

Sketch Learning Environment with Diagnosis and Drawing Guidance from Rough Form to Detailed Contour Form

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There exist many systems and software that support drawing or painting on computers. However, learning support for drawing or painting is a task that differs from drawing support or painting support. Functions for diagnosis and advice are required for learning support. Our project was the first learning environment that could diagnose a learner's sketch and then provide advice.

In addition, our environments are capable of diagnosing sketches drawn on real paper. This function is a unique feature of our environments, and it is important for learners, because drawing on a paper using a real pencil requires a different skill as compared to drawing on a virtual paper using a mouse or a stylus pen.

We developed a new sketch learning environment that provides diagnosis and drawing support from a rough drawing to a detailed contour drawing. We use a cup and a dish as motifs. When a learner uses the environment, the environment first requires the learner to draw a circumscribed rectangle of the motifs' view. Then, the environment diagnoses the circumscribed rectangle and advises the learner of errors, if any. The environment guides the learner from a rough form to a detailed contour drawing by repeatedly drawing circumscribed rectangles.

We evaluated the environment and confirmed a significant learning effect.

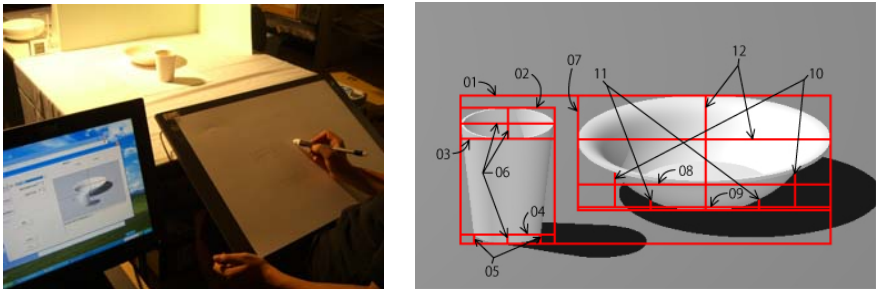


Fig. 1. The left-handed side shows a sketch being drawn on a paper on the tablet Intuos 3 using the improved grip pen by observing motifs on a table. Right-hand side shows all auxiliary lines that are used for guiding the learner from a rough form to a detailed contour form. The numbers for each auxiliary line indicates the order of drawing and diagnosis.