Analyzing, constructing, and translating between graphical, pictorial, and mathematical representations of physics ideas and reasoning flexibly through them (“representational competence") is a key characteristic of expertise, but challenging for learners to develop. The first part of this talk will focus on the role of QuVis interactive computer simulations with appropriate scaffolding in supporting visual learning and the development of representational competence in quantum mechanics. We have been developing combined simulation-tutorials, whereby students first work on problems independently, constructing representations they will later see in the simulation, followed by further problems with simulation support. We describe how learning theories have shaped the structure and tasks of these activities. The second part of this talk will focus on student-generated content using Peerwise (https://peerwise.cs.auckland.ac.nz/), an online peer learning community in which students can author, answer, and give feedback on each other’s multiple-choice questions. Measures of student engagement and factors in the implementation that may have impacted engagement will be discussed.