Transcend
BUILDING BEYOND THE LIMITS OF SCHOOL DESIGN

Last Updated October 2017

Defining Graduate Aims

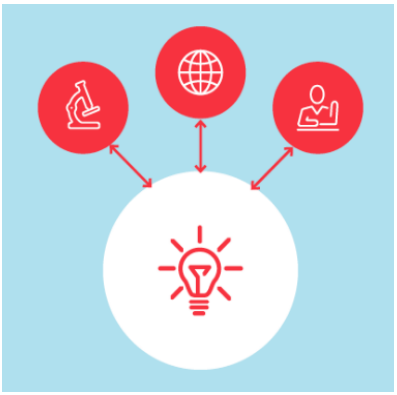
A Collection of Research and Resources for Design Teams

Learning Agenda Question: What learning outcomes will best prepare students to thrive in and transform the 21st century?

Help Us Continue to Improve This Resource

One of our core values at Transcend is Perpetual Beta—we are always looking to learn, grow, and improve. As a result, this resource, like all of our Learning Agenda insights, will be regularly updated in response to internal lessons learned as well as external research developments. If you have comments or suggestions for our next iteration, please contact Cynthia@transcendeducation.org

A Shared Learning Agenda



Transcend affords visionary learning communities the necessary support, access to diverse R&D talent, and actionable knowledge to build and spread breakthrough models that prepare children to thrive in and transform the 21st century. The very nature of innovation means that we don't know which ideas are most promising or exactly what it will take for them to work.

In light of this—through months of discussions with school communities, researchers, R&D specialists, and funders—we collected the toughest, most important, unresolved questions facing innovators who are tackling the development and spread of innovative models. These questions comprise our Learning Agenda. For each question, we tap into the research base to derive actionable insights as well as harvest real-time insights from our R&D projects. Through building and sharing this dynamic knowledge base, we aim to foster learning that accelerates progress across the field.

We bring three lenses to our inquiry—Empirical Evidence, Equity, and Exception as the Norm—to ensure that rigorous research, relevant voices, and customized supports for learners shed light on each of the Learning Agenda questions.

Empirical Evidence - What light do research processes and on-the-ground practice shed on the questions?

Equity - How can we ensure that our inquiry process includes all of the relevant voices (especially those who are too often marginalized by traditional power structures) and, wherever possible, that our process serves to question or disrupt systems of oppression?

Exception As the Norm - How can our insights and our inquiry process avoid treating people as a monolithic "average" but consider every learner and every member of the system as a unique individual, particularly ensuring that we honor important differences among learners?

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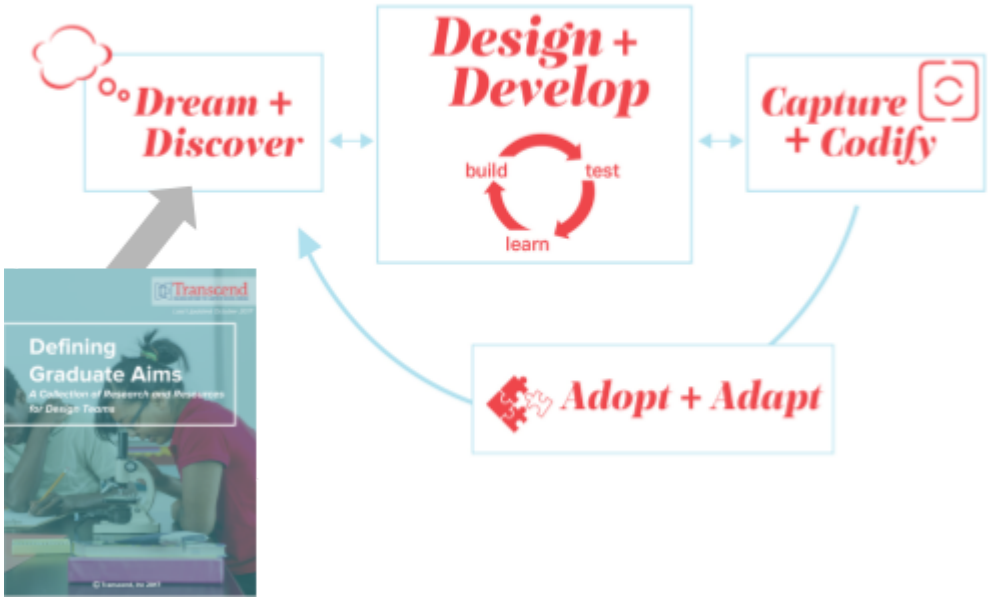
About This Resource

Whether you are designing a completely new model or updating your approach as part of ongoing strategic planning, identifying the outcomes that learners will achieve as a result of their time with you is your most important starting point. Your learner outcomes will provide a north-star to guide decision making—they will help you search for the pedagogical practices, approaches to community engagement, technology platforms, and other resources and strategies most likely to move learners toward the outcomes that matter.

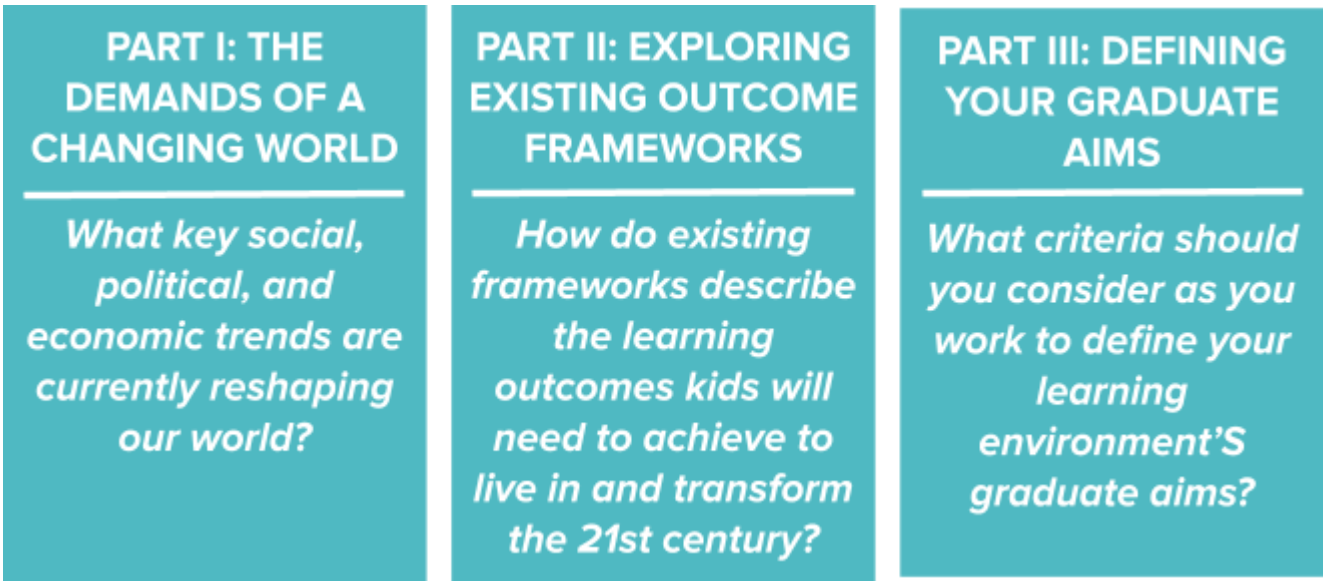
This resource is intended to help your team clarify your graduate aims by presenting current thinking regarding the competencies needed for success in the 21st century and by providing insight into how to define aims with your community.

Of course making decisions regarding what outcomes to prioritize and aligning your design in support of these outcomes is a challenge in itself, which is why we've created the Graduate Aims Research Brief. This resource is intended to help your team clarify your graduate aims by presenting current thinking regarding the competencies needed for success in the 21st century and by providing insight into how to define aims with your community. We anticipate its content will be most helpful to those in the "Dream & Discover" phase of the design process. However, we encourage those who are already building their model, and even those with highly

Image 1: Transcend Design Phases



codified models who are looking to scale it to use this resources as a tool to better understand, refine, and communicate their current definitions of learner success. The document is organized into three sections that focus on the guiding questions below and are described in more detail in the paragraphs that follows.



In "Part I: The Demands of a Changing World," we provide some background on the current social, political, and economic trends that are driving the need for more holistic learner outcomes and innovative educational models to foster these outcomes. The trends outlined touch on topics ranging from the labor market to the environment to science and technology. We hope presenting these trends will help you better understand the highly VUCA (volatile, uncertain, complex, ambiguous) world your graduates will enter.

In "Part II: Exploring Existing Outcomes Frameworks," we dig into approximately 30 existing learner outcome frameworks from across the education and employment fields. We start by briefly discussing key trends across these frameworks. We then provide one way of categorizing outcomes based on these frameworks and our experiences working with design teams. Finally, we present the full list of the frameworks mapped against the categories to serve as a guide for further exploration. Overall, the purpose of the section is to introduce you to the range of outcomes that research suggests is important to career, college, and life success through existing research-based frameworks. In doing this, we are not seeking to prescribe a specific set of outcomes for you. We hope only to provide inspiration and spark questions, leaving you more prepared to define, or revise, the learner outcomes that will guide you in your own design journey and that work best for your own unique community.

In “Part III: Defining Your Graduate Aims,” we offer some guiding criteria to consider as you define outcomes for your learning environment and provide some initial suggestions for how to meet these criteria. Specifically, we discuss the importance of graduate aims being community driven, mission aligned, future focused, holistic, accessible, and manageable. We also list some examples from our design partners and the larger field to sparking further inspiration.

At the end of this document, you’ll also find an additional resources section and a bibliography. Many of the resources are also linked in Part III. Finally, throughout the document, there are various “Design Team Activities” highlighted in callout boxes. These are intended to deepen your thinking as you read the resource and we encourage you to use them to facilitate discussion across your team.

PART I: THE DEMANDS OF A CHANGING WORLDS

"Today, because of rapid economic and social change, schools have to prepare learners for jobs that have not yet been created, technologies that have not yet been invented and problems that we don't yet know will arise...Education today is much more about ways of thinking which involve creative and critical approaches to problem-solving and decision-making. It is also about ways of working, including communication and collaboration, as well as the tools they require, such as the capacity to recognise and exploit the potential of new technologies, or indeed, to avert their risks. And last but not least, education is about the capacity to live in a multi-faceted world as an active and engaged citizen." [1]

Over the last 20 years, the world has transformed as a result of the digital revolution, advances in modern medicine, and our ever-growing knowledge of the world. The population is increasing, we're living longer, and we're more connected to one another. As an illustration of this, *Table 1* below presents a number of key trends across domains ranging from the environment to global relations to the labor market.

Design Team Activity!

As you read through Table 1, consider the following questions:

- How well are we currently preparing our learners to confront these trends?
- What learner outcomes must be developed in light of these trends?

Table 1: Demands of the Changing World

Domain	Key Trends
Labor Market	• Automation and artificial intelligence will disrupt a vast number of industries and replace human jobs with robots, in fields as wide ranging as financial advising, medicine, and service industries. (source) • In July 2016, wage growth hit 2.6%, the highest it has been since the Great Recession—with jobs in technology, healthcare, and financial sectors seeing the highest growth. (source) • In 2015, there were "approximately 530,000 new business owners each month during the year." (source) • Hot job in 2025 are likely to include: urban farmers, virtual reality experience designers, and personal brand coaches. (source)

[1] Schleicher, A. (2016, September 26). The case for 21st century learning. Retrieved from http://www.oecd.org/general/thecasefor21st-centurylearning.htm.

Environment and Natural Resources	• "In the developing world, 80 percent of water usage goes into agriculture, a proportion that is not sustainable." (source) • "Sustained global economic growth, along with population increases, will drive a nearly 50 percent increase in the demand for energy over the next 15 years." (source) • "An increasing number of cities will face the serious air and water quality problems." (source) • Current climate change patterns are on pace to occur at a rate 10 times faster than any change in the past 65 million year. (source)
Demography	• "People 90 and older now comprise 4.7 percent of the older population (age 65 and older), as compared with only 2.8 percent in 1980. By 2050, this share is likely to reach 10 percent."(source) • "By 2055, the U.S. will not have a single racial or ethnic majority." (source) • "Percentage of Americans identifying as Christian dropped from 78% in 2007 to 71% in 2014;" non-affiliation increased by 7%. (source) • Asians are projected to become the largest immigrant group by 2055. (source)
Science and Technology	• "The integration of information technology, biotechnology, materials sciences, and nanotechnology will generate a dramatic increase in innovation"—with profound effects on business and commerce, public health, and safety. (source) • "The time between the discovery and the application of scientific advances will continue to shorten." (source) • "Discoveries in nanotechnology will lead to... developments... that are likely to change the way almost everything—from vaccines to computers to automobile tires to objects not yet imagined—is designed and made." (source) • The next big "leap" of internet use will be integrating it into everyday items—light bulbs, speakers, toasters—all hyperlinked and integrated. (source)
Government, Society, and Politics	• "All states will confront popular demands for greater participation in politics and attention to civil rights—pressures that will encourage greater democratization and transparency." (source) • "In 2015, the U.S. Supreme Court ruled all state bans on same-sex marriage unconstitutional, allowing gay and lesbian couples to marry nationwide." (source) • "While whites are about equally likely to say race relations are good as to say they are bad, blacks hold decidedly negative views, with majorities among all demographic groups of blacks saying race relations are bad." (source) • "Republicans and Democrats are more divided along ideological lines—and partisan antipathy is deeper and more extensive—than at any point in the last two decades." (source) s

Health	• Genomic profiling "will enable the medical community to move beyond the description of diseases to more effective mechanisms for diagnosis and treatment." (source) • "In the ten-year period between 1999 and 2009, U.S. health care spending nearly doubled, climbing from $1.3 to $2.5 trillion." (source) • "Progress against infectious diseases... will encounter some setbacks as a result of growing microbial resistance to antibiotics and the accelerating pace of international movement of people and products that facilitate the spread of infectious diseases." (source) • In the last 20 years the percentage of U.S. adults who were obese or who had diagnosed diabetes increased from 0-22% to 18-26% or more depending on the state. (source) • Technology is currently being developed that will take the capabilities of a FitBit type device and put them into a chip that can be implanted under the skin to track important health parameters real time and even call an ambulance. (source)
Global Relations	• Worldwide displacement hit an all-time record high in 2015: 65.3 million people forcibly displaced due to conflict, persecution, generalized violence, or human rights violations. (source) • "[T]errorist tactics will become increasingly sophisticated and designed to achieve mass casualties." (source) • The international system will adjust to changing power relationships in key regions such as China, Russia, Japan, and India. (source) • "International trade and investment flows will grow, spurring rapid increases in world GDP." (source) • "The elements of globalization... will challenge the authority of virtually all governments." (source) • Globalization will continue to create "increasing demands for international cooperation on transnational issues." (source)

As you likely noted as you read through this table, we are heading into a highly VUCA (volatile, uncertain, complex, ambiguous) world. The changing global landscape and demands of society will require flexibility and problem solving as well as the development of a wide range of other knowledge, skills, and dispositions. While some align to traditional academic disciplines such as math, science, and social studies, others require far more than disciplinary knowledge. The education field's recognition of the need to expand the definition of success was foreshadowed by the 2015 reauthorization of the Every Student Succeeds Act (ESSA), which requires that school accountability systems include at least one indicator of school quality or learner success that is not academic. In addition, a wide variety of outcome frameworks have been created by various organizations in recent years. Using these frameworks, as well as Transcend's experience working with design teams across the country, the following section provides an overview of the types of outcomes that may best help learners confront the challenges of the 21st century.

PART II: EXPLORING EXISTING OUTCOME FRAMEWORKS

The specific aims that your learning environment prioritizes for graduates will be dependent on your community and context. As a result, it is likely that no two communities' outcomes will be exactly the same. With that in mind, this section is not meant to prescribe outcomes, or even an organizing framework. Instead, it is intended to expose you to a wide variety of the research-based frameworks created by education and employment organizations as well as help you navigate them and use them as inspiration.

We reviewed approximately 30 existing outcome frameworks that describe the types of outcomes graduates will need to achieve to be prepared for the complex and ever changing world.[2] This section provides you with an introduction to these frameworks. We start by summarizing some key trends that appeared across the frameworks. We then provide an overarching set of categories to help you compare and contrast the frameworks as well as navigate to those most relevant to the questions you have. To further support you own exploration of these frameworks, we also include a summary table at the end of this section with links to each framework and a mapping of how their content aligns to the four categories.

Key Trends

The frameworks we reviewed tended to outline similar outcomes for graduates but also differed in a number of ways including scope, purpose, and organization. These key trends are briefly explained below with illustrative examples.

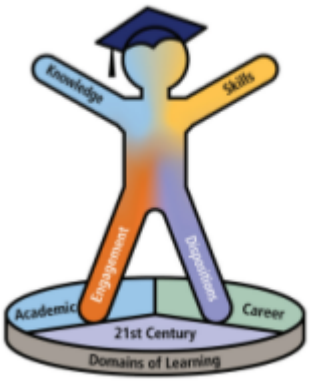
Scope of Outcomes Covered

In terms of scope, some frameworks focused on a narrow range of outcomes in order to go deeper on that subset. Turnaround for

Image 2: Building Blocks for Learning

[2] The research that informed this resources was highly influenced by the MyWays Framework, a comprehensive synthesis of the current thinking around how to define learners success, created by Next Generation Learning Challenges. In fact, for our own analysis we reviewed each of the frameworks included in the MyWays analysis. In the end, we excluded one framework, the "Skills and Tasks for Jobs Framework," because of its overlaps with the "National Work Readiness Credential Profile" which uses the former document as its guiding framework. We also added eight frameworks: Dr. Stafford-Brizard's "Building Blocks for Learning", MHA Labs' "Skills Building Blocks," Tony Wagner's "Seven Survival Skills," the "ACT Holistic Framework," Teach for All's "PADA Framework," content from Character Lab, Summit Public Schools' "Summit Learning Outcomes," and the Reschool Colorado learner profile.

Image 3: College and Career Readiness Framework



Children's "Building Blocks for Learning" (*Image 2*) is one example of this. It focuses on social emotional factors such as self-regulation, self-awareness, growth mindset, academic tenacity, and curiosity, among others. Each one is a building block within the framework that, "represents a set of evidence-based skills and mindsets that have been proven by research to strongly correlate to, and even predict, academic achievement."[3] Similarly, in the OCED's resource "Global Competency for an Inclusive World" the focus is exclusively on the knowledge and understandings, skills, attitudes, and values needed to live in a complex, diverse, and interconnected world. These range from empathy to respect for other cultures to valuing human dignity. In contrast, the "College and Career Readiness Framework" from ConnectEd (*Image 3*) and the Center for Curriculum Redesign's "Four Dimensional Education" touch on a wide range of knowledge, skills, and dispositions ranging from traditional academic content, such as mathematical thinking, to 21st century skills, such as systems thinking, however with less depth

Central Purpose of the Framework

The purpose of the frameworks typically fell into one of three categories: to describe the outcomes that should stem from K-12 education, to outline the types of competencies important to employers, or to shed light on child development. The "PADA Framework" from Teach for All (*Image 4*) is an example of the first. It is based on patterns in the outcomes teachers and students in the most successful learning environments across the globe value. On the other hand, the "Common Employability Skills" from the National Network of Business and Industry Associations is an example of the second. It was developed by having employers from major economic sectors, "identify the core set of fundamental skills that potential employees need in the workplace."[4] Finally, "Foundations for Young Adult Success" from University of Chicago's Consortium on

Image 4: Teach for All Graphic

[3] Stafford-Brizard, K.B. (2016). Building blocks for learning:A framework for comprehensive student development. Retrieved from https://www.turnaroundusa.org/what-we-do/tools/building-blocks/.
[4] National Network of Business and Industry Associations. (2014). A foundation for success in the workplace: The skills all employees need, no matter where they work. Retrieved from https://businessroundtable.org/sites/default/files/Common%20Employability_asingle_fm.pdf

Chicago School Research in an example of the third. It describes how the development of essential skills and dispositions occurs over time as a result of factors such as the surrounding context and the development experiences learners have.

Organizational Approach

Finally, even frameworks with a similar scope and purpose sometimes organized content very differently. For the most part, two organizational approaches were used. One approach was to organize aims into what learners should know, be able to do, and value or believe. In these cases, discipline-specific academic outcomes were spread across all the categories, as were more interdisciplinary outcomes. This was done in the Council of Chief State School Officers, "Knowledge, Skills, and Dispositions" framework and ConnectEd's "Career and College Readiness Framework." In the latter the skills category includes everything from academic skills in core disciplines, to technical career skills, to metacognitive skills. The alternative approach involves separating disciplinary content knowledge and skills from interdisciplinary cognitive, interpersonal, or intrapersonal knowledge and skills. This is the approached used in the NGLC "MyWays Framework" depicted in *Image 5* as well as in the "Summit Learning Outcomes."

Image 5: MyWays Framework

Types of Outcomes

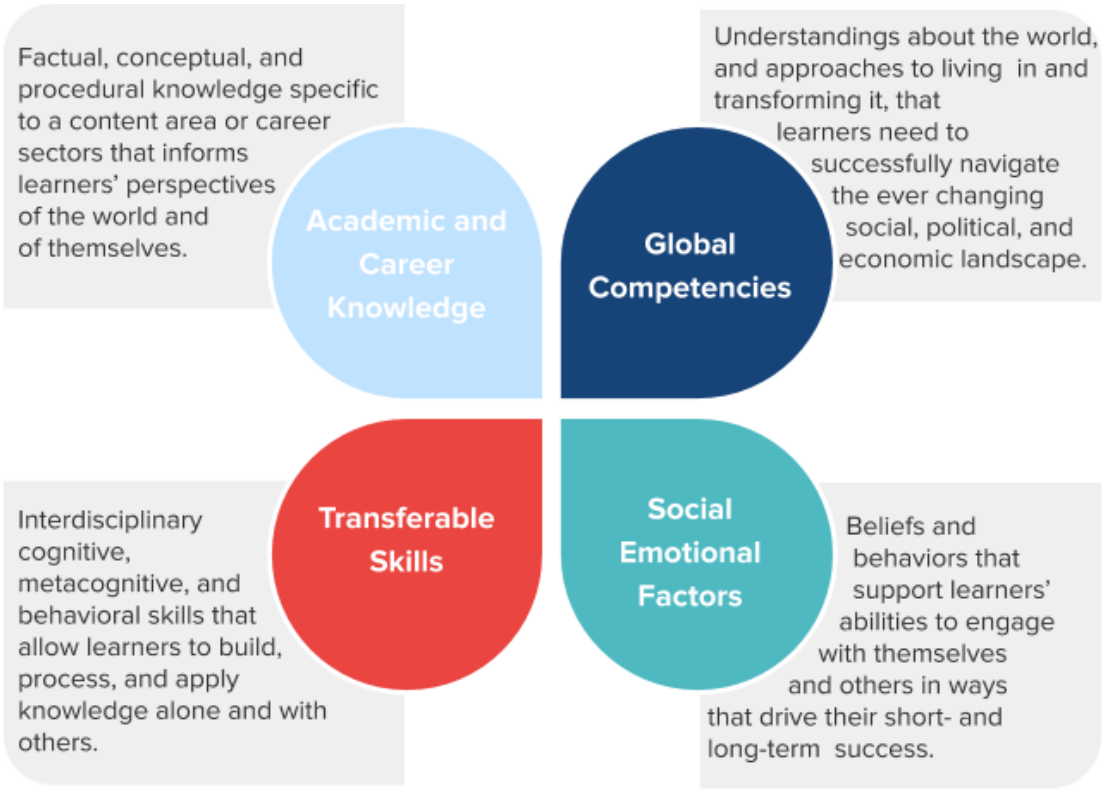
In order to help you further explore existing outcome frameworks, we felt it was important to establish a common language around the types of aims they contain. As a result, we established four distinct but reinforcing categories, which are based on the reviewed frameworks, our own experience with school design, and conversations with experts. These categories include: **academic and career knowledge**, **transferable skills**, **social emotional factors**, and **global competencies**. While there are four discrete categories, we recognize that the outcomes in these categories are deeply intertwined in human development and learning. As stated in a recent report from the Aspen Institute's National Commission on Social, Emotional, and Academic Developmental, "Social, emotional, and cognitive capabilities are fundamentally intertwined—they are interdependent in their development, experience, and use."[5] These categories can be used to compare and contrast the frameworks, navigate to

[5] Jones, S.M. & Kahn, J. (2017). The evidence base for how we learn: Supporting students' social, emotional, and academic development. The Aspen Instititute National Commission on Social, Emotional, & Academic Development Retrieved from https://assets.aspeninstitute.org/content/uploads/2017/09/SEAD-Research-Brief-9.12_updated-web.pdf

those frameworks most relevant to you, and facilitate the discussion of outcomes in your own community.

Each category is defined in *Image 6* below and is described in more detail in the paragraphs that follow.

Image 6: Types of Learning Outcomes Critical to 21st Century Success



Academic and Career Knowledge

Academic and career knowledge includes the factual, conceptual, and procedural knowledge specific to an academic discipline or career sector and that also informs learners' perspectives of the world and themselves. While the goal of education is not for learners to memorize facts, especially in an era in which we have vast amounts of knowledge at our fingertips, the acquisition of knowledge lays a strong foundation for ongoing learning and can help learners apply transferable skills (see below) in deeper ways. Building a solid knowledge base has a positive impact on learners' ability "to plan a task, to notice patterns, to generate reasonable arguments and explanations, and to draw analogies to other problems."[6]

The mastery of key discipline-specific knowledge and skill is a vital outcome for learners to achieve before graduation, but many are not achieving it. In their 2015

[6] Donovan, M.S., Bransford, J.D., & Pellegrino, J.W. (Eds.). (1999). How people learn: Bridging research and practice. Washington, D.C.: National Academy Press.

report “Closing the Achievement Gap,” Achieve—an independent nonprofit that works with states to raise academic standards and graduation requirements—writes, “From an academic perspective, college and career readiness means that a high school graduate has the knowledge and skills necessary to qualify for and succeed in entry-level, credit-bearing postsecondary coursework without the need for remediation—or to qualify for and succeed in the postsecondary job training and/or education necessary for his or her chosen career.”[7] However, in 2015, only 28% of high school graduates met the ACT’s college readiness benchmarks in English, reading, mathematics, and science. Among black test-takers, only 13% met the benchmarks in all four areas.[8] Approximately one in four rising college freshmen had to enroll in remedial courses in literacy and mathematics.[9]

These statistics demonstrate the importance of continuing to build learners’ content and career knowledge and signal the need to develop more innovative ways of doing so.

Outcomes from the reviewed frameworks that fall into this category include (but are not limited to):

- Arts
- Business and entrepreneurial literacy
- Computer science
- Economics
- Engineering
- English language arts
- Financial literacy
- Geography
- Government
- Health literacy
- Information and media literacy
- Mathematics
- Sciences
- Social Sciences
- Social studies
- Technology literacy
- Vocational knowledge
- World languages

In additional to the existing frameworks listed in *Table 2,* educators can look to the Common Core State Standards (CCSS), Next Generation Science Standards (NGSS), and Core Knowledge program as a starting point for determining the skills learners

[7] Achieve. (2014). Closing the expectations gap: 2014 annual report on the alignment of state K–12 policies and practice with the demands of college and careers. Retrieved from https://www.achieve.org/files/Achieve-ClosingExpectGap2014%20Feb5.pdf
[8] ACT. (2015). The condition of college & career readiness 2015: National. Retrieved from http://www.act.org/content/dam/act/unsecured/documents/Condition-of-College-and-Career-Readiness-Report-2015-United-States.pdf
[9] Barry, M.N., and Dannenberg, M. (2016). Out of pocket: The high cost of inadequate high schools and high school student achievement on college affordability. Retrieved from https://edreformnow.org/wp-content/uploads/2016/04/EdReformNow-O-O-P-Embargoed-Final.pdf

need in each discipline to be ready for college and future careers. These standards tools have been widely vetted by educators, parents, business leaders, and policymakers to ensure they set an academic bar that will equip learners for success.

Global Competencies

Global competencies are understandings about the world, and approaches to living in and transforming it, that learners need to successfully navigate the ever changing social, political, and economic landscape. Within the frameworks we reviewed, outcomes falling into this category were not as common as those falling into the previous three categories. They are, nonetheless, important given the global trends outlined earlier in this section. As our world becomes increasingly diverse, interconnected, and fast paced it is the learner outcomes in this category that will likely most support equity, democracy, and a healthy society.

As with the other categories, the body of academic research connecting global competencies to student success later in life is growing. For example, Kathryn Wentzel found a significant, positive relationship between social responsibility and academic achievement, which she hypothesized was a result of more positive interpersonal interactions between socially responsible learners and their peers and teachers.[10] Other research focuses on indicators of these outcomes being an end goal in and of themselves. For example, voting is a demonstration of civic identity, and although this behavior may not support career success, it is no less valuable.

Outcomes from the reviewed frameworks that fall into this category include the following:

- Adaptability
- Agency
- Civic identity
- Critical consciousness
- Social entrepreneurialism
- Environmental awareness and activism
- Ethical mindset
- Global-mindedness
- Identifying opportunities
- Intercultural competence
- Knowledge and understanding of global issues
- Navigating key life decisions
- Questioning of traditional power structures
- Resourcefulness
- Social justice orientation
- Valuing human dignity

[10] Wentzel, Kathryn. (1991). Social competence at school: Relation between social responsibility and academic achievement. *Review of Educational Research*, 61(1), 1-24.

Social Emotional Factors

Social emotional factors refers to the beliefs and behaviors that support learners' abilities to engage with themselves and others in ways that support their short- and long-term success. Social emotional factors are especially important given the changing demands of our world and the changing nature of the workforce. Labor market research states that future jobs will require employees to possess skills like emotional intelligence and persuasion[11] and that those who possess personal, social, and technical competencies increase their earning potential.[12] As with the transferable skills discussed above, this largely stems from the fact that automation is replacing many routine, non-cognitive jobs, such as manufacturing, while leaving non-routine, cognitively-complex jobs that cannot be easily automated untouched.[13]

Image 2: Short- and Long-term Outcomes Associated with Social Emotional Factors

Burgeoning research shows that a focus on factors like self-control and perseverance help learners enhance their academic performance[14] and overall well being[15] —promoting happiness, reducing mental health challenges like depression, reducing

[11] World Economic Forum. (2016). Executive summary: The future of jobs and skills, (January).
[12] Whitmore Schanzenbach, D., Nunn, R., Bauer, L., Mumford, M., & Breitwieser, A. (2016). Seven facts on noncognitive skills from education to the labor market, (October). Retrieved from http://www.hamiltonproject.org/assets/files/seven_facts_noncognitive_skills_education_labor_market.pdf
[13] Autor, D.H. & Price, B. (2013). The changing task composition of the US labor market: An update on Autor, Levy, and Murnane (2003). Retrieved from https://economics.mit.edu/files/11600
[14] Reeves, R. V, Venator, J., & Howard, K. (2014). The character factor: Measures and impact of drive and prudence.
[15] OECD. (2015). *Skills for social progress: The Power of social and emotional skills*. Paris. http://doi.org/http://dx.doi.org/10.1787/9789264226159-en

anti-social behaviors, and helping them to become well adjusted in life.[16] *Image 2* below summarizes short- and long-term outcomes generally associated with the development of social emotional factors.

Outcomes from the reviewed frameworks that fall into this category include the following:

- Academic tenacity
- Attachment
- Belonging
- Curiosity
- Empathy
- Gratitude
- Growth Mindset
- Identity
- Integrity
- Optimism
- Purpose
- Perspective taking
- Relationship skills
- Relevance of school
- Resilience
- Responsibility
- Self-awareness
- Self-control*
- Self-efficacy
- Self-esteem
- Stress management
- Zest

Transferable Skills

Transferable skills are those interdisciplinary competencies that allow learners to build, process, and apply knowledge in meaningful, high-impact ways alone and with others. They include cognitive skills involved in higher-order thinking such as critical thinking, persuasive argumentation, analysis and synthesis; metacognitive skills that allow learners to be aware of and regulate their thinking such as monitoring and reflection; and skills for working such as collaboration and communication. As the proportion of jobs that involve non-routine cognitive tasks continues to increase, the skills that fall into this category are increasingly valued by employers.[17] In the 2017 National Association of Colleges and Employers Job Outlook Survey—which asked employers to select the top ten skills they seek on a candidate's resume—the ability to work in teams, problem-solving skills, written communication skills, verbal communication skills, and analytic skills were among the most valued skills. Andreas Schleicher, OECD Education Directorate, further elaborates on this trend stating, "Education today is much more about ways of thinking which involve creative and critical approaches to problem-solving and decision-making. It is also about ways of working, including communication and collaboration…"[18]

[16] Seligman, M. E. P., & Csikszentmihalyi, M. (2000). Positive psychology: An introduction. *American Psychologist*, *55*(1), 5–14. http://doi.org/10.1037//0003-066X.55.1.5

[17] Autor, D.H. & Price, B. (2013). The changing task composition of the US labor market: An update on Autor, Levy, and Murnane (2003). Retrieved from https://economics.mit.edu/files/11600

[18] Schleicher, A. (2016, September 26). The Case for 21st Century Learning. Retrieved from http://www.oecd.org/general/thecasefor21st-centurylearning.htm.

Transferable skills have been consistently shown to correlate positively with desirable educational, career, and health outcomes for learners.[19] For example, in a review of research on skills and dispositions, the Education Policy Improvement Center found that collaboration, communication, problem solving, goal and time management, and study skills were all strongly predictive of K-12 academic success and to a lesser extent predictive of college GPA and performance. Scholars suggests that the academic benefits stemming from the development of transferable skills are connected to the fact that these skills support knowledge transfer, or the ability to apply something learned in one context to another, different context.[20]

Outcomes from the reviewed frameworks that fall into this category include the following:

- Analysis
- Collaboration
- Communication
- Creativity
- Critical thinking
- Design thinking
- Goal setting
- Inquiry and research skills
- Monitoring thinking
- Planning
- Problem solving
- Progress monitoring
- Time management
- Reflection
- Synthesis
- Systems thinking

Further Exploration

Now that we've presented these categories as one way organize the types of learner outcomes necessary for success in the 21st century, we can use them to explore existing outcome frameworks from across the field. As mentioned above, we reviewed about 30 frameworks in order to create this resource. All of these frameworks we reviewed are listed below in *Table 2*. For each framework, the table includes a link as

Design Team Activity!

As you read through Table 2 have each member of your team do the following:

- Identify 2-4 different frameworks.
- Skim the frameworks and identify elements of the scope, purpose, and organization that you find compelling and elements you would change.
- Discuss your reflections as a team, referencing specific examples from the frameworks.

[19]Committee on Defining Deeper Learning and 21st Century Skills (2012). Education for life and work: Developing transferable knowledge and skills in the 21st century. J.W. Pellegrino and M.L. Hilton. (Eds.) Washington, DC: The National Academy Press.; Council of Chief State School Officers (2013). Knowledge, skills, and dispositions: The innovation lab network state framework for college, career, and citizenship readiness and implication for state policy. Retrieved from http://www.ccsso.org/Documents/ILN%20Knowledge%20Skills%20and%20Dispositions%20CCR%20Framework%20February%202013.pdf

[20] De Corte, E. (2003). Transfer as the productive use of acquired knowledge, skills, and motivations. *Current Directions in Psychological Science, (12)*4.

well as a mapping of the degree to which the framework covers each of the four outcome categories described above. If a cell is empty for one of the categories, it is not covered by the framework. If the cell is fully filled the category is covered extensively. If the cell is half filled the category is partially covered with some elements of our definition left out. This mapping is not intended to be evaluative. These frameworks present a diversity of ways to think about learner outcomes and we believe each one provides helpful framing and definitions. Instead, the goal of the table is to make it easier for you to access the content that will be most helpful. We encourage you to use it to spark inspiration and go deeper.

Table 2: A Comparison of Existing Learner Outcome Frameworks Across Four Outcome Types

Framework	Academic and Career Knowledge	Transferable Skills	Global Competencies	Social Emotional Factors
40 Developmental Assets | The Search Institute			■	■
ACT Holistic Framework | American College Testing Program	▒	■	■	▒
Building Blocks for Learning Turnaround for Children		■		■
Building Blocks for Competency Models | Employment & Training Administration	▒	■	■	▒
Career Readiness and Competencies | Nat. Association of College and Employers		■	■	
Casel SEL Competencies | CASEL		■		■
College and Career Readiness Framework | ConnectEd*	▒	■	■	▒

Common Career Technical Core | Advance CTE

Common Employability Skills | Nat. Network of Business and Industry Associations

Character Strengths Tools | *Character Lab*

Deeper Learning Framework | William & Flora Hewlett Foundation

Education for Work and Life The National Academies Press*

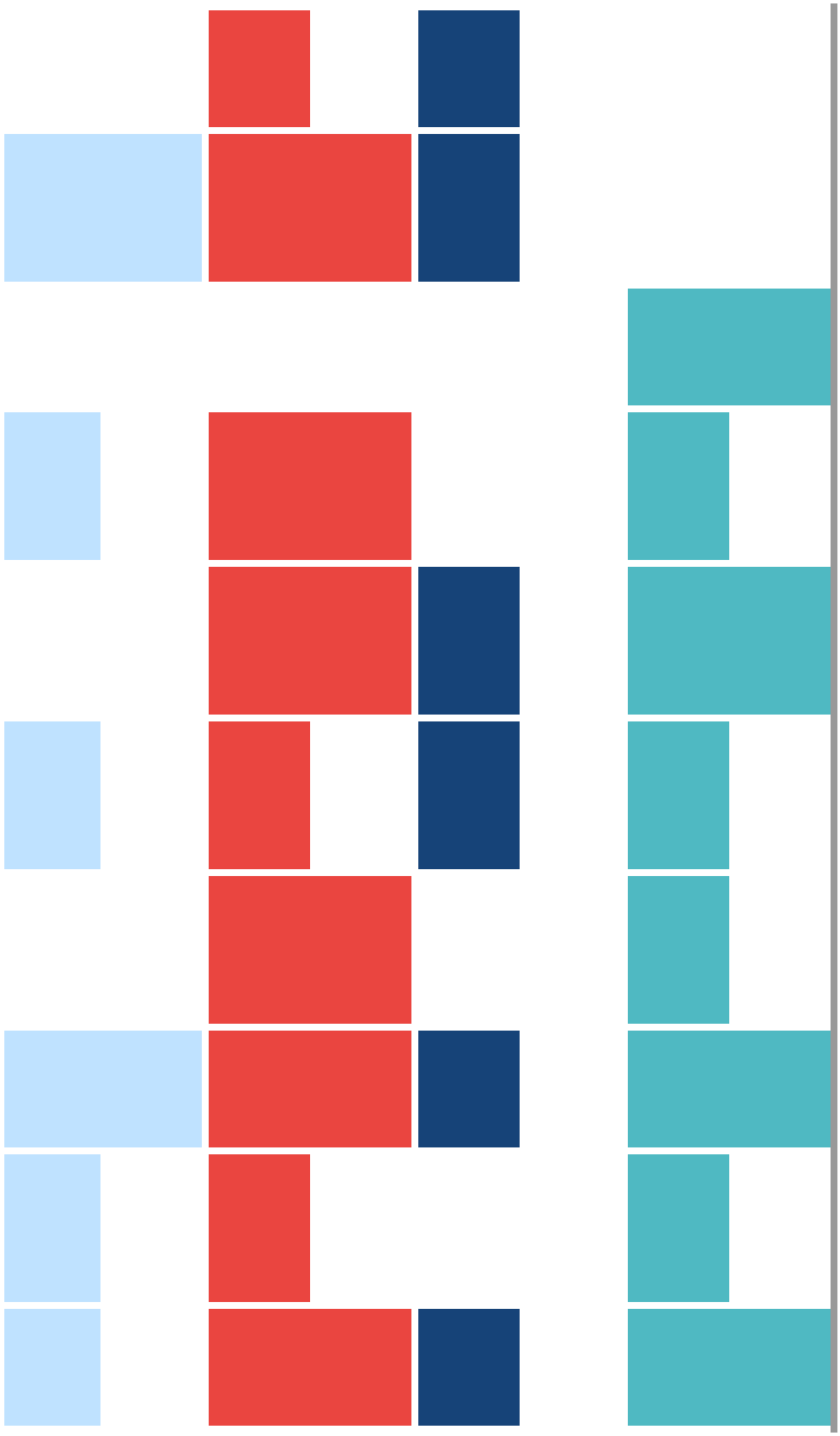
Employability Skills Framework | US Department of Education

Essential Skills and Dispositions | Educational Policy Improvement Center

A Framework for the Future of Learning | Reschool Colorado

Foundations for Young Adult Success | Consortium on Chicago School Research

Four-Dimensional Education | Center for Curriculum Design



Global Competency for An Inclusive World Framework | OECD

Knowledge, Skills, and Dispositions | Council of Chief State School Officers

MyWays Success Framework | Next Generation Learning Challenges*

National Work Readiness Credential Profile | National Readiness Council

PADA Framework | Teach for All

P21 Framework | Partnership for 21st Century Skills*

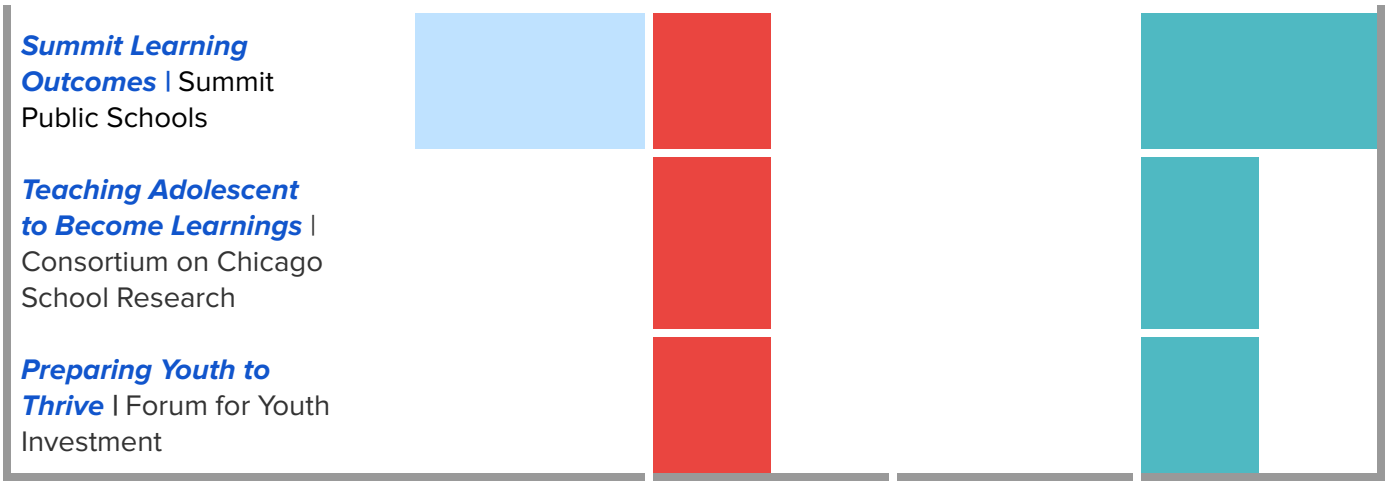
Ready for College and Career? | Nellie Mae Foundation*

Ready by Design: Science (and Art) of Youth Readiness | Forum for Youth Investment

Seven Survival Skills | Tony Wagner

Skills Building Blocks MHA Labs

Standards for the 21st Century Learning | American Association of School Librarians



PART III: DEFINING YOUR GRADUATE AIMS

Defining aims that your learners will work toward is a crucial, formative step in the design process. It allows you to clarify a compelling vision that is specific enough to help make decisions about the type of learning environment you will build, as well as the types of supports you'll need to make the environment a reality. As a result, Transcend partners articulate these goals early in their design journey so they can guide subsequent planning. Within Transcend's current Dream Canvas, (*Image 6*) graduate aims help to partially answer the question "What are we building?" by articulate the learner outcomes we are working towards. This section presents criteria to consider in developing your aims as well as some general suggestions for how this criteria can be achieved. These criteria were culled from the frameworks we reviewed and from our own experience working with design teams.

Criteria to Consider

As you engage in the hard work of defining graduate aims, there are some general criteria we encourage you to keep in mind to increase the chances that your aims and subsequent school design are reflective of your community and lead learners to success. Specifically, we encourage you to write aims that meet the following criteria:

- **Community-Driven**: Reflect the values, assets, needs, and goals of the community the learning environment is part of.
- **Mission-Aligned**: Supportive of the overarching purpose of your learning environment.
- **Future-Focused**: Responsive to economic, social, and political trends occurring across the globe and the competencies needed to confront them.
- **Holistic**: Reflect aims from each of the four categories described above—academic and career knowledge, transferable skills, global competencies, and social emotional factors.
- **Assessable**: Can be monitored with confidence to determine the extent of learner progress.

Design Team Activity!

As you read through these criteria think through the questions below and then discuss them as a team:

- To what extent do our current goals for learners meet these criteria?
- Where might we be able to make improvement in the near term? What about in the long term?

- **Manageable**: Reasonable enough in number to ensure the list is achievable and memorable.

Each of these criteria is briefly discussed in more detail below. In addition to the resource linked in these discussions, you can also use the Graduate Aims Audit Template in the Additional Resources section to help your team conduct a systematic review of the outcomes framework you develop.

Community-Driven

Your aims for graduates should reflect the values, needs, and goals of the community your learning environment is part of. For example, in a community where many learners have experienced trauma or significant stress you might choose to prioritize outcomes related to executive function, such as stress management, in your graduate aims since exposure to prolonged stress can delay or impair learner development.[21] In order to ensure this alignment exists, it is critical to engage your community in the development of graduate aims. We suggest partnering closely with a diversity of stakeholder groups, including the following:

- Learners
- Families
- School staff
- Local business leaders
- Higher education officials

In addition to increasing the relevance of aims to your community, this also deepens understanding of and commitment to these aims. These are crucial factors that support successful change management.[22]

Our school partners use a variety of activities to ensure their graduate aims are community- driven. These include empathy interviews with individuals from the stakeholder groups above. These interviews help teams create profiles to describe their diverse learners and in turn deepen understand of these learners and their needs, interests, and strengths. In addition, diverse stakeholders are engaged in the process of drafting and revising outcomes, definitions, for these outcomes, and indicators of success. The Additional Resource section provides sample protocols and templates Transcend and its partners have used in the past. These include a Community Engagement Resources list and a Learner Interview Guide. We also encourage you to use this document and the Design Team Activities listed throughout it.

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[21] McInerney, M., & McKlindon, A. (2015). Unlocking the door to learning: Trauma-informed classrooms and transformational schools. Retrieved from the Education Law Center website: http://www.elc-pa.org/resource/unlocking-the-door-to-learning-trauma-informed-classrooms-and-transformational-schools

[22] Mendez-Morse, S. (1993). Vision, leadership, and change. *Issues...about Change,* 2(3). Retrieved from the Southwest Educational Development Laboratory website: http://www.sedl.org/change/issues/issues23.html

Equity Considerations

Engaging with—and empowering—your community to determine outcomes presents a major opportunity to create a more equitable context in which to work. The following questions may be helpful to you as you consider how to do this:

- How will we ensure that the voices of all learners, families, and staff are **elevated and influence** the discussion of which outcomes the school will pursue?
- How might **privilege and power structures** impact who feels they have a right to share an idea? How might we increase awareness of this and eliminate this barrier?
- Who makes the final decision about outcomes? How might that **decision-making body** need to be reconfigured to include perspectives that are currently absent?

Mission-Aligned

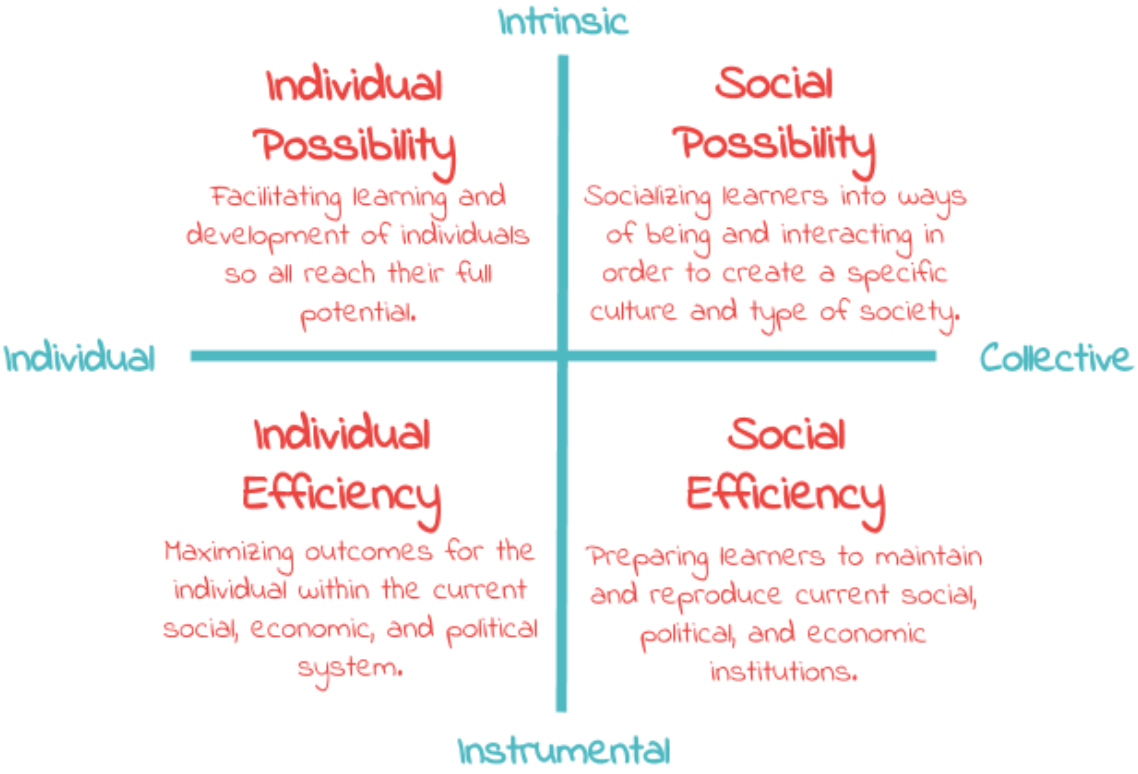
Since the beginning of formal schooling, scholars and researchers have written about the myriad, and sometimes conflicting, purposes of education.[23] While the purposes identified by these individuals have differed in name, they coalesce around similar themes pertaining to education's role in serving or developing the individual versus its role in serving or developing society, as well as whether they happen through the everyday experience of school or whether they are ways we use schooling as an institution to sort, navigate, achieve and/or reproduce other socio-economic outcomes. The aims your learners work to achieve should align with the core purpose of your learning environment. This purpose is often captured in a succinct and inspiring mission or vision statement that ideally—like your aims—was created in collaboration with the community. Understanding your organization's purpose will allow you to develop graduate aims that are aligned.

In a recent PhD dissertation, and forthcoming book, Dr. Erin Raab developed a framework to capture these different perspectives. This framework is reproduced in *Image 7*.[24] It presents four quadrants that are created by two intersecting axes. The horizontal axis differentiates between the collective benefits to society, such as

[23] Allen, D. (2016). *Education and equality*. Chicago: University Of Chicago Press; Dewey, J. (2011). *Democracy and education*. Simon & Brown; Labaree, D. (1997). *How to succeed in school without really learning: The credentials race in American education*. New Haven, CT: Yale University Press.
[24] Raab, E. (2017). Why school? (*Unpublished dissertation oral defense draft*). Stanford Graduate School of Education, Stanford, CA.

developing democratic values or making sure there are sufficient workers with specific skills for economic competitiveness, and the individual benefits, such as developing a deep understanding of the world or achieving access to a top tier university. The vertical axis differentiates between intrinsic and instrumental purposes, or benefits of education. The intrinsic benefits are things that happen through the actual process and practice of schooling (what happens in the learning environment), such as personal development or self-expression for the individual as well as socialization and community-building. Instrumental are ways we use school as an institution to get other kinds of socio-economic outcomes. For instance, accumulating credits that give access to a top tier college, access to a particular career path, or potential higher future earnings.

Image 7: Meta-Framework with Four Core Purposes



It's up to your team to define specific graduate aims. However, research cautions that focusing too extensively on the instrumental aims—individual efficiency and social efficiency—can create perverse incentives, credentialism, demotivation, anxiety, and an under emphasis on the role of schooling in creating an equitable, democratic society. While it is important to acknowledge and plan for the institutional requirements (e.g. offering the required courses students need to be eligible for college entrance), the courses themselves should be designed for inquiry and problem-solving if we are to reach aims of a thriving society or individual.

Future-Focused

As the table earlier in this document demonstrated, the world is changing in various ways and your aims should reflect these trends. Taking a future-focused perspective will help ensure your learners are prepared for success not just today but further into the 21st century. Considering current economic, social, and political trends occurring across the globe can help you understand the world learners will enter as adults and will assist you in identify graduate aims to prepare them for this world.

Table 1 can serve as a good place to start when thinking about future-focused aims. Similar content can also be found in the Global Trends Cards in the Additional Resources section. Along with these cards, we've included a template for completing a Global Trends Analysis. Together these tools can help you start a conversation around future-focused outcomes with your community. However, we also encourage you to identify the *local* trends that may be equally important to consider as you craft graduate aims.

Holistic

Research suggests that outcomes from each of the four categories described above—academic and career knowledge, global competencies, social emotional factors, and transferable skills—each play an important role in short- and long-term achievement or the creation of a stronger society. As a result, we suggest developing graduate aims that connect to outcomes from each of these categories. Defining a holistic set of graduate aims that covers a broad and robust array of skills, knowledge, and dispositions can also help each unique learner see how the aims connect to their interests, needs, and strengths. In other words, holistic aims allow more room for flexibility and support greater personalization. The importance of this is further discussed in the box below.

You can support the development of holistic aims by thinking through prompts like the follow while your team brainstorms:

- What do learners need to know? What academic and/or career-related knowledge should learners be masters of?
- What do our learners need to be able to do? What critical, transferable skills do we expect our learners to be using across different disciplines? What type of thinkers will they be?
- What should our learners stand for and care deeply about? What should their values and orientations toward society be?
- What mindsets and dispositions should our learners hold in regards to themselves and others?

Recognizing Exception as the Norm

At Transcend, we believe that every learner is a unique individual with different interests and needs. However, we also recognize the importance of holding a consistently high bar for all learners. The following questions may be helpful to you as your team works to live into both of these beliefs:

- Are our graduate aims holding **consistently high expectations** for all of learners, regardless of differences in race, ethnicity, family background, developmental levels, or learning preferences?
- Instead of shifting expectations for different learners, how can shift the learning environment and the experiences each child has in order to address differences and **meet each learner where he or she is at**?
- Given the individual needs, strengths, and interests of each learner, how can we develop a "graduate profile" and set of aims that are **broad and flexible enough to allow for the individuality of each learner to show through** when graduation day arrives?

Assessable

Assessing, or measuring, learner progress toward the aims you define is crucial for providing routine feedback to learners and for continuous improvement at an organizational level. However, measuring your aims with confidence can be hard. As a result, while drafting graduate aims, it is important to consider how you'll determine if learners are progressing toward each one. If your team struggles to find a method it's confident in for an aim, you likely need to revise it or consult more research.

In order for an aim to be assessable, if first needs to be *clearly defined*. Your team should strive to come to consensus around a shared understand of what each aim means and also specify indicators. Indicators, sometimes referred to as "look fors," are typically observable statements that clarify what learner actions or words would demonstrate that an outcome was achieved. Looking back at the existing frameworks listed in *Table 2* may be especially helpful for defining outcomes and creating indicators. In addition, there is extensive research on many individual learner outcomes, such as critical thinking or self-efficacy, that can also be consulted. Finally, for some outcomes, there may be data collection instruments that have already been created by experts. However, before using any tool created by someone else, make sure that their definition of a concept aligns with your own. The Additional Resources section also includes four helpful items: a protocol for Using Trends from Community Input to Draft Aims, a template for a Graduate Aims Research Log, and two online tools for brainstorming aims: the MyWays Toolkit and the Graduate Profile Designer.

Manageable

Practitioners recommend finding ways to ensure that your full list of graduate aims is compelling, memorable, and feasible. This is helpful for a couple of reasons. First it ensures the end goal is clear by creating what Chip and Dan Heath call a "*destination postcard*—a vivid picture from the near-term future that shows what could be possible."[25] Second, it helps ensure success is achievable. Goals should, of course, be rigorous and ambitious but setting too many goals to manage progress toward may contribute to learners falling short on some or all of them.

Making graduate aims manageable might mean keeping the list short by starting with five to seven outcomes, using an organizational scheme to group relevant aims into higher-level categories, or developing a narrative to explain how your aims fit together. Another suggestion is to step back from your completed list of aims and ask yourself a hand full of questions:

- Do any of our aims overlap in ways that suggest some should be combined or removed?
- Is there a way we can organize our aims into logical and helpful categories?
- Is the language used to name and describe our aims sufficiently descriptive but also concise and precise?
- Is there a way we can communicate our aims visually?

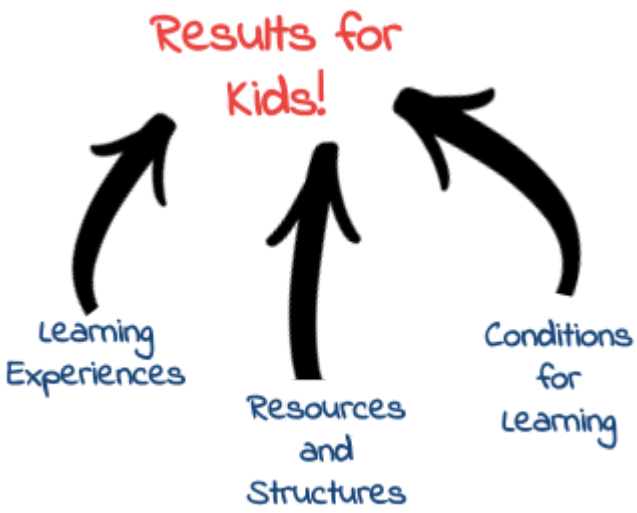
Graduate Profile Examples

In addition to the research-based frameworks in Part I, there are many school-specific models reflective of the criteria above that you can look to for inspiration. We've included examples from some of Transcend's design partners below, as well as examples from across the field more generally. In addition to these examples, EdLeader 21's Profile of a Graduate Gallery is another excellent source for exemplary learner outcome frameworks.

Transcend Partners	Other Learning Environments
Achievement First Greenfield	**Houston Independent School District**
Citizens of the World Charter School	**Lindsay Unified School District**
Montessori for All	**Pittsburgh Public Schools Draft Graduate Profile**
NXU	**St. Benedict's Preparatory School**
Valor Collegiate Academy	**XQ Graduate Profile**

[25] Heath, C. & Heath, D. (2010) *Switch: How to change things when change is hard.* New York, NY: Random House, p. 76.

Concluding Thoughts



The defining of graduate aims is just the beginning of your work as a design team. Next you'll need to make critical decisions that support the development of these outcomes. As Ken Kay, who supported the definition of learner outcomes across the EdLeader21 network put it, "the real payoff for learners is when educators use that vision to transform teaching and learning and make a total commitment to implementing the plan in every aspect of their work."[26] To do this, you'll need to consider what learning experiences will facilitate the development of the outcomes your community prioritizes and what the climate and norms of the learning environment should be, as well as how structures and resources like the roles and responsibilities of adults, the curriculum, your technology infrastructure, and more can be aligned to provide the necessary supports. It is these key design decisions—along with rigorous building, testing, and iteration—that will help ensure results for kids!

Luckily, you're not in this alone. Around the country, other like-minded groups are also striving to innovate so that "school" becomes the truly transformational experience it should be for learners. In addition, researchers are discovering more and more each year about how learning happens and what can be done to facilitate it. At Transcend we will continue looking to both of these sources—practitioners doing cutting-edge work and researchers making new discoveries—to identify what they are finding, synthesize the insights most relevant to our partners, and codify this knowledge into a form that is actionable for school operators working on the frontier of school model innovation. As our school partners apply these insights and try their own approaches, we will harvest the learning from their efforts and add this to our knowledge base. During this journey, we will share everything we learn transparently with the field through resources like this one to hopefully accelerate everyone's progress and to inspire new research efforts.

[26] Vander Ark, T. (2017, April 21). It's Time to Revise Your Graduate Profile: Here's How [Season 2 Episode 49]. *Getting Smart*. Podcast retrieved from http://www.gettingsmart.com/2017/04/getting-smart-podcast-its-time-to-update-your-graduate-profile-heres-how/?utm_campaign=cosch

Additional Resources

The table below contains some more resources to help your team explore and create graduate aims. Each one includes a link to the resource on the title, a brief description, and a list of possible uses.

Resource	Description	Uses
Community Engagement Resources	This document links to several different community engagement resources. These resources were chosen because they meet several criteria. They 1) lay out actionable steps for consistent and authentic community engagement, offering templates and/or case studies to further illustrate steps; 2) draw from the literature on principles of stakeholder engagement and the benefits of community engagement; and 3) have been developed and successfully implemented by school districts and/or other child-centered organizations for the purpose of using community input to make informed decisions around strategy, policy, and daily operations.	❏ Defining your graduate aims
Gathering Community Input	This simple protocol is intended to help you effectively and efficiently gather input from a wide range of community stakeholders as you begin the process of writing your graduate profile.	❏ Defining your graduate aims
Global Trends Analysis	Use this template to review and analyze current social, political, economic, and environmental trends that are occurring across the globe. You can research trends on your own or use this table as a place to start. Write one trend in each row and then reflect on the implications of the trends for the knowledge, skills, values, and dispositions learners will need in the future.	❏ Explore types of outcomes ❏ Defining your graduate aims
Global Trends Cards	These cards share quotations and statistics related to global trends across seven areas: climate change, technology, health and science, the economy, inequity, demographics, and politics.	❏ Defining your graduate aims
Graduate Profile Designer	This is a free, online tool that helps teams identify the competencies that learners need	❏ Explore types of outcomes

	for success, with a particular emphasis on the 4Cs (critical thinking, communication, collaboration, and creativity). The tool is part of a campaign launched by EdLeader21—a national network of school and district leaders focused on integrating the 4Cs into education—to help more than 1,000 school districts develop graduate profiles by 2019.	❏ Defining your graduate aims
MyWays Toolkit	This is a free, online toolkit that walks teams through the process of defining success for graduates and helps them map their profiles to the 20 competencies in the MyWays success framework.	❏ Explore types of outcomes ❏ Defining your graduate aims
Refining Your Draft Profile with the Community	This simple protocol is intended to help you re-engage with community members after you've had the chance to use their input to revise your draft of the graduate profile.	❏ Defining your graduate aims
Graduate Aims Research Log	This template can be used to record the specific graduate aims your team develops as well as indicators that further specify the aims and research on how the aims are developed.	❏ Defining your graduate aims ❏ Making design decisions
Signature Experience Research Audit	This template is intended to help your team conduct an audit of already designed signature experiences to determine the extent to which they are aligned to research on how your target graduate aims are developed and help further strengthen this alignment.	❏ Making design decisions
Learner Interview Guide	This brief protocol includes sample questions to use in a conversation with learners in order to 1) better understand the long-term aspirations this learner has for himself, his family, and his community, 2) understand the current lived reality of schooling and 3) collect meaningful insights that can shape a design for a powerful, joyful, relevant learning experience for this learner and learners like this.	❏ Defining your graduate aims
Using Trends from Community Input to Draft Aims	This simple protocol is intended to help you consolidate data from user interviews, identify trends, surface conflicts, and create a draft set of outcomes that you can use to re-engage with the community.	❏ Defining your graduate aims

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