

Learnersourcing for Drawing Support

Reflection before/after Practice

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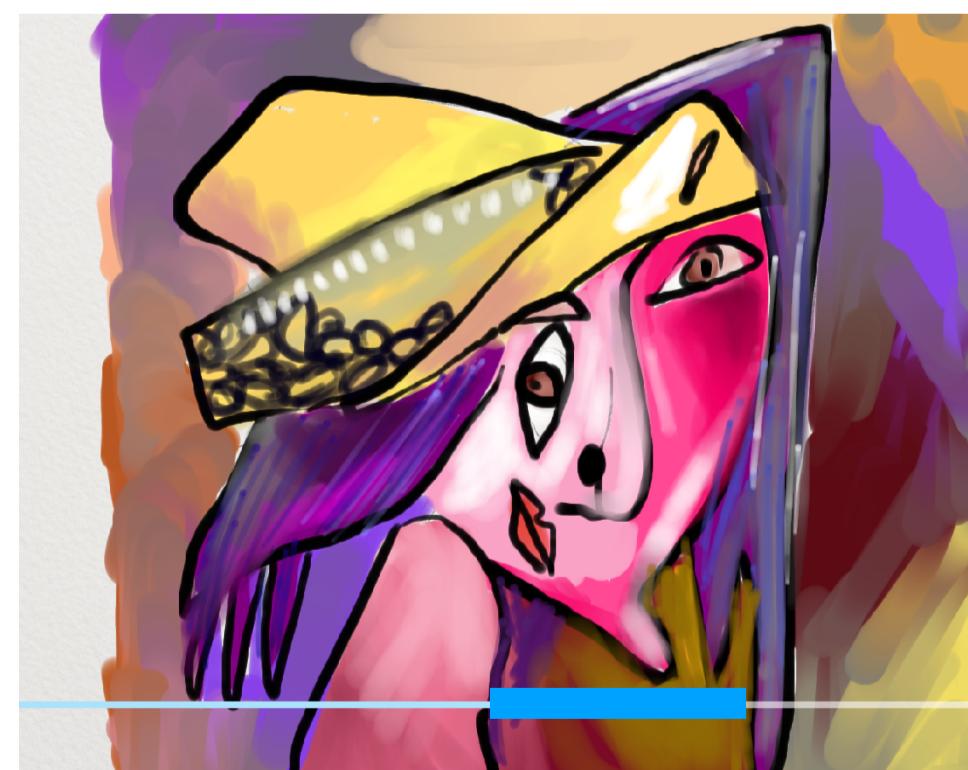
Motivation

- Drawing **feedback** is not available outside schools or physical art studios.
- Existing interactive drawing systems only support novice learners to **follow the procedural steps** to draw as **accurate** as a reference image.
- A large amount of online drawing tutorials or videos consist of **rich drawing knowledge** and **practical skills**.

Research Goal

- This research aims to **extract learning points** for supporting **novices** to learn **high-level conceptual knowledge**, **practical skills** and **personalized copying strategies**.

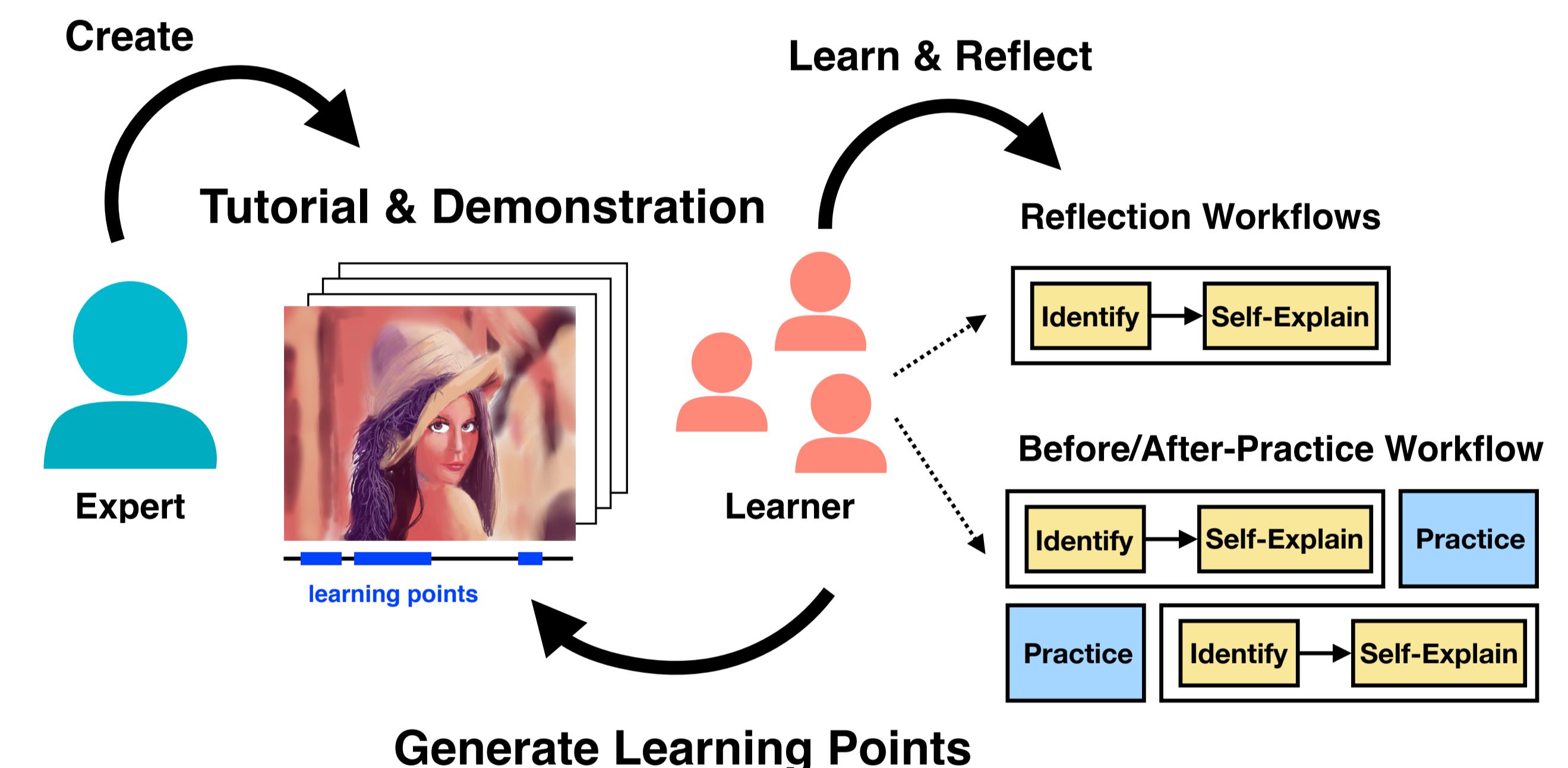
What is a Learning Point?



- Where is it? **a clip of video/process**
- What is it? **a description**
- Why you think it is important? **a reason**

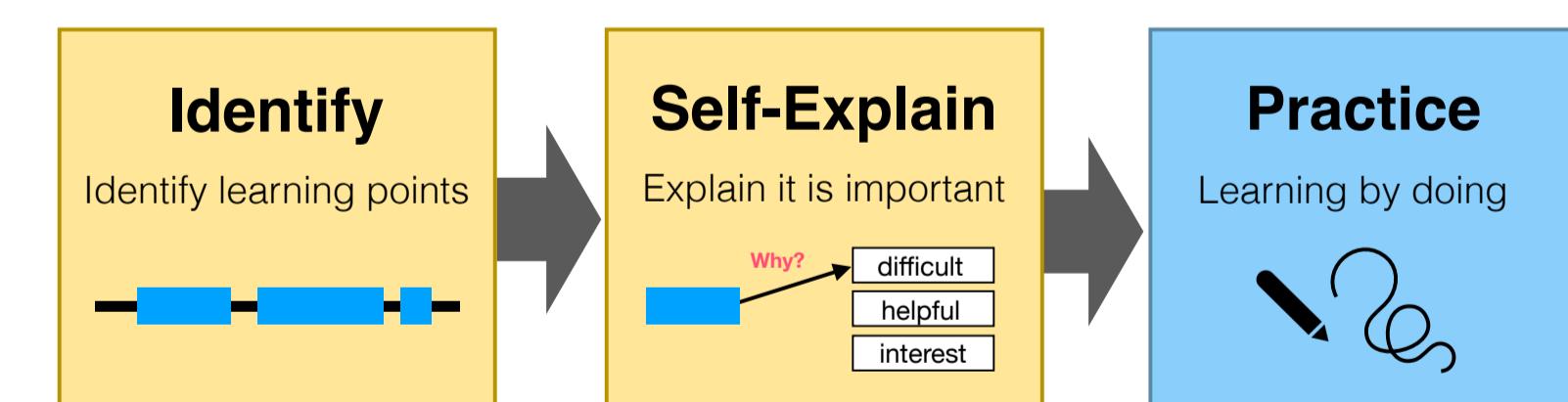
Extract Learning Points via Reflection Workflows

- Learners generate **learning points** by **reflection** and **practice**

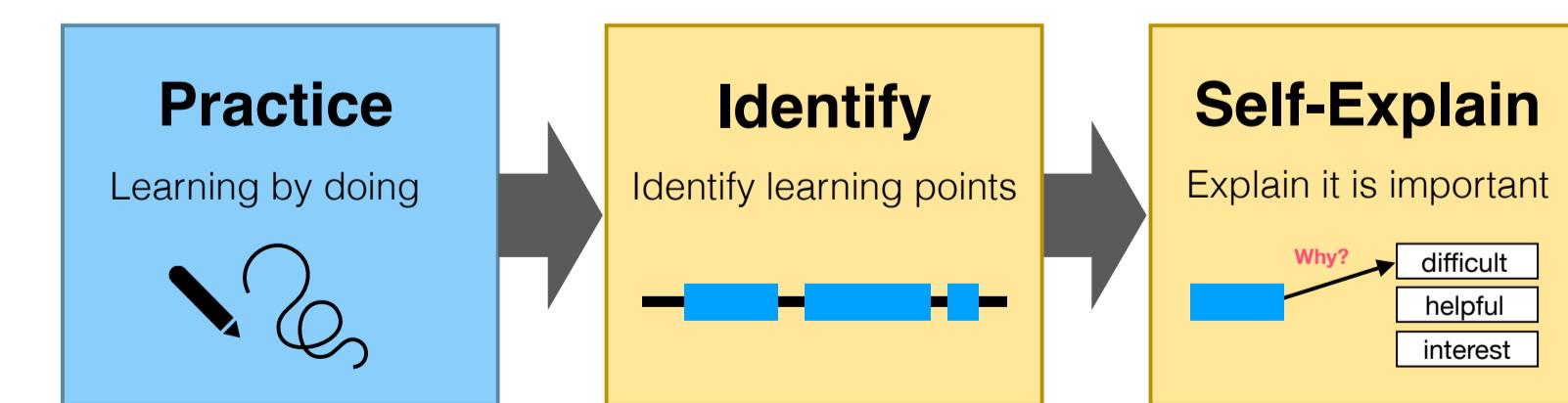


Before/After-Practice Reflection

Before-Practice Reflection Workflow



After-Practice Reflection Workflow



1. **Identify Task:** identify learning points
2. **Self-Explain Task:** explain why it is important/helpful/interest
3. **Practice Task:** practice what you learned

Pilot Study



- 2 experts' drawing processes
- 8 participants
- 80 annotations
- 48 learning points
- 16 difficult points
- 16 interest points



Findings

- Before-annotations are **general**; after-annotations are **specific**
- Some **common ideas** from different clips; some **different ideas** from the same clips
- **Novice learners** discover **new learning points** or **revise** their previous learning points
- **Advanced learners** found no difference before or after practice

Future Work

- Construct **drawing knowledge taxonomy** by aggregating learning points
- Use **learning points** as **positive feedback** for helping drawers engage in practicing and gain others' perspectives
- Incorporate **leaning points** into **online feedback exchange**