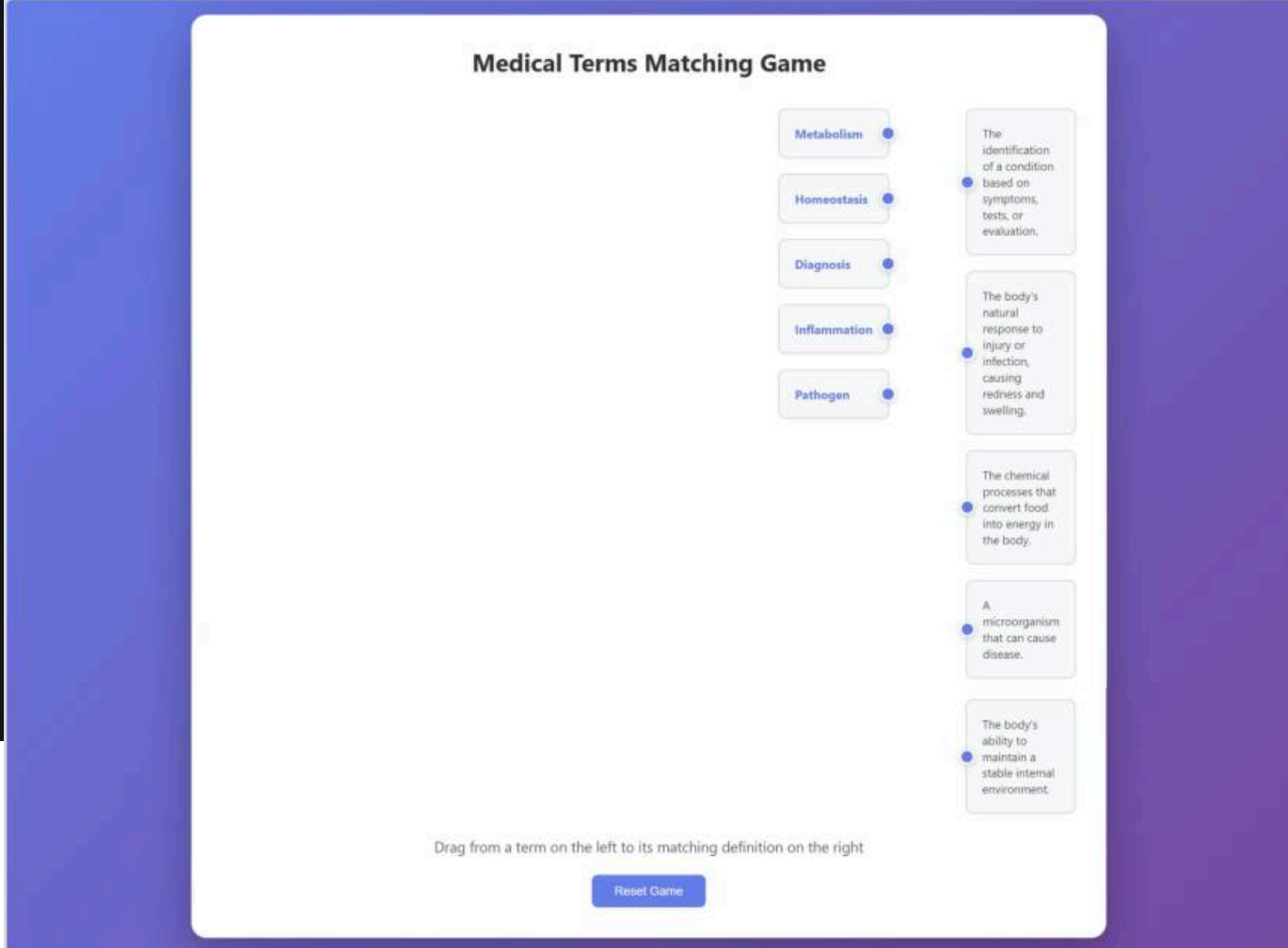
First, I reorganized the code structure by moving all CSS into a separate stylesheet. This made the project easier to maintain and improved the clarity of the code.

Second, I introduced additional interactive elements to test whether users could distinguish between high temperature and normal temperature. These activities were integrated into the existing learning flow to reinforce knowledge through interaction.

Third, I refined the feedback system so that users receive immediate responses. Correct answers trigger positive confirmation, while incorrect selections provide supportive guidance rather than harsh error messages.

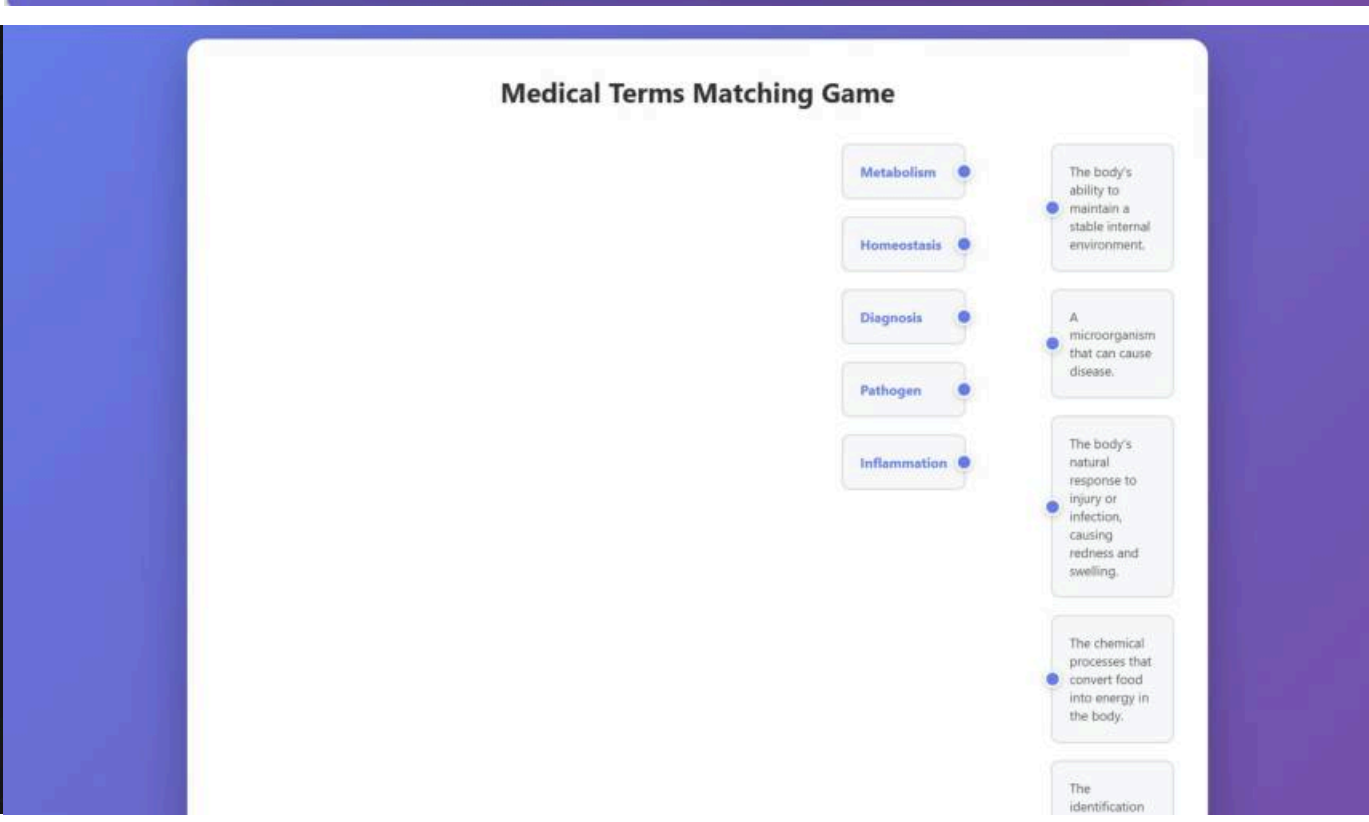
Through this process, I realized that writing prompts for AI is similar to writing design instructions. When the instructions are clear and structured, AI can generate meaningful interaction behaviors. When they are vague, the results quickly become inconsistent.

```
matching_game.html
<div id="game-area">
  <div id="terms">
    <div id="term1">Metabolism</div>
    <div id="term2">Homeostasis</div>
    <div id="term3">Diagnosis</div>
    <div id="term4">Inflammation</div>
    <div id="term5">Pathogen</div>
  </div>
  <div id="definitions">
    <div id="def1">The identification of a condition based on symptoms, tests, or evaluation.</div>
    <div id="def2">The body's natural response to injury or infection, causing redness and swelling.</div>
    <div id="def3">The chemical processes that convert food into energy in the body.</div>
    <div id="def4">A microorganism that can cause disease.</div>
    <div id="def5">The body's ability to maintain a stable internal environment.</div>
  </div>
  <div id="instructions">
    <ol>
      <li>Click and hold on any colored circle (drag point).</li>
      <li>Drag your mouse across the screen.</li>
      <li>See a dashed line following your cursor.</li>
      <li>Release over another circle to make the connection.</li>
    </ol>
    <p>The line will turn green if it's a correct match or red if incorrect.</p>
  </div>
  <div id="reset">Reset Game</div>
</div>
```



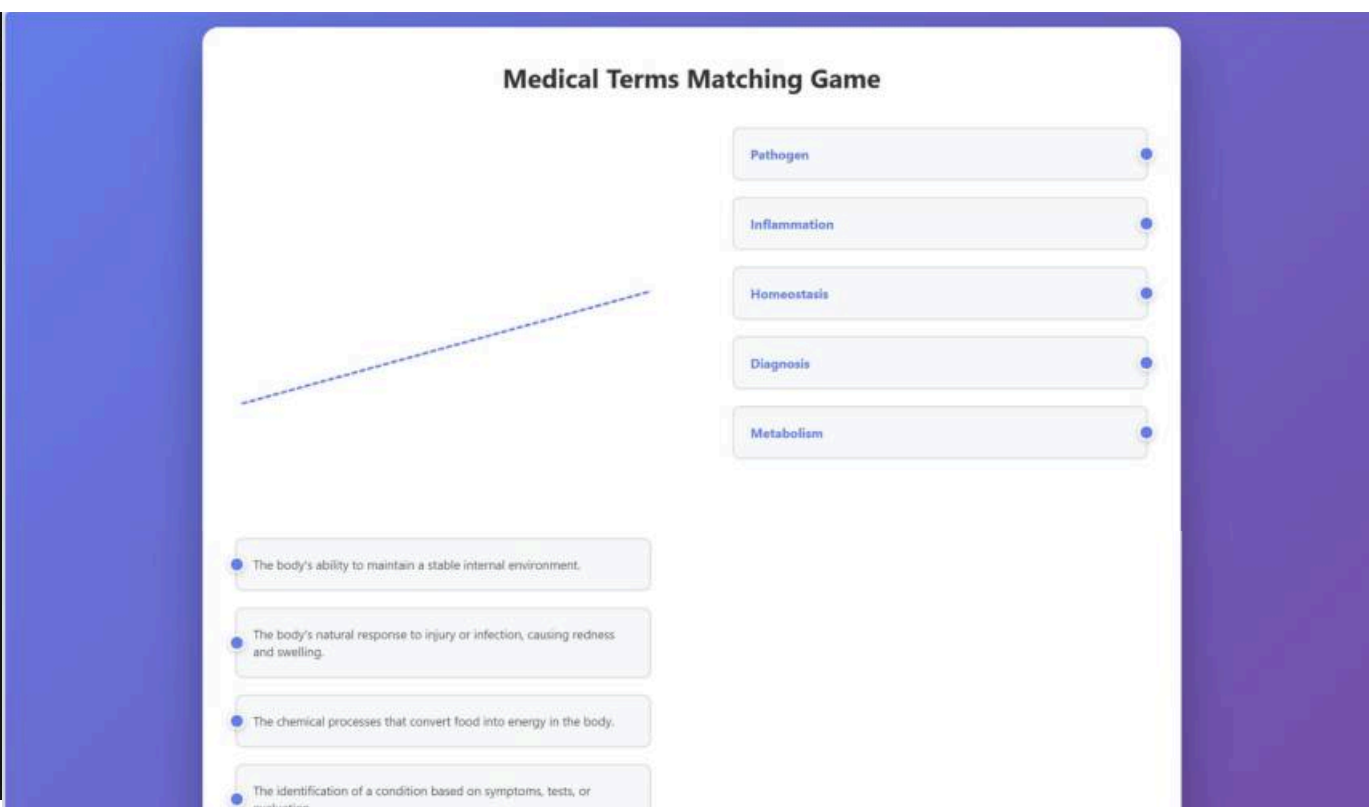
During Prompt 1, the initial layout generated by AI appeared visually crowded and lacked a clear hierarchy. Although the core elements were present, spacing and alignment were not well organized, which made the interface feel chaotic.

```
matching_game.html
<div id="game-area">
  <div id="terms">
    <div id="term1">Metabolism</div>
    <div id="term2">Homeostasis</div>
    <div id="term3">Diagnosis</div>
    <div id="term4">Pathogen</div>
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  </div>
  <div id="definitions">
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      <li>Drag your mouse across the screen.</li>
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      <li>Release over another circle to make the connection.</li>
    </ol>
    <p>The line will turn green if it's a correct match or red if incorrect.</p>
  </div>
  <div id="reset">Reset Game</div>
</div>
```



In Prompt 2, I expected the layout to improve, but the structure remained largely unchanged. This revealed that adding general instructions was not enough — prompts need to clearly specify layout behavior, alignment, and interaction expectations.

```
matching_game.html
<div id="game-area">
  <div id="terms">
    <div id="term1">Pathogen</div>
    <div id="term2">Inflammation</div>
    <div id="term3">Homeostasis</div>
    <div id="term4">Diagnosis</div>
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  <div id="definitions">
    <div id="def1">The body's ability to maintain a stable internal environment.</div>
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    <div id="def3">The chemical processes that convert food into energy in the body.</div>
    <div id="def4">The identification of a condition based on symptoms, tests, or evaluation.</div>
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    <ol>
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      <li>Drag your mouse across the screen.</li>
      <li>See a dashed line following your cursor.</li>
      <li>Release over another circle to make the connection.</li>
    </ol>
    <p>The line will turn green if it's a correct match or red if incorrect.</p>
  </div>
  <div id="reset">Reset Game</div>
</div>
```



By Prompt 3, the interface began to evolve into a wider layout, and connection lines between elements were introduced. At this point, the interaction logic became more visible. This experience showed that incremental prompting works best when each step focuses on a single design intention rather than multiple vague goals.



1

**Plan:**

Choose one learning goal for today.

My goal for this project was to design an interactive learning webpage that teaches users how to use an AED (Automated External Defibrillator) in an emergency situation. I started by researching reliable medical resources to understand the correct steps and safety considerations involved in using an AED. I wanted to translate this information into a clear step-by-step learning experience that users could follow easily. Inspired by the concept of progressive disclosure from class, I focused on revealing information gradually so that users only see the instructions relevant to the current step. This approach helps reduce cognitive load and keeps the learning process manageable. Another goal was to practice combining design and basic web development to create an experience where users learn by interacting with the interface rather than only reading instructions.

2

**Monitor:**  
Mid-task check-in,  
am I on track?

While working on this project, I spent time gathering reliable information about AED usage and organizing the procedure into a clear learning sequence.

One challenge was deciding how to present medical instructions in a way that remained accurate while still feeling approachable for beginners. I experimented with different ways of structuring the webpage, including separating the emergency scenario into smaller interaction stages so that users could concentrate on completing one action before moving to the next.

During development, I also tested how users might interact with the page and considered where feedback should appear if a mistake occurs. These adjustments helped refine the interaction flow and made the experience clearer and more supportive for learners.

**3**

**Evaluate at the end of class:**

1. What did I learn?
2. What stuck?
3. What's next?

Through this project, I learned how interaction design principles can support learning in practical situations such as medical training.

Designing the AED tutorial helped me understand how step-by-step guidance, clear instructions, and structured layouts can make complex procedures easier to follow.

I also realized the importance of feedback in interactive systems. When users receive immediate responses to their actions, it reinforces learning and builds confidence as they move through the process.

Reflecting on the design, I believe the interaction could be further strengthened by introducing clearer visual cues and additional knowledge checks, allowing learners to confirm their understanding before moving forward.

## Citations

“A Step-by-Step Guide to Using an AED Safely and Effectively.” CPR and First Aid,  
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## Use of AI in This Project

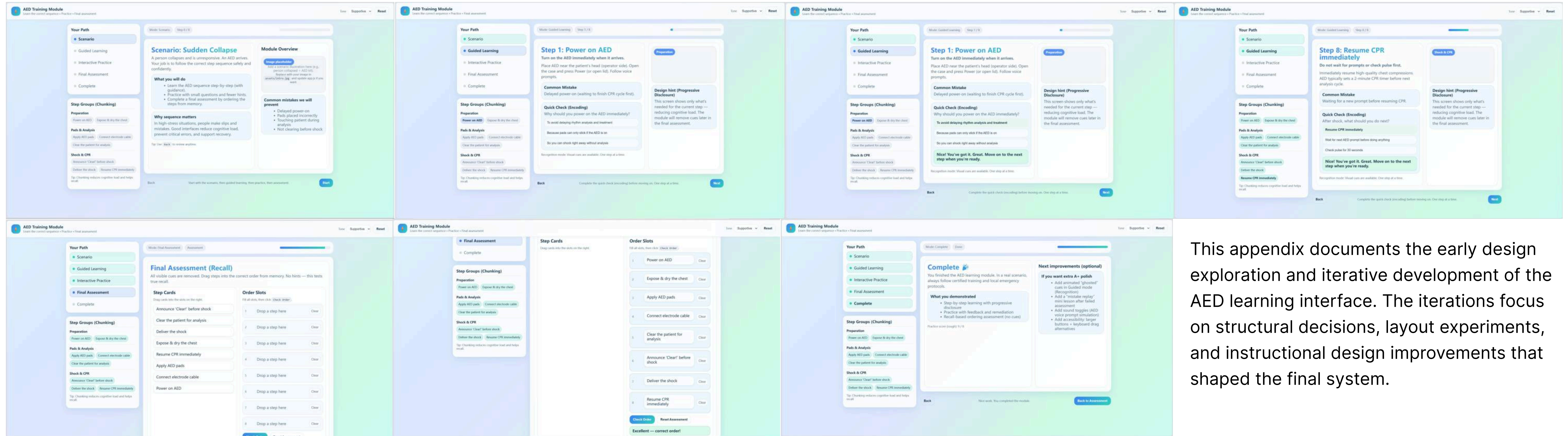
In this project, I used AI as a support tool for iteration, coding, and communication rather than asking it to generate the whole project in one step. My approach was influenced by the class “Vibe Coding with AI” activities, which showed how a project can be built through incremental prompts, refinement, immediate feedback, and challenge-based extension. The lecture materials also emphasized progressive disclosure and the learning flow of model the task, try with help, fade help, and independent use, which helped shape both my prompt-writing process and my interface decisions.

I used Claude mainly during the coding process. It helped me develop and revise interface logic step by step, especially when I needed to structure interactions more clearly, improve layout behavior, separate CSS into its own file, and refine feedback in the learning activities. This matched the classroom approach of building one feature at a time and then improving it through more specific prompts.

I used ChatGPT mainly for language support, including translation, wording refinement, and clarifying written explanations for my process documentation and presentation. This helped me communicate my design decisions more clearly and present my project in a more organized and understandable way.

Working with AI also helped me understand that prompt writing is closely related to design thinking. When my instructions were vague, the results were often unclear or incomplete. When my prompts became more specific about structure, behavior, and feedback, the outputs became more useful. Because of this, AI functioned less like an automatic generator and more like an iterative design collaborator that required direction, testing, and critical judgment from me.

# Appendix



This appendix documents the early design exploration and iterative development of the AED learning interface. The iterations focus on structural decisions, layout experiments, and instructional design improvements that shaped the final system.

## Iteration 1 — Building the Initial Structure

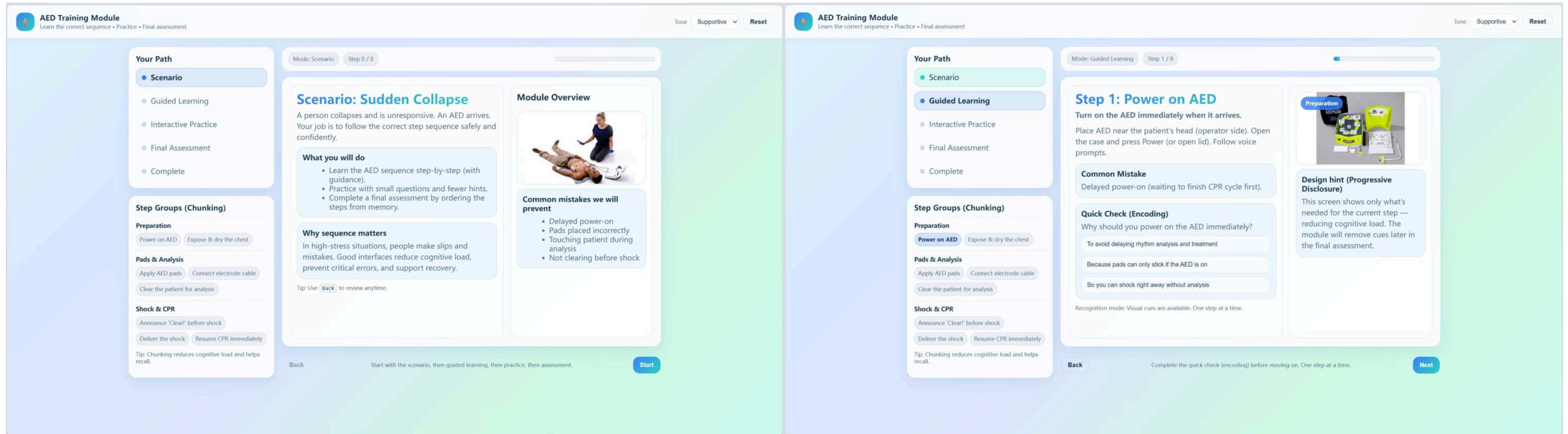
In the first version, I focused on establishing the overall screen structure rather than visual polish. I divided the interface into clear sections, including a left navigation panel, a main learning area, and supporting information panels.

At this stage, my goal was to explore how the training module could be organized so that the learning flow felt clear and manageable. I also began testing a progress-based structure that moved from scenario introduction to guided learning, followed by practice and a final assessment.

This early version helped me understand how much information should appear on a single screen and how different sections of the interface could support the learning process.

### Key design focus

- Established the main page structure
- Divided content into functional sections
- Tested the overall learning flow and screen hierarchy
- Began exploring progress indicators and navigation placement



## Iteration 2 — Testing Image Placement as Visual Support

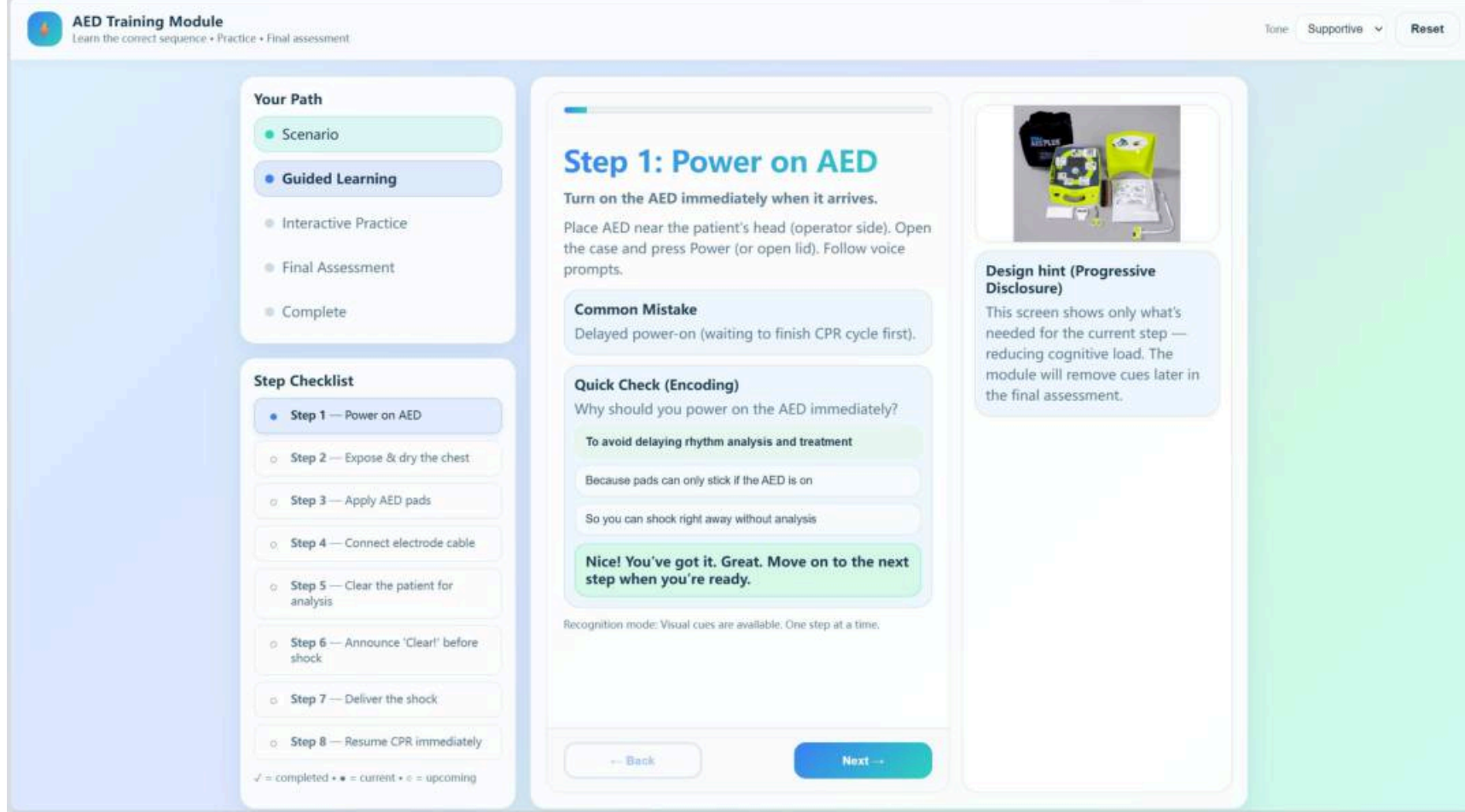
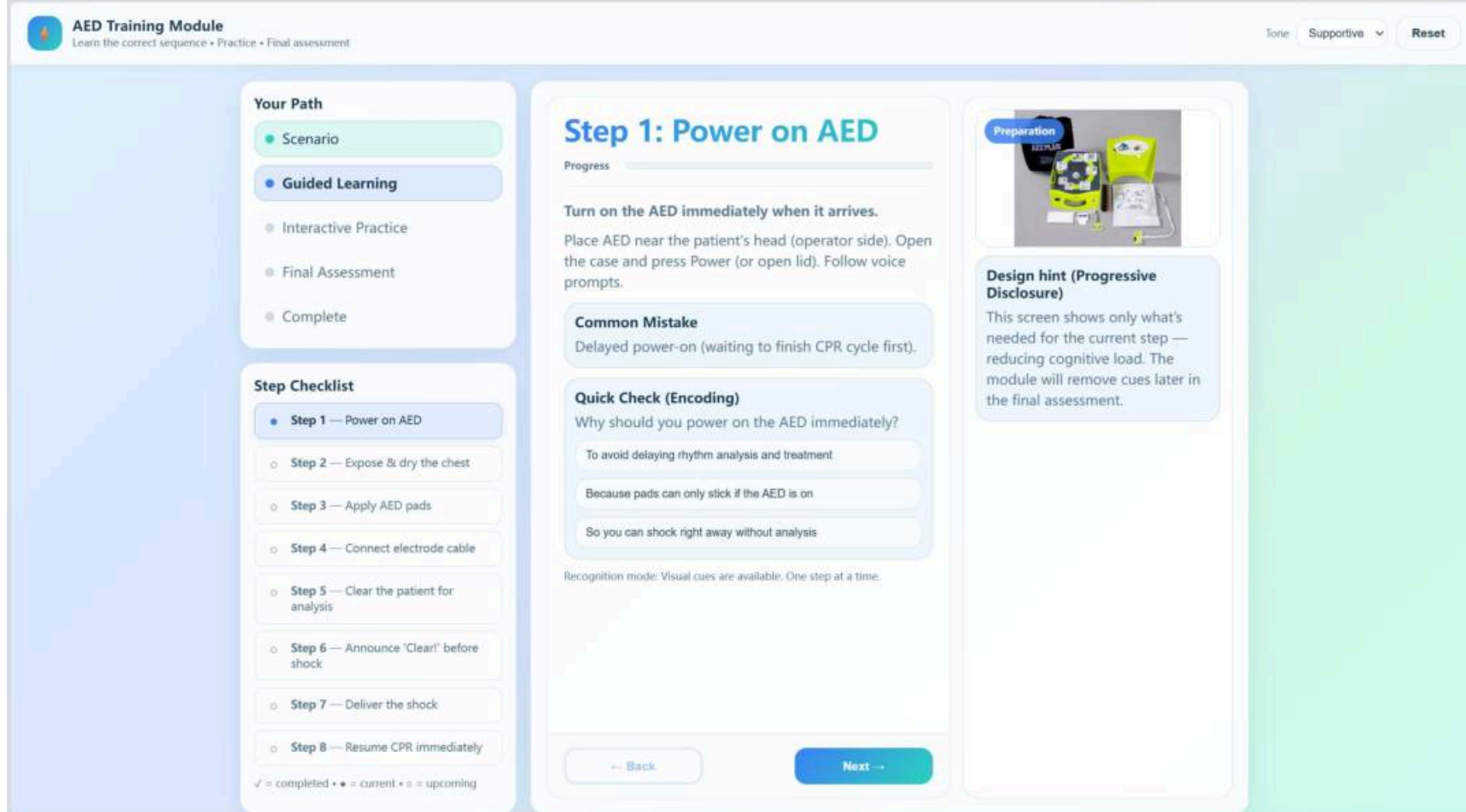
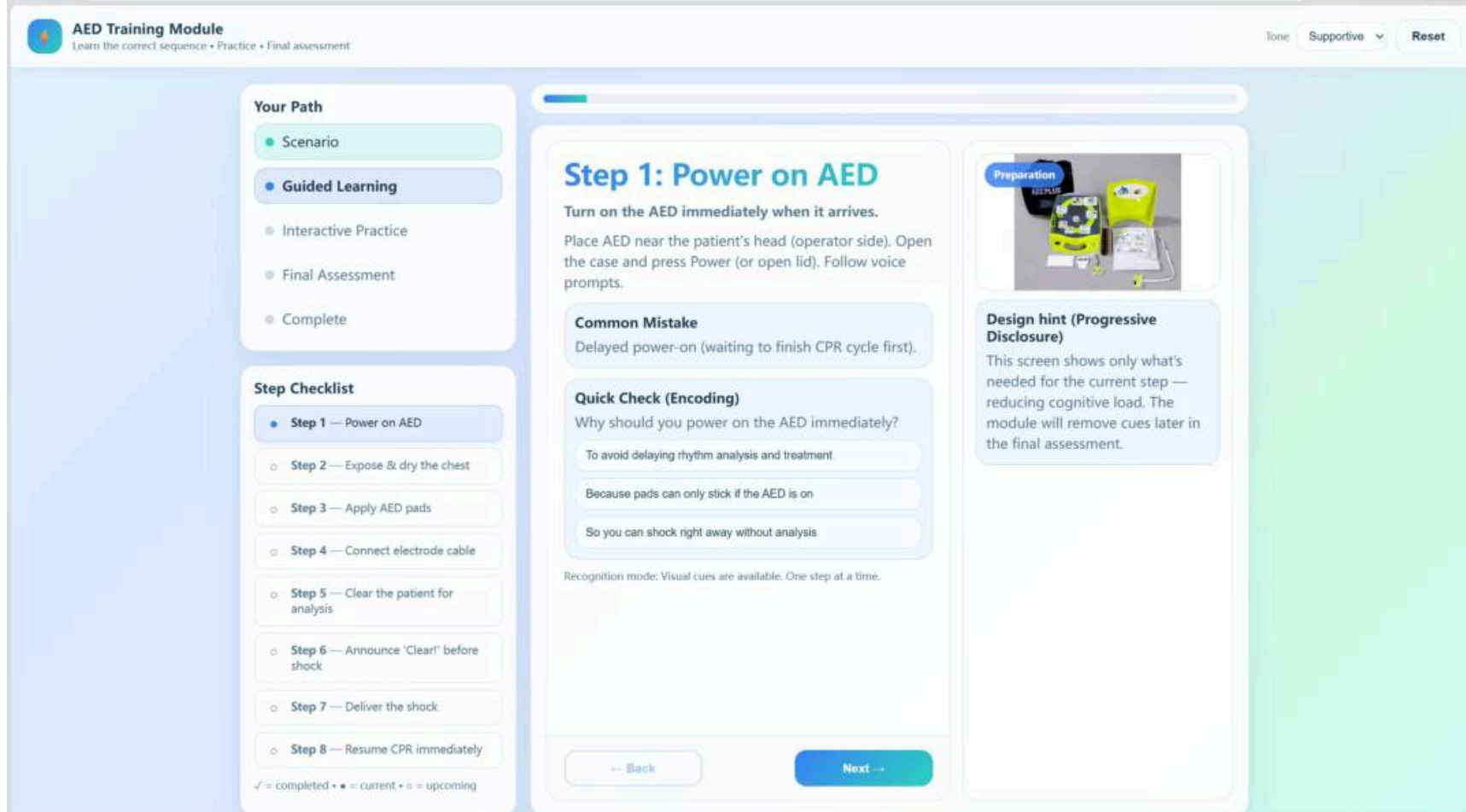
In the second version, I began introducing images to support visual understanding. I placed the images on the right side of the interface so they could act as secondary cues without interrupting the main reading flow.

The idea was that learners could focus on the instructional text while still having visual references nearby. Instead of using images purely as decoration, I wanted them to support procedural understanding by showing equipment, body positioning, or action context.

This experiment helped reduce the feeling of a text-heavy interface and made the learning content feel more instructional and approachable.

### Key design focus

- Added visual references to support learning
- Tested placing images on the right as supporting cues
- Reduced the feeling of a text-only interface
- Began integrating imagery into the teaching strategy



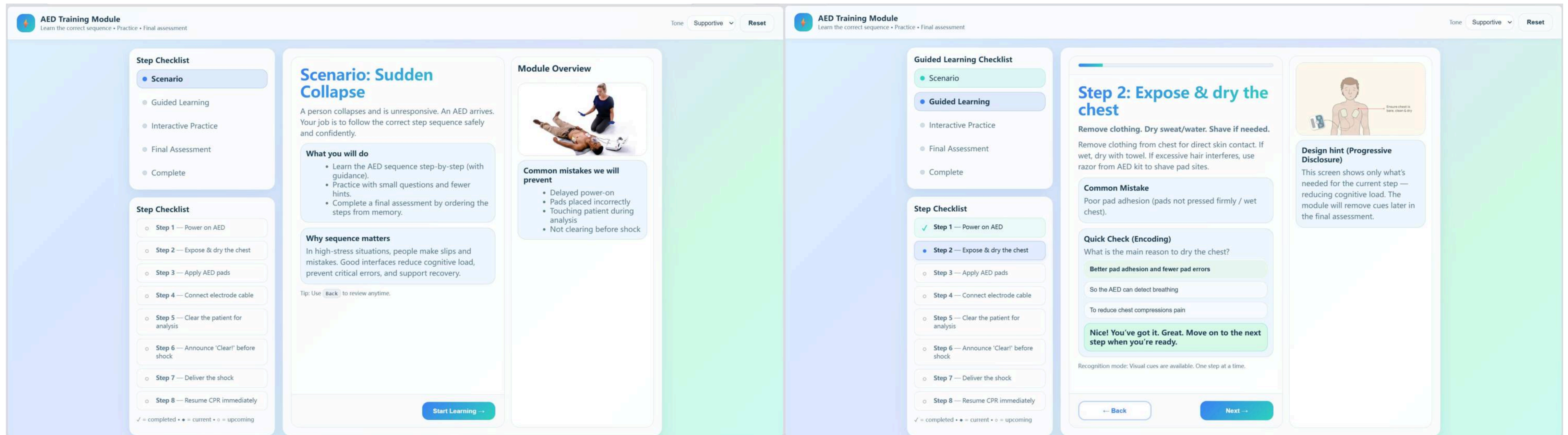
### Iteration 3 — Exploring Progress Bar Placement

In this version, I experimented with different placements for the progress bar. I first tested a long progress bar across the top of the screen, then moved it below the title, and later above the title to compare how each position affected clarity.

Because the module teaches a sequence of actions, it was important that learners always felt a sense of progression. These layout experiments helped me understand how progress indicators can influence orientation, pacing, and the learner's sense of movement through the task.

#### Key design focus

- Tested multiple positions for the progress bar
- Explored how progress visibility affects orientation
- Balanced clarity with visual simplicity
- Used layout experiments to improve learning pacing



## Iteration 4 — Refining the Left Panel and Interface Language

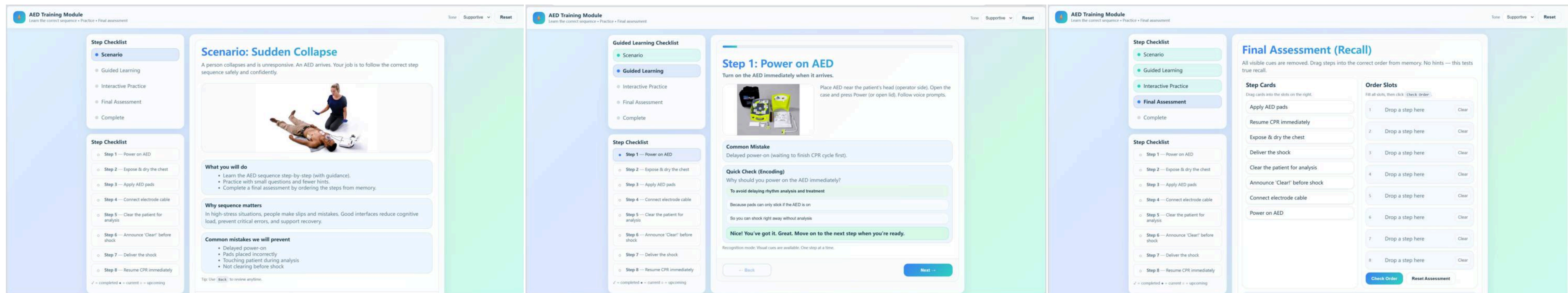
In this stage, I began refining the left-side navigation and the wording used throughout the interface. I adjusted labels, titles, and category names so the navigation felt clearer and more consistent.

Although the visual changes were subtle, they improved the overall tone of the interface and made the layout feel more intentional rather than temporary.

I also paid more attention to instructional clarity. Since the module teaches a safety procedure, the wording needed to feel simple, direct, and supportive.

### Key design focus

- Refined labels and naming in the left navigation panel
- Improved the clarity and tone of interface language
- Made navigation wording more purposeful
- Strengthened consistency in section titles and terminology



## Iteration 5 — Adding Supportive Feedback and Improving Layout Balance

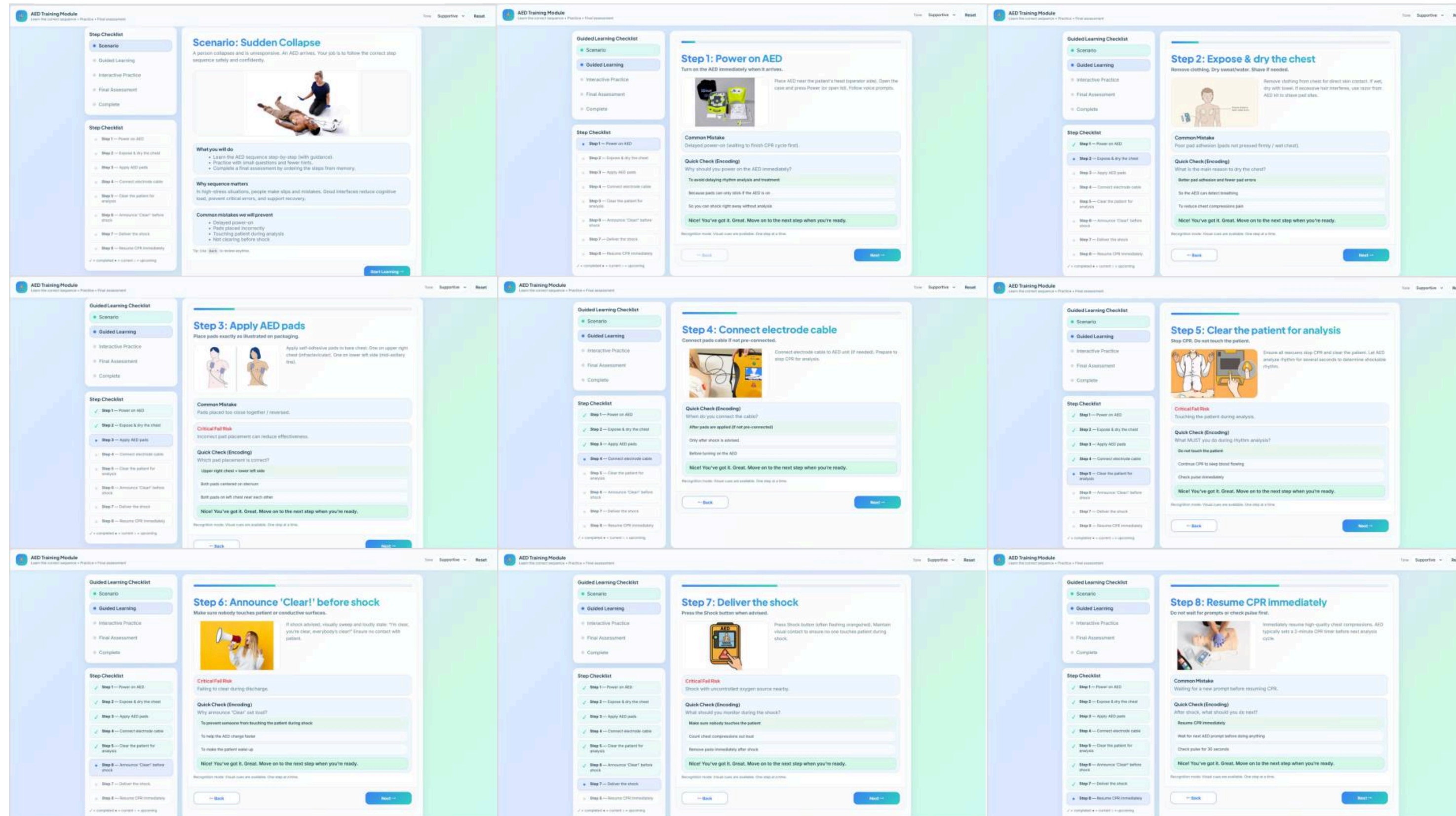
At this stage, the interface began to move closer to the final direction. I refined layout proportions, clarified panel sizes, and introduced more supportive instructional language.

For example, I added encouraging feedback after correct responses so the interaction felt more responsive and less mechanical. This shift helped transform the experience from simply presenting information to actively guiding the learner through the task.

Because AED use happens in high-pressure situations, I wanted the interface tone to feel supportive and confidence-building.

### Key design focus

- Improved spacing and layout balance
- Added supportive instructional language and feedback
- Made the interface feel more human and encouraging
- Strengthened the learning experience through microcopy



## Iteration 6 — Expanding the Full System

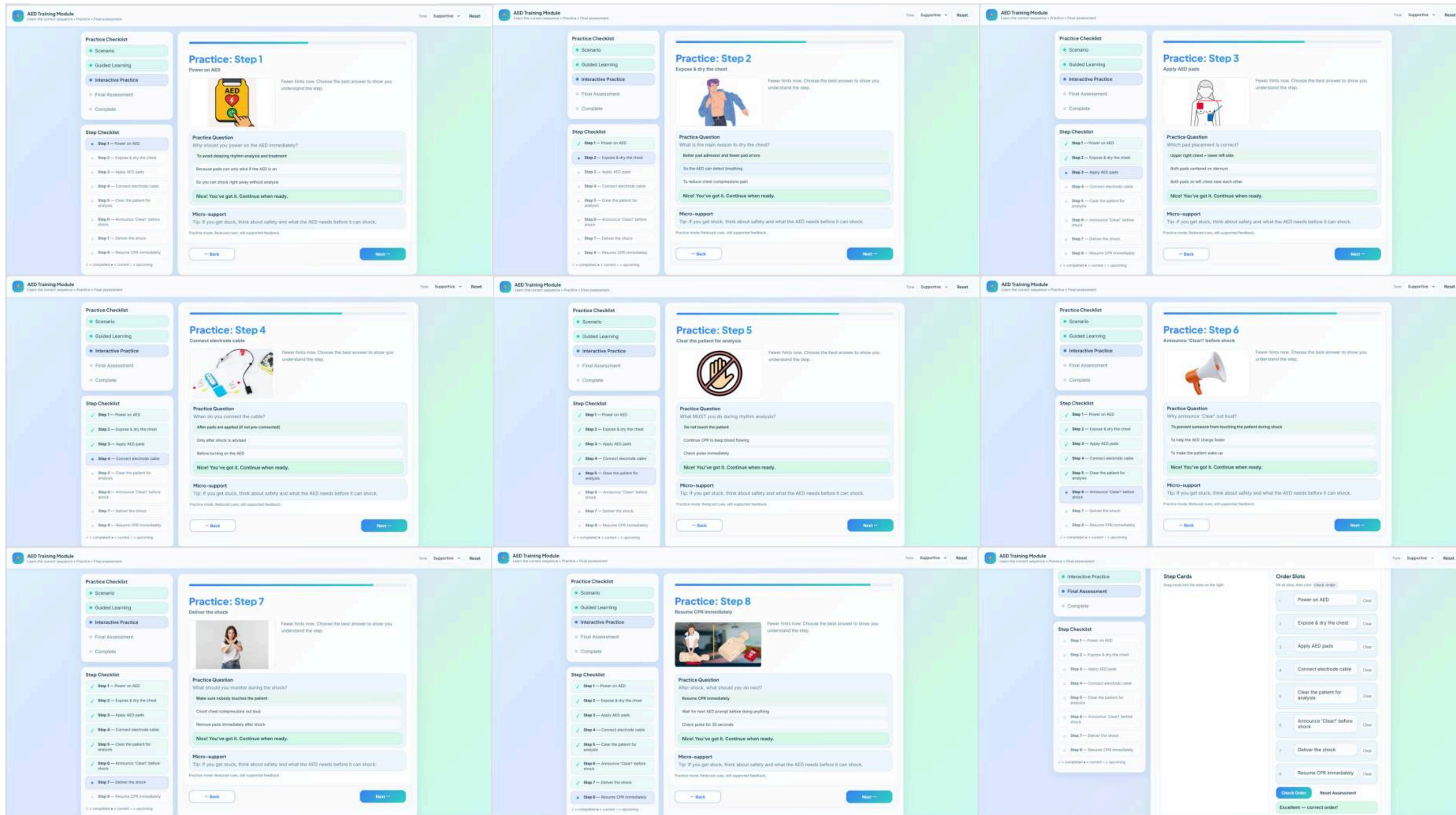
At this stage, I moved from designing individual screens to building the full learning system. I developed the complete sequence, including the scenario introduction, guided learning steps, practice activities, assessment, and completion screens.

This helped me evaluate whether the module functioned as a connected learning journey rather than a collection of separate pages.

Instead of testing a single layout idea, I focused on the overall interaction flow and ensured that each screen clearly communicated where the learner was and what to do next.

### Key design focus

- Designed the full set of screens across the learning journey
- Connected scenario, guided learning, practice, and assessment
- Strengthened consistency across layout and navigation
- Shifted from isolated screens to full interaction flow



## Iteration 7 — Strengthening Guided Learning Through Content Detail

As the guided learning screens developed further, I began adding more step-specific details such as common mistakes, safety reminders, quick checks, and supportive hints.

This allowed each screen to do more than simply present a step. Instead, the interface began teaching users how to think about safety, sequence, and potential errors during the procedure.

By tailoring the content to each action in the process, the module became more educational and realistic, while still keeping the interface clear and manageable.

### Key design focus

- Added step-specific teaching details
- Introduced safety reminders and quick knowledge checks
- Made each step feel more purposeful and instructional
- Increased learning depth without overwhelming the interface