Understanding Intellectual Risk Taking

What is it?

Intellectual or academic risk taking belongs to a larger category of risk taking behaviors that involve decision-making situations in which the alternative choices are characterized by a “lack of certainty and the prospect of loss or failure.” Intellectual risk taking can be defined as “engaging in adaptive learning behaviors (sharing tentative ideas, asking questions, attempting to do and learn new things) that place the learner at risk of making mistakes or appearing less competent than others.”

By this definition, people who take intellectual risks are actively participating in the learning process despite the possibility of making mistakes. For some people, the fear of having their ideas dismissed or ridiculed inhibits them from engaging in intellectual risk taking behaviors. Although many risk taking behaviors, such as engaging in extreme sports, are considered maladaptive because of the potential to cause harm, intellectual risk taking is considered a desirable trait because its potential benefits, such as advances in personal knowledge, outweigh the risks.

There are a variety of personal and contextual factors that influence a person’s willingness to take intellectual risks, including interest in the subject, self-efficacy, achievement goals, and the subject area of the task. For example, individuals may be more likely to take risks in subjects in which they are interested. A well-developed and stable personal interest in a subject may support risk taking more than situational interest (i.e., a temporary interest influenced by the particular context, such as participating in a novel task).

Self-efficacy refers to a person’s confidence in his or her ability to successfully accomplish a task. High self-efficacy—particularly creative self-efficacy (i.e., students’ beliefs in their abilities to generate new and meaningful ideas)—can give a person the confidence needed to engage in intellectual risk taking. Individuals with healthy self-efficacy beliefs are better able to perceive risks as challenging opportunities, more willing to actually take risks, and more often persist when difficulties present themselves. Studies also indicate that positive self-efficacy is more strongly related to the willingness to take intellectual risks than is actual ability. In other words, for supporting intellectual risk taking, perceived competence may be more important than actual skill level.

In addition to self-efficacy beliefs, there are other motivational beliefs that are associated with intellectual risk taking. Motivation refers to all the reasons that underlie willing and volitional behavior. Motivation is a complex concept that is influenced by a person’s perceptions, values, interests, and goals, in addition to contextual factors such as the classroom environment. Achievement goals are motivational beliefs that pertain to why people engage in or avoid achievement-related tasks and behaviors. People who hold
learning or mastery goals tend to view intellectual risks as opportunities to receive feedback on their current skills and strategies, which can then be used to increase their knowledge and improve their skills. This makes them more likely to take intellectual risks than people who hold performance or ego-oriented goals. For people with performance or ego-oriented goals it is important to be correct or a top performer. Thus, they are more likely to avoid taking intellectual risks because the possibility of failure threatens their need to appear competent.9

Research also suggests that intellectual risk taking may be somewhat domain specific.10 In other words, people are more likely to take intellectual risks in certain subject areas and/or in certain situations. This is likely a reflection of the dependence of intellectual risk taking on motivation, interest, and self-efficacy, each of which tend to differ by domain or subject area.11 For example, people may be more likely to share tentative ideas and ask questions about subjects in which they feel relatively competent or in which they have a particular interest.12 However, research also suggests that there are certain domains (e.g., math) in which people tend to take fewer intellectual risks regardless of their personal interests or competencies.13

Intellectual risk taking also depends on a person’s subjective perception of risk.14 In other words, what one person perceives as a risk may be very different from what another person perceives as a risk. For example, a person who has significant background knowledge on a topic may be more confident in sharing ideas about that topic than someone who has minimal background knowledge. Similarly, if a person is very skilled at a task, that task is generally not as risky for him or her, implying that a person engaging in skilled behaviors is not necessarily taking risks.15

Why is it important?

Intellectual risk taking is associated with a wide range of thinking, learning, and life skills. For instance, the Partnership for 21st Century Skills recently identified several creativity and innovation skills and traits necessary to prepare students for post-secondary education and the work force. Among these traits are the propensity to “view failure as an opportunity to learn” and to “understand that creativity and innovation is a long-term, cyclical process of small successes and frequent mistakes,”16 both of which are characteristics of intellectual risk takers.

Engaging in intellectual risk taking behaviors also promotes learning and academic achievement. Sharing tentative ideas helps form student identity, which in turn supports academic achievement.17 Additionally, challenging oneself by engaging in tasks just beyond one’s current abilities is a critical component of Vygotsky’s zone of proximal development, thus highlighting the importance of intellectual risk taking in cognitive development.18

A person’s tendency to take intellectual risks also relates to several other skills important for thinking and academic success, such as creativity and metacognition. Although researchers disagree on a single definition of creativity, most agree that creativity involves the generation
of a novel product, idea, or performance that also has some sort of use or value. Creative achievement depends on a combination of cognitive abilities, dispositions, and environmental factors. Intellectual risk taking is frequently identified as an essential trait of creative people. Because creativity involves the production of something new and untested, creative ideas and products often meet with initial resistance from society. When presenting novel ideas and products, individuals make the decision to take intellectual risks, knowing that their creative outputs may not be well received.

Intellectual risk taking may also be related to metacognition. Metacognition is thinking about thinking in a purposeful way to achieve particular cognitive goals. Metacognition has two components: knowledge about cognition and regulation of cognition. Metacognitive knowledge includes knowledge about oneself as a learner and the factors that might impact performance, knowledge about strategies, and knowledge about when and why to use particular strategies. Metacognitive regulation is monitoring of one’s thought and includes planning, awareness of comprehension and task performance, and evaluation of strategy success. Intellectual risk taking and metacognition appear to be related; as students take more risks, they become more aware of their knowledge and skills and more skilled at monitoring changes in their knowledge and skills over time.

How does it develop?

Research examining how intellectual risk taking develops over time has shown mixed results. Tolerance for failure, as measured by self-report statements such as “I feel terrible when I make a mistake at school,” tends to be low among both children and adults and consistently declines with age. Similarly, in one study, students’ perceptions of their own intellectual risk taking were found to be lower, on average, for older students compared to younger students. In this study, the researcher speculated that this age difference was due to the fact that older students were less interested in the subject area than younger students. Such an explanation is consistent with research on motivation demonstrating that intrinsic motivation tends to decline with age.

However, results of studies on the tendency to engage in challenging academic tasks, a different indicator of intellectual risk taking, are inconsistent. Across studies, the propensity to engage in challenging academic tasks has either been found to increase, decrease, or remain the same with age. Increases are most frequently seen when challenging tasks are associated with variable payoffs (e.g., a more-challenging task earns a student more points than a less-challenging task). Decreases are thought to occur in environments in which students are encouraged to avoid making errors.

Although adults have been shown to have even lower tolerance for failure than children, in certain situations adults are willing to take moderate-to-high risks. In particular, adults take
intellectual risks when they value the feedback provided by the task and anticipate future opportunities to use the knowledge or skills gained by doing the task. These mixed results suggest that contextual and personal factors may be at play.

Research results are also mixed with respect to gender differences in intellectual risk taking. Some studies show no gender differences in the tendency to take intellectual risks, whereas other studies show that females are slightly less likely to take risks than males. One potential explanation for gender differences may be that girls and boys vary in terms of factors that support intellectual risk taking, such as self-efficacy, interest and motivation. To the extent that girls and boys have different interests, different levels of self-efficacy, and are motivated differently in specific academic settings, one would expect intellectual risk taking behaviors also to vary.

**How can you teach it?**

Research suggests that environmental factors can affect a person’s willingness to take intellectual risks. People tend to be less likely to take intellectual risks in school-based settings (as compared to game-like settings), and within the classroom, students’ perceptions of teacher support can be crucial. Students’ perceptions of teacher support play a role in determining whether or not students will approach or avoid challenges. Such support from teachers can entail providing encouragement, engaging in interpersonal interaction with students, making jokes, and sharing laughter, all of which can help motivate students to engage in challenging tasks. Students who feel as though their ideas and contributions will be ignored, dismissed, or even ridiculed are unlikely to take intellectual risks. If, on the other hand, students feel teachers are receptive to student ideas and input, they are much more likely to take intellectual risks. Providing this type of support involves “creating a classroom atmosphere in which students feel comfortable to explore, experiment, and take risks in problem solving and learning.”

Another aspect of the classroom environment related to intellectual risk taking is the teacher’s philosophy toward errors and mistakes. In contrast to the common practice of promoting “errorless learning” by highlighting “perfect” papers, students should be taught that making errors is a natural part of learning and that errors provide the primary means for students to improve their own performance. The use of external rewards that reinforce errorless learning should be minimized if the goal is to encourage intellectual risk taking. Instead, teachers should reward error correction and improvement and reinforce students’ selection of difficult or challenging tasks or learning goals, even if it means making mistakes or earning a lower grade. Teachers should also make the benefits of risk taking more salient for students by emphasizing the value of such behaviors. For example, teachers should make an explicit connection between to-be-learned content and skills and some future performance context.
Teachers should encourage students to express multiple perspectives and become comfortable with uncertainty. For example, rather than emphasizing a single, correct answer, teachers should acknowledge the uncertainty inherent in particular domains (e.g., science) and encourage students to consider alternative explanations. Teachers should model intellectual risk taking behaviors themselves and provide students with timely, positive, and specific competence-related feedback. Studies have shown that task interest plays a significant role in determining intellectual risk taking in science. Teachers can help foster this interest by giving students greater autonomy and choices in their own learning and by allowing students to work together. Opportunities for collaboration make learning tasks more novel, which can enhance interest, engagement, motivation, and risk taking.

How can you assess it?

One of the many challenges of assessing intellectual risk taking is that risk taking not only describes the adaptive learning behaviors a person engages in, but also involves a person’s subjective perception of risk. A person’s perceived risk of engaging in a particular behavior may be quite different than the actual risk. For intellectual risk taking, this can translate into a person’s perception of task difficulty being different than the actual difficulty of that task. Additionally, the actual difficulty of a particular task varies among individuals, depending on each individual’s unique ability to perform that task. Therefore, assessments of intellectual risk taking should include indicators for adaptive learning behaviors a person engages in, subjective perceptions of risk and task competency, as well as a person’s actual ability to successfully perform the task. All three types of indicators can be combined to make inferences about a person’s tendency to take intellectual risks.

Existing research provides examples of all three types of measures. The School Failure Tolerance Scale is an example of a self-report instrument that assesses children’s attitudes toward making errors and failing on academic tasks. This scale measures feelings of failure, behavioral response to failure, and preferred level of task difficulty. There are also subject-specific self-report measures of students’ willingness to take intellectual risks. Such self-report measures are often paired with a behavioral measure—an achievement instrument in which students are provided several tasks of widely varying difficulty and asked to choose a subset of those tasks to complete. The level of difficulty of the chosen tasks is recorded, along with each student’s accuracy at performing those tasks. The difficulty of the chosen tasks is used as a measure of each student’s preference for challenge, and his or her accuracy on those tasks is taken as an objective measure of the level of risk assumed by the individual. For example, when a student consistently chooses tasks of moderate difficulty (over more-challenging tasks) and achieves high levels of accuracy, this might indicate that the individual is not pushing him or herself beyond the “comfort zone.”
Another category of intellectual risk taking measures puts students in a school-related problem solving context and makes observations on students’ risk taking behaviors during the course of solving a challenging problem. For example, in one study, the researcher observed undergraduate students working in small, collaborative problem solving groups on a calculus task. The researcher made observations on individual students’ use of risky math argumentation, defined as providing justifications, challenging others’ ideas, offering hypotheses, counter-hypothesizing, admitting uncertainty, and interacting with others to seek meaning or understanding.49

Research has identified several general task characteristics that make it more likely one will observe students’ intellectual risk taking. Because of the link between the classroom evaluation environment and the expression of intellectual risk taking, recommendations for designing assessments of intellectual risk taking tend to overlap with recommendations for fostering intellectual risk taking in the classroom. For example, learning tasks that are challenging and have a moderate probability of success help motivate students to take intellectual risks. Additionally, tasks that provide variable payoffs or are framed in the context of games or practice problems tend to increase student risk taking.50 Finally, tasks should define multiple success levels—minimum, average, good, superior—and allow students to choose what success level they want to work toward. Offering multiple success levels has been found to increase risk taking behaviors without decreasing accuracy in performance.51 In other words, when offered multiple performance levels, students tend to gravitate toward higher levels of challenge, but perform just as well as they would have had they chosen easier tasks.

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*Pearson Forward Skills Paper: Understanding Motivation*

*Pearson Forward Skills Paper: Understanding Creativity*

*Pearson Forward Skills Paper: Understanding Metacognition*

*Pearson Forward Skills Paper: Understanding Thinking and Academic Success Skills*
Bibliography


Notes


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