Vizability is a curriculum designed to increase visual thinking skills in college-level engineering, computer science, and design students. It consists of two components: a handbook and an interactive, multimedia CD-ROM. A sketchpad is also included in the student edition. Within the interactive CD component, the learner will find 6 individual modules to enhance visual abilities: imagining, seeing, drawing, diagramming, environment, and culture. The imagining and diagramming modules are designed to build conceptual skills. Perceptual skills are developed through the seeing and drawing modules. Lastly, the environment module examines physical space and the culture module builds collaborative attitudes. The stated goals of the curriculum include developing problem-solving skills, improving visual skills, and incorporating these skills into users’ everyday lives.

Imagining Module: The imagining module specifically develops spatial visualization. Students are asked to complete a series of training exercises. In one section, the student is asked to create a shape, by clicking individual cubes on and off, which would cast the shadows located on three walls. They can check their work on occasion by clicking on “shadow.” If needed, they can make adjustments in their models.

Seeing Module: The seeing module develops the abilities to notice details and “meta-vision” by engaging students in several seeing exercises. One exercise consists of an activity similar to finding a jigsaw piece in the image on the box cover. Students can turn on and off a grid of pieces in order to aid them in reaching the objective. Additionally, students have choices of working in color or black and white. Other exercises include counting how many flashes of an object it takes for the student to draw it correctly and using eye tracking to guess the shape or letter being drawn.
**Drawing Module**: Through manipulating controllers, the students’ understanding of shading and perspective are developed. Students are also exposed to examples of others’ work and a gallery of everyday examples of shading and perspective.

The diagramming module focuses on developing symbols and sharing ideas through pictorial representations. It appears to be the only module that focuses on communication explicitly. The environment module encourages learners to use their environment to generate ideas and reflect on their visual thinking. For example, a scientist discusses how the tools in his lab (i.e. a wave machine) act as a springboard for discussions of scientific principles. Lastly, the culture module provides students with examples of the visualization process used in design. It includes the tools (logs, boards, and other objects) and techniques (sketching, prototyping, and critiquing) of experts in the field.

Vizability focuses on building the component skills necessary for design. It rides on the fact that these skills can be taught and learned individually. The designers of Vizability state that they take a “pragmatic approach to developing a set of effective skills.” Generally, the curriculum attempts to develop these skills in two ways: exposure and training. It appears to be designed for both classroom and independent use, but relies heavily on the assumption that “every person must take charge of their own thinking, learning, and education.”

Underlying this curriculum is the cognitive pluralist ideology as well as constructivist theory. The cognitive pluralist ideology is demonstrated through the multiple ways that information is presented and represented. Information is presented by multiple media: text in the handbook and the CD-
ROM, a large amount of graphics (pictures, images), verbally though the experts, and music that accompanies the activities. Students are encouraged to use almost all their senses and intelligences to develop their visual abilities. For example, in the guided fantasy section of the imagining module, students are asked to imagine or draw based on the visions, music, words, poetry, and art generated in their minds.

The developers of Vizability also tried to include multiple representations of the knowledge in practice. This is especially apparent in the environment, culture, and diagramming modules. Visual thinkers in various fields present their ideas and opinions. As mentioned above, in the environment section, a scientist discusses his equipment as catalysts of discussion. Other perspectives that are represented come from the classroom, the workplace, and an art gallery, to mention a few.

While the developers included many videos of visual professionals speaking about context and process, the skills being developed in the perceptual and conceptual modules are fairly disconnected from any situation in which they would be used. How does finding a small piece in the larger picture aid the user in engineering? How does building shadows help me design? How does the number of flashes it takes one to draw an object aid in computer science? While I see that these component pieces can improve students’ visual skills, the direct connection between these component skills and the context in which they will be used is not apparent.

In the introduction of the handbook, the authors mention the importance of visual ability for communicating, but after that point, I did not see this idea carried through. As I mentioned before, the only module to discuss communication explicitly was diagramming. The symbol exercise involves tying symbols to the messages that they convey. Personally, I would think that I should be able to do this, but I found that I was quite inept at it. I saw very little connection between the
diagramming symbols and their meanings. This symbol, , which looks like a cactus or tree to me, represents psychology. Despite the fact that I was an undergraduate psychology major, I still was unfamiliar with the symbol and didn’t readily see the connection between its appearance and its meaning. A little more alarming to me was the fact that no explanation was offered to how this symbol communicated “psychology” to the viewer.

The symbol activity also suggests my second critique of the curriculum. By appealing to such a wide, diverse audience, the curriculum may extend itself too far. The description of the curriculum states that Vizability was originally designed for college level students, but had proven engaging and effective with users of a much younger age. However, I find that parts of it appeared too juvenile for college-age or older students and too sophisticated for younger students. The symbol activity above provides a good example of the latter. The former was demonstrated in the jigsaw-like activity where users hunt for pieces of images.

Lastly, the topic of assessment needs to be addressed. There are quite a few opportunities for informal checks of progress. However, all opportunities for assessment, reflection, and critiquing are optional. The learner really is in charge of monitoring his or her own progress.

The user is also responsible for drawing the connections between the component skills and the perspectives provided by the visual thinkers. More specifically, the goal of incorporating the visual thinking skills into users’ everyday lives is not met since the perceptual and conceptual skills are isolated from their application. The activities and assessment of the activities did not align to help achieve this goal. While the individual modules are effective, bridging the connection between the training exercises and the exposure to experts in the field is not scaffolded for the student.