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# TRY AGAIN: TEACHING TEACHERS AND STUDENTS HOW TO FAIL WITH DESIGN THINKING

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*This paper is an exploration of failure in the learning context and how the SHIFT Lab program at TELUS Spark is helping educators be fail positive through immersive design thinking experiences. Further, we look at how design-based learning translates and applies in the elementary context to create resilient, the 21st century innovators of the future.*

Keywords: fail positive; design thinking; professional learning; innovation

## FEAR OF FAILURE IN LEARNING CONTEXTS

The world needs innovators to tackle the complex problems of the 21st century. Research shows a tolerance of failure is an essential quality of successful innovators (Dyer, Gregersen, & Christensen, 2011; Wagner, 2012). Yet, the word ‘failure’ is mired in negativity for both students and educators, rooted in the results-focused, summative assessment practices of a traditional education system that rewards the ‘right answer’ (Carroll et al., 2010; Dweck, 2006; Long, 2012; Martin, 2015; Masters, 2014). Shielding students from failure and celebrating success on unchallenging tasks reinforces the unhealthy perspective that “success is entitlement” and misses the opportunity to foster healthy attitudes towards struggle, risk and failure that would benefit students in successfully tackling complex problems (Dweck, 2006; Masters, 2014; Tough, 2012). The question is, then, if failure is a key ingredient of innovation, how do we rewrite narratives

around success and failure in education to help create the resilient, innovators of the future? At TELUS Spark we are embracing failure through our design thinking culture and through our one-year professional learning program, SHIFT Lab, we are teaching educators how to be fail-positive, in order to innovate their education practices for the needs of 21st century learners.

## **DESIGN THINKING FOR PROFESSIONAL LEARNING**

Cultural institutions in North America and Europe have a long tradition of providing quality professional learning for teachers (CAISE, 2011). Professional learning is generally accepted as an essential ingredient in evolving teacher practice to enhance student learning (Guskey 2000), and TELUS Spark's expertise in using the design thinking process to craft authentic, immersive, skill-development-focused learning experiences for diverse learners positions the organization to respond to the research. This is responsive to research that proves educators learn best in professional development when they are engaged as learners to build their skills and knowledge of the processes (Timperley, 2011). Immersive experiences with design-based learning also give educators the chance to feel the excitement and possibility that these experiences will bring for their students (Crichton & Carter, 2015; Doppelt et al., 2009; Macintyre Latta & Crichton, 2015). See Appendix 1 for a summary of the SHIFT Lab program components.

## **RECONTEXTUALIZING FAILURE**

We need to engage the concept of 'failure' in our diverse learning contexts to support learners to broaden, build complexity, and de-personalize failure. Fostering the fail-positive component of design thinking and the Maker Movement (Dougherty, 2013; Gutwill, Hido, & Sindorf, 2015; Martin, 2015), offers opportunities for learners to redefine failure for themselves and in their learning environments. The failures in authentic, design-based learning experiences occur quickly

and with momentum, helping learners to better understand problems, create solutions, and build their creative confidence through small iterations upon prototypes (Carroll et al., 2010; Kapur, 2008). Indeed, the “fail fast, learn faster” approach of the design thinking bias to action is well suited to learning in the 21st century world (Long, 2012, p. 18). In design thinking tasks, failures can occur with designs, ideas, material choice for a prototype, insufficient time, and lack of background knowledge, to name a few sources. The feedback loops integrated into the design thinking cycle highlight those small failures and allow for critical reflection and time for iteration.

### **DISCIPLINE-BASED TASK DESIGN TO FAIL POSITIVE**

One negative perception of failure in education is connected to a perceived lack of student effort, rooted in an inability to engage students in their learning, to stoke the fires of intrinsic motivation. A challenge at the core of this issue is that Millennials are “*differently* motivated” than previous generations and are looking to offer meaningful contributions to the world (Wagner, 2012). Design thinking offers the possibility of student-created learning from start to finish, through authentic challenges that empower learners to make change in real time (Bennett and Monaghan, 2013; Long, 2012). A grade five teacher in the 2015-16 SHIFT Lab cohort is empowering his students as design thinkers to find challenges in their community they are interested in addressing through his Design Declaration work: “How might we create opportunities for learners to become active community members through meaningful inquiries that encourage creativity, resilience and empowerment?” In SHIFT Lab, educators experience cycles of failure and iteration with their Design Declarations as they encounter challenges with time, resources, and larger structural forces. The design thinking pedagogical framework has learners testing assumptions, responding to real world constraints, offering flexible solutions and,

as Long (2012) states, “such a pedagogical framework naturally provides learners with the thinking tools to respond to an unpredictable future while remaining focused on the human experience” (p. 18). Looking specifically at the notion of *Teachers as Designers of Learning* (Friesen, 2009) building a fail-positive learning environment helps to enhance students’ learning experiences by making public students’ responsive self-direction for learning, through in-the-moment self-assessment, and future-planning for success. Failure can be reframed in education not through comparison, i.e. as an inability to meet grade expectations, but rather from a growth mindset expectation that every learner be challenged by, and supported to achieve, their own high standard of what their learning could be (Dweck, 2006; Masters, 2014). The design thinking process encourages what Tough refers to as “cognitive flexibility” (2012, p. 114) through divergent thinking, and yet it also needs to be balanced with “cognitive control” (Tough, 2012, p. 114), in having the discipline and motivation to continue the cycles of iteration. The research on “grit” highlights how resilience with failure dove-tailed with a commitment to a practice over time leads to success in multiple contexts (Duckworth, Peterson, Matthews, & Keely, 2007), connects the small failures of “iteration” in the design thinking cycle with the pursuit of effectively designed projects in a manner that fits fail-positive work with teachers and students.

## **CONSTRUCTING LEARNING ENVIRONMENTS TO FAIL POSITIVE**

Some educators argue the word ‘failure’ does not integrate the subtleties of creativity, continuous improvement, process over product, passion, and resilience that are inherent in the iterative process of design-based learning (Martinez & Stager, 2013; Ryoo, et al., 2015). However, we embrace the concept of failure and the word itself in our practice at TELUS Spark because we

actively work to minimize the negative, personal impact of the word. Much like Ed Catmull describes in *Creativity, Inc.*,

We can accept that any given idea may not work and yet minimize our fear of failure because we believe we will get there in the end. When we trust the process, we remember that we are resilient, that we've experienced discouragement before, only to come out the other side (2014, p. 81).

We also work hard to balance our environment of high standards of innovation with genuine care and support to help our team at TELUS Spark and the learners we work with feel brave, developing their “intellectual courage” (Gutwill, Hido, & Sindorf, 2015, p. 158) without judgement, important ingredients for growth mindset (Dweck, 2006, p.196-197). Many of the teachers whom we collaborate with in SHIFT Lab refer to themselves as “recovering perfectionists” and, as Calgary Board of Education learning leader and SHIFT Lab alumni, Michelle Chastko, states:

I would say that the biggest shift [in my practice] is that failure is something that I'm striving to do more of, because it's not something I tend to do a lot of. Failure is okay and it's just how to pick yourself back up again (TELUS Spark, 2014).

However, we have learned that supporting the development of a fail positive culture in a learning environment takes more than one champion. As a result, educators who apply to the program receive more points in the application process for applying as a team with colleagues from their school. In the elementary classroom setting, students have embraced learning in a fail-positive environment, by engaging with the act of offering compliments, drawing on ‘positive conversation’ and taking up ‘design challenges.’ These experiences apply to the development of resilience through experience (Tough, 2012) and elicit inventive thinking (Kelly, 2012). Drawing on specific learning tasks that inquire into changes in our local community, fail-positive

design-thinking opportunities have helped to create a more empathic, and conscientious, classroom community. Moving forward with SHIFT Lab, we are working to integrate the research on teaching neuroplasticity to educators and students. Connecting to Dweck's (2006) work on Growth mindset, we plan to utilize the research offering a metacognitive understanding of failure and its role in personal growth (Dubinsky, Roehrig, & Varma, 2013). As this applies in the elementary setting, action research in SHIFT Lab teacher collaborators' classrooms has allowed students to build on each other as learners, and see each others' failures as opportunities to engage in active discussion, that have led toward work in critical thinking. Our practices as educators are always in cycles of iteration and we will continue to experience, and model, fail-positive through our work with learners.

## **CONCLUSION**

Through engaging educators with the design thinking process in the SHIFT Lab professional learning program, we have begun to see a shift in perception from 'failure as end' to 'failure as iteration.' Immersing educators in the kinds of authentic, design-based learning experiences their students will undertake is inviting opportunities for reflection upon failure and opportunities to empathize with their learners when designing learning themselves. At the elementary classroom level, this builds conversation among the students, as they work toward development as citizens of the learning community. The future of this work will involve greater focus on growth mindset and neuroplasticity as well as collaborations with administrators and larger teams of educators at schools to encourage broader and deeper fail-positive culture development.

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## **Appendix 1**

To put the SHIFT Lab program in context, one must first understand TELUS Spark and how it fits into the learning landscape in Alberta, Canada. TELUS Spark is a new kind of science centre, weaving together science, technology, engineering, art, and math through immersive learning experiences that help learners to develop 21<sup>st</sup> century skills to be effective innovators in an ever-changing world. At TELUS Spark, we use the design thinking process to pursue our mission: “we are a role model and force for innovation that drives positive change” (It all started, 2016). Our collaborative, iterative learning with educators through our professional learning program serves as direct fulfilment of our mission, as our work with educators is amplified through their work with hundreds of students over each of their careers. SHIFT Lab engages educators in a one-year learning journey that includes conferences, a summer intensive, an online community, workshops, and support on individual project work called Design Declarations. Immersed in the design-thinking culture and experiences of TELUS Spark in five, full-days of workshops during the summer intensive, educators build resilience as learners and empathy for their students. Throughout the year the teachers stay connected to the cohort and TELUS Spark as volunteers, through additional workshops, an online community and evening Community of Practice meetings. Through this continued immersion and connection, the SHIFT Lab teachers shift their practices and design learning for their students with a focus on engagement, empathy, construction, multiple entry points, inquiry and many other best practices for 21<sup>st</sup> century learning. The Design Declaration component supports SHIFT Lab educators through a design thinking cycle focused on their practice and authentic prototyping and iteration cycles.