Habits of Mind and the Iterative Process in Design: Taking Responsible Risk
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The dangers of life are infinite, and among them is safety.
-Goethe

Introduction

In addition to disciplinary and social responsibility, traditional studio pedagogy typically focuses on learning outcomes that concern communication, history/theory/criticism, technology, materials, and practice. The iterative process in design wrestles with all of these challenges and yet, what do we understand about learning behaviours and studio education? As comprehensive as these learning outcomes appear, the dispositions needed for success are rarely taught as deliberate learning objectives in studio.

Education researchers Art Costa and Bena Kallick are the co-founders of the Habits of Mind Institute, which focuses on sixteen dispositions that empower creative and critical thinking. Educators and administrators are increasingly looking to the Habits of Mind to better refine learning outcomes in higher education. As the design disciplines become increasingly interdisciplinary, the need to teach effective behavioural strategies has become urgent. The Habits of Mind can provide a foundation to help design students better work the iterative process. These habits not only cultivate an empowering awareness, but also provide a valuable tool for navigating the chasm between disciplines in the field.

The sixteen Habits of Mind are identified as follows:
- Persisting
- Managing Impulsivity
- Listening with Understanding and Empathy
- Thinking Flexibly
- Thinking about Thinking (Metacognition)
- Questioning and Posing Problems
- Striving for Accuracy
- Applying Past Knowledge to New Situations
- Thinking and Communicating with Clarity and Precision
- Gathering Data through all Senses
- Creating, Imagining, Innovating
- Responding with Wonderment and Awe
- Taking Responsible Risks
- Finding Humour
- Thinking Interdependently
- Remaining Open to Continuous Learning

As one of sixteen papers exploring the Habits of Mind specific to design studio instruction, this paper focuses on Taking Responsible Risk and the iterative process in studio education. It seeks to better understand risk, its application to design education and the importance of teaching responsible risk-taking in the design studio.

Responsible risk-taking is critical to the iterative process in design. A fuller understanding of risk can lead to better strategies in the studio and can help students to cultivate a more responsible and deliberate working methodology. The employment of responsible risk-taking technique can strengthen the innovative process as designers struggle to solve important problems.

Eros, Thanatos and the Space In-Between

The time came when the risk it took to remain tight in the bud became more painful than the risk it took to bloom.
- Anais Nin

The extreme sports enthusiast and the problem gambler know that it is often when we are at the very threshold of our own undoing that we feel most alive and the greater the dissonance between success and failure, the greater our arousal. The constant negotiation of these bounds, shape and define us. We are the children of victory and defeat, and so we are reared by the capricious lessons they mete.

As designers, the constant tension between creativity and homeostasis is a familiar one. We are in perpetual flux, ebbing and flowing to the pull of two ancient rivals. Furling and unfurling in this unrelenting paroxysm, we find ourselves manifest as this great antinomy’s dancing hologram.

Our relationship to the duality of Eros and Thanatos is measured by our comfort with risk. The perpetual struggle to resolve these energies is both familiar and bittersweet, for we can never be satisfied. It is in this place of unrest; in-between ‘the want’ and ‘the have’, that we find we are home.
Understanding Risk

*The greatest risk to man is not that he aims too high and misses, but that he aims too low and hits.*

-Michelangelo

All human advancement has come from an inherent willingness to engage in risk. Science tells us that individual risk-taking behavior is also regulated by neurobiology. The variance in a student's desire to take risks or play it safe is also determined by personality, biochemistry, psychological state, and cognition.

Culture and risk

Different cultures have different relationships with risk. At the heart of risk lies choice and ours is a culture that is safer and knows more choice than ever before. Rebellious behaviours are closely associated with behavioural risk measures. Acts of non-conformity, rebellion and dissent are celebrated in modern culture and serve to further reinforce this primal drive. The portrait of the creative genius as risk-taking apostate has become the single most prominent characteristic of the designer anima and the trend is increasing in large part due to the prevailing cultural influences.

There is a natural symbiosis between a culture's attitudes toward risk and the heroes it exalts. A student's understanding of the risk/ideation relationship is influenced by example and there is perhaps no better-celebrated contemporary designer than Apple's former chief executive, Steve Jobs. Here students find the portrait of a wildly successful designer characterized by fearlessness and an unrelenting single-mindedness, someone who did things his own way and expected the rest of the world to fall into line. For current design students, no design story better personifies the designer archetype and highlights the fundamental connection between innovation and risk. It is tragic too, that his exceptional relationship with innovation and risk likely played a role in his untimely demise.

Adolescents are most inclined to take risk and this tendency does decline with age. By the time they've reached college, young design students have already internalized powerful recurring media messages about the virtues of shunning restrictive social mores. This demographic also shares a prevailing concern with authenticity, particularly of the self. These are students who are unfettered by cultural norms, conventions and appropriate behaviours. Never before has a generation come first and this proclivity extends into the realm of creative expression. A decreased need for social approval increases a design student's willingness to engage in risk, but it does not guarantee that this risk-taking will always be responsible.

Sensation seeking and impulsivity

Researchers have known for some time that sensation seeking, impulsivity, and low self-control are strongly correlated with risk-taking. Measurements of high behavioural disinhibition, high greed, and low humility/honesty also seem to correlate directly to higher levels of risk-taking. A better understanding of high sensation seeking and impulsivity can offer valuable insight as we consider approaches to teaching responsible risk-taking in the studio.

High Sensation Seekers (HSS) are generally defined as those who seek novel, varied or complex sensations or experiences and the willingness to take physical, social, legal and financial risks for the sake of such experiences. HSS have a tendency to weigh the benefits of risk behaviour higher than its costs and are more likely to engage in high-risk behaviors, such as drinking, smoking, drug use, and risky sex. HSS may also be an early neural marker of the decreased sensitivity typically found in addiction.

Impulsivity is defined as a combination of low harm avoidance and high novelty seeking and is thought to be central to impulse control disorders such as pathological gambling. Poor impulse control is of key importance to understanding psychopathology, antisocial and aggressive behaviours, attention deficit hyperactivity disorder (ADHD), and alcoholism. Narcissists in particular, take more risk than others. Their perception of benefits from risky behaviours is high. It is theorized that narcissists harbour a surplus of eagerness, rather than a deficit of inhibition.

Risk sports and gambling

Risk sports and gambling fill an inherent need to experience challenge and uncertainty and offers insight about the nature of risk.

As we attempt to satisfy an urge toward self-actualization, arousal does appear to be the propellant for those magical moments that seemingly transcend space and time. The great irony of course, is that it is only in those moments, when one pushes hard enough to be on the cusp of failing, that one feels most alive. We are often at our creative best in those threshold moments when we perceive that we are closest to failure, or running out of time. Extreme sports, such as free climbing, skateboarding, parachuting, and skiing are beginning to offer insight into how this phenomena works. In a recent study of skateboarders for example, we learn that the tendency to sensation seek is the most significant factor associated with risk-taking behaviour.
High levels of sensation seeking were found to predict increases in general risky behaviors and gambling offers additional insight for understanding risk. An individual’s perception of control is related to their experience of risk. The pleasure of high arousal associated with taking risks is more likely to take place under circumstances where subjects have a relatively high degree of perceived control. In such circumstances, individuals can perceive the danger in risk activities as highly enjoyable. For people who perceive low control, risk-taking activities are likely to provoke fear and anxiety.

**Mental toughness and risk-taking**

Much to the chagrin of critics, the controversial “tiger-mom” method of cultivating grit might actually be effective when it comes to nurturing success. Children involved in competitive sports show increased measures of mental toughness and a greater willingness to engage in challenge and physical risk. Interpersonal confidence was positively related to attitudes towards psychological risk. Tough character, tough attitudes, tough thinking and the willingness to engage in risk were all identified as important to dealing with external pressures in high performing English cricket players. In order to be successful, the athletes were willing to engage in frequent risk. Another related study showed that risk-taking informs resiliency and courage. These studies would seem to support achievement motivation literature, which suggests that high achievers typically seek out challenging tasks and situations.

**Gender and risk**

Studies have consistently shown gender differences in attitudes to risk-taking, with men being generally more risk-prone than women. More recently, a 2008 study found that men tended to take greater risks than women when rock climbing, even when they were not more experienced, nor possessing higher ability. Men reported more confidence in their capability to manage the risk involved in their sport. Studies have shown that women progress much faster to pathological gambling however, revealing that different genders appear to be more comfortable with different types of risk.

**Heritability**

The first personality related gene to be discovered was identified as the risk-taking gene. It is estimated that roughly 15% of the population is willing to engage in high risk. Science has also found substantial genetic and environmental effects on impulsivity. Highly heritable behavioural traits related to risk-taking are further shaped by environmental factors and individual influences. In situations of high need, it is possible for many to shift from risk-aversion to risk-proneness regardless of dominant proclivity, making us highly adaptive.

**Teaching Responsible Risk in the Design Studio**

*What is an anarchist? One who, choosing, accepts the responsibility of choice.*  
-Ursula K. Le Guin

The iterative, creative process of the design studio is often fluid and unwieldy. The unique, explorative nature of the studio is often a journey of discovery, for both student and instructor and learning outcomes are sometimes difficult to fully identify at the start. As prevalent learning outcomes for the design studio, responsible risk-taking and the *Habits of Mind* can serve as a certain anchors for other goals.

There is a need for students to think about responsible risk and its implications for their work and development. The iterative process demands risk-taking, but how much risk is too much? What is the difference between recklessness and responsible risk-taking and how can we cultivate the latter?

**Cultivating awareness**

Cultivating new behaviors can only begin by fostering awareness. To teach responsible risk-taking, we need to first get students comfortable with being in a state of discomfort. They must develop awareness that their future growth is dependant on their willingness to stay on the edge of failure and take calculated, productive risks.

Awareness can be one of the most powerful motivators for inspiring a willingness to form new habits. This can begin with an honest and thorough self-assessment. In 2010, Erskine S. Dottin developed a *Habits of Mind* Inventory as a tool to help facilitate the assessment of professional educators. This assessment asks pertinent questions which help establish a person’s relationship with risk based on past behaviours. A sampling of questions related to responsible risk-taking include the following:

- Did you find yourself wanting to go beyond established limits?
- Did you find yourself accepting setbacks as challenging and growth producing?
- Did you find yourself knowing when to take educated risks and when not to take impulsive risks?

Design students would benefit from answering similar questions about their risk style relative to the iterative process in design.
There are less formal ways to incite awareness and prompt discussion. Asking students to participate in a friendly game of ring toss can segue neatly into discussions about risk-taking in the studio. Students can be asked analyse the risk strategies they employed and make a written self-assessment of their relationship to risk-taking based on the outcomes of the game.

**Calculating risk**

Working to one’s strength is often just another variation of playing it safe. Students should be encouraged to develop a familiarity with their existing abilities and limits and identify opportunities for growth and expansion.

Insurance companies expertly assess risk for profit. It also makes sense for the design student to develop the skills necessary to form a qualitative assessment of their personal risk as they engage with a new studio project. Relevant variables can be carefully considered as students make an honest assessment of their opportunities for growth. For example, assessing how much time tasks take will encourage a more responsible risk-taking style and heighten confidence. Students who feel confident in their abilities are more likely to challenge themselves, mobilize efforts and persist for a longer period of time in the face of difficulty.

**Challenging our understanding of failure**

The fear of failure can be a powerful motivator for success; it can also act as a restrictive and inhibiting force and limit our willingness to take risk. A fear of failure is best described as the fear of responsibility for choice. It is the same underlying fear driving the student who insists on knowing precisely what they have to do to earn an ‘A’ in studio. In this transaction, this design student is showing a reluctance to accept personal responsibility for his or her choices and is showing a preference for the ‘sure thing’ over the growth offered by risk. Insecurity prevents this student from choosing the more rewarding path.

Failure is fundamental to the iterative process in design. To accept failure, a designer needs confidence. Successful designers force mistakes to gain momentum, in an active process of constant decision-making. When a designer fails, a cognitive message registers to not repeat the mistake. Students must understand the power of failure. While it does not define who they are, it can have the power to prevent them from realizing their full potential.

There is a cultural stigma attached to failure, so we try to avoid it. In order to effectively teach responsible risk-taking in the iterative process, we must first seek to challenge a student’s relationship with failure. Instead of fearing failure, we must cultivate a studio culture that celebrates it. Students should be encouraged to fail quickly and fail often. Students must persevere; learn to cope effectively with adversity and to rebound quickly from failure.

**Conducting a premortem**

Research psychologist Gary Klein developed the Premortem in 1998 as a managerial strategy. A Premortem is a cognitive exercise in which a student is asked to imagine that their design project has failed and to quickly write down all of the reasons for the failure. Conducting a Premortem enables students to determine threats and take preventative actions to protect the project. By envisioning this failure, students are better able to identify what might go wrong before it does and then fix it. This exercise will correct for a natural predilection towards over-confidence and help students engage in a more responsible risk.

**Encouraging metacognition**

The iterative process benefits from regular intervals of brief reflection. Deliberately engaging written language to clarify and define experience not only clarifies future making, but also helps students improve their design vocabulary and critical thinking. At a project’s completion, students should be encouraged to reflect more thoroughly on risk and the Habits of Mind dispositions as it informed their process.

**Future Research**

Further study is needed to distinguish how design students might differ from other demographic populations in their approach to risk. Results from a personality test, such as the International Personality Item Pool-Risk-Taking Scale, might better clarify these differences and help refine the way we teaching responsible risk-taking in the studio. The results of such a study might also reveal variances in the way that the different design disciplines approach risk-taking. As the design disciplines become increasingly interdisciplinary, this might prove to be a valuable knowledge.

In addition to this study, the creation of a Habits of Mind Inventory specifically developed for design students, might provide a powerful catalyst for encouraging better awareness of the behaviours necessary for success in the studio.

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References


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