

# Teaching a Tolerance for Ambiguity as a Response to Crisis Learning Contexts

Jennifer Long

**The final publication is available at Springer via**

[https://doi.org/10.1007/978-3-030-74088-7\\_11](https://doi.org/10.1007/978-3-030-74088-7_11)

**Permanent link to this version** <https://hdl.handle.net/20.500.14078/3245>

**License** All Rights Reserved

# Teaching a Tolerance for Ambiguity as a Response to Crisis Learning Contexts

Jennifer Long<sup>1</sup>

*“Some stories don’t have a clear beginning, middle, and end. Life is about not knowing, having to change, taking the moment, and making the best of it, without knowing what’s going to happen next. Delicious ambiguity...”*

- Gilda Radner

**Abstract** Using insights from the changes made to a workshop developed before, but occurring after the pandemic, I describe the usefulness of design thinking activities and approaches to education in the post-COVID teaching era. I argue that design thinking techniques help build an awareness around tolerance for ambiguity as an opportunity to inspire creative solutions. This transferable skill is important for our students as soon-to-be graduates, and for faculty looking to build resilience in this uncertain time. Using Boyer’s framework for scholarship, I explore opportunities to connect the teaching and learning goals of students and faculty.

## 1.1 Teaching about, while living, discomfort

Post-secondary institutions in Canada have taken several different approaches when responding to the COVID-19 crisis. While hindsight will provide a better indicator to understand how institutions fared in supporting their students, stress and ambiguity were two constants affecting every student and instructor regardless of educational context (WHO, 2020). Students and faculty have had to respond to last-minute changes, varied communication, and administrators hedging bets on future outbreaks and predictions, not to mention the toll on those who became, or knew someone, infected with the virus. Questions abound as to the impact on learning preferences, allocated time and space for learning, and access to learning technologies that avoid deepening pre-existing inequalities facing women (Wenham, Smith, Morgan, & the Gender and COVID-19 Working Group, 2020), racialized (Laurencin & McClinton, 2020) and disabled (United Nations, 2020) students. Educators

---

<sup>1</sup> MacEwan University, Edmonton, Canada. longj34@macewan.ca

and researchers are scrambling to investigate how responses to COVID-19 affect educational practice; to date however, “very meager research (has been) done in relation to the field of education on how COVID-19 (...) affect(ed/s) the educational system” (Toquero, 2020, p.1). This unprecedented experience demonstrates the need for educators to build their own and their students’ tolerance for such contexts, so that they may cope better in future uncertainty.

In this chapter, I engage with the concept of building students’ and faculty’s tolerance for ambiguity as an important transferrable skill for future educational practice. Over 20 years ago, Johnson, Court, Roersma, and Kinnaman (1995) argued that students needed to learn ambiguity-tolerance as a skill to ‘interface’ with unavoidable ambiguities in everyday life and this skill seems of greater importance in the new world we face. Defined as “a capacity to entertain uncertainty, to cope with paradox, to allow for the indeterminate,” anthropologist Du Bois argued that a tolerance for ambiguity be one of the attitudes that anthropologists fostered among their students (1963, p.37). Huber (2003) advocates for the use of experiential learning and action-based methodologies in problem solving cases as a means to foster this tolerance and prepare students “for success in the fast-paced and often chaotic business world” (p.52). Huber’s model prioritizes students’ ability to “take responsibility for their own learning” by discovering methods to operate effectively, gather and analyze data, develop creative ideas and solutions, and apply theoretical insights (2003, p.54). For students, gaining a tolerance for ambiguity has positive possibilities for both short and long-term uncertainty.

After defining this topic and describing its use in past scholarship on teaching and learning, I will illustrate how I built tolerance for ambiguity using lessons learned from facilitating workshops on design thinking both before and after the onset of the pandemic. Design thinking is a visual problem-solving method that puts the ‘end user’ at the heart of the design process and which has gained prominence in over the last two decades. This method helps designers dig deep into the cause of root problems, uncover explicit and tacit user needs, and build solutions that consider real-world contexts and ideal futures (Kubovsky, 2019). It is a tool to engender tolerance for ambiguity and rethinking one’s priorities in teaching and learning in unpredictable times. I argue that one’s ability to handle ambiguity should become a staple in professional development among faculty and educational practice among students across institutional context. Aligned with the goal of this volume, our new world requires case studies that shed light on teaching and educational solutions for now and the future.

## **2.1 Tolerance for ambiguity**

The tolerance of ambiguity was first coined by Psychologist Else Frenkel-Brunswik in 1948. This term, which ironically has no one definitive definition, has engaged scholars ever since particularly in the fields of medicine, psychology and

in organizational behaviour (Furnham and Marks, 2013, p. 717). DeRoma, Martin, and Kessler (2003) define a tolerance for ambiguity according to Budner, as “an individual’s propensity to view ambiguous situations as either threatening or desirable” (105). The popularity of the term in psychology is also seen in clinical and organizational areas where ambiguity is defined as “a lack of information that is necessary to understand a situation or to identify all of the possible out-comes” (Ellsberg, 1961 as cited in Furnham and Marks 2013, p. 718). It is important to note that these cases and definitions locate a tolerance of ambiguity as a personal trait. Where tolerances for ambiguity are low, individuals are typically associated with behaviors such as “crude stereotyping, rigid defenses, and a general lack of insight” and high levels of ethnocentrism and authoritarianism (Levine 1985, p.12).

A related concept in Sociology is ‘uncertainty avoidance’. Uncertainty avoidance is defined as “the extent to which people feel threatened by ambiguous situations, and have created beliefs and institutions that try to avoid these” and has been used most notably by Geert Hofstede (Hofstede 1984: 419 as cited in Furnham and Marks 2013, p. 718). According to The Hofstede Centre, uncertainty avoidance is defined as “the extent to which the members of a culture feel threatened by ambiguous or unknown situations and have created beliefs and institutions that try to avoid these” (The Hofstede Centre N.d.a). The Hofstede Centre finds that Canadians are more “uncertainty accepting” according to their Uncertainty Avoidance Index (UAI) and that Canadians tend to be “tolerant of ideas or opinions from anyone and allow the freedom of expression” (The Hofstede Centre N.d.b). To have a higher tolerance for ambiguity is through to result in “a pronounced openness for experiential ambiguities may be functional for and reinforced in specific kinds of social contexts” (Levine, 1985, p. 13).

However, like Wayne, Dellmore, and Kalishman (2012), my goal here is not to advocate for developing a ‘tolerance for ambiguity’ as a personal trait. There is much debate about how effective measurements of this trait are and whether this personality variable can be ‘built’ at all (Furnham & Marks, 2013; Liu, 2015). Instead, I want to advocate for an increase in awareness about *the role of ambiguity* as a contemporary state associated with COVID planning and response, and its potential for *causing distress* (Wayne, Dellmore, & Kalishman, 2012). My goal is to reshape perceptions of ‘ambiguity as threatening’ to ‘ambiguity as an opportunity to inspire’ using creative, visual, collaborative problem-solving methods. In such educational spaces, participants withhold judgement and build their level of comfort in uncomfortable spaces (Bowen, 2016).

In 2003, Huber described her approach to teaching tolerance of ambiguity through open-ended (“choose any project you want”) community-based projects. These action research projects required students to conduct research, plan, theorize, learn, and develop solutions and importantly, flounder in practice under what Huber describes as “the burden of too much freedom” (2003, p. 54). Huber’s approach incorporates all four of Boyer’s (1990) types of scholarship: discovery (through hands-on research), integration (through self-reflection and activities that ask students to find useful connections among ideas), applied (through trying new

activities or methods throughout the term), and teaching (for example, through experiential learning activities such as problem solving or practicing interviewing techniques). By the end of the semester, Huber finds that her students' relationship with ambiguous contexts have changed, as is evident by their willingness to take responsibility for their own learning (identifying a topic) and their ability to create effective operating techniques as part of a group. Huber also encourages her students to reflect on what they have learned in order to apply these lessons to future environments of change and chaos (2003, p. 54). While I have taught similar semester-long community-based research courses in the past, I am interested to explore opportunities to engage with ambiguous contexts as teaching spaces in an even shorter timeline: the 4-hour workshop and in a virtual space (online). The COVID context produced several online educational opportunities (ranging from virtual tours of museums to limited time offers for free MOOCs) that quickly led to an unprecedented level of online fatigue (Sklar, 2020). The online environment also presents a unique challenge to reimagine experiential learning, hands-on activities, and group dynamics.

In what comes next, I provide an overview of a human centered design workshop that was originally scheduled before the COVID-19 response and our transition online for a different set of learners. I then discuss how the activities and learning outcomes of this workshop align with my goals of building awareness around a tolerance for ambiguity in this uncertain time.

### **3.1 Design thinking and a human-centered design workshop**

At its most simplistic form, design thinking is a visual problem-solving method where designers move through a five-stage framework (not necessarily in a linear fashion) to develop a product or service with the end user 'in mind'. These stages involve learning more about that user (building empathy), identifying a problem they have with a product or service (defining a specific problem), brainstorming possible solutions (known as ideation), and then building an initial prototype of a solution. The final stage involves testing the prototype with the end user or market. Typical design work integrates user feedback in the first and final stage of the design process. Like Huber's action research project above, teaching this process involves collecting data (empathizing), planning (defining problems), theorizing (ideating), learning (prototyping), and developing solutions (test) – similarly these steps and practices are not mutually exclusive or necessarily follow a linear path.

The original workshop scheduled for the second week of March 2020 incorporated this framework through a design sprint. In this context, the design sprint is a design experience where participants learn the phases of the design thinking framework by designing for a partner. Participants are not introduced to the design thinking framework. Instead, participants learn by doing and in a manner that is often uncomfortable due to the intense time constraints (e.g. "in 2 minutes, write down as

many ideas on the post-it notes in front of you, GO!”) and various activities. Participants typically struggle in the beginning of the session and eventually ‘go with the flow’ as they become used to quick changes and commotion in the class space. It is only after the session that facilitators describe what happened in the various stages of the design thinking process and then take participants through a series of debriefing activities (individually, paired, and in a group) to reflect on their experiences. This session, due to its high energy and chaotic environment with minimal direction, lends to Huber’s context for developing participants’ tolerance for ambiguity.

In addition to design thinking tools, my approach incorporated two related design practices: (1) Human Centred Design (HCD) and (2) Respectful Design. Elisia (2017) defines HCD as using the design thinking framework to consider “human perspectives throughout the design process” (para. 2). While similar, HCD is often touted as a mind-set [inspiration (empathy), ideation, and implementation] while design thinking is a process or toolkit. In addition to the design thinking tools and an HCD mindset, I also incorporated a design anthropology perspective.

Design anthropologists like Dori Tunstall are shifting this stakeholder engagement through her calls to decolonize design practice. Tunstall (2019, as cited by the Jacobs Institute) advocates that designers create on a community level (rather than an decontextualized individual) and practice respectful design, where the focus shifts from what a designer produces (is this product respectful?) to how a designer engages with ‘respectfulness’ (how am I approaching this stakeholder?) (see Tunstall, 2013). In my originally planned workshop, I incorporated a social identity and location wheel to help participants see how their inferences about their partner’s perspective and context included limitations. I describe Tunstall’s (2013) work on decolonizing design and respectful design and together the group brainstorms potential methods for inclusive design practices (through design thinking and their everyday practice). This latter portion of the workshop uses more typical knowledge translation mechanisms (e.g. the BOPPPS model) however, there can be discomfort in how I introduce and discuss privilege as a facet of one’s social identity and location. As we apply this knowledge back to their own work environments, there are opportunities for reflection, taking responsibility for more respectful approaches to their own work practice, and how the group comes together to find an effective operating practice (like Huber, 2003).

In the originally scheduled session, all participants were supposed to come to the social innovation center at our university for a four-hour workshop. At least, this was the plan.

### ***3.2.1 Designing in/for chaos***

The university shut down all face-to-face instruction three days before the planned workshop. Over the next two months, in discussion with the social innovation institute, I decided to host the workshop online. This posed quite a few

challenges considering the hands-on nature of the activities (requiring materials like markers, post-it notes, and group ideation strategies, etc.), the almost total reliance on paired and group work. Like any community-based work, ‘face-to-face time’ in design is thought to be an essential part of collecting viable data and building trust and respectful relationships. Last, design work is high energy work and sustained energy in online meetings is difficult, particularly if individuals – like those who attended my workshop – did not have a camera or preferred not to use video.

The design sprint is a key mechanism to learn design tools and develop one’s awareness about how ambiguity can be used to inspire creative and respectful solutions. Therefore, the learning objectives of the workshop did not change. Originally, participants were going to solve for the problem: how to make a better breakfast experience (for one’s partner), which is a design sprint exercise available through Stanford’s d.school. This sprint requires printing off a series of templates and having various ideation materials available (pens, markers, post-it notes, paper, stickers, decision making/criteria cards, and prototyping materials). For the online version, participants were instead asked to solve for: how to recreate positive/respectful customer service experiences in the time of COVID? I revised all activities to only require a pen and lined paper.

Where possible, my redesign integrated apps or online group activities to maintain the group dynamic and keep energy up. Instead of writing on post-it notes for example, participants would use a google doc made to look like individual post-it notes (using a simple table with square cells, colored yellow) to generate ideas. To replace the dotmocracy activity (a voting mechanism where participants vote by placing a sticker dot on their favorite post-it note idea), I used online programs like PolLEV to rank participant choices.

While the first half of the session was completed in pairs, I transitioned to one large group midway through the session to avoid a drop-off of energy after the first hour of activities. This meant that the group began to solve for an issue identified by one of the participants, who became our key stakeholder. When narrowing our prototypes to begin the testing phase, this stakeholder used an app (a ‘wheel of fortune’ style wheel with all the design criteria as options) to help them choose the design criteria (e.g. feasibility, quick win, etc.). However, I ensured there were alternative options to suit the participants’ preferred level of engagement with technology – for example, prototyping involved creating a dream board on MS PowerPoint or using a sketching app to draw a prototype.

Participants were then given the social identity and location wheel as homework and asked to write back to describe what lessons they learned in this process and how their design work in the workshop could be applied to their own work environment. While not every participant took advantage of this final activity, those that did demonstrated a significant understanding of the design tools and steps and explored their own identity and developed tangible ideas for change to build more respectful relationships with their end users.

## 4.1 Developing awareness of the positive influence of ambiguity

In her discussion of the concepts that should be found in undergraduate curriculum of students majoring in Cultural Anthropology, Du Bois argues that a tolerance for ambiguity is a required attitude for an anthropology graduate (1963:37). She describes this attitude as “a capacity to entertain uncertainty, to cope with paradox, to allow for the indeterminate” (Du Bois 1963: 37). She argues that this trait is not often taught in secondary education and once in professional careers, diminishes over time. More recently, Klugman, & Beckmann-Mendez (2015) argued that their health professional education students developed more tolerance for ambiguity (in addition to heightened observation and communication skills) when they used fine art instructional strategies, specifically visual thinking strategies.

This design thinking/HCD/Design Anthropology session, due to its high energy and chaotic environment with minimal direction, lends to Huber’s context for developing participants’ tolerance for ambiguity. The goal of this session was to reshape perceptions of ‘ambiguity as threatening’ toward seeing ‘ambiguity as an opportunity to inspire’. Using creative, visual, collaborative problem-solving methods, I believe participants were able to suspend judgement and build their level of comfort in these uncomfortable spaces. University responses to COVID across Canada have presented an opportunity for educators to build their own and their students’ awareness of ambiguity as a future and potentially normative state. Sessions involving design thinking/HCD/Design Anthropology hold opportunities to practice coping with future uncertainty by thinking about ambiguity as an opportunity for inspired creativity.

### References

- Boyer, E.L. (1990). *Scholarship reconsidered: Priorities of the professoriate*. Jossey-Bass.
- Bowen, J.A. (2016, December 7). Helping students embrace discomfort. *Inside Higher Ed*. <https://www.insidehighered.com/views/2016/12/07/educating-students-ambiguity-and-discomfort-essay>
- DeRoma, V. M., Martin, K. M., & Kessler, M. L. (2003). The relationship between tolerance for ambiguity and need for course structure. *Journal of Instructional Psychology*, 30(2), 104–109.
- Droge, A. (2017). “Always called Jack”: A brief history of the transferable skill. *Victorian Periodicals Review*, 50(1), 39-65. doi:10.1353/vpr.2017.0003.
- Du Bois, C. (1963). The curriculum in cultural anthropology. In D.G. Mandelbaum, G.W. Lasker, & E. M. Albert (eds.), *The Teaching of Anthropology* (pp. 27-39). University of California Press.
- Elisia, F. (2017, August 20). What’s the difference between human-centred design and user experience design? *Prototypr.io*. <https://blog.prototypr.io/whats-the-difference-between-human-centred-design-and-user-experience-design-2f48e5c9be25>
- Furnham, A. & Marks, J. (2013). Tolerance of ambiguity: A review of the recent literature. *Psychology*, 4, 717-728. doi: 10.4236/psych.2013.49102
- Huber, N. (2003). An experiential leadership approach for teaching tolerance for ambiguity. *Journal of education for business*, 79(1), 52-55. doi: 10.1080/08832320309599088

- Jacobs Institute. (2019, January 13). Respecting our relations: Dori Tunstall on decolonizing design. *Medium*. <https://medium.com/@JacobsDesignCal/respecting-our-relations-dori-tunstall-on-decolonizing-design-d894df4c2ed2>
- Johnson, H. L., Court, K. L., Roersma, M. H., & Kinnaman, D. (1995). Integration as integration: Tolerance of ambiguity and the integrative process at the undergraduate level. *Journal of Psychology & Theology*, 23(4), 271–276. <https://doi.org/10.1177/009164719502300407>
- Klugman, C. M., & Beckmann-Mendez, D. (2015). One thousand words: Evaluating an interdisciplinary art education program. *Journal of Nursing Education*, 54(4), 220–223. doi: 10.3928/01484834-20150318-06
- Kubovsky, D. (2019, April 2). Achieving workplace diversity through design thinking. *Medium*. <https://medium.com/@DavidKubovsky/achieving-workplace-diversity-through-design-thinking-866015a17e49>
- Laurencin, C. T., & McClinton, A. (2020). The COVID-19 pandemic: A call to action to identify and address racial and ethnic disparities. *Journal of racial and ethnic health disparities*, 7(3), 398–402. <https://doi.org/10.1007/s40615-020-00756-0>
- Levine, Donald. (1985). *The flight from ambiguity: Essays in social and cultural theory*. Chicago: University of Chicago Press.
- Liu, Ch. (2015). Relevant researches on tolerance of ambiguity. *Theory and Practice in Language Studies*, 5(9), 1874–1882. <http://dx.doi.org/10.17507/tpls.0509.15>
- Lyle, E. (2017). *Of books, barns, and boardrooms: Exploring praxis through reflexive inquiry*. Sense Publishers.
- Sklar, J. (2020, April 24). ‘Zoom fatigue’ is taxing the brain. Here’s why that happens. *National Geographic*. <https://www.nationalgeographic.com/science/2020/04/coronavirus-zoom-fatigue-is-taxing-the-brain-here-is-why-that-happens/#close>
- The Hofstede Centre. (N.d.a). National Culture: Dimensions. <http://geert-hofstede.com/dimensions.html>, accessed on April 26, 2014.
- (N.d.b) Cultural Tools: Cultural Survey. <http://geert-hofstede.com/cultural-survey.html>, accessed on April 26, 2014.
- Toquero, C. M. (2020). Challenges and opportunities for higher education amid the COVID-19 Pandemic: The Philippine context. *Pedagogical Research*, 5(4), 1–4. <https://doi.org/10.29333/pr/7947>
- Tunstall, D. (2013). “Decolonizing design innovation: Design anthropology, critical anthropology, and Indigenous knowledge”. In W. Gunn, T. Otto, & R. C. Smith (eds.), *Design anthropology: Theory and Practice*. Bloomsbury.
- United Nations. (2020, March 19). Preventing discrimination against people with disabilities in COVID-19 response. United Nations (UN) News 2020. <https://news.un.org/en/story/2020/03/1059762>
- Wayne, S., Dellmore, D., & Kalishman, S. (2012) Increasing students’ tolerance of ambiguity: The need for caution. *Academic Medicine*, 87(7), 835. doi: 10.1097/ACM.0b013e3182586bdd
- Wenham, C., Smith, J., Morgan, R., & Gender and COVID-19 Working Group (2020). COVID-19: The gendered impacts of the outbreak. *Lancet*, 395(10227), 846–848. [https://doi.org/10.1016/S0140-6736\(20\)30526-2](https://doi.org/10.1016/S0140-6736(20)30526-2)

World Health Organization (2020). Mental health and psychosocial considerations during the COVID-19 outbreak. <https://apps.who.int/iris/bitstream/handle/10665/331490/WHO-2019-nCoV-MentalHealth-2020.1-eng.pdf>