A video that shows how soft interactive objects can be printed is available at

<https://www.youtube.com/watch?v=8jErWRddFYs>.

To see how 3D printing is facilitating fashion and interactive wearables, see the

following articles:

<https://interestingengineering.com/high-fashion-meets-3d-printing-9-3dprinted-dresses-for-the-future>

<https://medium.com/@scientiffic/designing-interactive-3d-printed-thingswith-tinkercad-circuit-assemblies-518ee516adb6>

This article covers the benefits of high- and low-fidelity prototyping and how to

produce them:

<https://www.nngroup.com/articles/ux-prototype-hi-lo-fidelity/?lm=aestheticusability-effect&pt=article>

**Conceptual Designing**

Read about how to create mood boards for UX projects here:

<https://uxplanet.org/creating-better-moodboards-for-ux-projects-381d4d6daf70>

Invision offers a tool to help with this. See the following web page:

<https://www.invisionapp.com/inside-design/boards-share-design-inspirationassets/>

Concrete Design

There are resources available to help design for inclusivity, accessibility, and flexibility,

such as Microsoft’s inclusive design toolkit. Microsoft’s inclusive design toolkit has some useful and interesting resources.

You can find out more at <https://www.microsoft.com/design/inclusive>

This video illustrates the benefits of experience mapping using a timeline:

<http://youtu.be/eLT_Q8sRpyI>.

ACTIVITY 11.4

This activity illustrates how a scenario of an existing activity can help identify requirements

for a future application to support the same user goal.

Write a scenario of how you would go about choosing a new hybrid car. This should be

a new car, not a secondhand car. Having written it, think about the important aspects of the

task, your priorities and preferences. Then imagine a new interactive product that supports

this goal and takes account of these issues. Write a futuristic scenario showing how this product would support you.

ACTIVITY 12.4

Activity 11.4 in Chapter 11 developed a futuristic scenario for the one-stop car shop.

Using this scenario, develop a storyboard that focuses on the environment of the user. As you

draw this storyboard, write down the design issues that it prompts.

**Comment**

The following is based on the scenario in the comment for Activity 11.4. This scenario breaks

down into five main steps.

1. The user arrives at the one-stop car shop.

2. The user is directed into an empty booth.

3. The user sits down in the racing car seat, and the display comes alive.

4. The user can view reports.

5. The user can take a virtual reality drive in their chosen car.

The storyboard is shown in Figure 12.13. Issues that arose while drawing this storyboard

included how to display the reports, what kind of virtual reality equipment is needed, what

input devices are needed—a keyboard or touchscreen, a steering wheel, clutch, accelerator,

and brake pedals? How much like actual car controls do the input devices need to be? You

may have thought of other issues.

ACTIVITY 12.6

*Design thinking* has been described as an approach to problem-solving and innovative design

that focuses on understanding what people want and what technology can deliver. It is derived

from professional design practice, and it is often viewed as having five stages that together

evolve a solution: empathize, define, ideate, prototype, and test. A slightly different view of

design thinking, according to IDEO (https://www.ideou.com/pages/design-thinking), emphasizes

human needs, empathy, and collaboration by looking at the situation through three

lenses: desirability, feasibility, and viability.

Design thinking has become very popular, but some have questioned its benefits and

implications. This activity invites you to decide for yourself.

Click the following links, and do some investigation yourself around the idea of design

thinking. Based on what you find, do you think the turn toward design thinking overall is

beneficial or damaging to interaction design?

**Comment**

Design thinking is similar to the approaches espoused by user-centered design and the notion

of design thinking has been embraced by many designers and organizations. Nevertheless, the

way in which it has been popularized has resulted in some heavy criticism too. In her presentation,

Natasha Jen criticizes the simple five-stage process and invites proponents to share the

evidence of its success and its outcomes so that it can be improved.

Jon Kolko (2018) believes that this surge of interest in design thinking “will leave behind

two benefits: validation of the design profession as real, intellectual, and valuable—and a very

large need for designers who can make things.” However, he also points out that it has been

popularized at a simplistic level of detail.

At the end of the day, what this suggests is that design is a creative activity supported by

techniques, tools, and processes, but it cannot be boiled down into a particular process or set

of techniques—design involves “the habit of continually doing things in new ways in order to

make a difference,” as stated by Dan Nessler.

Jon Kolko’s (2018) article:

<http://interactions.acm.org/archive/view/may-june-2018/thedivisiveness-of-design-thinking>

Natasha Jen’s (2017) presentation:

<https://vimeo.com/228126880>

Dan Nessler’s (2016) article:

<https://medium.com/digital-experience-design/how-to-apply-adesign-thinking-hcd-ux-or-any-creative-process-from-scratchb8786efbf812>

**Comment**

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of techniques—design involves “the habit of continually doing things in new ways in order to

make a difference,” as stated by Dan Nessler

See the following websites to learn about two different types of SDKs and

their use:

••Building voice-based services with Amazon’s Alexa Skills Kit:

<https://developer.amazon.com/alexa-skills-kit>.

••Constructing augmented reality experiences with Apple’s ARKit:

<https://developer.apple.com/arkit/>.

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