

What is Next Level Learning and Why does it Matter?

Tina Grotzer, Emily Gonzalez, and Tessa Forshaw
Next Level Lab, Harvard Graduate School of Education

We live in a complex, changing, and uncertain world. To meet the challenges that it presents, in a manner that supports human resilience, equality, health and well-being, we must shift how we think about the nature of education. We need to reconsider who learning is for and how it positions learners to deal with a future where little is certain, except for the need to become effective lifelong learners, in order to respond to the current and future challenges of a complex world.

While the challenges of our time can be daunting, there are rich resources to draw upon in rethinking what is possible in developing human capacity to engage with these challenges and how we think about the nature of learning. Over the past few decades, findings from cognitive, neuro- and learning sciences have amassed to inform a powerful new vision of what learners are capable of—what human potential really looks like. This article introduces this vision that we refer to as Next Level Learning (NLL). It draws upon the extant research to put forth a synergistic set of concepts that together promise to change how learners and learning in both K-12 education and workforce development is conceptualized. It is followed by a series of articles that consider each of its main features at a deeper level and then dive into specific actions that educators can take to actualize NLL in the lives of students.

Many would agree that we need a different way to position learning in contrast to the traditional, highly structured, and didactic forms of education that we have been operating under, in which learners are expected to behave as passive and sponge-like—merely absorbing the information they are taught. However, Next Level Learning looks beyond what would currently be viewed as best practices—learners who are attentive, engaged, and focused on building and applying understanding through projects and other hands-on assignments. These best practices are positive, but they are not enough. To meet the challenges of a changing and increasingly complex world, we truly need to take learning to the next level and to support the next generation in becoming expert learners.

Communicate to learners that...

- ...what we know and can do today is not enough to navigate tomorrow.
- ...learning should not end when they leave formal schooling.
- ...we all need to learn to navigate new learning paths.
- ...the world presents complex problems that require our best learning and thinking.

What Key Shifts Does Next Level Learning Involve?

Next Level Learning sets forth five key shifts in how learners engage in the learning process. As summarized in the chart below, Next Level Learners are: 1) *agentive* in their own learning and in *actively adjusting the contexts* around them, emotionally, socially, physically, and cognitively, to support their best learning and performance outcomes; 2) focused more on developing *flexible expertise* that they can apply and transfer across contexts than on classical, and often isolated, deep understanding; 3) *integrated emotional and cognitive beings* with embodied minds which allows them to bring their whole selves to learning and performance; 4) *informed and effective users of their own minds* in that they regularly seek

out information about how embodied minds work and leverage this information forward in learning and performance; and 5) *cultural beings who reflect upon their own cultural and contextual assumptions*, seek to

Current Conceptions of Learning		Next Level Learning
Learners/Workers...		Learners/Workers...
...are engaged participants in instruction who respond to learning opportunities and may view learning as the fixing of deficits.	→	...act as agents in gaining and applying capacities, who design and build learning paths; view learning as building and leveraging assets and seeking out what their assets enable them to do. They often seek out forward-reaching feedback that supports new learning and future performance.
...fit into existing school and work contexts, working within established parameters to become credentialed.	→	...adjust work contexts—cognitively, socially, emotionally, physically—to best serve learning and work outcomes. They behave like “fast fish” creating vortices in the context that they can push off from.
...gain deep knowledge in a content area or domain; may or may not be aware of opportunities for transfer.	→	...gain deep, yet flexible expertise that enables use of their knowledge within and across disciplines and actively seek out ways to transfer knowledge and skills from one context to another/expansively frame possibilities for transfer. They behave like spiders—navigating gaps and uncertainly and building connections between known and unknown.
...consider learning primarily a cognitive/mental task and thinks about it in terms of “hard skills.”	→	...understand emotion and cognition as inextricably intertwined and realize that rational effective thinking results from integrated input from affect, cognition, and body; realize that “soft skills” are essential to all learning.
...may tacitly hold “accumulation models” of learning focused on gaining and collecting knowledge.	→	...understand how their minds work cognitively and affectively and leverage this towards better learning and work outcomes/use metacognition in doing so.
...unaware of the cultural aspects in places of learning and work and tend to be reactive to cultural demands.	→	...aware of themselves as cultural beings and of the cultural processes in places of learning or work and seek out information/means for navigating them.

be aware of those of others and consider how to navigate between and across cultural contexts. In the paragraphs to follow, we introduce each feature of Next Level Learning, its implications, and why it is important for understanding in a complex and uncertain world.

Offer learners opportunities to...

- ...be agentic in their own learning.
- ...develop knowledge that applies flexibly and that can transfer across contexts.
- ...learn about and use emotion and cognition in an integrated way.
- ...learn about and become effective users of their minds.
- ...become aware of their cultural and contextual assumptions and to learn about those of others.

1. Next Level Learners are agentic.

A key characteristic of Next Level Learners is that they are agentic in their learning and work performance. They don't wait for learning to come to them; they actively seek it out and pursue ways to find out new information, figure out how to solve problems and challenges, and develop new skills that support future learning. They go beyond being engaged in instruction that might be planned by others. Instead they set goals and develop learning paths towards new understandings and abilities. These goals often build upon their interests, curiosities, and passions. They build skills that support their "finding out" capacity. They tend to gain knowledge not just for the sake of having it but for the goal of being able to do something with it. Instead of learning something and then asking the question, "how do I apply this learning?", they gain information in service of what they want to be able to do—such as coding or achieving a certain contrast in a work of art, for examples.

Terms such as "agentic" and "learner-centered" are increasingly common in discourse about education. In what ways is "agentic" as intended in NLL similar to and different from these uses? Agentic is sometimes used to refer to self-determination of what one is trying to achieve and develop mastery of. This is the sense of agentic referred to in pedagogical approaches such as Living Curriculum¹ in which learners pursue interests and develop learning paths for a significant portion of their school experience.² This can lead to powerful learning and significant knowledge about how to learn. Agentic approaches, as intended in NLL, includes these forms of mastery-orientation and Living Curriculum as some of the purest forms of agentic learning, but it is not limited to them. It also acknowledges that some learning is in service of broader goals that school or work requires. For example, agentic learners who want to take advantage of an opportunity in a makerspace lab would include in their goals taking the required safety course that enables access to the lab. A caveat here is, that to be deemed agentic in these instances, learners must understand the relevance of the goals or requirements towards their broader goals such that the requirements are contextualized. "Learner-centered education" is another term that is commonly heard in educational discourse. It is used to refer to focusing on students' needs, recognizing their individuality, helping students to meet their potential, and/or offering experiential learning.³ Yet, learners are commonly recipients of learning experiences that educators design in service of their development. While these uses are not at odds with NLL, the use of learner agency in NLL is intended to convey that the learner is at locus of control for their learning.

Agentive learners are proactive about their own learning, but they are also agentive about the contexts of their learning. Scientists, studying how fish swim as fast as they do, found that fish create vortices in the water that they push off from to enable their performance.⁴ Agentive learners behave like fast fish. They actively modify their contexts in cognitive, social, emotional, and physical domains to learn and perform at their highest level. This means they might do things such as ask for information in multiple representations, step away in order to absorb information to which they have a negative emotional reaction, ask other students or colleagues to help them manage both social and solo time so they can do their best work when they are most alert and can benefit from collaborative exchanges when they are most socially inclined, or rearrange the space in which they are working in order to help them concentrate.

Tips for Helping Learners to be Agentive:

- Signal that they should not wait for learning to come to them; they should seek it out.
- Invite them to wonder and to pursue what they wonder about.
- Help them to take the lead in designing, setting, and pursuing learning paths.
- Help them to build their “finding out” capacity.
- Invite them to think about what they want to be able to do and then to learn what they need to learn to be able to do it.
- Discuss the metaphor of how fish can swim as fast as they do and what it means for learning.
- Encourage fast fish learning by inviting them to adjust the contexts around them as manageable.
- Encourage them to attend to their learning in terms of its emotional, social, physical, and cognitive components.
- Create malleable contexts that invite learners to make adjustments.

While being agentive is a clear asset for learning and performance, agentive learners sometimes push hard on their teachers in instructional contexts. Therefore, it is important that the educational environment values and embraces their proactivity and the benefits derived from adjusting the contexts around them.

2. Next Level Learners focus on developing flexible expertise.

Deep understanding and expertise have been considered the holy grail of effective education over the past few decades. While deep understanding can be critical for launching innovation and for contributing to collaboration across disciplines, research shows that the ability to learn and work across domains—what is referred to as adaptive expertise—is critical for solving problems in a complex and uncertain world.

The value of classical expertise and deep understanding is that one gets to know the nuances of a domain well and can recognize patterns and features when working in problem spaces relevant to one’s expertise. However, research shows that the very processes of automatization and chunking of concepts that support deep expertise can also lead to rigidity in thinking.⁵ This underscores the importance of cultivating adaptive or flexible expertise in addition to classical expertise. A creative and flexible focus across domains invites broadened connection-making and application. Adaptive expertise involves spider-like thinking— weaving connections across domains, learning new domains, and maintaining flexibility in one’s thinking. This can matter most in times of uncertainty and in changing terrain. One needs to be able to work at the edge of one’s competence and build flexibly from what is known to make connections to both solid and tentative or uncertain contexts.

Becoming an adaptive expert requires understanding structures, patterns, and forms of complexity that apply across domains.⁶ It also invites a *stronger and more expansive focus on transfer* as one looks across contexts for application opportunities.⁷ In order to note these opportunities, one must detect or be sensitive to occasions for applying knowledge and abilities, must have the requisite ability to engage in transfer, and must be inclined to follow through. This is referred to as a *dispositional stance on thinking and learning*.⁸

Tips for Encouraging Flexible Expertise

- Teach for a balance between deep understanding of specific topics and the skills needed to figure out new domains.
- Encourage respect for different ways of knowing, such as how social scientists, artists, and scientists seek to gain understanding.
- Encourage spider-like thinking—weaving connections across domains, learning new domains, and maintaining flexibility in one’s thinking.
- Help students to notice structures, patterns, and forms of complexity that apply across domains.
- Alert students to expansive possibilities for transfer when they are learning new content as in “This information will help you in other learning. Can you think of places where it might help?”

3. Next Level Learners recognize and attend to their learning as integrated emotional and cognitive beings.

Research in neuroscience underscores the role of emotion in effective thinking.⁹ Emotion helps to both fuel and guide our thinking processes. While people often talk about being coolly rational, research on people with severe brain damage that impairs the connection between emotion and cognition shows they are unable to make effective or efficient decisions.¹⁰ “Gut instincts”—also referred to as “bodily responses” or “somatic markers” in the literature—enable us to take informed shortcuts in decision-making¹¹—whereas a purely logical or Bayesian approach to calculation would take extended time and bandwidth to arrive at a decision and requires more cognitive load or bandwidth than people have available. Even powerful computers exhaust time and resources performing a logical, Bayesian analysis on complex data.¹² Thinkers who are encouraged to mine their gut instincts can be more effective¹³ and schools and workplaces can support people in making good use of emotion rather than ignoring it or banning it.

This integration of emotion and cognition is what makes us uniquely human and able to navigate complex problem spaces that require empathy, reflection, and the ability to move beyond pure logic in prioritizing options when engaged in decision-making. As argued by Dede, Etemadi, and Forshaw,¹⁴

Tips for Helping Students to Use the Interplay of Emotion and Cognition for Effective Learning and Thinking

- Monitor your words to avoid implying that emotion is not a part of thinking and learning
- Invite students to reflect upon and learn to manage emotions that interact with learning, such as realizing when they are avoiding something that is hard.
- Help students use strategies that acknowledge and address emotions, such as breaking tasks down into manageable steps.
- Encourage students to “work with” emotion and cognition to enhance learning, such as realizing that one’s initial excitement about a topic is a good time to make a concept map to download the many connections that one imagines, but that it is a harder time to organize thoughts sequentially.

it is what separates the possibilities for artificial intelligence in contrast to human potential when it comes to reckoning versus judgment in complex, uncertain times.

Next Level Learners embrace and become more attuned to the integrated role of emotion and cognition such that it allows them to bring their whole selves to learning and performance and enables them to manage and adjust for the many ways that the two interact. For example, one's amygdala can set off emotional responses such that our body is flooded with adrenaline before our neocortex has been able to reflect upon a situation. Realizing this enables one to acknowledge what is happening and to respond in a way that mitigates or leverages the reaction depending upon the situation. For a second example, emotion can motivate cognition; excitement about a set of ideas can help us to engage deeply with them and to get into a productive flow state that feeds into itself in a cyclic manner to propel further engagement. Knowing this can be especially helpful when one is avoiding a thinking or writing task. Dread can undermine engagement in a similarly cyclical pattern, so using strategies, such as getting started on a small part of a task that one feels confident about, can initiate a new dynamic.

4. Next Level Learners are informed and effective users of their own minds.

In supporting agentic, self-regulating learning, it is not enough for educators to understand how people's minds work; they need to help learners understand how their minds work. As we have written about elsewhere, we have user's manuals to help us understand the working of all kinds of objects that we use every day.¹⁵ Our minds are central to who we are, how we think and learn, our every moment of existence, and yet many of us don't know very much about how they work. Further, a lot of us have misconceptions about how we think, learn, and remember and process information that hinder our ability to be effective thinkers and learners. For instance, we believe that we can only learn through certain "styles" or that our brains work best by turning off our emotions.¹⁶

Current research in neuroscience, cognitive science, and the learning sciences inform our knowledge of how our minds work, what supports effective learning, what type of strategies support different types of learning, and what difficulties we are likely to have. It helps us to know how human attention, perception, and memory work and how this interacts with our learning processes. It also helps us to understand how our minds are different—what sources of neurodiversity exist and how these interact with the learning of individuals.

In the vision of Next Level Learning set forth here, learners would have access to this information, regularly seek out additional information, and leverage this information forward in learning and performance. The research findings sometimes result in minor, but critical shifts in how we focus our learning efforts for more productive performance. For example, when trying to remember information that has been read, instead of going back to look at it again and rereading it, a more powerful strategy is to try to call it forth in memory, consider what one does and does not recall, and then to go back and fill in the gaps.¹⁷ In other instances, the findings invite more substantive revisions, such as the realization that one needs to actually do something with the information in order to learn it deeply, and that doing something with it in more than one context will help to make it less wedded to the original context and more available to new contexts.

Tips for Helping Learners to Become Effective Users of their Own Minds.

- Remember that while it is helpful for you as an educator to understand how people’s minds work, it is also important to help learners learn how their minds work.
- Include information on how human attention, perception, and memory work and how this interacts with our learning processes.
- Unpack misconceptions about how we think, learn, remember, and process information that hinder our ability to be effective thinkers and learners.
- Help students to understand that our minds are similar in some ways and different in others. Help them to recognize sources of neurodiversity and how these may interact with the learning of individuals.
- Help students notice opportunities to leverage this information about how their minds work when they are learning and doing things.

5. Next Level Learners are cultural beings who reflect upon their own cultural and contextual assumptions.

In our complex, interconnected world, we must be aware of the lenses through which we see and seek to understand the lenses of others. Just as we don’t notice the air around us that impacts us in so many ways, we are so embedded in our own cultures that we often cannot see our own cultural assumptions. And yet, as a basic part of our identity,¹⁸ these lenses color just about every aspect of our worlds—for instance, in schools, what it means to learn, whether to speak up or not, what constitutes a story, how we feel about the way science works, and so on. Beyond K-12, these cultural assumptions impact our work lives—in the structures that we expect, how we think about time, relate to others, engage with people in different roles and authority levels, and so forth.

Often, we first begin to realize these assumptions when we find ourselves in a new context where our assumptions no longer hold or are considered outliers. Like a fish out of water or an astronaut in space, we then reflect upon the many aspects we took for granted. Metacognition, an ability to reflect upon one's own thinking processes, is important for recognizing our embeddedness and for navigating between contexts and cultures. In the vision of Next Level Learning set forth here, learners would have the opportunity to develop a reflective awareness of the assumptions embedded within cultures and contexts and to learn how to navigate other cultures while understanding and holding their own cultural identities. As lifelong learners, people will move between different contexts and cultures and must figure out how to learn the structures and assumptions within each.

Tips for Helping Learners Navigate Culture and Context

- Provide experiences that enable learners to “see” their own cultural assumptions and those of others by putting them in situations that contrast the assumptions. For instance, if one context values sequential, disciplined approaches to problem-solving and another one values open-ended, freewheeling approaches, develop experiences and where each pays off differentially with opportunities for discussion.
- Teach metacognition and use it to help students to reflect upon their thinking processes.
- Enable opportunities for learners to shift contexts to help them learn about the features of different contexts.

How Do We Get to Next Level Learning?

The disruptions of the COVID-19 pandemic invited innovation in education that has the potential to support Next Level Learning. As discussed in a related article,¹⁹ the pandemic brought changes in how teachers talked about what characteristics their students need to be successful, self-directed learners. This came with increasing recognition that we need to help them to manage their own learning rather than managing learning for them, and that as they head out into the world, this is the learning that may serve them best. Of course, how we leverage the opportunity before us is up to us. We believe we owe our youth opportunities for Next Level Learning.

This introduction to Next Level Learning offers an overview of what it involves. A series of related briefs can be found on the Next Level Learning website. The research basis is further articulated and explored in these companion pieces. It also continues to evolve. This article will be followed by a related series of discussion pieces that explore the features and implications of Next Level Learning in greater depth. Developing and studying pedagogies that support NLL will be an important next step in making this vision of the promise of human potential a reality.

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