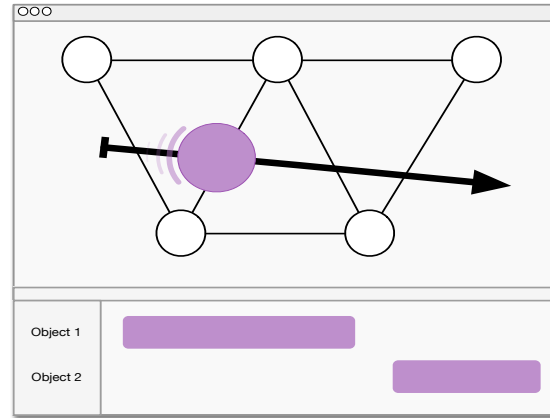
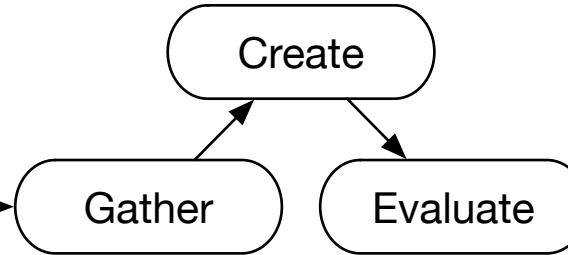
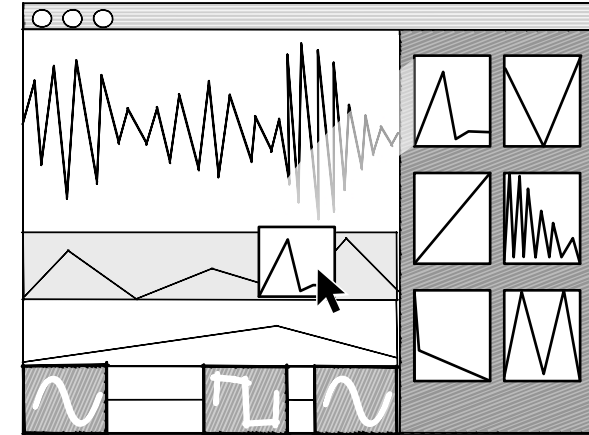
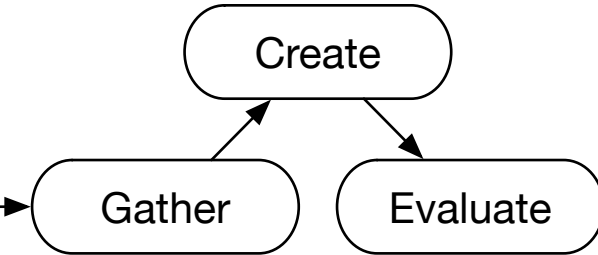


Improvise: Haptic Instrument



Manipulate: Tactile Animation



Combine: Design Gallery

Who	Haptic Designer-Proxies <i>(researchers with some haptics experience)</i>	Animators <i>(visual designers who would be haptic designers)</i>	End-users <i>(people with and without basic media editor experience)</i>
What	Dual Haptuators	Spatial Vibrotactile Pad	Phone-mounted Haptuator
How	Real-time, collaborative parameter control	Direct space/time manipulation of animation object	Example-based interaction techniques, morphing
Discovery	Good for ad-hoc exploration, collaboration; bad for refinement	Real-time manipulation valuable; animators drew from examples	Hypothesis: <i>Designers rely heavily on examples early on, make final adjustments directly</i>