Does SVG feedback help a Plasticity skill produce better models?

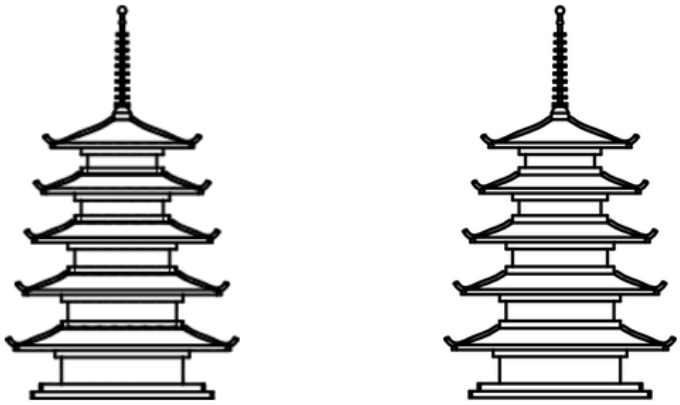
Use a PNG snapshot when tuning a Plasticity scripting skill. Open its SVG version only if a specific measurement could change what you write in the skill. PNG was faster to review. We found no case where extra detail from an SVG led to a change that helped a later author build a better model than PNG-guided tuning did.

A skill is a set of instructions an AI author follows to write a 3D modeling script. Four AI editors tested ways to improve those instructions. Two saw each script's result as a PNG image they could crop. Two saw an SVG drawing they could also measure or inspect one part at a time. After two rounds of edits, new AI authors tried the revised skills on four design requests they had never seen.

Outcome	Original skill	Tuned with PNG	Tuned with SVG
Average gain in advice quality after seeing a drawing (0–2 scale)	—	+0.100	+0.100
Average score on four new requests, including failed scripts	62.5%	**74.2%**	62.5%
Scripts that produced a finished drawing	5/8	**6/8**	5/8

PNG's lead came from a single request for a manatee model in one of two runs. To call a winner, we had agreed that one format would need to do better in both runs and on at least three of the four requests. Neither did.

A five-storey pagoda shows why a drawing can be clear and still lead to the wrong advice. Thin rods curved upward at each roof corner, but the roof edges stayed flat. When the model was first made, its reviewer called for the roof surface itself to rise at the corners. A follow-up test showed how to build that curve.



Both the PNG crop (left) and the SVG front view with hidden lines removed (right) show the raised tips. All four editors saw the tips and approved the roof. They missed the distinction that mattered to the original reviewer.

What editors learned from past models

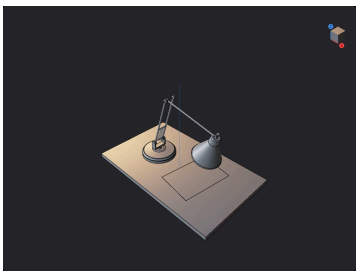
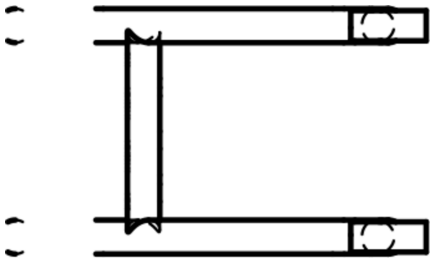
Each editor read a design request, its reference pictures if available, and a script. They wrote down what they thought had worked or gone wrong, then updated their advice after seeing a drawing. Two reviewers scored those changes against the original records without knowing which format an editor had used. For 11 cases across 10 kinds of objects, the scripts reproduced the original printed results. Both formats improved advice by 0.100 points on a 0–2 scale. Scores for identifying problems rose by 0.175 for PNG and 0.200 for SVG.

Historical inspection	PNG	SVG
Reviews that mainly confirmed an earlier judgment (44 per format)	30	32
Pixel crops	49	41
Requests to inspect vector data	—	35
Unsuccessful inspection requests	0	1
Median time to review three cases	28.2 s	31.0 s
Total elapsed time across eight assessments	227 s	275 s

A twelfth case involved a rubber duck whose original run had no saved printout. Including it gave advice gains of 0.100 for PNG and 0.117 for SVG. In another duck model, both formats showed a flat end, 14 model units across, on its chest. Neither revealed why an attempt to round it had failed. The one failed SVG request asked for an object absent from the chosen view or layer. Review times include both inspection and writing.

An Anglepoise lamp with a missing rod

An Anglepoise desk lamp was meant to have two rods in each arm. The shaded image shows the original lamp. In the two separately enlarged SVG views, the lower arm has both rods and the upper arm has only one.

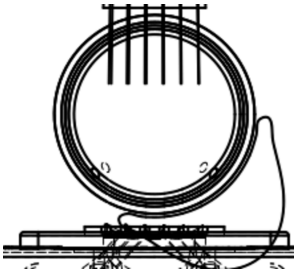
Original lamp model	Lower arm from above	Upper arm from above
		

Before seeing the drawing, an editor using SVG suspected that one upper rod might disappear when the script joined the parts. The editor proposed checking that the parts overlapped before joining them. After counting the rods, the editor added a rule to check each branch **after** joining the parts, since an assembly can have the right overall size even with a rod missing. An editor using PNG spotted the missing rod in a crop and recommended the same check.

A later author applied the rule to a reel dispenser. Its script checked the gaps on both sides of a reel and how far an axle stuck out past each support. Measurements confirmed **4.5 mm of clearance on each side**, **3.5 mm of axle past each support**, and **8 mm below the reel**. The advice changed what the author checked. Dispensers made with PNG-tuned skills and with the original skill also earned full marks.

An acoustic guitar with a soundhole of uncertain depth

An acoustic guitar script could skip a step that hollowed out the body. If that happened, a 10 mm cut for a soundhole would leave a shallow recess. From the front, a recess could look like an opening into a hollow guitar.

Original guitar model	Close-up of the soundhole
	



An editor using SVG isolated the body in a side view (above). A dashed line sat **2.5 model units inside the outer edge**, matching the planned wall thickness. That made a hollow body more likely, but the view still left open whether the soundhole reached the hollow space. An editor using PNG saw paired hidden lines near the neck. Both recommended checking a cross-section through the soundhole and making sure it stayed open if the script took an alternate path. The SVG measurement increased confidence about the wall without changing the advice.

When is it worth opening an SVG?

Suppose a pin appears to touch a bar in a PNG. An SVG can show a gap of 0.1 model units in that view. If finding a gap would change your instructions about clearance, measure it. If you would give the same advice either way, the PNG is enough.

This study used one AI model at one effort setting. Two editors per format each revised a skill twice. Two reviewers from the same AI model family scored the results. On two of the four new requests, every script earned full marks. On another, every script failed before producing a drawing. We still do not know whether SVG measurements would improve later models on jobs that require a very precise fit.