

By Lorraine Justice

Back in the 1980s, the design education community found itself scrambling to find designers who were trained on the latest software and could teach it to others. Technologies continue to change. What other new content are we faced with as educators?

The Future of Design Education

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HEN COMPUTING STARTED

to emerge in the 1980s, design education found itself at a crossroads. Businesses desperately needed designers who were trained on the latest software. Many senior faculty members at that time could not teach the new technologies—and so this content was relegated to junior faculty who embraced the new computing options, or by knowledgeable working designers who could teach as adjunct professors.

Every design education program was affected (animation, communication, environmental,

fashion, graphic, industrial, product, etc.), and the faculty in those programs had to make a decision: What would stay in the curriculum, and what could go? There were many heated debates in those faculty meetings. How much of the “traditional” design curriculum could stay?

Design education today finds itself at a similar crossroads. Technologies continue to change rapidly. However, changes in design and design education will have to respond to more than just new technologies. Rapidly shifting cultures, changing global government requirements, increased consumer demands for sustainability and fair wages, and a new look at ethics will challenge our design activities as well, and may affect the way we do research. How do we fit this new content into

an already packed design curriculum, without losing sight of what we need to keep?

We learned a lot from the last massive integration of technology into the design curriculum, and while it is still problematic today, we can use what we learned from the past. We are much smarter this time around. We learned how to keep our core design content and studio experiences while changing the tools and the project applications. Now, with business and education working more closely together, we can create a seamless path for graduating designers and new hires, prepping students for what they will need in the workplace.

Design will become much more complex for some products, services, and experiences, and that should prompt a fresh review of the design process and of design thinking.

New technologies, expansion of interfaces, and connectivity

Artificial intelligence (AI), augmented reality (AR), the Internet of Things (IoT), and virtual reality (VR) are not just buzzwords anymore. The business world needs designers who understand these technologies and can design for them. But we will also need designers to help imagine the

software interfaces and functionality we will be using to design for AI, AR, IoT, and VR—just as designers helped to create the software interfaces for Photoshop, Illustrator, AutoCad, and others.

One obvious change is that interfaces have greatly expanded into the senses. We are still designing interaction, but those interactions have become more complex. The interfaces we educators spent a lot of the last decade training designers for were mostly visual. To interact with today's technologies, the new interfaces often require the use of one or several senses: voice, touch, visual recognition, and smart sensors that capture brainwave activity.

We need educators who understand these new technologies and interface options well enough to support a class in design exploration of them. The applications that students apply their newfound technical knowledge to (products, services, experiences, etc.) will also expand the need for more design research and evaluation methods. We may not be able to use some of our current design research and consumer research methods for some of these new—and global—projects. Developing countries and some cultures may not be comfortable with or understand our Western interview, observation, mapping, or survey methods, and we may need to try different or new research practices.

Enriched problem-solving requires diversity in team members. Having larger teams made up of various experts and differing cultures can add new dimensions to design and innovation conversations. Such teams add the depth and breadth of information needed for future complex design problems to mitigate risk.

The rising complexity of the world means more data is needed to help find solutions to problems and aid with decision-making. Artificial intelligence programs are already searching through and sorting massive amounts of information in the legal and health sectors. As data gathering becomes more refined, the data service expert (computer or human) may become part of the design team.

So, what might this mean for the future of design? Design problem-solving processes and practices might expand with more diverse team members and the necessary data to help solve complex problems. Technologies such as artificial intelligence (smart machine-assisted processes), and big data (massive amounts of organized information) will hopefully be honed in order to

address the new problems confronting the world.

The future of design will impact issues on a continuum from business to technology to human nature. As technology becomes more embedded in our day-to-day lives (and in our bodies), design will play a pivotal role in finding solutions to complex problems. It is more important than ever that designers embrace their increasingly complicated role in the creation of products, services, and experiences.

Rapidly shifting cultural and political climates

Design educators and students, along with designers in business, will find their designing and evaluating skills taxed greatly when they are working on global products. There is a lot to

FIGURE 1
17 Global Sustainable Development Goals for products and services were developed at the UN.



consider, and a lot at risk, when designing for other cultures. Design students need experience and heightened awareness when designing for other areas in the world. Designers, educators, and students all need to stay on top of gradual cultural shifts as well as the rapid ones. What was OK yesterday is not OK today, in many cases.

In 2015, the United Nations (UN) member countries came together to create 17 Global Sustainable Development Goals for products and services to reach by the year 2030. These goals have raised the global profile of important topics like ethics, fairness, and environmental protection and have been supported by the World Economic Forum. The goals that countries are encouraged to meet when introducing new products and services can be seen in Figure 1.

This set of goals is obviously an ambitious undertaking, and the design community is taking a realistic look at what it can do to help achieve them. Incorporating the UN goals into design team discussions all over the world can increase awareness.

Ethics

As designers and design teams work with more technologies, they may encounter questionable practices that begin to seem normal. Did game designers or social media designers realize their products were addictive for some people? If they did, it may be considered an ethical problem today. If they had just wanted to create a fun game or social media platform, then they might be considered naïve.

Will the designers of today need to take a prominent role in questioning the ethics of products, services, and experiences? Should values and ethics be a key part of their education? Designers and design teams in companies are often gatekeepers for appropriate practices and procedures related to the products and services they design—sometimes to the dismay of their employers. In addition, more-aware consumers may want to know when products and services are taking advantage of workers or harming the environment. This will make for a much more complex design process—including more extensive and specifically vetted documentation.

The design process

The design process, at a glance, can seem more chaotic than systematic. The chaos is a result of trying to bring all of the information together to find connections that could result in solutions. If you examine the design process, you will find an embedded process I call *design reasoning*. Design reasoning helps designers and design teams to synthesize large amounts of information and stimuli, and to look for insights and unique connections in the data and stimuli. But how unbiased is the design reasoning that takes place? Examining the design process, the questions asked, and the reasons given can alert design teams to unnecessary or wrong biases.

The future for design education

I truly hope that the best of design skills will not be lost in our transition to a new design era. I believe we will still need to design beautiful, intriguing, useful, and tactile things, but maybe not in the amounts we have had before due to our over-taxed ecosystem. However, designers of the future will need to greatly broaden their education and research skills if they are to design for the new technologies that will be embedded in our spaces, products, and experiences. I also believe it would be beneficial to have both design generalists and design specialists for the various problems that will arise in the future.

Designing for all the senses (in real as well as virtual environments) will become more important for future solutions. Designers may also be designing for product-to-product experiences as well as product-to-human experiences. Designers may need training to learn to work with complex teams, adapt to new forms of design research, and learn new software and technologies. We may need more design degrees that allow a focus or specialty, such as specific Masters degrees and Design PhD or Doctorate in Design degrees.

Complexity will come from shifting cultures and governments, speedier processes, and efforts to plan for change in an ever-changing world. Design thinking, design reasoning, and visualization and communication techniques



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will likely be adopted, learned, and used by other disciplines. Designers may find themselves working with team members from different industry backgrounds who are aware of design processes and methodologies, enabling the team to move at a fast pace. Ideally, companies in the future will have the design processes embedded in their day-to-day operations.

WHAT CAN WE EXPECT?

More specialization

We can expect new specialties in design related to the new technologies. Interior designers and virtual reality seem like a natural pair, along with specialties in voice activated software and products, or connected/heightened online retail. It is these types of content-pairings that might allow for new specialists in design.

Larger teams

With the increased complexity of projects more experts may be needed, especially if companies want to reduce the risk to their brand reputation, or avoid legal issues.

Cultural experts

Countries such as China and India are extremely varied from region to region and it may be impossible to understand the differences without consulting with cultural experts. It will be important for design teams to consult cultural experts to evaluate their projects for inappropriate, offensive, or culturally inaccurate images and content. Sensitivity to and expert knowledge of cultures will become major areas of expertise for designers.

More scrutiny of the design process

The complexity of future design projects will require a closer look at the design process and at design thinking. Where in the process were particular decisions made? What was the reasoning used to make those decisions? This type of examination can help to remove unwanted bias from our design processes.

A few suggestions

When computing was first integrated into design education curricula, educators asked businesses what they needed. The same is happening today. In a recent conversation I had with a design manager from a West Coast technology company, I was told, “We need designers who understand the new options for interfaces, not just visual interfaces.” Point taken! We will support those projects in our design studios.

Design education programs can also benefit by:

- Inviting business in to see what they might need in the next 2-5 years
- Exploring new technologies across campus to become familiar
- Designing new studio projects using new technologies, cultures, and ethical issues.

Businesses can benefit much more today than in the past by:

- Asking questions about roadblocks to the new curriculum and helping to solve for them
- Sponsoring exploratory projects with the new technologies and bring in the new experts
- Increasing design student intern sponsorships available that occurring earlier in the student degree (Freshmen and Sophomores)

This article covers just some of the complexities that are making inroads into design education. We are getting better at facing new technologies and at applying design thinking to new situations. Let’s hope we can continue to keep up with this brave new world. ■