Welcome to the MyWays Student Success Framework

Report 6 of the MyWays Student Success Series

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for Next Generation Learning Challenges
About this report

Report 6, *Welcome to the MyWays Student Success Framework*, summarizes what student success looks like in an age of accelerations. The report offers an overview of the framework; a preview of the four MyWays domains and the five competencies in each domain; a description of what you will find in Reports 7–10 on the individual domains; and a starter selection of important resources.


The *MyWays Student Success Series* examines the through-line of four essential questions for next generation learning and provides research and practice-based support to help school designers and educators to answer these questions. The series consists of 12 reports organized into three parts, plus a Visual Summary and Introduction and Overview.

The primary researchers and authors of the *MyWays Student Success Series* are Dave Lash, Principal at Dave Lash & Company, and Grace Belfiore, D. Phil., Principal Consultant at Belfiore Education Consulting.

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Welcome to the MyWays Student Success Framework

In the back of the class, there’s that idly waving hand... You gesture toward the hand, Let’s hear it. And of course Smartass says “Why do we need to know this?”

It’s an uppity question... but when I cool down and think about it... [it’s] an uppity version of one of the most important questions in education, a question with only three words: What’s worth learning...? [And] it’s a good reminder that the question doesn’t just belong to state school boards, authors of textbooks, writers of curriculum standards, and other elite. It’s on the minds of our students.

—David Perkins

A founder of Project Zero and Professor Emeritus, Harvard Graduate School of Education

Competencies for a new kind of readiness

Perkins’s colleague from Project Zero, Howard Gardner, contends that “students need an education that is deeply rooted in . . . what is known about the human condition, in its timeless aspects, and what is known about the pressures, challenges and opportunities of the contemporary and coming scene. Without this double anchoring, we are doomed to an education that is dated, partial, naïve, and inadequate.”

The previous reports in this series reveal how the development of the MyWays Student Success Framework was shaped by Gardner’s lenses, including research on the human condition and human development (such as adolescent development, learning and brain science, trauma, and resilience) while simultaneously examining the challenges and opportunities in the contemporary and coming scene in both education and work. The Introduction and Overview of the MyWays Student Success Series summarizes the scope of the MyWays research. For a snapshot of the research see the Venn diagram to the right; for more detail and a list of the frameworks we analyze, see that Introduction and Overview report.

In this first report of Part B, we reintroduce the MyWays Student Success Framework, covering:

- The framework’s characteristics
- A preview of the four domains and the five competencies in each domain
- What you will find in the reports that follow, dedicated to each of the domains
- A starter selection of important resources
Building a success framework for an age of accelerations

It is clear from our analysis that what’s worth learning revolves around what learners will need to navigate in today’s “disorderly world” — both for their own personal advancement and fulfillment and to work with others to address that world’s challenges.

Clearly, this calls for a broader, deeper, more integrated, and more adaptable set of competencies than our schools typically address today. A true “success framework” must stress not only the ability to do college level work but also the ability to bootstrap a career despite a troubled labor market; to plot a path to entry and advantage in the complex work/learn landscape; and to develop the social capital needed to progress in the “wayfinding” decade of their twenties. These key trends and challenges that are likely to confront all young people we have called the 5-5-5 Realities. They are described fully in the reports in Part A, “Adolescence in an Age of Accelerations,” and are summarized to the left. These realities were kept firmly in mind as we developed the MyWays Student Success Framework, helping to shape competencies that boost resourcefulness, resolve, innovative thinking, adaptability, an orientation toward the big picture, and building networks.

The MyWays framework must serve not only academically prepared students from higher income families who complete college in large numbers but also the two-thirds of all students — many from less advantaged families — who leave high school not fully prepared or not prepared for college work. (For background on these groups, see Report 3.) Finally, a true success framework must encompass not only fundamental academic competencies but also whole-person mindsets, behaviors, interpersonal skills, and individual strengths that contribute to personal resourcefulness, adaptability, and ingenuity.

As the OECD’s Andreas Schleicher puts it,

In the past, education was about teaching people something. Now it’s about making sure that individuals develop a reliable compass and the navigation skills to find their own way through an increasingly uncertain, volatile, and ambiguous world. [emphasis added]

Hence (as first discussed in the Introduction and Overview report) our choice of the title “MyWays” for this Student Success Framework, a name that elevates the navigational aspects of this new kind of readiness.
Major characteristics of a future-oriented, student-centered goal set

As we discussed in detail in Part A, our analysis of the needs of today and tomorrow led us to both an expanded set of competency domains and to a more nuanced, two-dimensional view of the nature of competency. We will recap these important MyWays characteristics, starting here with the expansion of the competency set.

A broader competency set

The competencies required for a student-centered (rather than content-centered) goal-line extend well beyond NCLB-era math and ELA content knowledge. They include other “future ready” content, a range of adaptable skills, key social-emotional habits, and the application of all of these to create one’s own path in life. We clustered this collection of competencies into four domains:

- **Habits of Success** are:
  Behaviors and practices that enable students to own their learning and cultivate personal effectiveness

- **Creative Know How** involves:
  Skills and abilities to analyze complex problems and construct solutions in real-world situations

- **Content Knowledge** focuses on:
  Subject area knowledge and organizing concepts essential for academic and real-world applications

- **Wayfinding Abilities** cover:
  Knowledge and capacity to successfully navigate college, career, and life opportunities and choices

A wealth of research, analysis, synthesis, and practice lies behind these brief descriptions. For now, it is important to highlight the breadth and future orientation of this set of competencies (when compared to those addressed in most schools today), as well as to recognize what’s new in each domain.

MyWays is a goal-line in which:

- **Habits of Success not only joins the definition, but leads the way;**
- **21st century skills development has become the more agile and adaptable Creative Know How;**
- **Content Knowledge is extended into authentic application; and**
- **developing the Wayfinding Abilities to navigating one’s own life merits equal standing with the other three domains.**
For more on why these changes are necessary and how they are evolving, see the preview of the MyWays competencies in the last section of this report, as well as Reports 7–10, in which we explore the domains and their competencies in more depth. Note that while the MyWays framework is organized in discrete constructs, in reality the domains and competencies are highly interrelated. They support each other in numerous ways, and learners will use them in a rich variety of combinations to address the particular roadblocks, decisions, and adversities they face, driven by their unique interests, and opportunities.

**A richer view of the meaning of competency**

As introduced in Report 5, not only do we need a broader set of competencies, but each of the competencies needs to include elements of both capability and agency. This holds true through all four domains, as well as the five competencies in each domain.

Within each of those domain sections, look for craftsmanship, mastery, and artistry — all part of demonstrating capability; and self-management, self-reflection, and creative empowerment — all associated with developing student agency. For more on these and other practices integral to these aspects of competency, see also the section on Capability and Agency in Report 5, as well as the section in Report 11 that goes into more detail on the Levers for Capability and Agency that learning research indicates to be effective in developing these two aspects of competence.

Our review of the accelerated and complex world our students will encounter reinforces just how vital agency, in particular, will be to their survival, success, and well-being. One principle embedded in our exploration of the four MyWays competency domains — as well as in the learning and assessment needed to foster the broader and deeper approach — is that, for agency to develop, educators must support students in exercising and developing agency as they work along acceleration lanes into adult life.

If you are interested in reading more about the four-question through-line that drives the MyWays Student Success Framework and the research that went into the creation of this definition of student success, please see the *Introduction and Overview of the MyWays Student Success Series*.

**The MyWays Student Success Framework**

Like much that happens in the realm of education reform and learning innovation, where unintended consequences abound, it is instructive to consider not only what the MyWays framework is (its goals and purposes), but also what it is not (with cautions about how its constructs could be mis-used).
What the MyWays Student Success Framework is

This framework is the result of analysis and synthesis conducted over more than two years, drawing on over 25 existing competency frameworks and, at last count, more than 200 papers and research studies. Our goal with MyWays, however, is not to replace or compete with the frameworks that shaped it; instead, we offer a universal translator for them — a *rosetta stone* of competency definition — to surface the commonalities among these frameworks, increase their interoperability, and maximize their usefulness and impact in the field.

The MyWays Student Success Framework was designed with six primary goals in mind:

1. **Synthesize the student success landscape for educators and policy makers**, and provide a means to organize and access the related research, concepts, best practices, and practitioner tools to maximize its usefulness.

2. **Develop a common language** that can be used to promote learning goals that are comprehensive, coherent, and empowering.

3. **Accommodate a wide spectrum of postsecondary career and education pathways and choices**, and **highlight the need to incorporate more authentic, out-of-school opportunities** to develop competencies.

4. **Provide a flexible, easy-to-use tool for self-evaluation and continuous improvement** to help educators gauge the breadth and depth of student success competencies.

5. **Offer a clear and adaptable set of success signposts** for students and parents to consider in navigating the way forward.

6. **Encompass the needs of students of all incomes and abilities**, including those who must overcome the challenges of intergenerational poverty and racial and other discrimination. As the goal implies, like other frameworks — including ConnectEd — we see a broader and richer competency framework as a potent equity strategy that empowers students, families, educators, communities, and policymakers to make more informed decisions and engage effectively in aligning systems and resources to close equity gaps.

Using the MyWays Student Success Framework: “Stories from the Field”

EdSurge recently published “Stories from the Field,” five outstanding early examples of educators using MyWays to shift their models toward a broader set of success competencies:

- **How Brooklyn LAB Charter School is Integrating Non-Academic Habits into the Classroom**
- **Teachers at Two Rivers Roll Up Their Sleeves to Build Assessments from Scratch**
- **How State Reform in New Hampshire Led to Teacher Autonomy**
- **Can SEL Support Personalized Learning? How One Chicago School Is Finding Out**
- **How Valor Collegiate Academy is Rethinking SEL**

In these stories, teams of educators experiment with the framework in various ways, including incorporating Habits of Success in the design of a mentor block (CICS West Belden); evaluating the MyWays Whole-Student Competency Plot as a tool to visualize learner profiles (Two Rivers); and even integrating the entire framework into the Cortex learning platform (Brooklyn LAB).
What the MyWays Student Success Framework is not

What the framework is not is the “one best” compilation of student competencies to be addressed in full, simultaneously or in sequence, for all learners. As the Stories from the Field illustrate, individual learners, schools, school districts, or school networks can use MyWays to look more thoughtfully at and update an existing goal-line or to create a new one — and even then, they will need to use their own language, choose priorities from each domain, and establish guidelines to enable teacher choice and student personalization on specific goals to be addressed within the broad domains.

This framework is also emphatically not a checklist of component parts intended individually to drive curriculum, pedagogy, scheduling, and assessment. We view the whole competency set as crucially important for school leaders, teachers, and students to hold and use as a North Star. Still, we worry that some people might take a classic standards-based reform approach and use individual competencies to define individual assessments that “atomize” the skills and lead to unintended consequences in learning and instruction, such as creating stand-alone courses in creativity or online programs in remedial collaborative skills. (The box below may be an exaggeration, but it is close enough to what’s already happening in some instances to act as an important warning.)

Implementing Competencies: How It Could All Go Wrong

How do we avoid organizing learning element-by-element around the broader competencies, using them as a recipe rather than a set of goals?

How do we avoid... this?

<table>
<thead>
<tr>
<th>Worthy Idea</th>
<th>Policy Response</th>
<th>District Mandate 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>High school graduates should be as creative and innovative as they can be</td>
<td>Standard VIII.A.3.i: All 10th grade students shall exhibit the following 14 indicators of creativity and innovation</td>
<td>9th Grade Course Requirement: Creativity &amp; Innovation 101</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>News Headline</th>
<th>District Mandate 2</th>
<th>Market Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Were They Cheating on the Test? Or Simply Showing a Little ‘Creativity’?”</td>
<td>10th Grade Course Requirement: Remedial Creativity &amp; Innovation</td>
<td>Acme “PowerCreate” Text, Worksheets, and EasyScore® Quarterly Benchmark</td>
</tr>
</tbody>
</table>

Hopefully, time spent exploring the competency domains will make abundantly clear how and why the applied knowledge, transferable skills, practiced habits, and personalized wayfinding they include could never develop in such an atomized way. (This, in turn, explains why the MyWays approach to learning and assessment is so focused on authenticity and holistic experience.)

Our greatest hope is that the MyWays framework will provide a thought-provoking and practical tool that can help educators decide how to incorporate skills that students will desperately need in tomorrow’s “disorderly world” into holistic learning experiences, both within and outside the school walls.
Preview of the MyWays domains

The MyWays Student Success Framework covers considerable ground because it embraces a whole-person approach. No one learner and no one school model is expected to address all 20 competencies in a granular, sequential way. The value of this comprehensive rosetta stone framework is to keep breadth and depth front of mind for the creation of individual journeys that vary based on learner strengths and interests — an approach vital to adolescence in the age of accelerations.

In this section we preview the four MyWays domains in a two-page spread, highlighting for each domain its five competencies and a few key principles to keep in mind in addressing the domain. For more extensive treatment of these competencies and principles see the four domain reports, Reports 7–10.

But first we would like to share some context on how the domains developed. While MyWays emerged partly from the study of dozens of existing competency frameworks, we were also cognizant of the needs of the complex, rapidly changing future facing our students, as dramatically revealed in the research behind Part A of this series.

We start our MyWays domains with Habits of Success rather than with Content Knowledge. We do this intentionally because we believe Habits of Success represents the biggest gap between what students currently learn in school and what they MUST now learn in order to thrive in the rapidly changing and disorderly world. We place Creative Know How next not only because of its interconnections with Habits of Success but also because these adaptable skills are changing rapidly even as educators begin to embrace them. We include Content Knowledge in order to highlight a new focus on organizing concepts and application and also to provide a paradigm in which content learning can be fully integrated with other domains. And, in another departure from most frameworks, MyWays gives the development of personal Wayfinding Abilities equal standing with the other domains as a set of competencies required by the increasing novelty and complexity of the world in which our students will live.

While the inclusion of even two or three of these revised priorities is rare among the more than 25 frameworks we studied, we firmly believe all four are justified by growing understanding of the complex and uncertain future, including the importance of developing social capital and the need to hone the uniquely human elements of work and social organization.

KnowledgeWorks’ Forecast 4.0, Redefining Readiness from the Inside Out, which portrays the world of 2040, offers many of the same priorities, especially relating to the new focus on Habits of Success:

“To prepare for a future in which smart machines will be able to perform increasingly complex, non-routine work and full-time employment will be decreasingly common, today’s education systems must change their central operating principles. They must continue to shift from a limiting focus on mastering content and must also move beyond the more recent focus on thinking and doing to establish a new focus on feeling and relating. [Emphasis added.]
Leveraging the emotion system to interface with the world and to connect deeply with other people represents the uniquely human capacity that people bring to work. This capacity will ensure that we will continue to add distinctive value alongside smart machine partners. Establishing a new focus on feeling and relating will help education institutions and systems align with a future of readiness in which the core social-emotional skills and foundational cognitive and metacognitive practices that we have described in this paper will be more important and enduring than specific content or job- and task-related skills. While there will still be a place for both mastering content and thinking and doing, making feeling and relating central to learning will enable students to develop the skills and practices necessary to meet the emerging realities of work with adaptability and resilience.5

Clearly there is some correlation between KnowledgeWorks’ Mastering Content and MyWays’ Content Knowledge, between Thinking & Doing and Creative Know How, and between Feeling & Relating and Habits of Success, and this graph is useful in clarifying the need for shifting emphasis over time. However, it is also true that each of the MyWays competency domains incorporates multiple principles, and that our research into learning science and adolescent development convinces us that Feeling & Relating are essential not only to prepare for an uncertain future, but also for the development of more deep, durable, and adaptable learning of Content Knowledge and Creative Know How. So we see the shift as additive rather than focused on replacement.

And MyWays takes the additional step of including Wayfinding Abilities as a fourth competency domain, highlighting the need for learners to leverage all these attributes to make their own way in the world — and indeed to wayfind new paths for the world they will be inhabiting. We believe this set of competencies will continue to increase in importance as the number of ways to create value and communicate with others, and the number of ways to continue to learn, work, and serve our communities continues to proliferate.

A summary of the four MyWays domains appears on the following pages.
Preview of the MyWays Competency Domains

The framework covers considerable ground because it embraces a whole-person approach. No one learner or one school model will address all 20 competencies in a granular, sequential way. The aim of the framework is to keep breadth and depth front of mind for the creation of individual journeys that vary based on learner strengths and interests.

### Habits of Success — for learning, work, and well-being

Developing the interpersonal and intrapersonal skills, habits, and behaviors that research suggests are essential to success in learning, self-direction, and well-being.

<table>
<thead>
<tr>
<th>Domain</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td><strong>Academic Behaviors</strong></td>
<td>Going to class, participating fully, completing homework and projects, and managing time and resources</td>
</tr>
<tr>
<td><strong>Self-Direction &amp; Perseverance</strong></td>
<td>Initiative, flexibility and adaptability, grit and tenacity, self-control</td>
</tr>
<tr>
<td><strong>Positive Mindsets</strong></td>
<td>&quot;I belong in this learning community. My ability and competence grow with my effort. I can succeed at this task. This work has value for me.&quot;</td>
</tr>
<tr>
<td><strong>Learning Strategies</strong></td>
<td>Study skills and strategies, goal-setting, self-regulated learning, help seeking</td>
</tr>
<tr>
<td><strong>Social Skills &amp; Responsibility</strong></td>
<td>Interpersonal skills, empathy, cooperation, leadership, ethics, and ability to build social networks</td>
</tr>
</tbody>
</table>

**3 Key Principles for Practice**

1. **Experience day-to-day the active, authentic learning** that enables students to work on their Habits of Success in integrated, sequenced, and explicit ways.
2. **Benefit from strong adult relationships**, which are necessary for all students to develop the Habits — and even more vital for those affected by poverty, trauma, or other challenges.
3. **Avoid the unintended and negative consequences possible in emerging measurement of Habits of Success**, particularly as part of high-stakes accountability.

### Creative Know How — for a novel, complex world

Developing strength in the 4Cs (Critical Thinking, Communication, Collaboration, Creativity) as well as skills relevant to the increasingly “disorderly” world — entrepreneurship, media/IT, and practical life.

<table>
<thead>
<tr>
<th>Domain</th>
<th>Description</th>
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<tbody>
<tr>
<td><strong>Critical Thinking &amp; Problem Solving</strong></td>
<td>Ability to analyze and reason effectively, and use systems thinking and design thinking toward solving problems in varied settings</td>
</tr>
<tr>
<td><strong>Creativity &amp; Entrepreneurship</strong></td>
<td>The imagination, inventiveness, and experimentation to achieve new and productive ideas and solutions</td>
</tr>
<tr>
<td><strong>Communication &amp; Collaboration</strong></td>
<td>Oral, written, and visual communication skills and the ability to work effectively with diverse teams</td>
</tr>
<tr>
<td><strong>Information, Media, &amp; Technology Skills</strong></td>
<td>Ability to access, evaluate, manage, create, and disseminate information and media using a wide variety of technology tools</td>
</tr>
<tr>
<td><strong>Practical Life Skills</strong></td>
<td>Ability to understand and manage personal finances, health, and independence</td>
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</tbody>
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**4 Key Principles for Practice**

1. **Develop and transfer competencies in novel, real-world contexts**, incorporating a variety of complex and rapidly changing situations.
2. **Work on skills and knowledge in integrated ways** — learners need to apply skills to and through content knowledge, learning both more deeply, in a virtuous cycle.
3. **Focus explicitly on these skills** — naming, practicing, and reflecting on them, as well as being coached on them and receiving on-going and effective feedback.
4. **Explore the ways in which Creative Know How competencies are intimately interrelated** with each other and with the Habits of Success.
## Content Knowledge — for the life students will lead

Developing knowledge of a broader, more future-ready range of subjects than we have today, including interdisciplinary and global literacies, and career-related technical skills for all.

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
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<tbody>
<tr>
<td><strong>English Core</strong></td>
<td>Deep English learning and application across settings, aligned with the Common Core and similar standards</td>
</tr>
<tr>
<td><strong>Math Core</strong></td>
<td>Deep math learning and application across settings, aligned with the Common Core and similar standards</td>
</tr>
<tr>
<td><strong>Science, Social Studies, Arts, Languages</strong></td>
<td>Active learning of core disciplinary concepts and their application in a broad selection of liberal arts and sciences, and performing and language arts</td>
</tr>
<tr>
<td><strong>Interdisciplinary &amp; Global Knowledge</strong></td>
<td>Integrated interdisciplinary thinking and empathetic development of global, cross-cultural, civic, environmental, and economic literacies</td>
</tr>
<tr>
<td><strong>Career-Related Technical Skills</strong></td>
<td>The integration of academic, technical, and employability skills in at least one existing career area or emerging problem space of personal interest</td>
</tr>
</tbody>
</table>

### 3 Key Principles for Practice

1. **Focus on a few “high-leverage” constructs** in each subject that are central to the structure of the discipline, transfer, and continued learning in a world of change.
2. **Engage with content through learner-driven, purposeful, real-world experiences**, which improve learning while preparing students for life.
3. **Attain balance by developing “T-shaped” knowledge**, pursuing appropriate breadth while also developing depth of expertise in chosen areas.

## Wayfinding Abilities — for destinations unknown

Developing the five Wayfinding competencies through an integrated, iterative process with multiple entry points — and particular focus on navigating transitions, learning from failure, and building social capital.

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Survey the Learn, Work, &amp; Life Landscapes</strong></td>
<td>Ability to research and understand information, resources, external barriers, and internal factors relevant to upcoming transitions in school, career, and life</td>
</tr>
<tr>
<td><strong>Identify Opportunities &amp; Set Goals</strong></td>
<td>The self-awareness, focus, and strategic thinking to cultivate individual strengths and set goals for learning, work, and life</td>
</tr>
<tr>
<td><strong>Design &amp; Iterate Prototype Experiences</strong></td>
<td>Ability to translate goals into prototype experiences for each new stage or transition, especially the transition from high schooler to independent, contributing adult</td>
</tr>
<tr>
<td><strong>Find Needed Help &amp; Resources</strong></td>
<td>Ability to identify, locate, and secure the time, money, materials, organizations, mentors, and partners needed to support one’s plans</td>
</tr>
<tr>
<td><strong>Navigate Each Stage of the Journey</strong></td>
<td>Ability to implement plans in the worlds of education, work, and life, making mid-course adjustments as required based on new experience</td>
</tr>
</tbody>
</table>

### 4 Key Principles for Practice

1. **Start early**, so that building awareness of one’s own profile and interests, and of the world outside the school walls, informs learning choices and enhances relevance and motivation.
2. **Harness the Wider Learning Ecosystem** to engage with the adult world and give learners access to opportunities for developing Wayfinding Abilities.
3. **Access the kind of support necessary** to enable real progress in Wayfinding Abilities.
4. **Address the barriers to equity** inherent in competencies that are built on relationship-based supports and community-based lines of sight to college, career, and life outcomes.
**User guide to the domain reports**

Reports 7–10 provide an expanded introduction to each of the domains and its competencies and include the following content.

**A conceptual introduction to the domain as a whole:**

- Why the domain is so important
- An overview of the domain’s five competencies
- Key principles for addressing practice in the domain
- A short summary of the state of play in learning and assessment in the domain
- A quick resource dive for the domain (starter resources, competency frameworks, school models)

**One-page primers on each of the domain’s five competencies:**

- A brief description of competency outcomes
- Where to look for ideas on understanding and activating the competency
- Additional resources as food for thought

Please note: although we have surveyed the field extensively, what’s presented in these reports barely scratches the surface of available research and practice. Entire books are written on the domains and many of the individual competencies. Where existing competency frameworks are strong on particular domains, we point you to them. It is also important to highlight the fact that the maturity of research, learning design, and assessment approaches is highly variable among the four domains. Learning objectives and authentic learning approaches for Content Knowledge, for example, are relatively mature, whereas effective ways to develop and especially assess Habits of Success are only beginning to emerge, and Wayfinding Abilities are rarely addressed at all. At the individual competency level, there is even greater variation: one or two mindsets in Habits of Success are surprisingly mature, while some competencies within Creative Know How lag behind the others. Each report’s section on the state of play in learning and assessment offers context (and cautions); we suggest you read those pages carefully.

The MyWays project is collective and ongoing work, and Next Generation Learning Challenges is interested in collaborating with its grantees and other organizations to augment and refine the MyWays rosetta stone, as well as to gather a professional community to share practices for the broader and deeper student success competencies. Please visit the [MyWays website](https://www.myways.org), where you can express interest in the MyWays Community of Practice, share your thoughts, and [sign up for MyWays updates](https://www.myways.org/updates).

**What education is becoming more about**

We hope this welcome report has successfully oriented you to the four MyWays domains. Preparing our students for a challenging, unpredictable tomorrow clearly calls for a broader, deeper, and, in some cases, qualitatively different set of competencies from those of the past. As the Center for Curriculum Redesign’s characterization of the role of education today suggests:
Educational success is no longer mainly about reproducing content knowledge, but about extrapolating from what we know and applying that knowledge in novel situations. Put simply, the world no longer rewards people just for what they know — search engines know everything — but for what they can do with what they know, how they behave in the world, and how they adapt.

Because that is the main differentiator today, education is becoming more about creativity, critical thinking, communication, and collaboration; about modern knowledge, including the capacity to recognize and exploit the potential of new technologies; and last but not least, about the character qualities that help fulfilled people live and work together and build a sustainable humanity.  

For MyWays’ take on what education is “becoming more about,” please see Reports 7–10.

Quick Resource Dive for the MyWays Student Success Framework

A starter selection of important resources:

- See the Introduction and Overview of the MyWays Student Success Series, especially the sections on the framework’s foundations and our decisions on including and clustering competencies; the latter section has a list of other frameworks that informed MyWays and a chart showing alignment between MyWays and eight of the most prominent existing frameworks.

- David Perkins, Future Wise: Educating Our Children for a Changing World

- Charles Fadel, Maya Bialik, and Bernie Trilling, Four-Dimensional Education: the Competencies Learners Need to Succeed

- EPIC and David Conley, The Four Keys to College and Career Readiness

- VIDEO: The OECD’s Andreas Schleicher discusses Four-Dimensional Education and provides an excellent summary of both why the world is more volatile and how broader and deeper competencies are needed to succeed in it.

Note: These resources are intended to support the overview nature of this welcome report. You will find quick resource dives in each of the four domain reports, as well as further resource links in each of the 20 individual competency primers.
Endnotes for Report 6


3 Charles Fadel, Maya Bialik, and Bernie Trilling, *Four-Dimensional Education: the Competencies Learners Need to Succeed*, Center for Curriculum Redesign, 2015, p. 2.


Habits of Success for Learning, Work, and Well-Being

Report 7 of the MyWays Student Success Series

October 2017

Grace Belfiore and Dave Lash for Next Generation Learning Challenges
About this report

Report 7, *Habits of Success — for Learning, Work, and Well-Being*, considers the Habits of Success domain of the MyWays Student Success Framework, including why the domain not only joins the definition but leads the way, key principles for implementation, and the state of play in the field, as well as offering resources and essential one-page primers for each competency.

Report 7 is the second of five reports in Part B of the *MyWays Student Success Series*. Part B, “**Broader, Deeper Competencies for Student Success**,” provides a composite definition of student success in learning, work, and life, drawing on over 25 highly-regarded frameworks and the literature in the education, work, and human development fields.

The *MyWays Student Success Series* examines the through-line of four essential questions for next generation learning and provides research and practice-based support to help school designers and educators to answer these questions. The series consists of 12 reports organized into three parts, plus a Visual Summary and Introduction and Overview.

The primary researchers and authors of the *MyWays Student Success Series* are Dave Lash, Principal at Dave Lash & Company, and Grace Belfiore, D.Phil., Principal Consultant at Belfiore Education Consulting.

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REPORT 7

Habits of Success — for Learning, Work, and Well-Being

Introduction

This domain incorporates a number of established and new fields of inquiry from both education and youth development; these fields have unique but overlapping definitions of traits, attributes, and competencies that we explore in this report. MyWays pulls together the competencies central to successful learning, work, and well-being in the accelerated world we described in Part A. In keeping with the language of several other success frameworks, we call this cluster of competencies Habits of Success — see our definition and the list of competencies in the box to the right. Attention to these habits continues to increase, spurred on by forces as diverse as research on brain science, studies of youth who thrive despite significant barriers, and experiences with pioneering models in self-directed learning. While the importance of these competencies is evident given the world our students will live in, the emerging nature of learning strategies and especially assessment call for thoughtful consideration of how we approach the Habits of Success domain.

In this report, we will provide an overview of the domain, by covering the following:

- Why the Habits of Success domain is so important
- An overview of the five Habits of Success competencies
- Three key principles for addressing Habits of Success
- A brief summary of the state of play in Habits of Success learning and assessment
- A quick resource dive for Habits of Success (highlighting starter resources, competency frameworks, and school models that address this domain)
- Five one-page Habits of Success competency primers

We invite you to start with a compelling holistic description of this domain by Linda Darling-Hammond, followed by a brief vignette that brings this work to life in a fifth-grade classroom. We hope that this quick immersion will provide a good base from which to pursue this exploration of Habits of Success:

All young people—and particularly those who live in stressful contexts—need to be able to recognize and address their feelings, so that fear, hurt, and anxiety do not overwhelm...
them; to recognize and respect the feelings of others; to learn problem solving and conflict resolution skills; to have the opportunity to contribute directly to the welfare of others; to understand that problems and challenges are part of the process of learning and living, so that they can persist in the face of difficulties; and to become ‘growth oriented’ in their approach to life.1

**Habits of a Fifth Grader: “I tried and tried, so I got better at empathy”**

Darling-Hammond’s prescription for Habits of Success sounds powerful... and daunting. Indeed, this report will show how complex this domain is and how the best way to promote these Habits is still a work in progress. Despite the challenges, simple but powerful work on Habits is already being woven into authentic academic and social experiences in day-to-day classes. In Report 5, *Preparing Apprentice-Adults for Life after High School*, we introduced Terry Bolduc’s fifth graders from Sanborn Regional School District in New Hampshire, who developed self-direction and agency by working on the Responsive Classroom CARES competencies (Cooperation, Assertiveness, Responsibility, Empathy, Self-control). Here’s more about how Terry does it, with comments from both the student and teacher perspectives:

**Terry’s approach**

Terry introduces and develops the CARES version of Habits of Success in six steps:

1. **Familiarize students with the competencies** through the actions of fictional characters in mentor texts.
2. **Move through the core learn/do/reflect cycle**: Set goals (target self-control in groups this week; empathy for the next month), get feedback, self-reflect, and try again. Use a weekly advisory or circle time, or project prep slots.
3. **Go deeper by adapting CARES** to different subject areas (this step was suggested by a fifth grader!) and to the phases of a research project.
4. **Go deeper still by having students teach and coach** younger students.
5. **Go broader by applying the competencies outside class**, in the lunchroom and the gym, on the bus, and at home.
6. **Evolve the program** based on student results and feedback.

**Terry’s key takeaways**

- **Student work on Habits is foundational, not extra** — it improves classroom behavior, frees teacher time, and encourages growth mindset.
- **It absolutely integrates with academics** and extends to life outside the classroom.
- **Tracking progress is essential for student self-reflection**, and separating it from grading avoids negative consequences.

For more on these takeaways see the key principles for Habits of Success presented in this section. (Further analysis of Terry’s work, student samples, and tools are also available.)2

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1. Report 7 | Habits of Success – for Learning, Work, and Well-Being

MyWays Student Success Series: What Learners Need to Thrive in a World of Change
Why Habits of Success are so important

While caring teachers have always helped their students cultivate positive attitudes and behaviors, the profile of this domain has never been higher. As Jonathan E. Martin notes,

A great new consensus is emerging in K-12 education today: social and emotional learning (SEL) is essential not just for its own sake, but for its wide outcomes in academic and life success. Schooling in all its forms must place a greater priority on developing student noncognitive skills and character strengths. Education leaders have similarly embraced this understanding — ASCD made the “whole child” its slogan — and many district leaders are shifting the emphasis of schooling from content knowledge to intrapersonal and interpersonal skills and college readiness.

In the past decade or so, this common sense point of view — the importance of whole child education — has been emphatically endorsed by researchers, social scientists and think tanks, including Nobel Prize-winning economist James Heckman, New York Times journalist Paul Tough, MacArthur “genius” prize winner Angela Duckworth, the Hewlett Foundation, the RAND Corporation, the National Research Council, the Brookings Institute, the Economic Policy Institute and the New America Foundation.3

The study of habits that lead to success attracts this attention for many reasons. In part, it is inspired by the explosion of brain-based research on both how learning works and how child and adolescent brains develop. In part, it is based on multiple lines of research that show the importance of attributes such as self-direction, perseverance, and positive mindsets, as well the extent to which academic behaviors, social skills, and responsibility predict and influence success in academics, careers, and life outcomes.4

This focus also stems from the evaluation of two very different educational approaches practiced over the past decade. First, some “no excuses” charter schools — which feature high expectations on a narrow set of academic goals, along with teacher-directed learning and zero-tolerance discipline — have determined that this narrow “no excuses” approach may improve some outcomes in the short term (such as college acceptance rates) but not prepare the students for meaningful success in the longer term (such as college completion and the ability to meet today’s workforce demands). At the same time, separate research on integrated, well-implemented social-emotional learning (SEL) approaches shows that they not only improve standardized academic test performance — by an average of 11 percentile points across ages and socio-economic status — they also increase prosocial behaviors (such as kindness, sharing, and empathy), improve student attitudes toward school, and reduce depression and stress among students. In addition, teachers’ ratings of social competence in kindergarten successfully predict which students will graduate college within six years and hold full-time jobs by age 25.5

Indeed, most educators already invest large amounts of time in helping students work on SEL, whether in identified programs or as part of classroom management, social skills training, restorative justice, or similar efforts.6 The passage of the Every Student Succeeds Act, which requires states to include at least
one nonacademic indicator in their school evaluation measures, is drawing additional attention to helping students develop Habits of Success.

Furthermore, MyWays research on the complex and rapidly changing future our students face suggests that the need to build Habits of Success will only increase, and substantially so, as we head deeper into that future. As Thomas Friedman says, “The three largest forces on the planet — technology, globalization, and climate change — are all accelerating at once.” Opportunities abound, but so do threats and risks that previous generations have not had to confront. Here are a few of the questions that a student facing the real-world conditions described in Reports 1 to 5 (Part A) might ask in relation to their internal mindsets, habits, and skills:

**Do I have the internal agency, mindsets, perseverance, and open-mindedness** to discover and develop my strengths while navigating my way through a postsecondary sector with myriad options (including short-term certificate programs, competency-based badges and other emerging choices), rising education costs, and the need to learn, work, and build social capital?

**Am I sufficiently mature, enterprising, and resilient** to succeed when under-30 employment is anemic, jobs are disappearing or transforming because of automation and the shift to an on-demand workforce, and the hiring process is increasingly convoluted and impersonal?

**Do I have the relationship, empathic, cooperative, and leadership skills** to work effectively with others (including adults), secure needed help, create value, and build social networks?

**Am I sufficiently disciplined, directed, and knowledgeable** about how I learn successfully to manage my own ongoing learning — across a wide learning ecosystem — to continually adapt and prepare for new opportunities in work or life?

Sadly, too few students today can answer “Yes” to these questions, which are fundamental to being prepared for the wayfinding decade after high school. Consequently, as Robert Halpern observes, “Too many [young people] are caught in a gale of creative destruction that makes it difficult to find individual solutions to changing economic realities.” Habits of Success are an important step toward a better way.

As we suggest in Report 5, adolescence itself needs to be rethought and reinvented; we offer there the metaphors of “preparing apprentice-adults for life after high school” and the need for longer “acceleration lanes” to help young people merge into the adult world. The key developmental tasks of modern adolescence discussed there — reclaiming the potential of adolescence; finding self, strengths, and direction; acquiring capability and agency; overcoming trauma and personal challenges; and seeking relationships, social capital, and guidance — can be addressed by encouraging the development of Habits of Success. At the same time, poverty and class polarization dramatically impact mindsets, agency, and self-direction, helping explain both the persistence of the achievement gap and the widening opportunity gap. We know that promoting Habits of Success will not address all the structural issues in our society, but we also know that the healthy human development at which Habits of Success aims is a vital part of closing these gaps and achieving a fair and just society.
An overview of the Habits of Success competencies

In analyzing recent literature and research on personal success attributes, we find that most of the work emanates from three broad traditions: 1) the study of academic mindsets and behaviors; 2) social-emotional learning (SEL); and 3) character education. We also see educators paying increasing attention to youth development models that are based in developmental theory and are highly contextual. (The box on page 9 summarizes the three main education traditions, while the box on page 10 profiles important new youth development models.) To encompass a range of approaches (for those using MyWays as a rosetta stone to compare and evaluate their competency goal-line), while still providing a coherent framework for our own domain, we chose to anchor Habits of Success in an academic mindset and behaviors framework, and then broadened it by integrating developmental and intrapersonal elements from other traditions.

Because we are centrally (though not exclusively) concerned with student success in learning and work, we started with the well-researched and thoughtfully constructed framework of noncognitive factors from Teaching Adolescents to Become Learners by the University of Chicago Consortium for School Research (UChicago Consortium; see the graphic for details). We were convinced by the researchers’ evidence that “virtually all . . . noncognitive factors work through academic behaviors to affect performance”—and that this framework focuses on the factors that are malleable (that is, teachable). 9

This starting point was also supported by the following: 1) our analysis of the workplace and social realities awaiting learners today and in tomorrow’s world, where “work behaviors” will need to mirror the self-directed, self-monitoring, “academic performance” behaviors included in the model; 2) the weight of research on each of the five competencies, which was persuasive; and 3) the argument that, in today’s world, academic behavior and metrics (whether standardized or, hopefully, more authentic) count, and that focusing on competencies likely to improve these behaviors and metrics, as well as more holistic learner needs, makes sense. However, we also wanted to broaden the framework (for example, changing “academic perseverance” to “perseverance” and “academic mindsets” to “positive mindsets”) to emphasize the whole person aspects of more authentic, real-world learning and work, and to include developmental perspectives found in the other models mentioned. Lastly, we made homes for self-direction, and for responsibility. Some frameworks group these competencies with those in MyWays’ Creative Know How domain, but in our view, they are more closely related to Habits of Success.
We are certainly not attempting to cover the entire personal attributes landscape, which would make this domain too complex to be of practical value to educators. Instead, to marshal attributes central to successful learning, work, and well-being, we focus on the following five Habits of Success:

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<tr>
<th>Academic Behaviors</th>
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<tr>
<td>Key performance behaviors such as going to class, participating fully, completing homework and projects, and managing time and resources. (Workplace and personal efficacy behaviors have direct parallels.)</td>
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<tr>
<td>Addressing this competency includes helping students to: go to school and go to class, achieving regular school attendance; participate fully in instructional activities and class discussion, without behavior issues that interfere with these actions; and complete homework and projects, using out of school time and managing time and resources to complete courses and support academic achievement.</td>
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<th>Self-Direction &amp; Perseverance</th>
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<td>Self-direction abilities such as initiative, flexibility, and adaptability; perseverance abilities such as grit, tenacity, and self-control.</td>
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<tr>
<td>Addressing this competency includes helping students to: develop self-direction by working on agency, initiative, adaptability, executive functioning, reflection, mindfulness, and curiosity; cultivate perseverance by identifying and practicing grit, self-discipline, self-control, and resilience; and nurture the mindsets and learning strategies that underlie many of these elements.</td>
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<th>Positive Mindsets</th>
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<td>Mindsets include, “I belong in this learning community. My ability and competence grow with my effort. I can succeed at this task. This work has value for me.”</td>
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<tr>
<td>Addressing this competency includes helping students to develop mindsets such as: “I belong in this learning community” (increases learner perception of themselves as more autonomous); “My ability and competence grow with my effort” (increases persistence); “I can succeed at this task” (also sustains effort); and “This work has value for me” (strongly influences both perseverance and performance).</td>
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<th>Learning Strategies</th>
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<td>Such strategies include study skills, goal-setting, self-regulated learning, help-seeking, and other metacognitive strategies.</td>
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<tr>
<td>Addressing this competency includes helping students to: learn study skills, processes, and strategies; engage in goal-setting for learning; develop the ability to self-regulate; seek help as necessary to progress in learning objectives; and develop metacognition, including the ability to explain one’s use of learning strategies, and reflect on one’s progress.</td>
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<th>Social Skills &amp; Responsibility</th>
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<td>Among these are interpersonal skills, empathy, cooperation, and the ability to build social networks, as well as ethics and leadership.</td>
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<tr>
<td>Addressing this competency includes helping students to: progress on interpersonal skills including assertion, empathy, and open-mindedness; develop responsibility and leadership abilities, including conscientiousness, delegation, negotiation, and humility; develop moral reasoning and understand and act on ethical considerations; and build social networks.</td>
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*For expanded descriptions of each competency, see the primers at the end of this report.*
**Habits of Success competency primers**

For more on each of these competencies, be sure to see the one-page primers at the end of this report.

We have included a primer for each of the five competencies. As indicated in the sample provided here, these primers briefly cover:

- what the competency covers;
- where to look for guidance on addressing the competency; and
- additional resources.

The primers are intended to provide a brief introduction to the most important aspects of each competency. They offer only a taste of the research and activity in each area, but we’ve tried to ensure that they include many of the key issues and resources. We hope that our MyWays Community of Practice and other educators will help add to and update these resources over time.

Regardless of how these competencies are parsed or labeled, their role is to help educators think about what they can actually do, day-to-day, to support their students in developing Habits of Success, and through these habits, their personal identity. In the following, two EL Education teachers describe the types of behavior or “performance character” that the Habits of Success target:

The research of Duckworth and others shows us that performance character in particular can be taught and learned, just as academic content and skills are. [Paul] Tough quotes Duckworth discussing an idea brought forth by American philosopher and psychologist William James: ‘Habit and character are essentially the same thing.... Kids understand it when you... [talk about habits], because they know that habits might be hard to change, but they’re not impossible to change.’ The term ‘habit’ is powerful. It emphasizes the concept of agency — the ability humans have to make choices about their behaviors — and the notion of practice.10
Recently, personal skills have taken on a high profile and are being promoted under an ever-evolving range of labels, including student agency, character, values, MESH (for mindsets, essential skills, and habits), success skills, social-emotional skills, academic mindsets, emotional intelligence, soft skills, and noncognitive skills. Grit and growth mindset have garnered particular individual attention. The following three main education models feed into this trend; each brings its own emphasis, even as the elements overlap.

**Academic Attitude & Behaviors**

The leading formulation of academic mindsets and behaviors is the Chicago Noncognitive Factors framework used as the starting point for the MyWays Habits of Success. See more on this framework in the overview above.

**Social-Emotional Learning**

The field of social-emotional learning (SEL) has been exploding in recent years. A good touchpoint is the Collaborative for Academic, Social, and Emotional Learning (CASEL)’s five-part definition: self-awareness, self-management, social awareness, responsible decision-making, and relationship skills. (See the chart below.) CASEL’s website provide SEL practice guides for all school levels, along with many other resources. Linda Darling-Hammond’s succinct but nuanced description of SEL appears at the start of this report.

**Character Education**

Character education encompasses a range of efforts, from those targeting broad inter-personal and intra-personal strengths to those based around particular sets of values. **Character Lab** explores strengths of heart, mind, and will. **EL Education** works with both performance character and relational character (the latter similar to the “moral” character classification in the table below). In Four-Dimensional Education, Charles Fadel writes that character education is “about the acquisition and strengthening of virtues (qualities), values (beliefs and ideas) and the capacity to make wise choices for a well-rounded life and a thriving society.”

The following table illustrates how SEL and character approaches align with each other and other well-known approaches to personal, social, and cognitive psychology.12

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**Categories of Skills for Success**

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<tr>
<th>COGNITIVE</th>
<th>INTRAPERSONAL</th>
<th>INTERPERSONAL</th>
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<tbody>
<tr>
<td><strong>Character Education</strong></td>
<td><strong>Self-Awareness:</strong> recognizing one’s emotions, values, strengths, and challenges</td>
<td><strong>Moral Character:</strong> Empathy, fairness, integrity, compassion</td>
</tr>
<tr>
<td><strong>Social-Emotional Learning</strong></td>
<td><strong>Self-Management:</strong> managing emotions and behaviors to achieve one’s goals</td>
<td><strong>Social Awareness:</strong> understanding of and empathy for others</td>
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<tr>
<td><strong>Personal Psychology</strong></td>
<td><strong>Responsible Decision-Making:</strong> constructive, ethical choices about personal and social behavior</td>
<td><strong>Relationship Skills:</strong> teamwork, conflict resolution, positive relationships</td>
</tr>
<tr>
<td><strong>Social Psychology</strong></td>
<td><strong>Openness:</strong> Curiosity, creativity, insightfulness</td>
<td><strong>Agreeableness:</strong> Kindness, empathy, social intelligence</td>
</tr>
<tr>
<td><strong>Cognitive Psychology</strong></td>
<td><strong>Conscientiousness:</strong> Self-control, organization, planning</td>
<td><strong>Extraversion:</strong> Assertiveness, enthusiasm, energy</td>
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<tr>
<td></td>
<td><strong>Emotional Stability:</strong> Nervousness, anxiety, tension</td>
<td><strong>Sense of Belonging:</strong> In one’s community, which contributes to one’s willingness to adopt established norms</td>
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<td></td>
<td><strong>Executive Function:</strong> Self-regulatory processes governing attention, planning, decision-making, inhibition, mental ability, problem-solving, reasoning, memory, etc.</td>
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*Adapted from the California Office to Reform Education’s amended request to the U.S. Department of Education for a waiver from elements of the Elementary and Secondary Education Act, May 1, 2016, as shown in New America’s Skills for Success: Supporting and Assessing Key Habits, Mindsets, and Skills in PreK-12.*
In further broadening the academically focused framework from *Teaching Adolescents to Become Learners*, we found the following three youth development frameworks to be particularly helpful. All three incorporate a developmental and contextual approach typical of that field and are attracting greater interest from educators.

**Foundations for Young Adult Success: A Developmental Framework**
—University of Chicago Consortium on School Research, 2015
This paper identifies three key factors of young adult success (see outside circle) and four foundational components (inner circle). The framework accounts for how children develop and how their backgrounds and contexts affect that development. It highlights the importance of developmental experiences — opportunities for young people to interact and make meaning out of their experiences — as the central vehicle for learning and development, supported by developmental relationships. Importantly, *Foundations* also offers age-bracket developmental progressions for each of the foundational components and key factors, as well as implications for practitioners, youth, and families.

**Ready by Design: The Science (and Art) of Youth Readiness**
—Ready By 21, a Forum for Youth Investment project, 2016
This report synthesizes existing research, including brain research, trends in SEL, 21st century skills, employability skills, and childhood well-being, into 10 Readiness Abilities (see subset to the left), 12 Skillsets, and 16 Mindsets, along with Readiness Practices, Traps, and Gaps.

The report is particularly good at describing the contextual elements around its competency framework, and includes a useful list of the latest resources and research from a broad, cross-system, cross-field scan of the “science (and art) of youth readiness.”

**Preparing Youth to Thrive: Promising Practices for Social & Emotional Learning**
—Weikart Center for Youth Program Quality/Forum for Youth Investment, 2016
The domains and standards in this resource were synthesized from the work of eight mature but diverse youth organizations that, in essence, live the *readiness by design* framework referred to above. The work focuses on six competencies — emotion management, empathy, responsibility, initiative, teamwork, and problem-solving (the first four correlate to MyWays Habits of Success; the last two fall into Creative Know How) — and includes examples of youth experiences and staff practices that support skill building for these important habits.
Key principles for addressing Habits of Success

Though much remains to be explored and developed across the Habits of Success domain, our research suggests that educators focus on three key principles, helping students to:

1. **Experience day-to-day the active, authentic learning** that enables students to work on their Habits of Success in integrated, sequenced, and explicit ways;

2. **Benefit from strong adult relationships**, which are necessary for all students to develop the Habits — and even more vital for students affected by poverty, trauma, or other challenges.

3. **Avoid the unintended consequences possible in emerging measurement of Habits of Success**, particularly as part of high-stakes accountability.

Because this domain is still emerging, additions to and further iteration of these principles are likely. For now, these three provide solid initial guide-rails for choosing which Habits to spend time on and how best to ensure that learning and assessment design provide optimal support for building Habits of Success. We’ll now explore each of them in more detail.

As discussed above, emerging research suggests that we really can help students develop and improve their Habits of Success. However, fulfilling this promise depends on a deeper understanding of how to design and implement this kind of learning. Researchers on both SEL and growth mindset, for instance, have noted that simply “teaching” these habits is not enough to guarantee success; that success depends a great deal on how the efforts are implemented — and especially on the learners’ developmental experience of the habits in increasingly authentic contexts. Just as we are learning about optimal ways to design learning for Content Knowledge or Creative Know How to increase understanding, retention, and transfer, we are also learning a lot about how to help students learn and develop Habits of Success.

The primary message from the field is to use integrated practices rather than add-on programs. “Rethinking How Students Succeed,” an excellent *Stanford Social Innovation Review* article summarizing a convening of CASEL, Character Lab, the UChicago Consortium, and others, notes that when they chose just two goals to move their joint fields forward, the first was to “shift from replication of programs to integration of practices into daily interactions with students.” Charles Fadel agrees, pointing out that even in terms of teaching learning strategies, traditional methods focused on prescribed procedures are less likely to produce lasting, transferrable results, while “more strategic methods” that focus on metacognition, and more integrated practices like setting and monitoring one’s learning goals over time through activities “have been shown to result in more permanent learning gains.”
Beyond integrating the Habits strategies into curriculum and school life, an evaluation of the most effective SEL programs to date suggests that approaches incorporate four elements, represented as follows by the acronym SAFE:\(^{16}\):

**Sequenced:** connect and coordinate sets of activities to foster skills development. The Habits competencies, like those in other MyWays domains, have a “novice to expert progression,” or what, in this domain, would be more likely referred to as a *growth continuum*. Additionally, in the Habits domain, progressions of increasing expertise interact with age- and stage-related developmental progressions, and Habits strategies must take these into account.

**Active:** use active forms of learning to help students master new skills. Not coincidentally, the same self-directed, holistic, real-world approach to learning proven to provide the best chance for learners to develop and use Content Knowledge, Creative Know How, and Wayfinding Abilities also provides what they need to engage and practice Habits of Success. A traditional teacher-centric, compliance-oriented learning environment simply does not offer students the opportunities they need to develop self-direction, perseverance, positive mindsets, responsibility, and the other Habits.

For more on this kind of authentic, holist learning, see the description of Whole Learning in Report 11 on learning design. For enlightening perspectives on how Habits of Success work in project-based learning (PBL), see, for example: “Grit Happens in PBL,” and “Don’t Just Talk About Character: Teach Habits.” Thomas Markum, in an [Edutopia blog](http://www.edutopia.org) on using SEL in PBL, notes that research from human performance, youth development, adolescent mental health, developmental psych, and SEL has identified three of the elements involved in good PBL — *caring relationships* (see Principle 4 below), the *desire for meaning*, and *the power of mastery* — as core factors in maximizing individual effort and desire to achieve. The Whole Learning aspect to developing Habits requires that learners work on a habit or cluster of habits using a “Plan-Do-Reflect-Improve” cycle, including both formative feedback from others and self-reflection. This is what Terry’s students, described at the start of this report, were doing when they chose to focus on empathy in the lunchroom for three weeks and on responsibility in a project’s group presentation stage.

**Focused:** emphasize the development of personal and social skills.

and

**Explicit:** target specific social and emotional skills.

While it is clear that Habits of Success are best developed in an integrated way within active, holistic, student-directed learning, just “talking about” or “practicing” these attributes within that kind of learning environment is not likely to produce significant results. Practitioners who see significant change, like Terry with her fifth graders, confirm that it is critical also to be explicit about Habits development. This involves allocating specific time, and creating tools and procedures for tasks such as goal-setting,
reflection, and iterating practice. It also includes “instructional” elements such as naming the Habits, describing them, pointing out examples of them in practice, modeling them, providing feedback on them, and providing increasingly advanced opportunities to use them. As Terry points out, once you are truly integrating Habits, this explicit time commitment, “instruction,” and effort are not, in fact, overwhelming. They become part and parcel of learning the knowledge and skills, and without them, the needle simply won’t shift in the same way.

For insight into one of the leading examples of an integrated, sequenced, and explicit Habits practice, see the box below on Valor Collegiate Academies’ Compass program.

Before leaving this discussion of student learning experiences that best promote the development of Habits of Success (and as we’ve noted, the other three MyWays domains as well), it is worth highlighting a critical “prerequisite” that is in some ways particular to this domain. When the main Habits thought leaders CASEL, Character Lab, the UChicago Consortium, and others got together for the Rethinking How Students Succeed convening, the second of the two priorities they set for the field was

*The need to support educators to change their own beliefs and mindsets first.*

As efforts related to teaching Habits have increased, it has become clear that we must devote much more attention to educators’ beliefs and mindsets, and to the development of their own competencies in this domain. Reflecting on her work with the UChicago Consortium 8/9 Teacher Network, Camille Farrington had this to say:

> It’s not just that educators feel unfamiliar with noncognitive skills and unprepared to teach them. In many cases, they also need to change long-held beliefs in their own and their students’ capacity to learn—such as embracing the power of a growth mindset and self-efficacy. The need to focus attention and support on educators came as a surprise, but it’s an insight central to advancement of the field. Students can’t develop as effective learners unless their teachers understand, model, and believe in the skills and behaviors they seek to teach.

> … Much of our work in this last year has been as much or more around teacher mindsets and teacher self-efficacy, without which it will be impossible for teachers to effectively support noncognitive development in their kids.\(^\text{17}\)

Other district and charter systems are also helping educators make this shift and so also must address the underlying conditions necessary to make it happen. One of the most important supporting conditions for educators to work on their own Habits of Success, according to those doing it, is to ensure that the educators feel safe enough to reveal their own vulnerabilities related to this journey.

The New Hampshire Learning Initiative, for example, in partnership with the New Hampshire DOE and 2Revolutions, has been putting teams of practitioners through their own learning experiences based on the
Center for Innovation in Education and Education Policy Improvement Center’s Essential Skills & Dispositions (ES&D) Developmental Frameworks. Part of the roll out of the state’s incorporation of what it calls “Work Study Practices“ for students, New Hampshire educators who went through the ES&D training report just how vulnerable they had to be when working on their own mindsets and habits. They also note that the resulting personal discoveries were profoundly significant, both for themselves and for their ability to help students with their work study practices. Valor’s Compass Model (see box below) is also being used with adults; in fact, one of Valor’s core principles is that the adults follow the same model as the learners. (Among other benefits, this is seen as a “hierarchy flattening mechanism.”) We suggest you read the Compass box first, then visit these links to a Valor Circle Overview and a video (3m) on what this experience looks and feels like for educators.

**Valor Collegiate Academies — Working Your Inner Compass**

"Jack stood face-to-face with Sergio, surrounded by a circle of 20 other sixth grade boys. The room was thick with emotion as their teacher, Ms. McShea, thought to herself, ‘Uh oh, this may not go well.’ The boys were agitated, but they followed a relationship work protocol — one that’s taught to every student at Valor Collegiate Academies.” The two boys shared information about how each other’s actions affect them and why they act as they do, brainstormed solutions, and came up with a plan they thought could work for both.

Valor Collegiate Academies is a Nashville public charter network (and Next Generation Learning Challenges grantee) that serves grades 5–7 (and is expanding to grade 12). Fifty-five percent (55%) of Valor students are low-income, 24% are English Language Learners, and its student body is approximately 20% Middle Eastern, 20% Hispanic, and 20% black. During its inaugural year, 2014–15, 94% of Valor students were tested proficient in math and nearly 79% tested proficient in reading, according to state data — higher than even Metropolitan Nashville Public Schools’ well-regarded magnet programs.

Fostering integration is part of Valor’s mission; to further this goal, the school has developed one of the most comprehensive approaches to SEL in the country. Students devote a minimum of four hours a week over eight years to Compass. As the graphic shows, the Compass concept has five dimensions: Noble Purpose (values and identity), Sharp Mind (curiosity and diversity of thought), Big Heart (courage and kindness), and Aligned Action (determination and integrity), with Truth North (balance and presence) lying at the center.

The Compass program is organized around two experiences: 1) Mentor groups comprised of 22 students and a teacher meet in Circle, a highly structured and ritualized process, for a full hour twice a week throughout students’ eight years, to resolve conflicts (such as Jack and Sergio’s) or to present progress on student plans; and 2) Individualized Compass plans, within which students earn badges and work through Phases by demonstrating mastery of skills in the five dimensions.

The program also evaluates overall student well-being through surveys designed by the nonprofit Six Seconds that measure emotional safety, connection to peers, and perceived school support; Valor is still investigating
how best to measure individual student development in well-being. But perhaps the best evidence of success comes from the students themselves. A parent reported that her fifth grader used breathing techniques he learned in Circle to help his little brother get over a tantrum. “You just need to be able to find your balance when you are like this,” he said. Another 12-year-old asked a sibling who was arguing without listening, “Haven’t you ever heard of diversity of perspective?”

Valor is fully committed to a character-first approach. Its Chief Culture Officer and Compass developer, Daren Dickson, is a psychotherapist who brings his expertise from outside the school sector. In addition, all Valor teachers participate in Circle and other Compass processes themselves and restorative justice is used to resolve problems. Dacia Toll, cofounder of the Achievement First charter network, told a charter conference audience that she had never seen a school do SEL so well. Still, the Valor team is working to further develop its approach, including iterating a theory of action and principles of development. For a public share of excellent resources by this thoughtful MyWays Community of Practice member, see links to over a dozen resources in Valor’s “Working the Compass” Resource Guide, Summer 2017.

*This vignette and much of this profile was condensed from an EdSurge article on Valor by Alex Hernandez. Other details added as otherwise noted. See also a set of excellent videos from Valor in this article from the National Charter School Resource Center.

**KEY PRINCIPLE 2:** Benefit from strong adult relationships, which are necessary for all students to develop the Habits — and even more vital for students affected by poverty, trauma, or other challenges.

Earlier in this report, we looked at “Adolescence in the Age of Accelerations” (Part A), which paints an impressive, if not downright daunting, picture of the journey our learners have just begun. The interplay of developmental factors with the 5-5-5 hurdles to learning, work, and life provide serious stretch goals for educators attempting to help apprentice-adults ramp up to life in the fast lane. In this context, the role of strong relationships with one or more adults is absolutely central to developing effective Habits learning environments. Because Habits include attitudes, behaviors, and practices related to ongoing learning and personal effectiveness, adults play essential roles in areas such as modeling behavior (both positive Habits behaviors and the experience of falling short, reflecting on, and improving hard-to-attain Habits); scaffolding to help learners reach new levels of competence in these skills and dispositions; providing assistance in culturally sensitive ways; and helping to build social capital.

As mentioned above, we can learn a lot from the developmental approach of the out-of-school time and youth development field about how to foster strong learner-adult relationships and other supports for promoting Habits of Success. An example of resources educators might find useful is the national mentoring standards, *Elements of Effective Practice for Mentoring*. Another excellent set of resources is the SEL Strengths Builder Method, based on the Preparing Youth to Thrive framework (see the “Youth Development Models” box above). Based on an evaluation of the eight exemplar out-of-school time programs, the field guide includes standards for SEL practice, as well as tools to evaluate SEL curriculum and practices, and youth SEL skills. The SEL Strengths Builder Method also has an excellent video overview (11m).
Growing numbers of youth are also grappling with additional challenges in this increasingly complex and fast-changing world. Those challenges include being first in their families to attend college or learn English, having learning differences or mental health issues, living in poverty, or facing discrimination. The section in Report 5 on overcoming trauma and personal challenges reminds us of the prevalence of adverse childhood experiences (ACEs); nearly half of all children experience ACEs, including two-thirds of children living below the federal poverty level.

The challenge this poses for addressing Habits of Success is clear. Toxic stress significantly impacts brain development, including many functions that underlie Habits of Success, such as concentration, impulse control, and executive function. Among children who have four or more ACEs, 51% have learning or behavioral problems. While we want to increase the authenticity, complexity, and challenge of learning situations to prepare students for a complex world, “a student dealing with trauma at home won’t deal with complexity at school. … Challenging work requires on-ramps for kids living in challenging circumstances.”

Report 5 introduces a number of holistic approaches for dealing with trauma. Among the important characteristics, “having a strong relationship with an influential adult can provide stability for a child, helping to counteract the effects of trauma on their brain.” Fortunately, people in youth development have a long track record of working with disadvantaged students and trauma-informed programs, so they often embed attention to trauma, disadvantage, and discrimination in their designs for mentoring and SEL mentioned above.

The other element we can incorporate from the youth development field is its approach to human capital. Meaningful relationships with all kinds of adults are needed to help learners develop Habits of Success, from teachers to parents to caregivers to “near-peer” mentors such as college students and apprentices.
and to members of the broader community. But if we are going to take seriously a commitment to developing Habits of Success in line with Content Knowledge and other domains, then schools should be looking to redesign learning environments to ensure young people are surrounded in their core teams by caring adults with diverse backgrounds, including social workers, psychologists, music and art therapists, counselors, and others with expertise and experience with human development. Brooklyn LAB Charter School in New York City and Powderhouse Studios, a Somerville, Massachusetts, public school launching in fall 2018 (both Next Generation Learning Challenges grantees and XQ Super Schools grant winners) are taking major steps to include more adults with these backgrounds; Nashville’s Valor Collegiate (see box above) has already done so.

**Brooklyn LAB** has embedded MyWays in its practice partly because of its focus on Habits of Success (as well as Wayfinding Abilities and student agency in general; for more, see EdSurge’s case study, *How Brooklyn LAB Charter School is Integrating Non Academic Habits into the Classroom*). Brooklyn LAB places greater emphasis on staff capacity in social work, therapy, psychology, and youth development than most other schools: their student services team, serving 442 students, includes two social workers (with specialized MSWs), two personalized leadership training staff, and three art therapy interns — and they are considering hiring a third social worker. In addition they include attention to youth development, psychology, SEL, and other related competencies in their teacher hiring protocol. Powderhouse Studios will have a social worker as one of the three education team members working with each student cohort. The other two members are a project manager and a curriculum developer; students will also work with subject matter tutors to learn core subjects and inform their project work, and with professionals and community members. For more, see this [introductory video](#) (2m) and [this article](#) on the Powderhouse approach.

Carol Dweck, in her January 2017 update on the state of play in implementing growth mindset, “**Growth Mindset Is on a Firm Foundation, but We’re Still Building the House**,” also provides a relevant early finding from recent evaluation studies. As the article describes, schools using their painstakingly designed and iterated online mindset intervention apparently had good results; the effects were not as positive, however, when teachers implemented their own mindset interventions in the classroom. As Dweck noted, “Given the efforts we have made to craft our interventions, can we expect non-psychologists or teachers to create their own materials and produce positive effects with more informal or in-class activities? Perhaps not….” Furthermore, Dweck reports that “We began to see and accumulate research evidence that the growth mindset concept was poorly understood by many parents and educators…” In response to these findings, Dweck and her colleagues launched the **Mindset Scholars Network**, with the explicit goal of understanding how mindset research depends critically on context.
**KEY PRINCIPLE 3: Avoid the unintended consequences possible in emerging measurement of Habits of Success, particularly as part of high-stakes accountability.**

Assessment is still emerging for many of the Habits of Success (as well as for many of the Creative Know How competencies and virtually everything in the Wayfinding Abilities domain). Careful thought is warranted about the use of some of these assessment measures. In MyWays, we focus on assessment for learning and as learning — to enable student reflection and progress to competency, rather than for accountability. We particularly like Andrew Miller’s vision of assessment as a “force for knowing our students”:

> Truly, assessment can be a powerful force for knowing our students… We simply have to move past the baggage that comes with the term assessment, and understand that it can mean a lot of things. We can assess for content and skills, yes, but we can also assess for passions, interests, success skills, and the like for the purposes of the right instruction at the right time.24

For more on MyWays’ “informative and formative” approach to assessment design, see Report 12, *Assessment Design for Broader, Deeper Competencies*, where we discuss the background to this approach, and survey five different assessment strategies. Even when intended for such reflection- and growth-oriented purposes, we are still learning how best to share assessment results with learners — and how to encourage shared reflection among learners. For a consideration of the role of vulnerability, see Valor Chief Culture Officer Daren Dickson’s *EdSurge* article, “3 Tips for Developing and Assessing Soft Skills: First, Take Off Your Emotional Armor.”

Report 12 looks at this and other challenges to formative assessment; it also explores the enormous potential for richer student growth in this whole domain and ways to work together to move the field forward. Regarding assessment for learning, Angela Duckworth and David Yeager urge the following at the end of their famous cautionary paper on assessing personal qualities, “Measurement Matters”:

> Given the advantages, limitations, and medium-term potential of such measures, our hope is that the broader educational community proceeds forward with both alacrity and caution, and with equal parts optimism and humility.25

With regard to accountability, however, the emerging state of measurement for Habits of Success suggests, to us, much greater caution than alacrity. Andy Calkins, Director of Next Generation Learning Challenges, puts it this way:

> As much as it appears to be a major step forward when policymakers embrace a richer, deeper goal-line for student success, it is by no means clear that the customary next step of standards-based reform — to force schools to comply with that goal-line by requiring assessments that carry accountability stakes — will lead to the kind of deep,
comprehensive re-imagining of student learning experiences that would enable genuine, enduring development of the richer/deeper competencies reflected in that new goal-line.26

Calkins argues that there are two fundamental flaws in that approach: first, “the basic dissonance between forcing behavior change through mandated compliance and next generation learning design, which is all about enabling agency on the part of both students and teachers”; and second, the nascent state of development of the strategies and measures to assess Habits of Success.27

Stacey Childress is CEO of the New Schools Venture Fund, a nonprofit philanthropy firm that is “moving away from supporting no-excuses charters and investing heavily in schools grappling with how to teach social and emotional skills.” She also sees accountability policymakers’ new interest in SEL skills as both a blessing and a curse. Regarding the inclusion of non-academic SEL factors in the California CORE accountability system, she explains,

I’m ambivalent about CORE. I’m excited about their willingness to get going and I’m sure they are going to use the best instruments to date. But I worry that it’s going to take some time for us to sort all of this out…. I understand the seductiveness of getting a policy win, but this could squash all the grassroots excitement we are seeing right now.28

For more on proceeding on formative and informative assessment with “alacrity and caution,” see “The state of assessment” below.

The state of play in Habits of Success

Across the four MyWays domains, the extent of consensus on the competencies included, the evidence for learning/instructional strategies, and the maturity level of assessment options varies — in some cases substantially. For Habits of Success, the state of play is still emergent, though activity is occurring on many fronts, and there is a considerable sense of urgency and enthusiasm for these competencies. To inform your thinking and prompt you to investigate further as you design learning models and experiences to address this domain, we offer the following notes.

The state of competency definition and learning strategies

Summary: We are beginning to understand which competencies have the greatest impact, which are malleable and amenable to development, and which are most important to academic performance and to learners’ developing sense of identity, their lives, and their work in an age of accelerations.

- For the research base, see the key reports mentioned in the text and listed in the “Starter Resources” box below. For the academic mindset, see especially Teaching Adolescents to Become Learners: The Role of Noncognitive Factors in Shaping School Performance: A Critical Literature Review from the UChicago Consortium. Much of the research on the SEL side has been summarized in the Handbook of Social and Emotional Learning: Research and Practice, by Joseph A. Durlak and his colleagues.
• **Learning strategies** that support development and mastery across the range of Habits of Success are based on practices integrated into daily interactions and characterized by the SAFE elements summarized in Key Principle 2. Project-based and other holistic and challenging learning experiences (as described in Report 11) offer the best opportunity to meaningfully develop and practice Habits, and to integrate mentoring and reflecting on Habits progress. Mindset competencies, such as growth mindset, have their own needs for carefully designed instructional inputs. See more on these in the Positive Mindsets primer.

**The state of assessment**

Summary: The growing interest in measuring Habits of Success is partly due to the growing belief in the importance of a broader skillset for all students and partly due to the addition of a non-academic element to ESSA accountability. Effective measurement is still emerging, however, and we need to be cautious about what kind of metrics to use and how to share them with learners. In particular, opinion about the use of this domain in accountability systems is sharply divided, and caution is urged.

**The range of assessment approaches for Habits of Success includes the following:**

- Three main approaches:
  - **Early Warning Indicators (EWI)** to monitor critical academic behaviors (Johns Hopkins’ EWI, Stanford and Chicago’s CRIS – College Readiness Indicator System)
  - **Rubrics, reflections, and peer assessments within performance assessment** from New Tech Network, Summit Public Schools, The Center for Innovation in Education (CIE) and Educational Policy Improvement Center (EPIC)’s Essential Skills and Dispositions Developmental Frameworks. For more on these and other tools on self-direction and social skills, see the “Practice Resources for the Four Cs and More” box near the end of the Creative Know How domain report (Report 8).
  - **Various agency and SEL assessments** from different fields, including Likert and other self-reports (such as the Holistic Student Assessment for resiliency available from the Harvard University/McLean Hospital PEAR Institute), behavioral observations, ratings by others, situational judgment, climate surveys, and other measures. Ideally, such measures would be undertaken within an enhanced guidance/youth development function by teams that include people with psychology or social work backgrounds.

- Other assessments:
  - **Simulation and game-embedded assessments** (Newton’s Playground, which measures conscientiousness and persistence as well as the learning of physics concepts, ZooU).
  - **Clickstream analysis of learning behaviors** (See, for example, the mention of clickstream analysis in this Summit blog.)
  - **New instruments in development** (Subscribe to the Transforming Education MESH e-newsletter to track the latest developments.)

**Ongoing challenges** in assessing Habits of Success include inconsistent attribute definitions and “fakeability” (socially desirable responding); the need for care and nuance in sharing assessment results with learners; and potential for misuse in accountability (on the last, see Key Principle 3 above). For more on Habits of Success assessments, see the Habits of Success one-page competency primers at the end of this report; Report 12, Assessment Design for Broader, Deeper Competencies and two recent
external reports: the Center for Curriculum Redesign’s *Evolving Assessments for a 21st Century Education* and the National Academies Division on Behavioral and Social Sciences and Education’s *Supporting Students’ College Success: The Role of Assessing Intrapersonal and Interpersonal Competencies*.

**A quick dive into Habits of Success resources**

Because the purpose of the MyWays Student Success Framework is to provide a rosetta stone for thinking about the broader, deeper, future-ready goal-line for today’s learners, we have focused on describing that goal-line in conceptual terms. We also believe deeply that school designers, educators, and individual learners need to invest in constructing and evolving their own goal-lines within the broader framework.

In doing this work, educators may find the following resources helpful:

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**Starter Resources for Habits of Success**

Substantial new resources are coming out monthly in the various sub-strands of this domain. Here are just a few resources to get you started. To keep up with new research and practice resources as they are published, check out the Transforming Education MESH newsletter.

Resources featured in the text and boxes for Key Principle 1:

- UChicago Consortium, *Foundations for Young Adult Success: A Developmental Framework*
- Forum for Youth Investment, *Ready by Design: The Art (and Science) of Youth Readiness*
- Weikart Center for Youth Program Quality and Forum for Youth Investment, *Preparing Youth to Thrive: Promising Practices for Social and Emotional Learning*

In addition, see the following:

- The Collaborative for Academic, Social, and Emotional Learning (CASEL), *CASEL Effective Social and Emotional Learning Programs Guides*, Pre-K and Elementary, and Middle and High School
- On the importance of Habits/SEL for high schools, see What Kids Can Do’s *Learning by Heart: SEL in Secondary Schools* overview and the accompanying five case studies of practice
- Lija Farnham, Gihani Fernando, Mike Perigo, & Colleen Brosman’s article with Paul Tough, “Rethinking How Students Succeed,” *Stanford Social Innovation Review*
- One of many reviews of promising practice is Public Profit’s *Strategies to Promote Non-Cognitive Skills: A Guide for Youth Developers and Educators*
- Key organizations include CASEL, Character Lab, Transforming Education, Mindset Scholars Network, and the Carnegie Foundation for the Advancement of Teaching’s Student Agency Improvement Community
- Helpful videos include Habits of Success (3m) from Summit Public Schools; Introduction to Social and Emotional Learning (6m) from CASEL (click “watch our video” from the link); and Introduction to the SEL Challenge (6m) from Preparing Youth to Thrive
Relevant Competency Frameworks

Competency frameworks that emphasize this domain include the following (the first three are featured in the MyWays alignment matrix in our series’ Introduction and Overview):

- UChicago Consortium, Developmental Framework in *Foundations of Young Adult Success*
- ConnectEd, *College and Career Readiness Framework*
- UChicago Consortium, Noncognitive Factors Framework in *Teaching Adolescents to Become Learners*
- Forum for Youth Investment, Ready by Design Framework (readiness abilities, skillsets, and mindsets) in *Ready by Design*
- Forum for Youth Investment, SEL Practice and Skill Domains in *Preparing Youth to Thrive*
- Collaborative for Academic, Social, and Emotional Learning (CASEL), *Core SEL Competencies*
- Turnaround For Children, *Building Blocks for Learning*
- The Search Institute, *Developmental Assets for Adolescents*
- State standards for SEL (see the CASEL ongoing scan of all 50 states)

Models with Strong Emphasis on Habits of Success

There are many holistic models — some longstanding, others new — that have Habits of Success or their own version of character or SEL principles baked into their approach. Among these models are the following:

- **Summit Public Schools** — Habits of Success is one of Summit’s four primary drivers of student success. See Adam Carter’s blog post *Habits of Success: Seeking the Invisible Thread*.
- **Valor Collegiate Academies** — Valor’s Compass Developmental Pathway is a competency-based framework that uses activities and projects to develop mastery of habits over time. (See box on its Compass program, above, and this article in *EdSurge’s* MyWays practice series.
- **Kettle Moraine Public Schools** — this Wisconsin school district is scaling personalized learning for all students, with a focus on self-direction using personal learning plans and Habits of Mind. These elements are evident for example in their KM Explore K-5 elementary school (3m video).
- **Brooklyn LAB** — all about a broader goal-line from the beginning, Brooklyn LAB is increasing attention to Habits of Success by partnering with Alpha Public Schools to incorporate their Personalized Leadership Training program, working with Valor Collegiate Academy (see bullet above) to implement its Circles program, and embedding MyWays into its student learning system. See more in this *EdSurge* article.
- **Thrive Public Schools** — “Interwoven in all we do at Thrive is an emphasis on students’ self-advocacy and self-actualization.” (At Thrive this is referred to as Learn to Be.)
- **Montessori for All** — this Next Generation Learning Challenges grantee updates the student-led, hands-on Montessori approach that has long incorporated emphasis on many of the Habits of Success.
- **The William and Flora Hewlett Foundation’s Deeper Learning network** — models in this network emphasize Habits of Success in their deeper competencies approaches. Deeper Learning models include: EL Education, High Tech High, Big Picture Learning, Envision, New Tech Network, Big Picture Learning,
We know from our beta piloting work with next generation educators that those interested in and inspired by the MyWays Student Success Framework are also thirsty for practitioner tools, as well as other implementation descriptions and documentation. In some cases, practitioners may be tempted to latch onto tools (such as the MyWays Whole-Student Competency Plot of the 20 competencies) and use them without the internal mindset-changing and learning-model-revising work required for successful implementation; we caution against this! We also realize that many thoughtful developers and practitioners simply want and need to see more concrete exemplars and tools in order to better understand the broader, deeper goal-line and to help them work through their own approach. As the MyWays Community of Practice grows, more pathways for use of the tools will arise, along with deeper levels of support and advice on building good practice around your own locally customized version of the MyWays framework.

In addition to the resources listed above, the one-page primers on each of the five Habits of Success competencies that follow provide links to existing tools, such as standards, rubrics, or learning progressions. Such tools can help educators decide what to include or exclude in next generation student competency goal-lines and how best to shape them. Note that MyWays and Next Generation Learning Challenges do not endorse any specific tools for assessment or curriculum planning — particularly in ways that are incompatible with authentic Whole Learning (see Report 11, Learning Design for Broader, Deeper Competencies). This set of EdSurge resources offers case studies of schools using MyWays, and Next Generation Learning Challenges’ report, Measures that Matter Most, reviews some of the tools used by next generation schools to measure their progress in addressing the broader, deeper range of competencies.

**The Habits of Success one-page competency primers**

The one-page primers that follow provide a brief introduction to the most important aspects of each competency, with pointers to why the competency is important (given students’ developmental needs and the challenges of today’s rapidly changing world), further description of what the competency entails, where to look for inspiration and guidance, and additional resources. These primers provide only a taste of the research and activity in each area. We hope that our MyWays Community of Practice and other educators will help add to and update these resources over time. To meet the Community of Practice members and share your ideas see our Community of Practice page on the MyWays website. To receive updates on MyWays, join our mailing list.
“The research is clear: If you want to know whether a child is on a path toward graduating or dropping out, standardized test scores are not very useful. Far more telling is whether that child comes to school regularly, behaves in class and earns passing grades.”

—Washington Post, summarizing results from Early Warning Systems

**Brief description:**

- This MyWays competency is defined as “going to school and going to class; participating fully; completing homework and projects; and managing time and resources.”

- Addressing this competency includes helping students:
  - Attend school and class regularly and avoid chronic absence. Small differences in attendance can have big impacts on engagement and grades.
  - Participate fully in instructional activities and class discussions, without behaving in ways disruptive to others and their own learning.
  - Complete homework and projects, managing out-of-school time and resources to complete courses and support academic achievement.
  - Note: “Virtually all other factors that affect school performance... exercise their effect through students’ academic behavior.” That is, academic behaviors need to be addressed not only through direct monitoring and intervention, but also by working on other factors, including mindsets, learning strategies, and responsibility.

**Where to look for ideas:**

- Early Warning Indicator systems (EWI or EWS) use real-time data to identify students who are off track and provide appropriate interventions, such as “check and connect,” and the use of near-peer mentors. These systems have been highly successful in identifying students at risk of falling behind or dropping out. Two leading examples include the following (see more in resources below):

- Bob Balfanz and colleagues at The Everyone Graduates Center were among the first to show the predictive power of the ABCs (attendance, behavior, and classwork), and have used the approach in their Talent Development and Diplomas Now schools.

- Brown University’s Annenberg Institute, Stanford’s Gardner Center, and the UChicago Consortium developed a College Readiness Indicator System (CRIS) that tracks academic behaviors (tenacity), coursework (preparedness), and college knowledge.

- While acknowledging the great value of academic ABCs as a starting point, Karen Pittman mused early about Alternative ABCs (adding youth development indicators), leading to the creation of Ready by Design.

- Early warning systems can also highlight learners who have multiple adverse childhood experiences (ACEs); for these students, trauma-informed strategies will likely improve results. For more, see Key Principle 3 in this report, Report 4, and the excellent Hechinger Report article on the use of such an approach in New Orleans. The Every Student Succeeds Act (ESSA) references trauma-informed strategies, and 20 states have implemented trauma-sensitive strategies.

- For a broader approach to improving Academic Behaviors, see the primers for the four other Habits of Success, which all contribute significantly to Academic Behaviors.

**Additional resources as food for thought:**

- See the academic behavior sections in UChicago Consortium’s Teaching Adolescents to Become Learners.

- AIR’s Early Warning Systems in Education website features a free online EWS tool, research, indicators, and other resources. Also, this US Department of Education Issue Brief covers key findings from a national survey on EWS use.

**FOR MORE RESOURCES, see the MyWays website.**
Self-Direction & Perseverance

“If we value independence, if we are disturbed by the growing conformity of knowledge, of values, of attitudes, which our present system induces, then we may wish to set up conditions of learning which make for uniqueness, for self-direction, and for self-initiated learning.”

— Psychologist Carl Rogers, *On Becoming a Person*

**Brief description:**

- This MyWays competency is defined as “initiative and goal-setting; self-management; self-monitoring and flexibility; grit and tenacity; self-control.”

- Addressing this competency includes helping students:
  - Develop self-direction, including: initiative and goal-setting (curiosity and challenge-seeking); self-management (self-efficacy and executive functioning); self-monitoring and flexibility (progress-checking, reflection, seeking feedback, strategy-shifting, and responding to setbacks); and effective use of resources to pursue and attain goals (including appropriate help-seeking).
  - Cultivate perseverance, including: grit and tenacity, self-discipline, self-control, and resilience.
  - Note: the mindsets necessary for self-direction and perseverance are covered in the next competency. Research shows that the best way to influence perseverance is not directly but through positive mindsets and the development of effective learning strategies (see the following two primers).

**Where to look for ideas:**

- **On self-direction:** This FSG report on *Self-Directed Learning at Summit Public Schools* outlines roles for students and adults, as well as five important lessons learned at Summit. Self-direction is a major driver of other schools as well; see, for example, Vista Unified’s personal learning pathway (see 5m video) and Thrive Public Schools’ student-led conferences.

- **On self-direction and “student agency”:** Recent work on agency provides a rich take on self-direction. See this exploration of how the Averson Charter Schools approach is founded on agency; the important work of Carnegie Foundation’s Student Agency Improvement Community; and the models and copious links provided in Next Generation Learning Challenges’ excellent set of blogs on “How Next Gen Learning Can Support Student Agency,” parts one and two; as well as WestEd’s “Student Agency in Learning and Assessment.”

- **On perseverance:** See Angela Duckworth’s Character Lab, which offers a Growth Card that features eight elements including grit, self-control, curiosity, and other factors related to this competency. One of the most high-profile models, Duckworth’s Grit has also attracted criticism; see Jal Mehta’s “The Problem with Grit” and this Slate article, “Is ‘Grit’ Really the Key to Success?”

- **For an alternative approach to perseverance,** see the Carnegie Foundation’s Productive Persistence Network, which focuses on improving developmental math (see this outstanding 2m video). This approach harnesses learning strategies (skills) plus mindsets (tenacity) to build persistence.

**Additional resources as food for thought:**

- **On persistence:** see the persistence sections in UChicago Consortium’s Teaching Adolescents to Become Learners and the sections on self-regulation, self- awareness, and self-control in Foundations for Young Adult Success.

- **On self-direction:** See Report 8’s Practice Resources for the 4Cs box (items 5 and 6), which include rubrics and progressions on self-direction and agency; and Transforming Education’s MESH Self-management Toolkit.

- **On perseverance:** See Starr Sackstein’s “What Makes Struggle Productive?” and Edutopia’s resource collection on grit and perseverance.

For more resources, see the MyWays website.
Positive Mindsets

“Learning that the brain is like a muscle that grows with effort motivates students to continue working hard to learn despite setbacks or early failures. But this message may lose its persuasive power if a student’s school relies largely either on competitive, one-shot summative assessments to evaluate her performance or on other similar practices that reinforce the value of natural ability over persistent work.”

— Teaching Adolescents to Become Learners

Brief description:

- This MyWays competency incorporates four mindsets:
  - “I belong in this learning community.” Those who feel they belong perceive themselves to be more competent and autonomous, and have a stronger sense of identity. A student’s sense of belonging has a strong impact on academic performance.
  - “My ability and competence grow with my effort.” Students who believe this are more likely to work hard and persist. Beliefs about intelligence and the reasons for success/failure are a bigger influence on school performance than is measured ability.
  - “I can succeed at this task.” Beliefs about the likelihood of completing a given task are a prerequisite for putting forth sustained effort.
  - “This work has value for me.” The degree to which students value an academic task strongly influences their perseverance and performance, and makes them more likely to connect with their own future goals.

- Mindsets are malleable at the individual level, but also strongly shaped by school and classroom context.

Where to look for ideas:

- Positive mindsets are a focus in whole-school SEL programs like Responsive Classroom and Turnaround for Children; the latter serves students facing poverty and other adversities.
- Carol Dweck’s work on growth mindset and her blended-learning mindset program Brainology is at Mindset Works. For recent evaluations and cautions, see her article “Growth mindset is on a firm foundation, but we’re still building the house.”

- Besides direct instruction on how growth and other mindsets work, positive mindsets are fostered by giving students supportive feedback on meaningful and challenging work. A sense of belonging is often addressed through advisories and with adult or near-peer mentors. See this NGLC blog by Sarah Luchs, which discusses joy at Valor Collegiate, growth mindset at Alpha Middle School, and mindfulness at Generation Schools Network.

- This Edweek article describes Mayerson Academy’s Thriving Learning Communities, which use the Happify app (created using the VIA Institute on Character’s 24 character strengths) to help students self-reflect as part of a broader character education program.

- InspirED, designed by teens, Facebook, and the Yale Center for Emotional Intelligence, offers a five-step process to empower students and educators, along with tools and resources.

- As researchers note, educators need to explore their own mindsets to successfully help their students. For more on this, see Key Principle 2 in this report.

Additional resources as food for thought:

- For more on the four mindsets listed to the left, see the reports on academic mindsets in the UChicago Consortium’s Teaching Adolescents to Become Learners.

- Also see the new Mindset Scholars Network’s “What We Know” summary; Transforming Education’s growth mindset toolkit; and Larry Ferlazzo’s resource overview, including links to great videos such as “Growth Mindset” (2m).

- For a broader set of 16 mindsets, including curiosity, humility, and pragmatism, see Ready by Design.

For more resources, see the MyWays website.
“Learning strategies... [are] part of a cycle of increased performance. Having strategies leads to persistence and engagement in the face of challenge, which leads to academic growth and achievement.”

—Summit Public Schools

“The concepts of learning through failure and the ability to iterate and evolve were central. The materials we used in this traditional wooden boating process provide their own feedback loop. The construction techniques inherent to this type of construction — 10 planks to hang on each side of the boat, and 40 frames to hold the shape together — provide the student builder the opportunity to participate in a process, make mistakes, and improve in the next round.

—Brett Hart, Philadelphia Wooden Boat Factory

Brief description:

- This MyWays competency is defined as “study skills and strategies, goal-setting, self-regulated learning, help-seeking, and metacognition.”

- Addressing this competency includes helping students:
  - Learn study skills, processes, and strategies, including the ability to follow multiple steps and amend efforts that don’t work.
  - Engage in goal-setting for learning.
  - Develop the ability to self-regulate, including the enactment of executive functioning skills.
  - Seek help as necessary to progress in learning objectives.
  - Develop metacognition, including the ability to clearly explain why, how, and when to use learning strategies, and to reflect on one’s own progress.

Where to look for ideas:

- **Summit Public Schools** includes learning strategies as one of its five Habits of Success. Summit focuses on time management, note-taking, studying, and reading comprehension. The schools assess through badging, and students are required to show use of strategies successfully across contexts. For a candid assessment of how a leading next gen model is experimenting with this and other Habits of Success, see this blog by Summit’s Chief Academic Officer, Adam Carter.

- **Make it Stick** provides an excellent introduction to the most effective study strategies identified by learning science. The graphic to the right summarizes the key concepts. For a brief overview, see this review of key takeaways for teachers. See also references within this report series to strategies from Make it Stick, in the Levers part of Report 11 on learning design, and the shift to authenticity part of Report 12 on assessment design.

Additional resources as food for thought:

- The UChicago Consortium’s Teaching Adolescents to Become Learners has chapters and sections on learning strategies and study skills.

- **Foundations for Young Adult Success** has chapters and sections on learning strategies and study skills.

- Neurologist and teacher Judy Willis’ series of Edutopia blogs on executive function, cognitive flexibility, and other brain-science informed strategies are instructive, as are Edutopia’s Resources on Learning and the Brain.

For more resources, see the MyWays website.
Social Skills & Responsibility

“Emotional vulnerability (courage), for example, is essentially a state of open-heartedness that anyone can access in the right context. These skills are often about taking off armor and we quickly realize that children often have significantly less of this armor than do adults.”

—Daren Dickson, Valor Collegiate Academies

Brief description:

- This MyWays competency is defined as “interpersonal skills, empathy, cooperation, leadership, ethics, and ability to build social networks.”

- Addressing this competency includes helping students:
  - Progress on interpersonal skills, including assertion, empathy, perspective-taking, compassion, open-mindedness, cultural competency, and cooperative learning.
  - Develop responsibility and leadership abilities, including conscientiousness, delegation, negotiation, and humility.
  - Develop moral reasoning and understand and act on ethical considerations with integrity and courage.
  - Build social networks

- Equity/diversity considerations: given racial and gender disparity in patterns of disciplinary action, need to consider whether certain aspects of social skills are interpreted differently for different groups of students.

Where to look for ideas:

- Learn from early childhood and elementary educators, such as those described in the vignette on Sanborn NH’s work withResponsive Classroom CARES (Cooperation, Assertion, Responsibility, Empathy, and Self-control) in the box on page 2 of Report 7.

- Whole-school SEL programs like Responsive Classroom, Turnaround for Children (designed to serve students facing poverty and other adversities), Schoolwide Positive Behavioral Interventions and Supports (PBIS), and restorative justice and circles, all support social skills.

- Most studies of social skills come from SEL research; see the Collaborative for Academic, Social, and Emotional Learning (CASEL) practitioner resources and its Collaborating Districts initiative, including work in Austin, Cleveland, Nashville, and Oakland.

- For other school models that emphasize SEL and social skills, including Grandview High School’s culture of kindness, see Getting Smart’s Increase Social Awareness: Action Steps from 4 Schools. See also the box earlier in this report on Valor Collegiate Academy’s Compass model, which has four dimensions ranged around True North: Noble Purpose, Sharp Mind, Big Heart, and Aligned Action.

- For views on whether technology can help, see Hechinger Report’s Can Virtual Reality “Teach” Empathy? (on Stanford’s Virtual Human Interaction Lab Empathy at Scale project), as well as the Building Assets, Reducing Risks (BARR) program, a relationship-centered SEL program that also uses tech.

- For ideas on leadership, see this Getting Smart blog on a New Tech Network school’s use of student ambassadors.

- For building social networks, see this Gen DIY blog on building networks and brand through collective impact.

- Out-of-school-time learning also offers rich opportunities for developing social and leadership skills. For one take, see Ready for Work? How Afterschool Programs Can Support Employability Through SEL.

Additional resources as food for thought:

- UChicago Consortium’s Teaching Adolescents to Become Learners has chapters and sections on social skills, including responsibility.

- For summaries of SEL work, see the Aspen Institute’s 2017 report on integrating SEL into college and career readiness, and Edutopia’s SEL series on how to implement, fund, and assess SEL at your school.

- Tools available for elements of SEL implementation include Transforming Education’s Social Awareness toolkit, which features a helpful video, strategies for the classroom, and a facilitator’s guide.

For more resources, see the MyWays website.
Endnotes for Report 7


2 You can find further analysis of Terry’s work, student samples, and tools in this MyWays Micropilot repository. The Grade 5 folder includes a helpful PowerPoint overview of her work, the Design and Reflection documents offer more detail, and the Analysis of Terry’s 6 elements document uses a tool that enables practitioners to analyze the authenticity of a learning approach or activity using Whole Learning (WL) principles (see Report 11 of this series for an explanation of WL).


4 See Reports 3, 4, and 5.


13 On SEL, see the special issue summary in “Spotlight on Social and Emotional Learning,” Changing Schools, vol. 76, Fall 2016, p. 5; On growth mindset, see Carol Dweck, “Growth Mindset Is on a Firm Foundation, but We’re Still Building the House,” blog, Mindset Scholars Network, January 18, 2017.


16 See a good summary, with references to the research papers, in Joseph Durlak and Roger P. Weissberg, *Afterschool Programs That Follow Evidence-based Practices to promote Social and Emotional Development are Effective*, on expandinglearning.org.

17 Farnham, et al., “Rethinking How Students Succeed.”

18 Author conversations with New Hampshire educators and Ali Brown, Director of Learning Transformation at 2Revolutions, who delivered the ES&D development; the ES&D frameworks are available at epiconline.
21 Evie Blad, “Watch: Child Trauma Survivors Reunite With the Adults Who Made a Difference,” Education Week, October 19, 2016.
22 Information from correspondence with Brooklyn LAB.
24 Andrew Miller, “Using Assessment to Create Student-Centered Learning,” blog, Edutopia, September 2, 2015.
26 Author communication with Andy Calkins, Director of Next Generation Learning Challenges.
27 Ibid.
30 The Academic Behaviors competency description draws on treatments of academic behaviors in the UChicago Consortium noncognitive framework described in Camille Farrington, Mellissa Roderick, Elaine Allensworth, Jenny Nagaoka, Tasha Seneca Keyes, David W. Johnson, and Nicole O. Beechum. Teaching Adolescents to Become Learners: The role of noncognitive factors in shaping school performance: a critical literature review, 2012. from which we adapted the MyWays Habits of Success, as well as in the Johns Hopkins Everyone Graduates Center’s work on ABCs and the John W. Gardner Center for Youth and Their Communities, Annenberg Institute for School Reform, and UChicago Consortium’s College Readiness Indicator System (CRIS) Resources, 2014.
31 Farrington, et al., Teaching Adolescents to Become Learners, p. 19.
33 The Self-Direction & Perseverance competency description was developed as follows. The self-direction competency description draws on the definition of self-direction in Stephanie Krauss, Karen Pitman, and Caitlin Johnson, Ready by Design: The Art (and Science) of Youth Readiness, The Youth Investment Forum, 2016; Summit Public Schools’ elements of self-directed learning discussed in FSG’s Self-Directed Learning at Summit Public Schools, 2014; the self-management skills element of the Collaborative for Academic, Social, and Emotional Learning (CASEL)’s five-part framework; and Catalina Foothills School District’s Self-Direction Rubric. The perseverance competency description draws on the research the UChicago Consortium’s noncognitive framework in Farrington, et al., Teaching Adolescents to Become Learners framework (from which we adapted Habits of Success); the sections on resilience in Fadel, Bialik, and Trilling’s Four-Dimensional Education, and other sources.
34 Farrington, et al., Teaching Adolescents to Become Learners, p 36.
35 The Positive Mindsets competency description draws on the research behind the UChicago Consortium’s noncognitive framework in Farrington, et al., Teaching Adolescents to Become Learners (from which we adapted Habits of Success), as well as sources on self-regulation and metacognition from Nagaoka, et al., Foundations for...


The Social Skills & Responsibility competency description draws on the research behind the UChicago Consortium’s noncognitive framework in Farrington, et al., Teaching Adolescents to Become Learners (from which we adapted Habits of Success); the self-awareness, social awareness, responsible decision-making, and relationships skills elements of the Collaborative for Academic, Social, and Emotional Learning (CASEL)’s five-part framework; and on the self-awareness, self-management, social awareness, responsible decision-making, and relationship skills in Fadel, Bialik, and Trilling, Four-Dimensional Education.
Creative Know How for a Novel, Complex World

Report 8 of the MyWays Student Success Series

October 2017

Grace Belfiore and Dave Lash
for Next Generation Learning Challenges
About this report

Report 8, *Creative Know How — for a Novel, Complex World*, considers the Creative Know How domain of the MyWays Student Success Framework, including why the domain transforms “21st century skills” into the more agile Creative Know How, key principles for implementation, and the state of play in the field, as well as offering resources and essential one-page primers for each competency.

Report 8 is the third of five reports in Part B of the MyWays Student Success Series. Part B, “Broader, Deeper Competencies for Student Success,” provides a composite definition of student success in learning, work, and life, drawing on over 25 highly-regarded frameworks and the literature in the education, work, and human development fields.

The *MyWays Student Success Series* examines the through-line of four essential questions for next generation learning and provides research and practice-based support to help school designers and educators to answer these questions. The series consists of 12 reports organized into three parts, plus a Visual Summary and Introduction and Overview.

The primary researchers and authors of the *MyWays Student Success Series* are Dave Lash, Principal at Dave Lash & Company, and Grace Belfiore, D.Phil., Principal Consultant at Belfiore Education Consulting.

MyWays is a project of Next Generation Learning Challenges, an initiative of the non-profit EDUCAUSE. MyWays is supported through a grant from the William and Flora Hewlett Foundation with additional support from the Bill & Melinda Gates Foundation, the Barr Foundation, and the Oak Foundation.

nextgenlearning.org

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Creative Know How – for a Novel, Complex World

Introduction

This domain has received growing attention since the development of the Partnership for 21st Century Learning (P21) framework in 2006. Like P21 and many other “skills” frameworks, the MyWays Creative Know How domain focuses on the competencies that better prepare students to pursue postsecondary learning, workplace achievements, and civic life — all of which are significantly more complex and uncertain now than for previous high school graduates. In response, this domain focuses not just on developing specific skills, but also on developing the agility to adapt those skills to a rapidly changing world. Hence the domain is not just know how, but Creative — or adaptive and agile — Know How. See our definition and the list of competencies in the box to the right.

In this report, we offer an overview of this domain by covering the following:

- Why the Creative Know How domain is so important
- An overview of the five Creative Know How competencies
- Four key principles for addressing Creative Know How
- A brief summary of the state of play in Creative Know How learning and assessment
- A quick resource dive for Creative Know How (highlighting starter resources, competency frameworks, and school models that address this domain)
- Five one-page Creative Know How competency primers

Creative Know How covers a wide range of skills, from those, like communication with others, which have always been important, to the ability to work in tandem with highly intelligent machines in ways that serve humanity, where even the questions to be asked are far from clear. Daniel Pink, asked what he believed to be the most important skill in today’s environment, responded, “My first instinct is adaptability. You need to be able to change and adapt. I think people have difficulty with that. Dealing with ambiguity has become profoundly important today...” Which is why we invite you to keep your eye out within this report not just on the mastery and craftsmanship involved in the named competencies, but also on the spirit of innovation and improvisation with which they are approached.
Knowing How — Skills and Improvisation

“To be successful in the emerging society and economy, young people will need skills that previous generations did not. They will need to solve problems that do not have clear answers and that computers address poorly, if at all... It’s not just jazz musicians who need to learn how to improvise.”

— Elliot Washor & Charles Mojkowski, Leaving to Learn

The Partnership for 21st Century Learning came out with its framework of 21st century skills more than a decade ago. While the skills it outlined were not new, the movement it launched succeeded in establishing the need for schools to address “know how” as well as knowledge. Ten years later, we are beginning to realize just how creative (or adaptive and transferable) that know how must be to prepare learners, in essence, for the unknown — for jobs not yet invented, the impact of artificial intelligence (AI), and ways of engaging with others that evolve every few years.

Already we see glimpses. Who was expecting this? The major impact of robots and AI

By 2033 (which happens to be when today’s first graders will finish four-year degrees or apprenticeships), economists predict that tech innovation could convert 30% of existing occupations into services completed “on demand” through a mix of cognitive computing and human labor. As Report 2 points out, with the rapid evolution of AI, these will include “thinking” as well as “doing” jobs — from med techs and paralegals to marketers and financial advisors. Indeed, IBM’s Watson is already cracking medical cases that stump doctors. Those who want to stay relevant in their professions will need to focus both on motivating and interacting with human beings and on working with AI.

Or, indeed, this? The disruptive power of fake news

Media literacy, a growing concern for over a decade, became a hot issue during the 2016 election. Increasing reports of “fake news” coincided with attention to research indicating just how ill-equipped young people are to critically evaluate information they encounter online and via social media. A team from Stanford led by Sam Wineburg and Sarah Cotcamp McGrew field-tested news-literacy tasks of varying difficulty. More than 80% of middle schoolers were unable to distinguish a “native advertisement” (ads masquerading as articles) from real news, and nearly 70% of high schoolers identified a Shell advertisement on climate change as a more reliable source of information than an Atlantic news article.

Preparing for the increasing number of such hard-to-predict, consequential developments (see Tom Vander Ark’s blog) will always be an art rather than a science. How to address the challenge of AI? Have a look at the Creative Know How competencies of Problem Solving, Creativity & Entrepreneurship, and Collaboration. To tackle false news? Cue Critical Thinking, Communication, Information & Media Skills, and Practical Life Skills.

On the bright side: while some worry that the focus on Creative Know How is overly driven by economic changes and vocational concerns, in fact, as Lauren Resnick has reflected, “[t]oday’s high-performance workplace calls for the same kind of person that Horace Mann and John Dewey sought: someone able to analyze a situation, make reasoned judgements, communicate well, engage with others to reason through differences of opinion, and intelligently employ the complex tools and technologies that can liberate or enslave, according to use... people who can learn new skills and knowledge as conditions change — lifelong learners, in short. As a result, this is a moment of extraordinary opportunity in which business, labor, and education leaders can set a new common course in which preparation for work and preparation for civic and personal life no longer need be in competition.” We believe strongly that the five Creative Know How competencies are the kind of preparation she is urging.
Why Creative Know How is so important

The competencies in this domain are important for many reasons, including the fact that they are essential in addressing the range of issues and factors described in Part A, “Adolescence in the Age of Accelerations”: the roadblocks to employment, the decisions needed to navigate the work/learn landscape, and the essentials in cultivating social capital, as well as the developmental challenges that learners face as they transition to an increasingly volatile world. Students might ask:

Do I have the adaptability, collaborative and entrepreneurial ability, and tech/media skills to solve problems, develop new solutions, and create value — for myself, employers, and others — in a rapidly changing environment?

Can I work creatively and effectively with others, of varying backgrounds and skill sets, and in face-to-face and digital settings — and help build and sustain teams, networks, and communities?

Am I able to muster my critical thinking, creativity, and communication skills in pursuit of my postsecondary learning, early employment opportunities, and my uniquely personal opportunity engine?

Can I combine all these competencies with my knowledge of the real world around me to make that world a better place?

Creative Know How competencies, continuously coupled with Habits of Success, Content Knowledge, and Wayfinding Abilities, empower us to escape old ways of doing things, solve current dilemmas, and invent new solutions. In many respects, the five Creative Know How competencies are the everyday power tools of the information age.

Navigating the work/learn landscape, and the 5-5-5 Realities in young people’s paths, is a perplexing, “wicked problem” requiring extraordinary resourcefulness and ingenuity. Most postsecondary students are “working learners” today, but the jobs many find are of only marginal benefit to their careers. More and more under-30 workers are temporary, part-time, contingent, free-lance, or self-employed. Skills related to entrepreneurial thinking and creativity are especially in demand in such a world. For more on the need for all workers, even those employed by others, to use entrepreneurial approaches to do their work and to advance their careers, see the discussion in Report 10 on author Tom Friedman’s admonition: that “more is on you.” Creative Know How competencies play a pivotal role in crafting a personal career-building opportunity engine of work experience, marketable competencies, degrees and credentials, and social capital (see more on the opportunity engine in Reports 2 and 3).

Coveted by employers

Creative Know How encompasses most of the value-creating skills that employers, in the aggregate, say they want today. Sixty percent of employers say applicants lack interpersonal and communication skills. Seventy-six percent say 4C-related skills (critical thinking, communication, collaboration, and creativity — from the Partnership for 21st Century Skills) will become even more important over the next 3 to 5 years, and 93% say they are more important than college major. As highlighted on the previous page,
these competencies are also vital to the challenges of automation and AI — solving problems without clear answers, those that computers and AI address poorly or not at all, and those that rely more largely on human-to-human interaction.

**Instrumental to self-development**

Critical Thinking & Problem Solving, Creativity & Entrepreneurship, and Communication & Collaboration, in particular, shape who we are and how we interact with others and the world. The pursuit of Creative Know How through authentic, active means — through maker spaces, entrepreneurial initiatives, collaborative projects, the use of emerging media, or community problem solving through service learning — is a way to put learners out into the adult world, where they can access mentors, see potential paths for interests and careers, and take new steps in their web of development. (This aligns with Kurt Fischer’s notion presented in Report 5, that opportunities expand as our know how advances: “Each one of us has our own web of development, where each new step we take opens up a whole new range of new possibilities that unfold according to our own individuality.”

Given the importance of meaningful work to both adolescent development and the work/learn cycle, we give Bryan Goodwin and Heather Hein of McREL the parting word on why Creative Know How is essential for our learners and our future:

> Perhaps the most important pivot we might make (with all due respect to Friedman) is to fret less about how our kids will compete in a flat, hot, and crowded world and **more about how they can contribute to that world by solving complex problems**. We might start by telling our kids to do their homework because their neighbors—locally and globally—are counting on them. [Emphasis added.]

**An overview of the Creative Know How competencies**

The five MyWays Creative Know How competencies map out the kinds of skills learners will need to successfully address the two most pressing challenges of the world they will live in: relentless novelty and deepening complexity. These skills can be developed only through real-world application and iterative practice in a variety of situations that promote transfer. The skills cluster into two groups. The **first three competencies** correlate well with the popular “4Cs” — often referred to as 21st century skills — with added emphasis on entrepreneurship for the “more is on you” nature of the gig economy:

**Critical Thinking & Problem Solving**

The ability to reason effectively, use systems thinking, and make judgments and decisions toward solving problems in educational, work, and life settings.

Addressing this competency includes helping students identify and define problems and propose solutions using: analytical thinking approaches, systems thinking approaches, and design thinking approaches (Design thinking is also included in the Creativity & Entrepreneurship competency).
Creativity & Entrepreneurship

The imagination, inventiveness, and experimentation to achieve new and productive ideas and solutions.

Addressing this competency includes helping students to: think creatively using design thinking and other approaches, work creatively with others, implement innovation, and develop entrepreneurial skills and mindsets to support new value creation.

Communication & Collaboration

Oral, written, and visual communication skills, as well as the ability to work effectively with diverse teams.

Addressing this competency includes helping students to: articulate thoughts orally, in writing, and non-verbally; listen effectively; use communication for a range of purposes; communicate in diverse environments; work effectively and with respect in diverse teams; show flexibility; assume shared responsibility; and value individual contributions.

See the final two competencies just below. For expanded descriptions, see the competency primers at the end of the report.

Following our research on the full range of competency frameworks and the changes occurring in the economic and social spheres, we were also compelled to include two further competency sets to complete the Creative Know How toolkit. These competencies address two key areas. First, media and technology are increasingly central to work in any field and to the participation in social and civic life. Second, we know that the young-20s brain is still developing, and the disorderly “gig-economy” and “more is on you” nature of learning and work paths are likely to pose new challenges to navigate in terms of health, housing, and other practical aspects of living. We therefore include the following additional Know How skills that are important to the world in which our students will live:

Information, Media, & Technology Skills

The ability to access, evaluate, manage, create, and disseminate information and media using a wide variety of technology tools.

Addressing this competency includes helping students to: develop information and media literacy; create media products for appropriate expression in diverse environments; and develop technology literacy, including computational knowledge and the ability to leverage the capabilities of augmented and virtual reality, big data, robotics, artificial intelligence, and other emerging technologies.

Practical Life Skills

The ability to understand and manage personal finances, health and fitness, and emotional, spiritual, and other aspects of personal well-being to enable and support a productive, effective life.

Addressing this competency includes helping students to: manage personal finances including credit and debt; manage one’s own health, nutrition, and exercise; attend to one’s own emotional, spiritual, and other aspects of wellbeing; and address practical life tasks that are evolving fast, such as ways to shop, find housing, and get around.

For expanded descriptions of each competency, see the primers at the end of this report.
Note: Many competency frameworks add the “learning to learn” or self-directed learning competency to the 4Cs, but in MyWays this appears in the Habits of Success domain. And there is clearly some overlap between Creative Know How’s Collaboration and the Social Skills included in Habits of Success. The emphasis in MyWays Creative Know How is on cognitive and interpersonal skills as they relate to productive work. Habits of Success focuses on metacognitive and intrapersonal skills, as well as social skills related to personal effectiveness. Of course, in the real world many aspects of the domains overlap and/or are engaged simultaneously in developing oneself, and working toward solutions.

Creative Know How competency primers

For more on each of these competencies, be sure to see the one-page primers at the end of this report. We have included a primer for each of the five competencies. As indicated in the sample provided here, these primers briefly cover:

- what the competency covers;
- where to look for guidance on addressing the competency; and
- additional resources.

The primers are intended to provide a brief introduction to the most important aspects of each competency. They offer only a taste of the research and activity in each area, but we’ve tried to ensure that they include many of the key issues and resources. We hope that our MyWays Community of Practice and other educators will help add to and update these resources over time.

These primers provide educators with ideas and resources to help them support their students in developing an adaptable, reflective, resourceful, and empathetic set of Creative Know How competencies. Before proceeding to look at some key principles for working with these competencies, we take a quick look at three iconic formulations of these skills (the oldest almost a decade old) that we found to be surprisingly current in featuring the kind of competencies necessary for the “age of accelerations.”

Sample competency primer (See primers starting on page 20.)
Creative Know How, by Any Other Name (or Number)

This report deals with the five competencies incorporated in the Creative Know How domain, as well as the most common existing 21st century skills formulations — such as ConnectEd’s College and Career Readiness Framework, P21’s 4Cs, and the Four-Dimensional Education framework — that we drew upon when creating the MyWays Student Success Framework.

While carrying out our MyWays research, however, we came across a wide range of formulations for the success skills, from the wise to the quirky.

In particular, we were delighted to find gold when we reached back to two of the original clarion calls for a new skills goal-line: Tony Wagner’s *The Global Achievement Gap: Why even our best schools don’t teach the new survival skills our children need — and what we can do about it*, and Bernie Trilling and Charles Fadel’s *21st Century Skills: Learning for Life in Our Times*. We felt the same about the more recent but similarly iconic entry by Sir Ken Robinson, *Creative Schools: The Grassroots Revolution that’s Transforming Education*.

In the following chart, we maintained the original order of each list’s skills because what struck us was not the detailed mapping between the lists, but the overall flavor and range of each one. Yes, the cross-mapping is evident, and it is clear why the field ended up with consensus around the 4Cs: Critical Thinking, Collaboration, Communication, and Creativity. What we found most interesting was what each list included that the others didn’t.

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<td>3. Agility and adaptability</td>
<td>3. Collaboration (teamwork and leadership)</td>
<td>3. Criticism</td>
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<td>5. Effective oral and written communication</td>
<td>5. Communication and media literacy</td>
<td>5. Collaboration</td>
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<td>6. Accessing and analyzing information</td>
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Tony Wagner’s list from almost a decade ago has a surprisingly 2017 feel to it, in many ways the best matched to the relentless novelty and deepening complexity of the “age of accelerations” described in the
Key principles for addressing Creative Know How

Given the existence of a range of 21st century skills frameworks, what are the distinguishing features of the MyWays Creative Know How domain? Our research tells us that efforts to support Creative Know How should incorporate four key principles, helping students to:

1. **Develop and transfer competencies in novel, real-world contexts**, incorporating a variety of complex and rapidly changing situations.

2. **Work on skills and knowledge in integrated ways** — learners need to apply skills to and through content knowledge, learning both more deeply, in a virtuous cycle.

3. **Focus explicitly on these skills** — naming, practicing, and reflecting on them, as well as being coached on them and receiving ongoing and effective feedback.

4. **Explore the ways in which Creative Know How competencies are intimately interrelated** with each other and with the Habits of Success.

Many learning models not only identify the Creative Know How skills as goals, but understand and address a subset of these principles. The field is at the stage where actualizing all five of these principles appropriately and effectively is still a challenge, however, and practitioners are keen to both explore them further and share practice and tools.
KEY PRINCIPLE 1: Develop and transfer competencies in novel, real-world contexts, incorporating a variety of complex and rapidly changing situations.

In Part A, we explored the 5-5-5 Realities: the 5 Roadblocks to Bootstrapping a Career, the 5 Decisions in Navigating the Work/Learn Landscape, and the 5 Adversities in Cultivating Social Capital. All of these realities highlight the acceleration of change in these aspects of young adult lives. In his keynote address at the 2017 LearnLaunch conference, Tom Vander Ark of Getting Smart underlined how drastic and relentless this change is likely to be. After six months of investigating the state and direction of machine learning and AI, he concluded that the future is likely to bring significant changes and surprises, and that what educators really need to “get kids ready for” is “novelty and complexity.” This echoes the concerns of thought leaders from Wagner to Robinson to Fadel, all of whom refer to the impact on education of some version of volatility, uncertainty, complexity, and ambiguity (VUCA).

The concepts of novelty and complexity, and VUCA, have for some time been useful in describing the ways in which applying knowledge and skills in the “messy” realm of the real world differ from learning in a more bounded, inauthentic school setting. Recently, however, the evolution of cognitive computing, the Internet of Things, the flexible workforce, globalization, and other major paradigm shifts have taken VUCA and its cousin concepts to a whole new level.

Vander Ark suggests, for instance, that the 4C skills of the early 2000s might now be replaced by a different type of “4Cs” that instead describe the nature of the world we live in: “connected, contested, complex, and competitive.” The result is, as Peter Drucker concluded, that “since we live in an age of innovation, a practical education must prepare a person for work that does not yet exist and cannot yet be clearly defined.”

Promoters of 21st century skills have always aimed to enhance transfer into novel, authentic situations that a learner might encounter in adult life. Now, as we are realizing that we can’t even predict what those situations will be, attention to this approach is even more important. For this reason, Creative Know How requires us to focus on the following: student agency; real-world authentic learning; the availability of diverse opportunities to apply and improve competencies in iterative ways; a focus on contextual reasoning and conditional knowledge (which “….includes knowing when and why to apply various actions”); and, of course, the goal of transfer itself (knowing how to apply those actions). Research has shown that “educational environments that emphasize students’ active roles, that enhance students’ self-regulation, and that encourage communication and reflection skills, and are social and relevant to the learner (character qualities), successfully enhance the transfer of learning to new situations.” As Fadel concludes,

In fact, the elusive goal of education transfer—applying what one learns in one setting to another different context—can be thought of as preparation for future learning. This view
redefines learning transfer as the productive use of skills and motivations, to prepare students to learn in novel, real-world situations, or in resource-rich environments…16

Developing Creative Know How Through Authentic Experience

**Da Vinci Communications High School**, a Next Generation Learning Challenges grantee, is one of three Da Vinci high schools (along with Da Vinci Science and Da Vinci Design) serving racially and socio-economically diverse students in Los Angeles. The school provides a student-centered approach through project-based classroom learning, integrated online learning, college courses, internships, and other “real world” experiences. Kim Merritt is Director of Da Vinci X, a 13th year program in partnership with UCLA Extension for Da Vinci students who wish to complete general education college coursework at Da Vinci while gaining internship experience (all at no cost to their families). Merritt recently forwarded the letter shown here, which reports on student intern activities at 72andSunny, an award-winning advertising agency with whom the school has a deep partnership. (Student names have been changed.)

As the letter shows, this kind of real-world experience offers a wealth of opportunities to work on Creative Know How. Da Vinci students were applying creativity and communication skills in a major way in the creation of client decks, as well as in opportunities to practice and present them. Photo, video, and production work gave them a strong insight into media and technology skills. Because most of this activity takes place in groups, they engage in Collaboration, and use lots of problem solving in both client decks and production.

Da Vinci students are also trained, taught, and assessed on these skills, whether in school-based projects or in industry-based products. In either environment, students receive grades and feedback on their collaboration and communication abilities and performance. In addition to on-the-job presentations, students reflect and present on these skills during a formal 20-minute “Presentation of Learning” each semester. With multiple such opportunities over the years, it is easy to see how Da Vinci learners benefit from this “acceleration lane” to their futures.

Hi Natasha and Kim,

The students just ended a great week with our Brand and PAL team. **MONDAY:** We kicked the week off with a tissue session with Kelly Schoeffel (Director of Brand Innovation who initially briefed the interns) where each group presented their decks. It went GREAT! Kelly had some feedback for both groups but ultimately was really impressed with what they had all come up with.

**TUESDAY-WEDNESDAY:** The Brand team took them through Brand 101 and they learned exactly what a Brand person does here at 72andSunny. They learned a lot about presentation skills and got to practice their presentations a handful of times. All of the students talked and looked so confident. I was surprised to see how comfortable Emilia and Kyla were while presenting. They're the two quieter ones but you wouldn't tell during presentations.

**THURSDAY:** To close out the week they went on a trip to the LA River to see it in person and to take some photos and videos that relate to their projects. Kelly suggested they do this as it would really impress the client. When they came back from their trip they showed Abby and me the footage they got and they said it was really helpful and really cool that they got to check it out. It gave them a better visual of what their project could actually look like.

Next week we'll be diving into all things production! They'll learn about Art Production, Interactive Production, Film Production, and Experiential Production. They'll work with our producers to take a deliverable from their campaign and actually get started on the process of producing it.

We're also working on finding Kyla a new mentor. Her original mentor got pulled into a pretty demanding project and it was hard for him to find time to meet with her. We'll have her meet with her new mentor next week. Have a great weekend!

Cara 72andSunny // Brand Coordinator
KEY PRINCIPLE 2: Work on skills and knowledge in integrated ways — learners need to apply skills to and through content knowledge, learning both more deeply, in a virtuous cycle.

In *Four-Dimensional Education*, Fadel wisely notes the following:

“A long-standing debate in education hinges on an assumption that teaching skills will detract from teaching content knowledge. We believe this is a… false dichotomy. Studies have shown that when knowledge is learned passively, without engaging skills, it is often only learned at a superficial level (the knowledge may be memorized but not understood, not easily reusable, or short-lived), and therefore not readily transferred to new environments. Deep understanding and application to the real world will occur only by applying skills to content knowledge, so that each enhances the other.”

Knowledge and skills, he adds, “develop together in a virtuous cycle.” For example, knowledge “becomes the source of creativity, the subject of critical thought and communications, and the impetus for collaboration.”

For a glimpse of how this cycle can work, see the P21 Skills Maps (excerpt to the right), which illustrate the intersection between 21st century skills and the traditional Content Knowledge subjects of math, science, social studies, geography, English, languages, and the arts. These maps, developed with key national organizations that represent each core academic subject, provide concrete examples of learning experiences and outcomes at 4th, 8th, and 12th grade levels that integrates skills development in “authentic ways that enhance — not replace — robust science [or other subject] content.” Skill development in any one instance is embedded in the content-based learning activity, while the opportunity for transfer is increased by practicing the skill in multiple, varied learning experiences, and by explicit coaching and reflection that adds a metacognitive element to learning the skill (see Key Principle 3, below).

The interrelationship of content knowledge and skills is also evident in Summit Public Schools’ use of disciplinary “look fors” to, as they explain in their Look For Guide, “create a bridge between the content-neutral Cognitive Skills Rubric and the unique cognitive demands and pedagogical priorities of each of the four major disciplines.” The Look Fors are described as “an additional set of tools that allow Summit teachers to honor the network-wide focus on meaningful skills while recognizing that those skills sometimes manifest differently in different content areas.”
KEY PRINCIPLE 3: Focus explicitly on these skills — naming, practicing, and reflecting on them, as well as being coached on them and receiving ongoing and effective feedback.

In the words of Ralph Waldo Emerson, “Skill to do comes of doing.” Creative Know How skills are intellectual “muscles” that can be genuinely strengthened only through doing and practice (not exclusively through study — much like, say, taking good photos or kicking a football). Yet just “collaborating” or “problem solving” as part of learning experiences, like just throwing a football around with your cousins, is unlikely to lead either to optimal progress in mastering the competency or to a better chance of transferring that skill into novel situations.

Educators helping students to develop Creative Know How need to help the learners recognize, develop vocabulary for, and practice the skill, as well as to provide them with ongoing and effective feedback on these efforts. They also need to coach and model the skill, exposing learners to a novice-to-expert progression that moves from structured rules through analysis to intuition; from tinkering through focused practice to fluid expression; and from controlled context through near transfer to far transfer. For more on the novice-to-expert progression, see the “Levers for capability and agency” section in Report 11, Learning Design for Broader and Deeper Competencies.

Summit Public Schools’ teacher roles provide a good example of the ways in which educators can guide the explicit skills work involved in this key principle. See this exploration of a Summit teacher’s role, which includes elements of coach, mentor, tutor, curator, facilitator, and analyst.

Finally, in Creative Know How, learners need the means to collect evidence of process as much as product. Most importantly, learners need a structure to help them reflect on their progress in Creative Know How competencies, because reflection and meta-cognition are particularly important in enhancing transfer. Some examples of systems that respond to these needs area Brooklyn LAB’s Cortex, a student information and learning management system that incorporates the MyWays Student Success Framework (video, 5m), Summit’s Basecamp Personalized Learning Platform, and the Project Foundry and LiFT platforms, both of which are designed to support experiential learning in the Wider Learning Ecosystem. (See a brief case study of a student using SchoolHack’s LiFT to help him develop broader, deeper competencies through the alternative pathways provided by the state of Vermont, under Key Principle 2 in Report 10, Wayfinding Abilities – for Destinations Unknown.)
KEY PRINCIPLE 4: Explore the ways in which Creative Know How competencies are intimately interrelated with each other and with the Habits of Success.

Within competencies consisting of linked skills, such as Critical Thinking & Problem Solving, or Creativity & Entrepreneurship, the pairs are intimately interrelated, even as they feature elements of their own. Indeed, even across the five competencies in each domain, and the twenty competencies across domains, there is overlap in some aspects. While the framework is useful for designing goals and tracking attention and progress, it is not always possible or desirable to try to tease out the threads of one competency from the other for the purposes of learning or, in particular, assessment. (For an example of this, see the “Habits of a Fifth Grader” box in Report 7.) Like any framework or model, MyWays’ value lies in its use for planning and tracking the availability of learning experiences within which students can develop, practice, and reflect on their progress in the various competencies.

A particularly strong synergy exists between Creative Know How and the Habits of Success. Because both can be developed and practiced only within active, authentic learning, their competencies are often interwoven. The Habits of Success, for example, including those competencies related to students’ social-emotional health, directly impact students’ creativity, their critical thinking skills, and how they collaborate. We should also highlight that self-directed learning, a competency often grouped with 21st century skills in other frameworks, appears in the MyWays Habits of Success domain. We placed it there because self-directed learning is central to the Habits of Success, which focus on “behaviors and practices that enable students to own their learning and cultivate personal effectiveness.” Of course, placement in a conceptual model in no way separates competencies in the real world of learning and work.

Converging Ideas on How to Approach Creative Know How

In his book, Future Wise: Educating Our Children for a Changing World, Harvard Project Zero’s David Perkins stresses the importance of weaving the development of Creative Know How (which he calls “big know how”) into content learning. He also identifies a number of other critical elements for addressing Creative Know How. In this Huffington Post interview, Perkins encouraged teachers and framework developers to address the 4Cs as follows:

- **Approach the Cs through “infusion,”** weaving them into the teaching and learning of content.
- **Be explicit about strategies.** Research shows that students learn such skills better through making good practices explicit rather than just exercising them tacitly.
- **Take a dispositional approach.** Don’t just foster the skills’ development but also enthusiasm, commitment, sensitivity to occasions. Make such expectations part of the classroom culture.
- **Teach for transfer.** Declare an expectation for transfer, invite students to consider where else the Cs might apply within and beyond school, ask students to log stories of application.

Continues on next page >
The state of play in Creative Know How

Many of the comprehensive competency frameworks we studied featured Creative Know How prominently. The movement to add 21st century skills to traditional content began the drive toward a broader, deeper competency goal-line. Across the four MyWays domains, the extent of consensus on the competencies included, the evidence for learning/instructional strategies, and the maturity level of assessment options varies — in some cases substantially. Creative Know How is relatively well-developed compared to Habits of Success and Wayfinding Abilities, but still has a way to go, particularly with regard to assessment. Following are a few notes to inform your thinking and prompt you to investigate further as you design learning models and experiences to address this domain.

The state of competency definition and related learning strategies

Summary: The three MyWays competencies that cover the 4Cs, as well as the broader set of Creative Know How competencies, are generally well-defined, backed by research, and supported with a selection of tools such as standards, rubrics, and learning progressions. For more on each, see the competency primers at the end of this report.

- **Coordinate across the subject matters.** Use the same C approach in multiple subject matters yourself or by coordinating with teachers who teach the other subject matters. This reinforces the C and fosters transfer. (Research on transdisciplinary learning is robust and currently under-appreciated.)

Perkins’ elements intersect with Hewlett Deeper Learning’s approach to its set of 21st century learning skills, which overlap significantly with Creative Know How’s Critical Thinking & Problem Solving, and Communication & Collaboration, along with Learning How to Learn, and Developing Academic Mindsets (in MyWays Habits of Success), and Mastering Core Academic Content (in MyWays Content Knowledge). Monica Martinez, who analyzed eight public high schools embracing Deeper Learning, found that they emphasized six core strategies that intersect both Perkins’ elements and our key principles:

- **Empower:** Activate students to lead their own learning.
- **Keep It Real:** Provide meaning to student learning experiences.
- **Contextualize:** Connect experiences and subjects.
- **Reach:** Extend learning beyond the school.
- **Inspire:** Customize learning to each student.
- **Wire:** Make technology the servant not the master.

The research base for Creative Know How is relatively well-developed, although this varies among individual competencies. For a summary of research in the field, see P21’s 4Cs Research Series web page. Click on each of the cover graphics to get a bird’s-eye view of current research in practice; consensus on terminology; successful interventions to bring the 4Cs to life in the classroom; practitioner and expert perspectives from the field; assessment recommendations for educators to track student growth and progress; gaps in current research and recommendations; best practice perspectives from experts in the field; and an annotated bibliography and additional resources.
Learning strategies that support development of Creative Know How most commonly include project-based, work-based, community-based, or other active learning approaches that occur in real-world or complex simulated situations (which MyWays calls Whole Learning. See more in Report 11 on learning design). Through these approaches, students’ productive work experiences provide the opportunity for Creative Know How skill development, application, and transfer. For concrete examples of this, see the resources boxes later in this report, including information on the Buck Institute’s 4Cs rubrics, specifically designed for use in project-based learning. See also the “Converging Ideas” box above for Perkins’ suggestions for how to implement Creative Know How learning strategies. The 4Cs Research Series provides further insights into learning strategies, interventions from other sectors not yet widely used in schools, and programs that have proven successful in out-of-school time settings. For approaches targeted at the Information, Media, & Technical Skills, and Practical Life Skills competencies, see the relevant competency primers.

The state of assessment

Summary: Evidence collection through performance assessment (curriculum-embedded and bounded) and other approaches are maturing; however, issues relating to transfer and reliability are complex and still being addressed. The growing use of project-based/performance assessment for Content Knowledge provides growing opportunity to collect evidence on the development of Creative Know How skills as part of the same processes, performances, and outputs.

The current range of assessment approaches includes the following:

- **Predominant reliance on rich, curriculum-embedded performance assessments (PA),** including the use of the following tools:
  
  o Validated performance frameworks and/or tasks created by educators and networks or pulled from rich task databases (SCALE/SCOPE/CCSSO’s Performance Assessment Resource Bank has a few Creative Know How PA items; EdLeader21 has announced a forthcoming 4Cs Performance Assessment Bank)
  
  o Rubrics, learning progressions, completed exemplars, portfolio and exhibition protocols, and other tools (see more information and links in the Practice Resources box below on New Tech Network’s student learning outcomes and rubrics; Summit’s discipline-specific skills rubrics and look fors; P21’s rubrics; EdLeader21’s rubrics for the 4Cs; and the Buck Institute’s rubrics for assessment of 4Cs).

- **Innovative approaches, such as embedded assessments,** which can capture student processes in competencies ranging from problem solving to creativity (see, for example, the mention of clickstream analysis of ways of working in this Summit blog on assessment for the four components of their model, and this article on Newton’s Playground, which measures creativity and conscientiousness as well as the learning of physics concepts through game-playing).

- **The use of multiple, varied measures,** such as the combination of self-report, situational judgment, and forced-choice methods offered within ProExam’s Tessera Noncognitive Assessment System.

- **Bounded, on-demand performance tasks,** such as those including, most recently, collaborative problem solving, in the Program for International Student Assessment (PISA), NextGen Science assessments, the Common Core PARCC & Smarter Balanced assessments, and the Council for Aid to Education’s CWRA+, a middle and high school level assessment that uses document-based real-world problem solving tasks to measure critical thinking skills.
**Ongoing challenges** in the assessment of Creative Know How include issues of **transfer** (such as which learning approaches improve the likelihood of transfer, especially across subject areas and widely varying circumstances), **educator capacity-building** in the assessment of Creative Know How skills, and the **development of performance- and portfolio-based digital platforms** that are flexible enough to house and track the kind of evidence required for Creative Know How skills, including evidence of processes and student reflection, as well as output and performance. (See examples in Key Principle 3 above.)

For more on Creative Know How assessments, see the Creative Know How one-page competency primers at the end of this report; also Report 12, *Assessment for Broader, Deeper Learning*; and two recent external publications: the Center for Curriculum Redesign’s *Evolving Assessments for a 21st Century Education* and the National Academies Division on Behavioral and Social Sciences and Education’s *Supporting Students’ College Success: The Role of Assessing Intrapersonal and Interpersonal Competencies*.

**A quick dive into Creative Know How resources**

Because the purpose of the MyWays Student Success Framework is to provide a rosetta stone for thinking about the broader, deeper, future-ready goal-line for today’s learners, we have focused on describing that goal-line in conceptual terms. We also believe deeply that school designers, educators, and individual learners need to invest in constructing and evolving their own goal-lines within the broader framework described.

In doing this work, educators may find the following resources helpful:

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### Starter Resources for Creative Know How

- Trilling and Fadel, *21st Century Skills – Learning for Life in Our Times*
- Robinson, *Creative Schools: The Grassroots Revolution That’s Transforming Education*
- Partnership for 21st Century Learning, [Framework](#) and [4Cs Research Series](#)
- Fadel, Bialik, and Trilling, *Four-Dimensional Education: Competencies Learners Need to Succeed*
- Center for Curriculum Redesign, [Evolving Assessments for the 21st Century](#) (covers Creative Know How and Habits of Success)
- Robinson, “Changing Education Paradigms,” (video, 11 m), and P21, “Introduction to 21st Century Learning,” (video, 7m)
Relevant Competency Frameworks

Competency frameworks that emphasize this domain include the following (the first five are featured in the MyWays alignment matrix in the Introduction and Overview of the MyWays Student Success Series):

- ConnectEd, [College and Career Readiness Framework](#)
- Center for Curriculum Redesign, [Four-Dimensional Education Framework](#)
- Partnership for 21st Century Learning, [P21 Framework](#)
- Council of Chief State School Officers, [Framework for College, Career, and Citizenship Readiness](#)
- UChicago Consortium, [Foundations of Young Adult Success](#)
- US Department of Education, [Employability Skills Framework](#)

Models that Emphasize Creative Know How

The following models are strong on this domain:

- **EL Education** — a mature model developed out of Outward Bound and Harvard Graduate School of Education, EL has a strong emphasis on the mastery of skills and high-quality work through real-world learning, discovery, and inquiry.
- **Summit Public Schools** — skills rubrics and look fors; their cognitive skills are more closely tied to ELA and math subject skills.
- **New Tech Network** (NTN) — one of the key pillars in this project-based learning model is its focus on “outcomes that matter.” NTN’s learning outcomes and rubrics related to thinking, agency, collaboration, and oral and written communication are used in performance assessments.
- **Two Rivers Public Charter Schools** — Two Rivers is developing and testing rubrics and short assessments aimed at demonstrating transference in five constructs within critical thinking and problem solving (for more, see [Learn with Two Rivers](#)).
- **St. Vrain Valley School District** — a suburban public school district in Colorado with a trailblazing STEM program (see this 3m [video](#)) powered by i3 and Race to the Top grants, and based in design thinking and problem solving.
- **Lindsay Unified School District** — a Central Valley, California, district with 100% free lunch and 52% English language learners that transformed itself into a competency-based system that aims to create life-long learners, including in the economic, cultural, global, civic, and other spheres of life that correlate with Creative Know How.
- **Da Vinci Communications High School** — students are trained, taught, and assessed on 21st century skills in addition to content knowledge. Students complete projects in groups and with industry experts, and receive grades and feedback on their collaboration and communication abilities and performance.
We know from our beta piloting work with next generation educators that those interested in and inspired by the MyWays Student Success Framework are also thirsty for practitioner tools, as well as other implementation descriptions and documentation. In some cases, practitioners may be tempted to latch onto tools (such as the MyWays Whole-Student Competency Plot of the 20 competencies) and use them without the internal mindset-changing and learning-model-revising work required for successful implementation; we caution against this! We also realize that many thoughtful developers and practitioners simply want and need to see more concrete exemplars and tools in order to better understand the broader, deeper goal-line and to help them work through their own approach. As the MyWays Community of Practice grows, more pathways for use of the tools will arise, along with deeper levels of support and advice on building good practice around your own locally customized version of the MyWays framework.

In addition to the resources listed above, the one-page primers on each of the five Creative Know How competencies that follow provide links to existing tools, such as standards, rubrics, or learning progressions. Such tools can help educators decide what to include or exclude in next generation student competency goal-lines and how best to shape them. Note that MyWays and Next Generation Learning Challenges do not endorse any specific tools for assessment or curriculum planning—particularly in ways that are incompatible with authentic Whole Learning (see Report 12, *Assessment for Broader, Deeper Learning* for more on this approach). This set of EdSurge resources offers case studies of schools using MyWays, and Next Generation Learning Challenges’ report, *Measures that Matter Most*, reviews some of the tools used by next generation schools to measure their progress in addressing the broader, deeper range of competencies.

The 4Cs set of competencies (critical thinking, communications, collaboration, and creativity) is a special case because, as a set, they are far more developed than most competencies in domains other than Content Knowledge. We therefore include below a sampling of some of the 4Cs rubrics, skills maps, learning targets, and performance assessments available for practitioner use.

**Practice Resources for the 4Cs and More**

1. **EdLeader21’s 4C’s Rubrics**
   This is a nationally vetted set of rubrics for the 4Cs from EdLeader21. The master set of 4Cs rubrics covers grades 3–4, 7–8, and 11–12 can be purchased from EdLeader21, but you can see adapted versions in links from this blog by Ken Kay, EdLeader21’s CEO, who noted that, “The rubrics are a great resource on their own, but you and your teachers can also adapt them to your needs. For example, some of our districts have modified the rubrics and associated learning targets to make them student-friendly.”

2. **The Buck Institute rubrics for assessing the 4Cs in a PBL context**
   These rubrics describe what 4Cs good practice looks like, specifically in the project-based learning (PBL) context, with different sequenced rubrics for K–2, 3–5, and 6–12. Critical Thinking and the “Process” section of Creativity & Innovation are organized by the four phases of a typical project. The Presentation Rubric is used only in a project’s last phase, when students share their work with a public audience. Collaboration is relevant to all phases. See this blog for more on how to use these rubrics.

3. **P21 21st Century Skills Maps**
   These [21st Century Skills Maps](#) address how to implement learning models that integrate the 4Cs into core academic content mastery. 4Cs skills maps are available for math, science, social studies, geography, English, languages, and arts; ICT skills maps are available for social studies, English, and math. Each skills map provides examples of the types of skills that are appropriate for 4th, 8th, and 12th grade levels.
The Creative Know How one-page competency primers

The one page primers that follow provide a brief introduction to the most important aspects of each competency, with pointers to why the competency is important (given students’ developmental needs and the challenges of today’s rapidly changing world), further description of what the competency entails, where to look for inspiration and guidance, and additional resources. These primers provide only a taste of the research and activity in each area. We hope that our MyWays Community of Practice and other educators will help add to and update these resources over time. To meet the Community of Practice members and share your ideas see our Community of Practice page on the MyWays website. To receive MyWays updates, join our mailing list.
**Critical Thinking & Problem Solving**

“College is too late to teach problem-solving and other skills they’ll need to be a successful employee someday. But high school is a great place for developing those skills.... At the end of the day, these students have learned how to learn. They know how to break down a problem and solve it using their own skill sets, as well as being able to identify what skills are needed but not available in their group, and then they find a way to learn that needed skill.”

—Ron Fortunato, of A World Bridge, which offers real-world, real-time, high-tech projects for HS students

**Brief description:**

- This MyWays competency is defined as the “ability to analyze and reason effectively, and use systems thinking and design thinking, toward solving problems in varied settings.”

- Addressing this competency includes helping students:
  - Identify and define problems and propose creative and appropriate solutions.
  - Develop analytical thinking approaches, including applying logical reasoning, as well as analytical, reflective, evaluative, and metacognitive skills.
  - Develop systems thinking approaches, including consideration of a holistic perspective, connections, relationships, integrated concepts, and emphasis on synthesis.
  - Develop design thinking approaches to problem solving, focused on principles of human-centered design, embrace of ambiguity, iterative redesign, and tangibility.
  - Note: Design thinking is also included in the Creativity & Entrepreneurship competency.

**Where to look for ideas:**

- **Project-based, inquiry-based learning, service learning, and other active, deeper learning models** that provide complex learning challenges promote higher-level thinking and problem solving. For a model based on design thinking, see the *One Stone Story*.

- **Youth development (YD) programs** that link students to authentic learning do the same. See *The Possibility Project, Wyman TOP*, and other exemplary YD programs featured in the “Problem Solving Practices” section of *Preparing Youth to Thrive*, as well as in *A World Bridge* and Educurious.

- **Two Rivers Public Schools** is building out five components of Critical Thinking & Problem Solving. Rubrics and assessments for effective reasoning and problem solving are in its *Deeper Learning Assessment folder now*: creativity, schema development, evaluation, and metacognition are due soon. See more at *Learn with Two Rivers* and in this *EdSurge MyWays series article*.

- In **countries like Switzerland**, where secondary education includes apprenticeships, youth and employers cite the “knotty, unexpected, and complicated problems that arise every day in every workplace” as “precisely the sort of thing that can only be learned on the job.”

- **Higher education and the professions** are also incorporating aspects of critical thinking and problem solving into their curricula; see *Making Design Thinking Part of Medical Education*.

**Additional resources as food for thought:**

- P21, *What We Know About Critical Thinking* (The 4Cs Research Series).


- The *Critical Thinking Community’s* website and resources, and the Waters Foundation’s *Systems Thinking in Education* website and resources.

- Stanford d.school’s *K12 Lab Network*, including the *K12 Lab Wiki* for many helpful resources on design thinking.

- Charles Fadel et al., *Four-Dimensional Education*.

- For a collection of Critical Thinking & Problem Solving tools such as learning objectives, rubrics, skills integration maps, and performance assessments, see the 4Cs Practice Resources box earlier in this report.

**For more resources**, see the *MyWays website*. 

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**Waters Foundation (interactive version)**

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*MyWays Student Success Series: What Learners Need to Thrive in a World of Change*
Creativity & Entrepreneurship

“The future belongs to a very different kind of person with a very different kind of mind — creators and empathizers, pattern recognizers and meaning makers. These people... will now reap society’s richest rewards and share its greatest joys.”

—Daniel Pink, A Whole New Mind

“Creativity is as important in education as literacy and we should treat it with the same status.”

—Sir Kenneth Robinson, in his famous TED talk “Do Schools Kill Creativity?”

Brief description:
- This MyWays competency is defined as “the imagination, inventiveness, and experimentation to achieve new and productive ideas and solutions.”

- Addressing this competency includes helping students:
  - Think creatively, using a range of idea-creation techniques, and elaborating, refining, and evaluating the resulting ideas, including through design thinking.
  - Work creatively with others, be open and responsive to new ideas, and see failure as a way to learn.
  - Implement innovation, including taking risks and following through in the real world.
  - Develop additional entrepreneurial skills and mindsets, including the necessary business and financial concepts and processes, as well as Habits of Success that support new value creation.

Where to look for ideas:
- **Address creativity within core subject areas.** For starter strategies, see these Edutopia blogs from an [English teacher](https://www.edutopia.org) and a [science teacher](https://www.edutopia.org).

- **Promote creativity through the arts.** The visual and performing arts provide a natural way to help students develop creativity and agency, which can then extend to other parts of their lives. See the [Boston Arts Academy](http://www.bostonartsacademy.org), [Kettle Moraine’s competency-based KM Perform high school](http://www.kettlemoraine.k12.wi.us) and this article on [making + art for creativity](http://www.makezine.com).

- **School models** include Philadelphia’s [Workshop School](https://www.workshopschool.org); the [Incubator School](https://www.incubatorschool.org) in Los Angeles (and [this NPR report on it](https://www.npr.org)); the [Boston Collaboratory School](https://www.boston collaboratory.org); and [Design Tech HS](https://www.designtechhs.org). Also see [this review](https://www.review.com) of global and US models.

- **Co-curricular activities can excel at developing creativity and entrepreneurship.** [Odyssey of the Mind](http://www.odysseyofthemind.com) and [Destination Imagination](https://www.destinationimagination.org) develop creativity through STEM, service learning, and fine arts.

Entrepreneurism is fostered in programs like [DECA](http://www.deca.org), [4H](http://www.4h.org), and [Junior Achievement](http://www.juniorachievement.org). See also [creativity challenges](http://www.creativitychallenge.org) and [HS entrepreneurship clubs](http://www.entrepreneurshipclubs.org).

- On sparking creativity through design thinking, see this [introductory video](https://www.youtube.com/watch?v=dQw4w9WgXcQ) (2m) for LAUNCH, a design thinking process adapted for K-12 by A.J. Julianni and John Spencer. In LAUNCH’s added final step, students “launch” their work to an authentic audience.


Additional resources as food for thought:
- **Creativity resources:** P21, [What We Know About Creativity](http://www.p21.org) (The 4Cs Research Series); EdLeader21, [The Leader’s Guide to 21st Century Education](http://www.p21.org) (“Appendix 3 — Creativity Resources”); and the National Education Association’s [An Educator’s Guide to the “Four Cs”](http://www.nea.org) (the “Creativity and Innovation” section).

- **Entrepreneurship resources:** [Ente-Ed](http://www.ente-ed.org), the National Consortium for Entrepreneurship Education, offers [national content standards](http://www.ente-ed.org) that are also in the [Department of Labor Competency Model tools](http://www.dol.gov); also see the [Youth Entrepreneurship Framework](http://www.youthentrepreneurshipframework.org).

- **For a collection of Creativity tools** such as learning objectives, rubrics, skills integration maps, and performance assessments, see the [4Cs Practice Resources](http://www.4cspractice.org) box earlier in this report.

**For more resources,** see the [MyWays website](http://www.myways.org).
Communication & Collaboration

“Amir knows that he has to keep working on the habit of collaboration. He reports, “My next step for the future is to not distract my crew. If I have a question, just ask, but don’t get off topic with it.

And I would love to keep sharing ideas. I love getting my voice out and heard.”

—Amir, student at the K-8 EL Education Odyssey School in Denver, Colorado

Brief description:

- This MyWays competency is defined as “oral, written, and visual communication skills, as well as the ability to work effectively with diverse teams.”
- Addressing this competency includes helping students:
  - Articulate thoughts orally, in writing, non-verbally.
  - Listen effectively to decipher meaning.
  - Use communication for a range of purposes, including to inform, instruct, motivate, and persuade.
  - Communicate in diverse environments.
  - Work effectively and respectfully in diverse teams.
  - Show flexibility, willingness to help, and the ability to compromise to reach common goals.
  - Assume shared responsibility and value individual team member contributions.
- Communication & Collaboration are intertwined with Information, Media & IT literacy, as well as with Problem Solving. (See this EdSurge article on the 2015 addition of collaborative problem solving to the international PISA assessment; in the exam, students use a chat pool to talk to team members and solve a problem together).

Where to look for ideas:

- Begin addressing Communication & Collaboration through the CCSS speaking and listening anchor standard.
- This discussion of “Procedures for Classroom Talk” focuses on English language learners and touches on accountable talk and effective collaborative discussions.
- Da Vinci Communications HS has a wealth of leading practices here, including its Critical Friends’ Group Protocol and other materials. Students discuss collaboration in this Da Vinci video (10m).
- The EL Education case study on Amir’s project (see earlier quote) focuses on collaboration, agency, reflection, and peer feedback. Here is an excerpt from Amir’s critique:

<table>
<thead>
<tr>
<th>Collaboration Critique</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name of Group Member</td>
</tr>
<tr>
<td>Amir</td>
</tr>
<tr>
<td>Francine</td>
</tr>
</tbody>
</table>

Don’t Just Talk About Character; Teach Habits

- The Internationals Network for Public Schools leverages both communication and collaboration by teaching recent immigrants through experiential projects in which they need to work together and make themselves understood to get things done. See a description of the magic in this CompetencyWorks blog by Chris Sturgis.

Additional resources as food for thought:

- For a full set of beginner to expert progressions for subskills within communication and collaboration, see CIE and EPIC’s Essential Skills and Dispositions (ES&D) developmental frameworks.
- The 4Cs Practice Resources box earlier in this report includes learning objectives, rubrics, skills integration maps, and performance assessments on creativity.

For more resources, see the MyWays website.
Information, Media, & Technology Skills

“As computers successfully take over routine tasks, humans are left with the jobs they do best, often using computers as assistive tools to take their products to new heights, instead of being replaced by them.”

—Charles Fadel, Four-Dimensional Education

**Brief description:**

- This MyWays competency is defined as “the ability to access, evaluate, manage, create, and disseminate information and media using a wide variety of technology tools.”
- Addressing this competency includes helping students:
  - Develop information and media literacy, including: analyzing media messages to understand how and why they are constructed, how individuals interpret them with different points of view, how media influences behavior, and ethical/legal issues.
  - Create media products, including: understanding and using the most appropriate creation tools and effectively using the tools for appropriate expression in diverse, multicultural environments.
  - Develop technology literacy, including computational thinking (rather than programming languages), and the ability to understand and leverage the growing capabilities of augmented reality, virtual reality, big data, robots, artificial intelligence, and novel technologies as they appear.
  - Note on equity: Disadvantaged youth and those with learning limitations, who could most benefit from access to technology, are still the least likely to have that access. Educators must address this need so that technology does not serve to widen the gap further.

**Additional resources as food for thought:**

- On media literacy: See these EdWeek articles on media literacy and fake news for a roundup of numerous resources on tackling these topics; also, this EdWeek blog overviews the National Council of Teachers of English Framework on information literacy.

**Where to look for ideas:**

- On developing info and media literacy: See the links in “media literacy” resources below for a range of standards, lesson plans, and other resources from PBS, Common Sense Media, Newsela, and media literacy organizations. For an alternative, see Tribeworthy, a “crowd contested” site linked to the Global Critical Media Literacy Project that lets students review news articles for bias, credibility, logic, etc., and contribute to a pubic rating.

- On creating media and tech products: Getting Smart flags Kearny High School of Digital Media & Design for its student-centered PBL stressing productive Habits of Mind. Extracurriculars — such as student film festivals, school and cable TV production opportunities, First Lego League, and robotics — offer excellent opportunities.

- On promoting tech literacy:
  - Look at Excel Public Charter School’s Computational Thinking curriculum, which focuses on solving problems, designing systems, and understanding human behavior by drawing on computer science concepts, including a lesson on featuring a LeBron James play and various other topics (3m video).
  - Tackle tech literacy through real work; see Generation Yes, which aims to scale the successful student-run HS help desk model (also found in individual schools like Burlington HS). Such an understanding of tech application and human-tech interaction is invaluable.
  - Finally, there isn’t much opportunity for students to work directly with AI today, but this three-step list offers guidelines on what educators can do to start implementing AI education in schools right away.

For more resources, see the MyWays website.
“It’s mostly life skills, the kinds of things most people learn about by messing up. I’m pretty stoked to learn that.

It’s weird that in the school system they don’t teach something that everyone should know.”

—Ford, 17, on his High Tech High 12th grade end of year program (He’s particularly interested in personal finance.)

Brief description:

- This MyWays competency is defined as the “ability to understand and manage personal finances, health and fitness, and emotional, spiritual, and other aspects of personal wellbeing to enable and support a productive, effective life.”

- Addressing this competency includes helping students:
  - Manage personal finances, including: spending, saving, credit, and debt; employment and income; investing; risk and insurance; financial decision-making.
  - Manage one’s own health and fitness, including: obtaining, interpreting, and using basic health information and services to enhance health; obtain and act on diet, nutrition, exercise, risk avoidance, and stress reduction guidelines; establish and monitor health goals.
  - Attend to one’s own emotional and spiritual needs, and to other aspects of wellbeing, including: mindfulness, heartfeltness, and positive mental health.
  - Address practical tasks that are rapidly evolving, including how to shop, find housing, and get around.

Where to look for ideas:

- High Tech High 12th graders take end of year courses in cooking on a budget, sewing, personal finance (how credit card balances work, renting an apartment, etc.).

- Da Vinci Communications HS started a “Grit Course” focused on practical skills needed for the transition from HS; their students call it “Adulting class.” Students from across the economic spectrum are looking for similar guidance, as evident in this NPR piece and the box below.

- Practical can start early: DC Public Schools is teaching its 2,000 second graders to ride a bike, promoting exercise, safety, and independence through this life-long skill. Magnolia Montessori for All’s elementary students are responsible for planning and leading small-group Field Studies in their local communities. Their chaperone guide is a delightful window into how to build resourcefulness.

- Financial, HR, and training literacy for the Gig economy includes personal finance competencies and programs (see the “Additional resources” links below). To see how even these approaches need to be updated, see Serving Workers in the Gig Economy: Emerging Resources for the On-Demand Workforce, especially the list of responsibilities now on individual shoulders on p. 3.

- Nutrition, exercise, and well-being: A helpful blog by a Summit Public Schools teacher about facilitating mindfulness for the first time (with links to a list of benefits). Edutopia offers mindfulness resources, including school-wide and afterschool programs and a video (7m) on how meditation is lowering truancy and suspensions.

- The Johns Hopkins Center for a Livable Future offers a free curriculum for teaching the food system to empower students to make healthy and responsible food choices.

Additional resources as food for thought:

- For Personal Finance: See JumpStart national standards in K-12 Personal Finance and the Education HS Financial Planning Program (HSFPP) Standards and Outcomes, which align with JumpStart and five other national standards sets (links to all are on the HSFPP website).

- For health, fitness, and well-being: See Shape America’s standards, including the Whole School, Whole Community, Whole Child model from the Center for Disease Control and Prevention (CDC) and the ASCD.

FOR MORE RESOURCES, see the MyWays website.
Endnotes for Report 8

1 Daniel Pink, in a 2012 interview with Bill Sheridan.

2 Elliot Washor and Charles Mojkowski, *Leaving to Learn: How Out of School Learning Increases Student Engagement and Reduces Dropout Rates*, Heinemann, 2013, pp. 58, 73


Fadel, Bialik, and Trilling, Four-Dimensional Education, p 105.

Ibid.

Ibid., pp. 106, 121.


Summit Public Schools: Notes on Look Fors, p. 1.

Ralph Waldo Emerson, “Old Age,” The Atlantic Monthly, January, 1862 from the Atlantic archives.

Quoted in Catherine Wedgwood, Building a World Bridge to College, Career, and Life Readiness, blog, Getting Smart, March 30, 2017. See also the World Bridge website.


The Creativity and Entrepreneurship competency description draws on treatments of creativity, entrepreneurism, innovation, and design thinking, including those in EdLeader21’s Kay and Greenhill, The Leader’s Guide to 21st Century Education; Fadel, Bialik, and Trilling’s Four-Dimensional Education; and P21, What We Know About Creativity, part of the 4Cs Research Series — as well as from entrepreneurship competencies covered in the frameworks and reports listed under entrepreneurship in this primer’s “Additional resources” section.


The Communication and Collaboration competency description draws on treatments of communication and collaboration, including those in Fadel, Bialik, and Trilling’s Four-Dimensional Education and P21’s What We Know About Communication and What we Know About Collaboration, parts of the 4Cs Research Series.

Fadel, Bialek, and Trilling, Four-Dimensional Education, p. 27.

The Information, Media, & Technology Skills competency description draws on treatments of information, media, and technology in the National Education Association’s Preparing 21st Century Students for a Global Society: An Educator’s Guide to the “Four Cs,” 2012; Fadel, Bialik, and Trilling’s Four-Dimensional Education; and the media literacy, tech literacy, and computational thinking sources listed under this primer’s “Additional resources” section.


The Practical Life Skills competency description draws on treatments of practical life skills, personal finance competencies, health and fitness competencies, and well-being and mental health competencies including: for personal finance - JumpStart national standards in K-12 Personal Finance and the Education HS Financial Planning Program (HSFPP) Standards &Outcomes, aligned with JumpStart and five other other standards (see links on HSFPP website); for health, fitness, and well-being - Shape America’s standards, including the Centers for Disease Control and Prevention (CDC) and ASCD’s Whole School, Whole Community, Whole Child model (WCCC), and Shape America’s excellent Position Statement on WCCC.
Content Knowledge for the Life Students Will Lead

Report 9 of the MyWays Student Success Series

Grace Belfiore and Dave Lash
for Next Generation Learning Challenges

October 2017
The MyWays™
Student Success Series

All reports in the series are available for download at myways.nextgenlearning.org/report.

Visual Summary
Introduction and Overview

Part A: Adolescence in an Age of Accelerations
Summarizes specific real-world realities and conditions confronting today’s young people.

Report 1: Opportunity, Work, and the Wayfinding Decade
Report 2: 5 Roadblocks to Bootstrapping a Career
Report 3: 5 Decisions in Navigating the Work/Learn Landscape
Report 4: 5 Essentials in Building Social Capital
Report 5: Preparing Apprentice-Adults for Life after High School

Part B: Broader, Deeper Competencies for Student Success
Provides a composite definition of student success in learning, work, and life.

Report 6: Welcome to the MyWays Student Success Framework
Report 7: Habits of Success — for Learning, Work, and Well-being
Report 8: Creative Know How — for a Novel, Complex World
Report 9: Content Knowledge — for the Life Students Will Lead
Report 10: Wayfinding Abilities — for Destinations Unknown

Part C: Redesigning the Learning Experience for the MyWays Competencies
Brings the broader and deeper competencies of the MyWays Student Success Framework into educational practice.

Report 11: Learning Design for Broader, Deeper Competencies
Report 12: Assessment Design for Broader, Deeper Competencies

About this report

Report 9, Content Knowledge — for the Life Students Will Lead, considers the Content Knowledge domain of the MyWays Student Success Framework, including why the domain focuses on big understandings and extends into authentic application, key principles for implementation, and the state of play in the field, as well as offering resources and essential one-page primers for each competency.

Report 9 is the fourth of five reports in Part B of the MyWays Student Success Series. Part B, “Broader, Deeper Competencies for Student Success,” provides a composite definition of student success in learning, work, and life, drawing on over 25 highly-regarded frameworks and the literature in the education, work, and human development fields.

The MyWays Student Success Series examines the through-line of four essential questions for next generation learning and provides research and practice-based support to help school designers and educators to answer these questions. The series consists of 12 reports organized into three parts, plus a Visual Summary and Introduction and Overview.

The primary researchers and authors of the MyWays Student Success Series are Dave Lash, Principal at Dave Lash & Company, and Grace Belfiore, D.Phil., Principal Consultant at Belfiore Education Consulting.

MyWays is a project of Next Generation Learning Challenges, an initiative of the non-profit EDUCAUSE. MyWays is supported through a grant from the William and Flora Hewlett Foundation with additional support from the Bill & Melinda Gates Foundation, the Barr Foundation, and the Oak Foundation.

nextgenlearning.org

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Content Knowledge – for the Life Students Will Lead

Introduction

Students, of course, continue to need Content Knowledge. MyWays defines this domain as “subject area knowledge and organizing concepts essential for academic and real-life applications.” See the individual competency sets incorporated in this domain in the box to the right. Although Content Knowledge might seem like the most familiar and traditional of the four domains, don’t be fooled. Whether core math or English, the sciences or the arts, to assume the new goal-line Content Knowledge looks like traditional curriculum would be to overlook critical changes in the nature of the knowledge competencies that today’s students need.

In this report, we will provide an overview of the domain by covering the following:

- Why the Content Knowledge domain is so important
- An overview of the five Content Knowledge competencies
- Three key principles for addressing Content Knowledge
- A brief summary of the state of play in Content Knowledge learning and assessment
- A quick resource dive for Content Knowledge (highlighting starter resources, competency frameworks, and school models that address this domain)
- Five Content Knowledge competency primers (Primers are generally one-pagers; in this domain, the English Core and Math Core are combined on one page, and the Science, Social Studies, Arts, Languages competency is given two pages.)

In researching this domain, we encountered a number of apparent contradictions. The Content Knowledge goal line needs to be broader, yet traditional mile-wide curricula need to be pruned and honed to align with learning science and to make way for new future-ready subjects, skills, and habits. Learning needs to be more interdisciplinary, yet as Marc Tucker points out, “that knowledge will do you little good unless you first understand the disciplines themselves, not just superficially, but at a deep conceptual level.” Fortunately, practitioners and researchers alike have been working on how to address these paradoxes by (as the vignettes on the following page suggest) mastering key concepts and moving earlier to real-world applications — as well as following the other key principles discussed in this report.
Mastering Key Concepts and Real-World Applications

If you are tempted to skim over this report on the Content Knowledge domain, we invite you to spend a few minutes reflecting on the following thoughts from Charles Fadel, of the Center for Curriculum Redesign, recorded in a fascinating 2016 interview with Marc Tucker. From eighteenth century land surveyors to brand new medical school curricula, these nuggets provide a glimpse of the vital challenges we all face in discerning what to include in a broader, deeper curriculum — and, as importantly, what to “curate from it.” The rest of the report explores content areas to include and key principles for how to address them.

“Without deep conceptual mastery of disciplines, it is very hard to learn much of what our students will need to know. ... [N]otwithstanding the availability of an enormous amount of information on the internet, it is still essential that students have in their heads very complex knowledge structures as well as the knowledge that gets hung on those structures. The question is not whether we need facts and structures in our heads but which facts and which structures.

When the country was much younger and mariners and land surveyors and builders needed trigonometry, it made sense to require trigonometry in the math curriculum. But today it might make much more sense to drop many topics in trigonometry from the mathematics curriculum and put in math modeling, statistics and probability instead.”

“If you look at the new medical curriculum, started at McGill and later adopted by Harvard, they made huge changes in the instruction of medical education. Much the same thing has happened in engineering and other professions. They still include classes in the underlying disciplines, but students move to applied work much more quickly, and the questions that come up in the applied work shape the way the students learn the underlying disciplines. The argument for this kind of education is that the student learns how to learn from the very beginning. The education of these professionals still includes classes in the traditional subjects, but they don’t last as long, or go as deep as they used to.

Is this the way to create schools that produce students with a deeper conceptual mastery and, at the same time, much more capacity to apply what they know to real world problems?”

“If we don’t sort out the “what” properly, we will never get to the “how” part right. How time is allocated between the traditional disciplines and interdisciplinary work is very important. How time is allocated between mastering the content and applying it is no less important. Creating school experiences that successfully blend both is crucial. Part of this...is a matter of making wise decisions about which topics to include in the curriculum and which to curate from it. We won’t get universally to learning new disciplines such as robotics, entrepreneurship, etc. without dropping something we are now teaching. That will require simplification of a high order, with careful curation – a scalpel analogy comes to mind, not a chainsaw.

I asked my cousin who is a zoologist: if you had to teach zoology in two weeks, what would you teach? He jokingly quipped: it would take 40 years to answer that question! But lo and behold, the next day he sent me an email of nine bullet points about the essential concepts in zoology. It is perfectly possible to take any discipline, and extract the essence of it. Having done that, we must make sure students deeply absorb these concepts, for life.”
Why Content Knowledge is so important

One of the strongest reasons for the continued, and we would argue increased, importance of Content Knowledge is the “brawn to brains” shift in labor market skill levels described in Report 1. Over the past 30 years, technological change has shifted jobs in two directions: toward high-skill, abstract, non-routine work on the one hand and, to a lesser extent, to non-routine, manual work (low-skill jobs) on the other. The middle-skill share of all US jobs fell from 58% in 1981 to 44% in 2011 (graph) with enormous impacts on clerks, tellers, office assistants, travel agents, bookkeepers, mail carriers, drivers, and cooks — jobs that could be offshored or replaced by technology. Middle-skill jobs remain, for now, the largest segment of the labor market; however, high-skill jobs are growing most quickly and the skill level required of middle-skill workers is continually rising. Both skill levels will require an increased ability to work with artificial intelligence and the abundance of information it will make available, as well as with increasingly complex, multi-cultural systems and economies.

For more on this and other challenges in the labor market, postsecondary education, and the development of social capital for today’s students, see Part A, “Adolescence in an Age of Accelerations.” In each of these realms, learners find that “more is on them” (individually) to create successful pathways;¹ as a result, the importance of reading and research skills, math and analytical skills, and knowledge of key concepts in other academic, cultural, global, and technical knowledge areas only increases. Students might ask:

Do I have a strong, fundamental knowledge and skill set, an ability to see connections across fields as they change and evolve, and hands-on experience of applying career-related technical skills, that will serve me well in an uncertain economic and employment future?

Do I have knowledge of human cultures, systems, languages, and histories as well as global themes to understand, empathize, connect, and work with others?

Am I able to use my reading, writing, research, and math skills, and overall content knowledge, to develop my aspirations, strengths, and marketable competencies; hone my competitive advantage; and help me adapt to workplace change through lifelong learning and renewal? Am I able to construct a workview and lifview about my place in the world and to power my navigation through the work/learn landscape of postsecondary learning and early employment?²

Can I apply this understanding and knowledge to help myself, my loved ones, and my communities adapt to change and leave the world a better place?
As David Perkins notes in *Future Wise: Educating Our Children for a Changing World*:

It hasn’t passed anyone’s notice that we live in a complicated era. The information explosion, digital worlds, globalization, looming limitations of resources such as petroleum and water, the shift from manufacturing to service industries in many quarters, the information economy, and dozens of other factors make today’s world more demanding of rich knowledge and sophisticated thinking and collaboration than the world in which our parents grew up. These trends seem likely to continue to shape tomorrow’s world in ways not so readily forecast. *Truly, we need to educate for the unknown.*

In many ways, this is a conundrum that applies to all. How does one educate for the unknown? “Our sense of what’s worth learning is a bet, not a sure thing, but we can make good bets rather than poor ones. We can imagine what [learners’] lives and what our world are mostly likely to be like, and we can hedge our bets by looking towards learning that promises payoffs in diverse circumstances.”

Content Knowledge is also important because of its role as a force multiplier driving a widening opportunity gap between students of varying socioeconomic backgrounds. When brawn counted as much as brains, the lack of third grade literacy, or English and math proficiency in high school, did not preclude a meaningful job in manufacturing or the trades that could support a middle-class living. Today, English, math, science, and social studies are essential tools of lifelong learning and the acquisition of new, marketable competencies is critical as technology disrupts some occupations and creates new ones.

In the modern postsecondary-centered economy, we are making modest gains in closing the academic achievement gap, while the opportunity gap in postsecondary degree attainment, employment, and income is widening rapidly and turning us into a two-tier nation. Empowering every child with strong Content Knowledge competencies is now an essential tool in economic mobility.

**An overview of the Content Knowledge competencies**

Today’s students need the opportunity to engage with and develop mastery in a wide variety of content areas, both to address the range of knowledge relevant to the complex and fast-changing world, and to provide them with a diversity of routes to engagement and the development of personal strengths. The broad range of subject areas covered in this domain may seem overwhelming, but remember that the MyWays framework provides a comprehensive rosetta stone from which choices are made and individual paths created. Certainly, some of the content areas included below should be considered core and common. However, it is important to pair this description of the Content Knowledge competency landscape with two of the key principles for addressing these competencies: first, that in each discipline, the K-12 curriculum focuses on fewer, “high-leverage” concepts to be learned more deeply and durably, and second, that learners (like workers in today’s economy) combine breadth of knowledge across topics and disciplines with true depth of expertise in one or more areas of interest. We will talk about these principles more in the
following section, but it is useful to keep them in mind while overviewing the content knowledge that MyWays groups within five broadly-defined competencies.

The first two competencies are core to developing all the others. The “mile wide” ELA and math competencies of the No Child Left Behind (NCLB) era shifted, in Common Core and similar state standards, toward a smaller number of deeper learning objectives. Today, they continue to evolve, with particular attention to the relevance of developmental trajectories, key concepts, and application.

### English Core

Deep English learning application across settings, aligned with the Common Core and similar standards.

Addressing this competency includes helping students to: master key components of English language learning such as reading with comprehension, writing for different purposes, speaking and listening for communication and collaboration, and language conventions and effective use; to interpret and create both fiction and informational text; and to develop the capabilities or habits of mind of a literate individual.

### Math Core

Deep math learning and application across settings, aligned with the Common Core and similar standards.

Addressing this competency includes helping students to: master key components of math learning such as number and quantity, algebra, functions, modeling, geometry, statistics, and probability; demonstrate procedural skill and math understanding; and develop varieties of expertise through mathematical practice or habits of mind.

See three additional competencies just below. For expanded descriptions, see the competency primers.

The third competency emphasizes the benefits of a broader range of traditional subject knowledge. These subjects, less prominent under NCLB, are being prioritized once again. This shift is supported by evidence from the learning sciences that shows both their importance and efficacy; the connection of these subjects to real-world pursuits in an increasingly global and technological society; and renewed attention to the importance of educating the whole person, including social and cultural expression.

### Science, Social Studies, Arts, Languages

Active learning of core disciplinary concepts and their application in a broad selection of liberal arts and sciences, and language and performing arts.

Addressing this competency includes helping students to: in science, develop disciplinary core ideas, understand crosscutting concepts, and engage in scientific practices across the physical, life, and earth and space sciences, and engineering applications; in social studies, develop key concepts within the subjects of civics, economics, geography, and history and relate them to social studies themes by applying social science practices; in the arts, develop increasing competence within one or more arts areas, such as dance, media arts, music, and theater and visual arts, through applied artistic processes; in languages, develop the competence to communicate effectively and interact with cultural understanding in a second language in real-world settings.

For an expanded description, see the relevant competency primer at the end of this report.
The **fourth competency** targets interdisciplinary learning and future-ready themes. From bioengineering, robotics, and entrepreneurship to behavioral economics, wellness, and social systems, interdisciplinary learning has been shown to increase the development of critical thinking skills and improve learner engagement in the deeper understanding and application of traditional knowledge. Meanwhile global and cultural literacies and themes will enable students to develop the capacities and dispositions to interact with diverse audiences and act on issues of global significance.

**Interdisciplinary & Global Knowledge**

Integrated interdisciplinary thinking and empathetic development of global, cross-cultural, civic, environmental, and economic literacies.

Addressing this competency includes helping students to: develop knowledge and skills related to interdisciplinary thinking, and apply approaches from multiple disciplines to real-world problems; develop the capacity to understand and act on issues of global significance; and demonstrate knowledge of and the ability to apply civic, environmental, and economic literacies to personal decisions and societal challenges.

*For an expanded description, see the relevant competency primer at the end of this report.*

Through the **fifth Content Knowledge competency**, MyWays asserts the value of **all** learners gaining career-related technical knowledge as part of their K-12 learning experience. Whether headed to a four-year college, straight into the job market, or, increasingly, combining elements of working and learning over their twenties, our research shows that all learners benefit from developing a set of career-related skills, and getting the exposure to adults and rapid change that exposure to the real world entails, even if their ultimate career choice differs from this first exposure to the work/learn landscape.

**Career-Related Technical Skills**

The integration of academic, technical, and employability skills in at least one existing career area or emerging problem space of personal interest.

Addressing this competency includes helping students to: gain knowledge and skills in one or more career clusters or pathways (such as health sciences or human resources clusters or visual arts or national security pathways); within a cluster or pathway, gain competency in the necessary academic knowledge, demonstrate professional or trade practices, and illustrate understanding of organizations, ethical issues, and potential careers; and refine, through developmental experiences, broad career-ready skills that employers expect.

*For an expanded description, see the relevant competency primer at the end of this report.*
Content Knowledge competency primers

For more on each of these competencies, be sure to see the primers at the end of this report. We have included primers for the five competencies (combining ELA Core and Math Core on one page to enable Science, Social Studies, Arts, Languages to have two pages). As indicated in the sample provided here, these primers briefly cover:

- what the competency covers;
- where to look for guidance on addressing the competency; and
- additional resources.

The primers are intended to provide a brief introduction to the most important aspects of each competency. They offer only a taste of the research and activity in each area, but we’ve tried to ensure that they include many of the key issues and resources. We hope that our MyWays Community of Practice and other educators will help add to and update these resources over time.

While many of the next generation frameworks we analyzed assume that educators are familiar with content knowledge coverage and choose instead to concentrate on the skills, habits, and other “broader, deeper” competencies, we were intentional about including a re-visioned set of Content Knowledge competencies in the MyWays Student Success Framework. Indeed, one of the guiding requests from our practitioner network was to provide a “whole person” framework that enabled them to see the whole picture together.

In addition, we provide a complete, re-configured Content Knowledge domain because:

- we believe strongly in every element of the broader set of content knowledge competencies introduced above (see alignment with a selection of experts in the following box), and
- there is insufficient acknowledgement to date among practitioners that, in order to adjust to a super-abundance of information and the reality of an uncertain and complex future, the nature of the content to be learned within each of those subjects also needs to be very different. We recommend addressing this challenge with the guidance of the key principles addressed in the next section.
Converging Ideas on Next Generation Content Knowledge

As the Introduction and Overview of the MyWays Student Success Series describes, we distilled the MyWays four-domain goal-line from over 25 existing competency frameworks. Once the goal-line took shape, we saw echoes of this synthesized approach to Content Knowledge in two constructs from researchers who have made the future direction of learning their life’s work: the Six Beyonds, from Harvard Project Zero’s David Perkins in his book, Future Wise: Educating Our Children for a Changing World; and the CCR Knowledge Framework from Charles Fadel and the Center for Curriculum Redesign (CCR) team in their book, Four-Dimensional Education: the Competencies Learners Need to Succeed (a successor to their influential P21 book, 21st Century Skills: Learning for Life in Our Times).

Six Beyonds

Perkins cites six “beyonds” that push past the conventional to what’s worth learning and that map strongly to the competencies and ethos of our Content Knowledge domain. These six areas focus on the ways in which educators are pushing:
- beyond mastering content (helping students learn to think about the world with content and take action accordingly);
- beyond traditional disciplines (through renewed, hybrid, and less-familiar disciplines);
- beyond discrete disciplines (to interdisciplinary and transdisciplinary topics and problems);
- beyond regional perspectives (to global perspectives, problems, and studies);
- beyond prescribed content (to much more individual agency in the choice of what to study); and
- beyond traditional basic skills (which leads into MyWays Creative Know How and other domains).6

CCR’s Knowledge Framework

CCR’s Knowledge Framework includes many of the same subject areas and knowledge concepts encompassed by the MyWays Student Success Framework, albeit organized in different ways, in part because it is international. The CCR Knowledge Framework includes three key areas:
- Traditional knowledge: traditional disciplines, but with “more interdisciplinarity.”
- Modern knowledge: technology and engineering, media, entrepreneurship and business, personal finance, wellness, social systems, vocational subjects, and even more extensive “interdisciplinarity.”
- Themes across both of these knowledge categories, including global and environmental literacies.
- The use of concepts and meta-concepts, methods and subject branches, similar to the next key principle.7

Key principles for addressing Content Knowledge

A Content Knowledge approach that “educates for the unknown” is distinguished by three key principles, helping students to:

1. **Focus on a few “high-leverage” constructs** in each subject that are central to the structure of the discipline, transfer, and continued learning in a world of change.

2. **Engage with content through learner-driven, purposeful, real-world experiences**, which improve learning while preparing students for life.
3. Attain balance by developing “T-shaped” knowledge, pursuing appropriate breadth while also developing depth of expertise in chosen areas.

These qualities make the MyWays framework’s Content Knowledge quite different from the traditional Content Knowledge that schools have focused on in the past. Let’s explore each of them in more detail.

**KEY PRINCIPLE 1: Focus on a few “high-leverage” constructs in each subject that are central to the structure of the discipline, transfer, and continued learning in a world of change.**

Start with the need for significantly broader content competencies, as introduced above. Add the fact that new knowledge is increasing exponentially in many of these subject areas. The resulting “crowded garage” effect in the Content Knowledge domain begins to hit a critical level. At the same time, learning science has confirmed that mile-wide and inch-shallow coverage doesn’t produce deep and durable learning; instead, we now know that higher-level thinking and the ability to transfer and use knowledge requires in-depth study and real-life application. What’s a next generation educator or learner to do?

Fortunately, being strategic about focusing on a select number of high-leverage concepts — that is, the “less is more” approach — helps learners:

- **develop a rigorous and robust understanding of key concepts** and the architecture to hold new knowledge that can be sourced at any time in our information rich age; and

- **unlock the time needed to learn the key content in deep and durable ways by** actively constructing knowledge, as well as the time to integrate the other competency domains (Creative Know How, Habits of Success, and Wayfinding Abilities) in their learning experiences.

To identify these “key structural concepts” and “big understandings,” we look for:

- **Concepts that are central to continued learning in the discipline and beyond.** These concepts are part of a discipline’s “structure of knowledge” and “ways of thinking.” They provide the necessary foundation for those who specialize in the subject, and offer everyone else the core ideas required to understand the discipline as part of a broad knowledge base and to make connections from their own areas of expertise. We thus cover fewer key concepts, but cover those concepts rigorously so that, as Charles Fadel suggests in his third nugget at the start of this report, students “deeply absorb these concepts, for life.”

- **Concepts that develop higher-level thinking and application.** Along with a focus on key structural concepts, we need to focus on topics and approaches that are complex and adaptable enough to foster higher level, deeper thinking. By inviting learners to apply concepts much earlier in the learning process, we introduce naturally a level of complexity and variability that increases challenge and the level of thinking.

- **Concepts relevant to transfer — in the real world of today and tomorrow,** in the lives our students will lead. At the moment we continue to teach too much that is neither part of big understandings nor useful in critical thinking and application; in addition, more and more, “much
of what we typically teach,” as Perkins notes, “most likely won’t matter to learners’ lives. It doesn’t offer very good return on investment… [On the other hand] there is much we don’t typically teach that likely would matter a lot — [and thus offer] better return.”  

The following box offers some powerful thinking on high-leverage concepts and — critically! — on how you can make the time (or room in your mental garage) to explore them.

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**Understanding “High-leverage Concepts”**

The idea of high-leverage concepts is both central to next generation competency definition and applicable across all content subjects. While a few learning models have focused on these types of concept over the years, a growing number of educators are now highlighting their relevance to next generation learning. In our view, the nature of the knowledge students need today is best captured in three characteristics that David Perkins describes his book *Future Wise: Educating Our Children in a Changing World* — knowledge that is *lifeworthy, lifeready*, and based on big *understandings*.

**Learning that is lifeworthy and lifeready**

In both traditional and new subject areas, Perkins recommends that we carefully choose content that is “lifeworthy” and “lifeready.”

**Lifeworthy.** This type of knowledge correlates with what he and others call, variously, “big ideas,” “enduring understandings,” “metaconcepts,” “understandings of wide scope,” and “keystone concepts” — that is, key concepts and topics that yield insight and implications in many circumstances, and are likely to be meaningful in the lives that learners will live. Charles Fadel and his coauthors target the same type of knowledge when they talk about “ideas students will carry with them throughout their lives, either due to direct practical value or enrichment of worldview” and “reshaping the learning goals from a focus on covering all of the content in a subject or topic, to understanding the key aspects in a meaningful way that will improve comprehension, retention, and the learning experience of students.”

**Lifeready.** Imagine the benefits of students spending more of their time on lifeworthy topics! However, as Perkins points out, even lifeworthy knowledge is insufficient if students think only about that information and not with that information. To think with knowledge, students also need learning that is *lifeready*— that is, knowledge they can use to solve problems, weigh options, make decisions, and better understand their world. Perkins boils this down to knowledge that 1) helps orient us, 2) helps us deliberate, and 3) provides a foundation for future learning.

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*Mahatma Gandhi’s train was pulling off when one of his sandals fell. “So he took off his other sandal and tossed it next to the first one. He explained to startled companions that a poor person might find the one sandal, but what good would that do? Two sandals might be very helpful to such a person.”*  

-Told by David Perkins

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*Continues on the next page >*
One way of testing whether a topic is likely to be both lifeworthy and life ready is whether it fits Perkins’ four-part definition of a big understanding — that is, a topic that is big in four areas:

1. **Big in insight**: it helps reveal how our physical, social, artistic, or other worlds work.
2. **Big in action**: it empowers us to take effective action professionally, socially, politically, or in other ways.
3. **Big in ethics**: it urges us toward more ethical, humane, caring mindsets and conduct.
4. **Big in opportunity**: it is likely to come up in significant ways in varied circumstances.

**Insight.** To maximize insight, teachers must determine which concepts are what David Conley, channeling Grant Wiggins, in this *Education Week* blog, calls the keystones: “If students can go deep in those areas, they can gain insight into disciplinary thinking, the way experts in that subject go about applying their content knowledge.” But, they note, “this strategy requires teachers to be much clearer and intentional about what is truly important in their class. They must be ready to determine which topics don’t warrant the time being devoted to them… They must be able to identify keystone content and concepts that unify the discipline and enable students to gain greater insight into the subject area.…”

**Action and ethics.** The bias toward action and ethics is illustrated in Perkins’ story of Gandhi’s “second sandal”:

*As Mahatma Gandhi was boarding a train, one of his sandals fell, and because the train had started to move he could not retrieve it. So he took off his other sandal and tossed it next to the first one. He explained to startled companions that a poor person might find the one sandal, but what good would that do? Two sandals might be very helpful to such a person.*

As Perkins notes, this was not just a charitable act but also a knowledgeable one: “Notice how Gandhi’s gesture reflects understanding of a range of circumstances: the way the lives of poor people depend on precious moments of opportunity, the utility of a pair of sandals compared to just one, the difficulties of retrieving the lost sandal with the train in motion… Not bad for a few seconds stepping onto a train!”

Perkins argues that Gandhi demonstrated “big understanding” in this instance, taking action to advance an ethical outcome. While he admits that cultivating this kind of wisdom is a tall order for schools, he suggests that “maybe a reasonable aspiration for education, even pre-university education, is not so much wisdom but knowledge on the way to wisdom.”

**Opportunity.** The criterion related to opportunity stipulates that content under consideration should be likely to come up in significant and varied ways in the lives of those studying the content. One example is Charles Fadel’s argument on the first page of this report that statistics generally may have more value in today’s world than trigonometry. If you are interested in what qualifies as a big understanding — and what might not — see the extended analysis of topics such as mitosis, ecological fit, quadratic equations, and democracy in Perkins’ book.
**KEY PRINCIPLE 2:**
Engage with content through learner-driven, purposeful, real-world experiences, which improve learning while preparing students for life.

Starting with lifeworthy, lifeready content knowledge is critical, but to ensure that content is both mastered and acts as the springboard for further inquiry and learning, it is also necessary to consider how students experience that learning. Learning that is active, interest-based, connected to the real world,
socially situated, centered around challenging real-world problems, and otherwise authentic and meaningful has been shown to improve durable retrieval, deeper understanding, and prospects for transfer. It also offers opportunities to integrate development of all four MyWays competency domains. For a more extensive consideration of this kind of learning experience, see Report 11, Learning Design for Broader, Deeper Competencies, especially sections on the Field of Learning (see the graphic to the right), Whole Learning, Levers for Capability and Agency, and the Wider Learning Ecosystem.

While these approaches are often essential for enabling students to develop Creative Know How, Habits of Success, and Wayfinding Abilities (which clearly aren’t suited to traditional “book learning”), they are also the key to learning Content Knowledge in the way we’ve been defining it: as “mastery of key concepts and application.” In addition to the benefits we described above, these more authentic approaches (including project-based, problem-based, service-based, self-directed, and place-based learning, internships, and apprenticeships) can create, in the words of an EL Education teacher, “a richly designed learning experience — both creative and intellectual — [that] can sear a student’s memory and forever alter his understanding of the world.”

For a window into how these authentic learning approaches promote meaningful learning of lifeworthy and lifeready content in an integrated way with the broader competencies, see the box below on the High Tech High middle school Mayan project, which has been used to provide a worked demonstration of a number of the self-assessment tools in the MyWays Toolset.

“I have never seen them be so careful with their writing, their research...”

High Tech High’s Maya Community Project website provides a window into the authentic, project-based approach taken by High Tech High Schools, as documented in Ted Dintersmith’s documentary Most Likely to Succeed.

MyWays used the (authentic, holistic) Whole Learning principles outlined in Report 11, Learning Design for Broader, Deeper Learning and the authentic, multiple measures assessment principles outlined in Report 12, Assessment Design for Broader, Deeper Competencies to analyze a book creation project on the Mayan civilization carried out at a High Tech High middle school.
Reflections of teacher Heather Lovell

“The Mayan Community Project is always an adventure and, to me, illustrates the fun and chaos possible from PBL.

The Mayan Community Project

Essential Questions:
- Why is it important to learn about the Mayan civilization?
- How are books published and marketed?
- What is life like currently for people of Mayan descent?

After doing extensive individual and group research on current and ancient aspects of Mayan culture, students will summarize information from their research to write and illustrate a children’s book, A-Z: What we learned about Mayan Culture.

Each student will be responsible for creating his/her own page with illustrations to contribute to the class book. The book will be bilingual and each student will have a chance to translate parts of their work into Spanish with help from the Spanish teacher.

As a class, students will produce, promote, publish, and sell the book, operating as a business with committees and job positions. All proceeds from book sales will go to sending impoverished children to school for a year in the Mayan towns near Lake Atitlan in the highlands of Guatemala.

“The beginning is very researched based and somewhat controlled, but as the project moves toward completion, the students take over in their committees, and I feel more and more in the shadows of their work. What always strikes me most about their work is how authentic it is and how all the students revel in it.

“This year, every single student submitted several drafts of their text, several drafts of their illustration, and an attempt at Spanish translation. Every student wants to be in a real published book... My students really tuned into the fact that they had the power to help others and ran with it. I had never seen them so careful with their writing, their researching, their fundraising, or their attitudes.”

From the Mayan Community Project site.

We also recommend the following video resources because experiential learning is one of those things you really need to see in action to understand its benefits:

- A Learn with Two Rivers Learning Expeditions video (5m) on bringing authentic context to learning from the community of practice site of Two Rivers Public Charter School in Washington, DC.

- The Illuminating Standards video collection from Ron Berger (EL Education) and Steve Seidel (Harvard Graduate School of Education). “They speculated that long-term, interdisciplinary, arts-infused, community-connected projects may well be one of the best ways to actually see what state standards look like when fully realized in the things students make in school — to make the standards visible.” As an example see the “The Eye of the Storm Learning Expedition” video (6m) from Casco Bay High School, Portland, Maine.

- For more practice videos, see our Next Generation Learning Challenges blog “Embracing the Hard Parts: 8 Video Resources for Authentic Learning Design.” It includes descriptions of and links to a range of other video resources including the Teaching Channel Deeper Learning series. (For more on the alignment between MyWays and experiential learning, see also the first of this two-part blog, “Hard to Do Well: Project-Based Learning and Authentic Learning Design.”)

- For video reflections on special considerations for ensuring equity in the design and implementation of experiential learning watch these Deeper Learning Conference 2017 preview videos from Tony Simmons (3m) of the High School for Recording Arts in St. Paul, MN and Jose Garcia (3m) of New Tech Network. Listen especially for their references to educators making themselves vulnerable in order to provide students with a safe space to be vulnerable, learn, and become agents of change through real-world learning.
**KEY PRINCIPLE 3:** Create balance by developing “T-shaped” knowledge, pursuing appropriate breadth while also developing depth in chosen areas.

The concept of T-shaped education captures an intentional combination of breadth and depth:

- **Within disciplines**, the “T” represents strong foundational and practical knowledge across a domain, paired with deep knowledge within a strand of that domain.

- **At the higher level**, a focus on big understandings can provide a solid “expert amateur” grounding in a broad range of traditional and new disciplines, enabling learners to work across them; this is matched with the development of deep expertise in one or more disciplines.

The T-shaped approach lets learners reap the benefits of both — developing appropriate breadth across content knowledge and much greater depth in a few areas chosen to coincide with interests, passions, potential career pathways, or life missions.

In addition to its benefits within the educational realm, this approach provides a good parallel to the concept of a T-shaped employee or professional — an approach thought to foster the diverse connections and adaptability required both in working within cross-functional teams and shepherding one’s own portfolio career. The concept of workplace contributors with T-shaped skills has been promoted by, among others, IDEO, a leading design firm famous for its innovation based on cross-disciplinary project work and design thinking.

For more on the concept’s continuing evolution in the education world, see the box on the next page.

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**With the range of topics exploding, and brain science insights into the importance of depth for understanding and durable retrieval, we are paying increasing attention to the vertical component.**
T-shaped Education: Crossing boundaries, diving deep, and keeping learning agile

The basic T-shape involving breadth and depth within a traditional academic content knowledge is a familiar concept in education. As Jal Mehta of the Harvard Graduate School of Education describes it, “when I teach a course in Education Policy, I tell students that they should be able to come out of it able to hold their own in a policy conversation on most of the major contemporary topics [based on understanding the high leverage concepts in each area], as well as to become deeply knowledgeable about one. Concretely, that means that the majority of the course time moves through readings and topics... to help students understand the range of topics and perspectives in the field, but that the student is also pursuing a longer term project on a topic of interest to them.”15 As discussed above, with the range of topics exploding and brain science insights into the importance of depth for understanding and durable retrieval, many educators are paying increasing attention to the vertical component.

“Instead of encouraging students to be ‘well-rounded,’” says Jeff Selingo, author of There is Life After College, we should be encouraging them... to “have a deep understanding of one subject matter paired with the knowledge necessary to apply that information across multiple other subjects,” as well as the “balance and the agility to pick and choose from a set of knowledge and skills as they are needed.”16

But the “T-shape” idea continues to evolve. Increasingly, educators are incorporating interdisciplinary work (in the breadth component), and career technical education (often in the depth component). Take, for example, this interpretation by Mehta: “This is what many people call the ‘T-shaped’ curriculum, a curriculum that goes very deep in one [technical] area, but sits on top of a very strong liberal arts foundation that provides the flexibility for the entire workforce to keep learning and changing occupations throughout their entire life.”

“The T” in higher education

Others are adding the competencies involved in Creative Know How and Habits of Success that apply across disciplines and across careers and global problem areas. Researchers at Michigan State, along with partners from IBM and other companies have built out the concept of the T-shaped individual that higher education should be producing to include these “boundary crossing competencies” as well as understanding of “systems” that are aligned in many ways to the broad career areas MyWays advocates that every high school learner address in a career technical component of their learning. By inserting “me” at the intersection of the horizontal and vertical, Michigan State’s model even incorporates learners’ Wayfinding Abilities – the MyWays competency domain through which learners apply all the other competencies to their own direction in life. Michigan State has run a “T-Academy” for the past three years, providing working sessions for campus teams to design learning environments that foster T-shaped abilities. Areas of emphasis in the sessions echo much of what’s in the
MyWays concepts covered in the Parts B and C reports in this series — opportunities for students to address purpose, confidence, and awareness, experiential learning, and appropriate assessment approaches. This fascinating set of abstracts from the T-Summit 2016 sessions provides food for thought for K-12 education designers, as well as a window into the higher education world into which their students will be heading.

**T-shaped goals in K-12**

Among the K-12 innovators embracing “T-shaped” students is AltSchool, the experimental “microschool” system based in San Francisco that has recently announced their first round of national partner schools. School designers say that the idea of a T-shaped student is the basis of AltSchool’s teaching platform. “Most high schools and colleges, they are looking for students that have a really broad base of knowledge but also can go deep in a particularly passionate topic,” says head of marketing Deborah Kelson.

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**The state of play in Content Knowledge**

Addressing the issues raised above requires a radical re-think of Content Knowledge, so educators ready to jump in should also be aware of the “state of play” in the field. Across the four MyWays domains, the extent of consensus on which competencies to include, the evidence for learning/instructional strategies, and the maturity level of assessment options varies — in some cases substantially. Following are a few notes to inform your thinking and prompt you to investigate further as you design learning models and experiences to address this domain.

**The state of competency definition and learning strategies**

Summary: Core ELA and math competencies are largely defined by accountability measures. Broader traditional subjects and interdisciplinary approaches lost ground under NCLB, but are now re-emerging due to the growth of project-based learning and focus on the whole child; and career-related skills often continue to be ignored or provided only in separate paths.

- **The research base** for core content definition is mature but overly influenced by content’s role in accountability assessments; in some cases, it is being redefined (e.g., in the fewer, deeper learning goals of Common Core) and reconsidered in the face of changing needs (e.g., a shift of emphasis from calculus to statistics as more pertinent to the lives most students will lead). Evidence for the importance of broader traditional subjects, including the arts and languages, continues to mount. Consensus is also beginning to coalesce around a set of the most relevant and widely applicable interdisciplinary knowledge areas, such as the list currently being researched by the Center for Curriculum Redesign. Meanwhile, experience from Switzerland and California’s Linked Learning models are building the evidence base for the value of integrating academic and vocational knowledge and skills.

- **The learning strategies** used to support mastery of key content and its application across the expanded range of Content Knowledge competencies include project-based and other experiential forms of Whole Learning. For more, see Report 11, Learning Design for Broader, Deeper Competencies. These active, authentic learning experiences connect learners to real-world problems, introduce the “desirable difficulties” that brain research shows are necessary for durable retrieval and deep understanding, and provide the varying contexts that promote transfer.
The state of assessment

Summary: Content Knowledge is intensely measured or over-measured, often in compartmentalized ways; however, there are encouraging moves away from memory-based testing and toward application of concepts and more authentic performance assessments.

The range of assessment approaches includes the following:

- **Traditional assessment**, including teacher-designed tests, quizzes, essays, research papers, and labs.

- **Increasing attention to formative assessment**, in the form of more frequent, granular checks for understanding and the provision of real-time, high-quality feedback (or, a definition we like, “using [insights into] student thinking as a basis for teaching and learning”).

- **Performance assessments for formative and summative purposes**, particularly in the form of more authentic curriculum-embedded performance assessments, including in project-based or other experiential learning.

- **Increasing use of tech-enabled assessment to contribute to diagnostic, formative, and individualized mastery purposes**, including:
  - Diagnostic and formative assessments: MAP, or computer adaptive assessments, in math and reading; OECD test for schools; tech-enabled, quick feedback assessment, such as Poll Everywhere, Google Forms, Gooru, FlexiQuiz; and other ways to help check for understanding.
  - Approaches amenable to student-managed and adaptive courseware (such as Summit Public Schools’ playlists).

- **Moves toward knowledge application and performance assessment within accountability measures** include the following:
  - Mixing application of knowledge with on-demand tasks or bounded performance assessment (Common Core PARCC/SBAC assessments).

Ongoing challenges in Content Knowledge assessment include ensuring that assessment for learning is prioritized over assessment for accountability, and that assessments are focused on key organizing ideas and higher-level thinking. For performance assessment, the challenge is to ensure that attention is given to building educator capacity (which includes having educators organize thoughtful calibration and social mediation), and enabling students to separately collect evidence on progress related to Content Knowledge, Creative Know How, and Habits of Success.

For more on Content Knowledge assessment, see the Content Knowledge competency primers at the end of this report; Report 12, Assessment Design for Broader, Deeper Competencies; and two recent external publications — the Center for Curriculum Redesign’s Evolving Assessments for a 21st Century Education and the National Academies Division on Behavioral and Social Sciences and Education’s Supporting Students’ College Success: The Role of Assessing Intrapersonal and Interpersonal Competencies.
A quick dive into Content Knowledge resources

Because the purpose of the MyWays Student Success Framework is to provide a rosetta stone for thinking about the broader, deeper, future-ready goal-line for today’s learners, we have focused on describing that goal-line in conceptual terms. We also believe deeply that school designers, educators, and individual learners need to invest in constructing and evolving their own goal-lines within the broader framework described.

In doing this work, educators may find the following resources helpful:

### Starter Resources for Content Knowledge

- David Perkins, *Future Wise: Educating Our Children for a Changing World*
- Rebecca Gotlieb, *Review of Perkins’ Future Wise*
- Charles Fadel, Maya Bialik, and Bernie Trilling, *Four-Dimensional Education: The Competencies Learners Need to Succeed*
- Grant Wiggins, *What Is a Big Idea?*
- Jal Mehta, *Breadth and Depth: Can We Have It Both Ways?*
- David Conley, *Breadth vs. Depth: The Deeper Learning Dilemma*
- VIDEO: David Perkins discusses what’s worth learning in this 21Foundation video (3m), and considers how we teach our students for the unknown using understandings of wide scope.

### Relevant Competency Frameworks

Full competency frameworks with strong attention to this domain (see further information provided with the matrix in the *Introduction and Overview of the MyWays Student Success Series*) include:

- Center for Curriculum Redesign, *Four-Dimensional Education Framework*
- Hewlett Foundation, *Deeper Learning Competencies*
- ACT, *Holistic Framework for Enhancing Education and Workplace Success*
- ConnectEd, *College and Career Readiness Framework*
- Advance CTE, *The Common Career Technical Core*

We know from our beta piloting work with next generation educators that those interested in and inspired by the MyWays Student Success Framework are also thirsty for practitioner tools, as well as other implementation descriptions and documentation. In some cases, practitioners may be tempted to latch onto
tools (such as the MyWays Whole-Student Competency Plot of the 20 competencies) and use them without the internal mindset-changing and learning-model-revising work required for successful implementation; we caution against this! We also realize that many thoughtful developers and practitioners simply want and need to see more concrete exemplars and tools in order to better understand the broader, deeper goal-line and to help them work through their own approach. As the MyWays Community of Practice grows, more pathways for use of the tools will arise, along with deeper levels of support and advice on building good practice around your own locally customized version of the MyWays Student Success Framework.

In addition to the resources listed above, the primers on each of the five Content Knowledge competencies that follow provide links to existing tools, such as standards, rubrics, or learning progressions. Such tools can help educators decide what to include or exclude in next generation student competency goal-lines and how best to shape them. Note that MyWays and Next Generation Learning Challenges do not endorse any specific tools for assessment or curriculum planning — particularly in ways that are incompatible with authentic Whole Learning (see Report 12, Assessment for Broader, Deeper Learning for more on this approach). This set of EdSurge resources offers case studies of schools using MyWays, and Next Generation Learning Challenges’ report, Measures that Matter Most, reviews some of the tools used by next generation schools to measure their progress in addressing the broader, deeper range of competencies.

**The Content Knowledge one-page competency primers**

The one page primers that follow provide a brief introduction to the most important aspects of each competency, with pointers to why the competency is important (given students’ developmental needs and the challenges of today’s rapidly changing world), further description of what the competency entails, where to look for inspiration and guidance, and additional resources. These primers provide only a taste of the research and activity in each area. We hope that our MyWays Community of Practice and other educators will help add to and update these resources over time. To meet the Community of Practice members and share your ideas see our Community of Practice page on the MyWays website. To receive updates on MyWays, join our mailing list.
English Core and Math Core
(The first two Content Knowledge competencies are addressed on this page.)

“[A]spirations for deeper learning pose a multi-pronged challenge to current practice. At minimum, they suggest the importance of a long-called-for but thus far unachieved increase in the cognitive demand of the tasks that most students, particularly high-poverty students, are asked to complete.

From this vantage point, the kind of rigor present in the Common Core... is a critical step for realizing deeper learning because those standards increasingly call for fewer topics, more depth on each topic, and more opportunities to integrate knowledge and make conceptual connections than previously has been the case.”

—Jal Mehta and Sarah Fine

Brief description:

- These MyWays competencies are defined as “deep English learning and application across settings, aligned with the Common Core and similar standards,” and “deep math learning and application across settings, aligned with the Common Core and similar standards.”

- Addressing the ELA Core includes helping students:
  - Master key components of the ELA standards: reading (text complexity, growth of comprehension); writing (text types, responding to reading, research); speaking/listening (communication, collaboration); and language (conventions, effective use, vocabulary).
  - Develop the abilities to interpret and create a range of text types, including fiction and informational text.
  - Develop the seven “capabilities of the literate individual,” including demonstrating independence, comprehending as well as critiquing, and coming to understand other perspectives and cultures.

- Addressing the Math Core includes helping students:
  - Master key components of the math standards: number and quantity; algebra; functions; modeling; geometry; statistics; probability.
  - Demonstrate procedural skill and math understanding.
  - Develop varieties of expertise using the eight Mathematical Practices, including making sense of problems and persevering in solving them, and reasoning abstractly and quantitatively.

Where to look for ideas:

- Jeff Heyck-Williams, Director of Curriculum and Instruction at Two Rivers, a high-performing, competency-based EL Education school in Washington, DC, transformed math learning at the school through a culture change that leverages many forces, including the Common Core and its emphasis on conceptual knowledge and mathematical habits of mind. See Problem-based Tasks in Math Deep Dive: “sharing the CCSS mathematical practices... helps us name important expectations, such as making sense of problems, persevering, and effectively critiquing one another’s reasoning” and the workshop “Cultivating a Love of Math in the Era of the Common Core.”

- High Tech High supported its teachers’ transition to Common Core, asserting that doing so “helped to structure our conversation”; it also provided resources to support this transition.

- See how projects can inspire and address Common Core ELA and math standards by using the Buck Institute for Education’s Project Search offering, which you can refine by school network and Common Core topics.

Additional resources as food for thought:

- Bob Lenz, et al.’s Transforming Schools Using Project-Based Learning, Performance Assessment, and Common Core Standards is an excellent source for how to “honor the whole” learning experience while covering standards.

- Crosswalk Analysis of Deeper Learning Skills to CCSS, by David Conley and EPIC, for the Hewlett Foundation.

- Learning progressions and rubrics for CCSS ELA and Math are available in SCALE/SCOPE/CCSSO’s Performance Assessment Resource Bank.

- Some CCSS ELA performance tasks, rubrics, and sample student work are available in the EPIC College & Career Readiness Task Bank.

- Check out this video playlist of deeper learning and CCSS from the Teaching Channel and the Hewlett Deeper Learning Network.

For more resources, see the MyWays website.
“[M]uch is made of the need to help our students grow up into adults who are creative and innovative. But what does it take to do that? Experts in creativity... think that one of the major wellsprings of creativity consists of the application of the conceptual framework from one field or discipline to the problems being worked on in another field or discipline. That only works, though, for people who have a deep knowledge of both fields.... But where does the deep understanding of the concepts and frameworks from these fields come from? The answer, of course, is the kind of understanding that lies at the heart of a sound education in the liberal arts.”

— Marc Tucker

"The Arts must be at the heart of every child’s learning experience if...they are to have a chance to dream and to create, to have beliefs, to carry a sense of cultural identity."

— James D. Wolfensohn

“Note too that a faithful study of the liberal arts humanizes character and permits it not to be cruel.”

— Ovid

**Brief description:**

- This MyWays competency is defined as “active learning of core disciplinary concepts and their application in a broad selection of liberal arts and sciences, and language and performing arts.”

- Addressing this competency includes helping students:
  
  - **In science.** 1) Develop disciplinary core ideas across four domains (the physical, life, and earth and space sciences, and engineering, technology, and applications of science); 2) understand crosscutting concepts (such as patterns, cause and effect, and stability and change); and 3) engage in practices – the behaviors that scientists engage in when doing scientific inquiry and engineering design (the Next Gen Science Standard’s three dimensions of learning).
  
  - **In social studies.** Develop an understanding of key concepts across the subjects of civics, economics, geography, and history (as well as beyond, to anthropology, psychology, sociology). Relate that understanding to social studies themes such as culture; time, continuity and change; individual development and identity; and power, authority, and governance. Approach this by 1) developing questions and planning investigations; 2) applying disciplinary concepts and standards to ensure that teachers understand how to link science standards and core concepts across other disciplines and tools; 3) gathering, evaluating, and using evidence; and 4) working collaboratively to communicate conclusions and take informed action. (See 10 themes in the National Curriculum Standards for Social Studies, and the four process dimensions in the College, Career, and Civic Life (C3) Framework.)
  
  - **In the arts.** Develop increasing competence within one or more arts area (dance, media arts, music, theater, and visual arts) through the artistic processes called out by the National Core Arts Standards: 1) creating (generating, organizing, and refining work); 2) performing, presenting, and producing (selecting, developing, and conveying meaning through the presentation of artistic work); 3) responding (analyzing, interpreting the intent of, and evaluating artistic work); and 4) connecting (synthesizing personal experiences to make art, and relating artistic ideas to cultural and historical contexts).
  
  - **In languages.** Develop the competence to communicate effectively and interact with cultural understanding in a second language in real-world settings, in alignment with standards such as the American Council on the Teaching of Foreign Languages (ACTFL) “World-Readiness” Standards for Learning Languages. The 11 standards are clustered within the Five C’s goal areas: communication, cultures, connections, comparisons, and communities.

**Where to look for ideas:**

**Science**

- Read this Getting Smart blog on the Barrington, RI P21 exemplar school, which boasts a student-led iCreate Lab that develops products to serve local business needs. The author says that the Next Generation Science Standards (NGSS) have helped the school bring the “shift to inquiry-based instruction to their classrooms... Performance expectations are built right into these.”

- The NGSS provide an excellent example of a next gen Content Knowledge approach. Besides the three dimensions of learning mentioned above, the NGSS also uses phenomena as the starting point to raise questions, and is built on the notion of learning as a developmental progression.

*Continues on the next page*
(Where to look for new ideas: Science, continued from previous page.)

- Check out the hands-on (simulated) learning taking place at Harvard Medical School with students from the Urban Science Academy through HMS MEDscience HS STEM program.

- NGSS plays well with the maker movement.

Social Studies
- **Place-based education** (PBE) serves many disciplines, with social studies as a natural focus. In City High School’s 9th grade Self and Place module, students learn about urban development by investigating Tucson’s city plans. For more, see Getting Smart’s PBE initiative.
- The National Council for the Social Studies’ C3 framework incorporates many elements of the Content Knowledge approach highlighted in this report: the framework is composed of “deep and enduring understandings, concepts and skills from the disciplines,” and includes an “inquiry arc” with four dimensions. It is also linked to action, interdisciplinary application, and the integration of the arts.

The Arts
- Two Rivers Public Charter School’s video (6m) **Arts Integration: Deepening Understanding of Core Content** explores deeply how this leading EL Education school integrates art through the curriculum, including expeditions. Alexandra Eaton (NAfME) writes that music education is what students want and the workforce needs.
- Explore the connection between the performing arts and maker mindsets in this blog by Mary Ryerse, who notes how performing arts “fosters cross-curricular learning and builds an innovation mindset” — combining effort, initiative, and collaboration. Specifically, the notion of the arts developing maker mindsets stood out because, through powerful experiences, students learn that they can take the initiative to create something special.”

Languages
- Howard County Public Schools **built a world language program** that targets communication skills and intermediate proficiency for all students by graduation. For dual- and two-way immersion program examples, see these Edutopia and Hechinger Report blogs.
- See the P21 blog on Student Voice and Choice in Language Learning.

Additional resources as food for thought:

Science
- In addition to the framework mentioned earlier, NGSS offers the 3 Dimensions video series and a sample science grade-level progression.
- See a wealth of science rubrics and performance tasks available for science in SCALE/SCOPE/CCSSO’s Performance Assessment Resource Bank.
- **EPIC’s College & Career Readiness Task Bank** offers science performance tasks, including procedures, student prompts, scoring rubrics, and student work samples.

Social Studies
- Find Next Steps Resources at C3 Literacy Collaborative.
- See examples of performance tasks and rubrics for history and social studies in SCALE/SCOPE/CCSSO’s Performance Assessment Resource Bank.
- **EPIC’s College & Career Readiness Task Bank** offers social studies performance tasks, including instructor procedures, student prompts, scoring rubrics, and student work samples.

The Arts
- The National Core Arts Standards Matrix provides a unified view of the standards for the five arts disciplines, helping educators throughout the nation work toward common ends by recommending worthy goals for students as they progress.

Languages:
- The ACTFL World-Readiness Standards encourage equity and access for all students.

For more resources, see the MyWays website.
What does a new multidisciplinary, integrated curriculum look like? It looks like the real, thorny, and exciting problem solving that engages professionals in their daily work lives. It brings authenticity to students’ schoolwork. In their mathematics and health sciences classes, Arthur A. Benjamin Health Professions High School students learn about the calculations insurance underwriters make, while they ponder a highly relevant question: how do high-risk lifestyle decisions and behaviors affect access to and premiums for health insurance?... Spanish class provides a venue for studying behaviors...[1] "...in Spanish-speaking countries and across ethnic groups in the U.S."

— ConnectEd[77]

**Interdisciplinary & Global Knowledge**

**Brief description:**

- This MyWays competency is defined as “integrated interdisciplinary thinking and empathetic development of global, cross-cultural, civic, environmental, and economic literacies.”

- Addressing this competency includes helping students:
  - Develop knowledge and skills related to interdisciplinary thinking, such as abilities to recognize the core concepts and the strengths and weaknesses of multiple disciplines; understand and synthesize different perspectives on the same content; and apply approaches from multiple disciplines to real-world problems by integrate existing ideas and generating novel, multi-faceted solutions.[28]
  - Develop the capacity to understand and act on issues of global significance by investigating the world beyond their immediate environment; recognizing perspectives (others’ and their own); communicating ideas effectively with diverse audiences; and taking action to improve conditions.[29]
  - Demonstrate knowledge and understanding of civic literacies (such as understanding governmental processes and exercising the rights and obligations of citizenship); environmental literacies (such as understanding society’s impact on the natural world, and taking individual and collective action on environmental challenges); and economic literacies (such as understanding the role of the economy in a global society, and how to make appropriate personal economic choices).[30]

**Where to look for ideas:**

- *Four-Dimensional Education* research cites the following as the most widely applicable future-ready interdisciplinary areas: tech and engineering, bioengineering, media, entrepreneurship and business development, personal finance, wellness (physical and mental), and social systems (sociology, anthropology).[31]

- See Sanborn teacher Donna Harvey-Mosely’s *Lessons from a Social Studies Teacher: The Power of Interdisciplinary Work in a Competency-Based School.*

- Learn about Finland’s decision to mandate that phenomenon-based (or thematic) learning be used alongside traditional subject-based learning.

- In this *EdWeek blog*, Heather Singmaster provides a trove of digital tools to help you connect your students to others around the globe and promote action. Asia Society has additional examples of classroom projects.

- The *International Baccalaureate* model features interdisciplinarity, a global context for learning, and cross-cutting literacies.

- On civic literacies, see these *EduTopia* and *Hechinger* articles; on environmental literacy, see the *California approach*; on economic literacy, see the *Council for Economic Education* and on financial literacy, see Report 8’s Practical Life Skills primer.

**Additional resources as food for thought:**

- *Designing Multidisciplinary Integrated Curriculum Units*, from ConnectEd, home of Linked Learning.

- SCALE/SCOPE/CCSSO offer interdisciplinary learning progressions and rubrics in their *Performance Assessment Resource Bank*.

- Asia Society/CCSSO’s *EduTopia for Global Competence: Preparing Our Youth to Engage the World* includes a Global competence matrix in the appendix that maps to a range of subjects.

**FOR MORE RESOURCES**, see the *MyWays website.*
Career-Related Technical Skills

“College and work are not an either/or option. They are intertwined. We truly want to take all levels of students and set them on a pathway that gives them the option to go straight into the workforce better prepared, with industry credentials, and with the skills that can help them earn high wages. This may involve postsecondary education, too — a two-year or a four-year path. And, it may not. We value all pathways.”

— Shane Haggerty, Tolles Career Center, Ohio

**Brief description:**

- This MyWays competency is defined as the “integration of academic, technical, and employability skills in at least one existing career area or emerging problem space of personal interest.”

- Addressing this competency includes helping students33:
  - Gain knowledge and skills in one or more career clusters (see Advance CTE’s Common Career Technical Core (CCTC) 16 clusters, from Health Sciences to STEM, each with specific pathways such as Therapeutic Services and Engineering & Tech).
  - Know and be able to demonstrate competencies within a cluster or pathway; those competencies include necessary academic knowledge; demonstration of practices and use of systems; understanding roles within an organization; evaluating hazards and ethical issues; and familiarity with potential careers.
  - Refine, through developmental experiences, broad career-ready skills that employers expect (and that overlap with skills required for higher education and life). See Advance CTE’s 12 Career-Ready Practices, such as acting as a responsible and contributing citizen and employee; considering the environmental and social impact of decisions; and modeling integrity, ethical leadership, and effective management.

**Where to look for ideas:**

- CTE pairs well with competency-based learning efforts. The Every Student Succeeds Act (ESSA) facilitates the implementation of high-quality CTE through use of a number of approved funding routes.

- P-TECH has more than 60 schools and is showing highly promising results while costing no more than other high schools. It is a grade 9-14 model, where students take college courses beginning in grade 10 while completing high school, and work their way through industry-recognized associates degrees at their own pace. Graduates are first in line for positions with IBM and other companies. It includes mentoring, paid internships, and rigorous academics and workplace skills.

- California’s [Linked Learning](https://www.classroom.ContractLinker.com) (LL) is a proven approach that integrates rigorous, college-ready academics with sequenced, high-quality CTE, work-based learning, and support to help students stay on track. The LL website offers an excellent summary of its core components, guiding principles, and the characteristics of successful LL pathways.

- Leadership High School Network focuses on developing leaders in architecture, construction, and engineering (ACE), health, technology, and entrepreneurship.

- National Academy Foundation offers career academies in finance, hospitality, IT, engineering, and health.

- Mature practice from other countries with “dual systems,” where, starting at age 15 or 16, most young people learn about, prepare for, and experience the workplace. In Switzerland, for example, 70% of teenagers move between workplace and school and are paid for three-year apprenticeships.

**A few additional resources as food for thought:**

- Creating Pathways to Prosperity: A Blueprint for Action and related resources from Jobs for the Future.


- Advance CTE’s [CCTC](https://www.advancecte.org/ctc) includes knowledge and skills, plans of study, and relevant credentials for its career clusters and pathways.

- Videos: In Linked Learning: The Documentary, see [The Story of Whoa](https://www.youtube.com/watch?v=2m) (2m) and [Pathways Overview](https://www.youtube.com/watch?v=1m)

**For more resources,** see the [MyWays website](https://www.myways.org).
Endnotes for Report 9

1 Thomas L. Friedman, Thank You for Being Late: An Optimist’s Guide to Thriving in the Age of Accelerations, Farrar, Strauss and Giroux, 2016. His “more is on you” statement is on p. 229.

2 The terms workview and lifeview are introduced in Bill Burnett and Dave Evans, Designing Your Life: How to Build a Well-Lived, Joyful Life, Knopf, 2016, p. 31.


4 Ibid., p. 229.

5 See explanations of the academic achievement gap, as well as the opportunity gap in postsecondary degree attainment, employment, and income in three of the earlier reports in this series: Report 1, Opportunity, Work and the Wayfinding Decade, Report 2, 5 Roadblocks to Bootstrapping a Career, and Report 3, 5 Decisions in the Work/Learn Landscape.


7 Charles Fadel, Maya Bialik, and Bernie Trilling, Four-Dimensional Education: the Competencies Learners Need to Succeed, Center for Curriculum Redesign, 2015, pp 71-104.

8 Ibid., p. 226.

9 Perkins, Future Wise, pp. 7-25

10 Fadel, Bialik, and Trilling, Four-Dimensional Education, pp. 77, 81.


12 Ibid., pp 223-4.

13 Ibid., pp. 49-69 for big understandings. See also pp. 36-46 for analysis of topics that might fit the concept or not, and why.


15 Jal Mehta, “Breadth and Depth: Can We Have It Both Ways?,” Learning Deeply blog, Education Week, July 14, 2015.


19 “Formative assessment is more of a mindset on using student thinking as the basis for teaching and learning rather than a quick checklist or a list of strategies.” From David Wees, “Formative Assessment: More than just an exit ticket,” blog, The Reflective Educator (undated).


21 The English Core competency description draws on the Common Core ELA standards, as linked in the section.

22 The Math Core competency description draws on the Common Core Math standards, as linked in the section.

24 James D. Wolfensohn, former chairman of The Kennedy Center, quoted on the website of Arts for Learning, the Indiana Affiliate of Young Audiences.


26 The Science, Social Studies, Arts, Languages competency description draws on the disciplinary curriculum standards and other documents from national disciplinary associations, as linked in the section.


30 The civic, environmental, and economic elements of the Interdisciplinary & Global Knowledge competency description draw on the Partnership for 21st Century Learning (P21) frameworks elements on civic literacy, environmental literacy, and financial, economic, business, and entrepreneurial literacy.

31 Fadel, Bialik, and Trilling, *Four-Dimensional Education*, p. 94.


About this report

Report 10, *Wayfinding Abilities — for Destinations Unknown*, considers the Wayfinding Abilities domain of the MyWays Student Success Framework, including why, in an age of accelerations, the domain merits equal standing with the other three domains, key principles for implementation, and the state of play in the field, as well as offering resources and essential one-page primers for each competency.

Report 10 is the last of five reports in Part B of the *MyWays Student Success Series*. Part B, “Broader, Deeper Competencies for Student Success,” provides a composite definition of student success in learning, work, and life, drawing on over 25 highly-regarded frameworks and the literature in the education, work, and human development fields.

The *MyWays Student Success Series* examines the through-line of four essential questions for next generation learning and provides research and practice-based support to help school designers and educators to answer these questions. The series consists of 12 reports organized into three parts, plus a Visual Summary and Introduction and Overview.

The primary researchers and authors of the *MyWays Student Success Series* are Dave Lash, Principal at Dave Lash & Company, and Grace Belfiore, D.Phil., Principal Consultant at Belfiore Education Consulting.

MyWays is a project of Next Generation Learning Challenges, an initiative of the non-profit EDUCAUSE. MyWays is supported through a grant from the William and Flora Hewlett Foundation with additional support from the Bill & Melinda Gates Foundation, the Barr Foundation, and the Oak Foundation.

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REPORT 10

Wayfinding Abilities – for Destinations Unknown

Introduction

MyWays characterizes Wayfinding Abilities as “knowledge and capacity to successfully navigate learning, work, and life opportunities and choices.” Although Wayfinding competencies (see box to the right) are critically important to the lives our students will lead, this domain is the least likely to be included in existing competency frameworks. Yet attention to these skills is gathering in interesting and unlikely places.

In this report, we will provide an overview of the domain by covering the following:

- Why the Wayfinding Abilities domain is so important
- An overview of the five competencies that make up Wayfinding Abilities
- Three key principles for addressing Wayfinding Abilities
- A brief summary of the state of play in Wayfinding Abilities learning and assessment
- A quick resource dive for Wayfinding Abilities (highlighting starter resources, competency frameworks, and school models that address Wayfinding Abilities)
- Five one-page Wayfinding Abilities competency primers

In researching this domain, we drew on three approaches to helping learners navigate to their futures. **School-based college and career counseling** has traditionally focused on helping students choose a defined path — a career, college major, or postsecondary school. **Design-based career and life development** helps people learn how to excel at life transitions and bootstrap a career in today’s more complex landscape. You will find in this report suggestions for both the “plan then implement” tools of traditional career counseling, which still have some value within the larger context, and the “design forward” — prototype, fail fast, learn to be agile — wayfinding of the future. Lastly, we also drew on **successful entrepreneurship practices** because they illuminate how people with limited means are able to successfully pursue opportunity despite uncertain conditions. Together, the Wayfinding Abilities comprise a flexible toolkit for managing short- and long-term transitions in one’s life, developing the skills to navigate the work/learn landscape, and initiating a work path or a business. In this report, we focus primarily on the use of these competencies in navigating on-ramps to the work/learn landscape.
Making Your Best Way Forward

“Wayfinding is the ancient art of figuring out where you are going when you don’t actually know your destination. For wayfinding, you need a compass and you need a direction. Not a map — a direction. Think of the American explorers Lewis and Clark. They didn’t have a map when Jefferson sent them out to travel through the land acquired in the Louisiana Purchase and make their way to the Pacific...

“Wayfinding your life is similar. Since there’s no one destination in life, you can’t put your goal into your GPS and get the turn-by-turn directions for how to get there. What you can do is pay attention to the clues in front of you, and make your best way forward with the tools you have at hand. [emphasis added]”

—Bill Burnett and Dave Evans, *Designing Your Life*

Students from every corner of American society share — though by no means equally — a disadvantage: their schools are unlikely to give them much help in developing the abilities to “wayfind their lives.”

Patrick Cook-Deegan, an education innovation fellow at the Stanford d.school K-12 Lab, had this to say about working in high-performing Palo Alto high schools: “Over the past decade, I have had the chance to ask thousands of teenagers what they think about school. I’ve found that the vast majority of them generally feel one of two ways: disengaged or incredibly pressured. One thing nearly all teens agree on is that most of what high school teaches them is irrelevant to their lives outside of school or their future careers.”

Meanwhile, Robert Halpern cites an illuminating study of one group of working-class youth, which found that, “among many in the sample, accounts of their lives and thoughts about the future were fragmentary, shifting, and ungrounded. Typically, they viewed the future in overly simplistic terms: either college success or a dead-end job… Young people shape and reshape their lives in relation to what they can see... Many youth simply do not feel ready and able to make good choices... yet, uncertainty about career aspirations more often than not reflects lack of knowledge about postsecondary education and the occupational world.”

“A young person,” he concludes, “cannot make mature decisions if she has not had experiences that foster maturity. A young person cannot explore occupational roles if she is unconnected to the means for exploration.”

Given the rapidly shifting, “disorderly” landscape for both postsecondary education and the world of work, as described in the Part A reports, it is vital that students develop their Wayfinding Abilities as an explicit and integral part of their broader, agency-infused competency goal-line. Wayfinding must be owned by the individual, particularly as none of us can any longer predict how they will “learn, earn, and care.” However, educators can and should do their utmost to increase the variety and richness of experiences likely to provide “clues” for students, provide proactive and evolving tools for them to use, and support and mentor them in the process of developing the five competencies included in this domain.
Why Wayfinding Abilities are so important

In Report 2 we quoted Reid Hoffman and Ben Casnocha from their book, *The Start-Up of You*, to describe the world young people encounter today:

> The conditions in which entrepreneurs start and grow companies are the conditions we all now live in when fashioning a career. You never know what’s going to happen next. Information is limited. Resources are tight. Competition is fierce. The world is changing. And the amount of time you spend at any one job is shrinking. This means you need to be adapting all the time.

> "More is on you," as Tom Friedman says, and the more informed and prepared young people are, the better they will adapt and navigate through the uncertainty, identify opportunities, and build their future. This is true in the work world and in postsecondary education, but it is equally true in life transitions of all kinds: becoming comfortable in the new sociocultural worlds described in Report 4, overcoming childhood trauma as described in Report 5, or exploring one’s first adult relationships. Best to have navigational competencies to call upon. Students might ask:

**Do I have the focus, thinking tools, help-seeking orientation, and tolerance for ambiguity** to dissect an unfamiliar world (like the work/learn landscape), envision opportunities for myself within it, and work systematically in pursuit of those opportunities?

**Have I the insight, ingenuity, and initiative** to spot workplace needs and opportunities, and work with others toward creating solutions and value for myself and others?

**Have I the relationship and network orientation** to make connections, give and receive support, and secure needed help and resources?

**Can I apply all these same abilities** to finding ways to improve the groups and communities of which I’m a part?

Traditionally, wayfinding refers to “the techniques used by travelers over land and sea to find relatively unmarked and often mislabeled routes.” In formulating the contemporary Wayfinding Abilities in the MyWays Student Success Framework, we drew on practice from the three fields mentioned above: school-based college and career counseling, design-based life and career development, and entrepreneurship.

**The school-based college and career counseling perspective on Wayfinding**

Advisors and career counselors have been fighting for years, rightly in our view, to get schools to carve out the time and resources to help learners explore career options and choose and follow a path. All manner of books, knowledge bases, and online tools are now available to aid in finding one’s calling, a field of study, a college or certificate program, or a job or gig. While this important battle is still being fought, the age of accelerations and complexity snuck up from behind, and is, in some ways, overtaking this effort.
The design-based career and life development perspective on Wayfinding

We now need to shift from helping students find and follow a defined path to helping them navigate multiple options in a broader landscape; from helping them target one end goal to helping them learn how to excel at transitions; from making sure they get information to making sure they know how to drive the search themselves. Two books illustrate the importance of these new approaches. *The Start-Up of You* by Hoffman and Casnocha carries one mantra throughout: you, as a learner, worker, and person, are in “permanent beta” — constantly improving and adapting. Hoffman is the cofounder of LinkedIn, so it is not surprising that the authors focus heavily on the importance of networking and social capital.

By the time *The Start-up of You* was published in 2012, Stanford undergrads were already flocking to a recently developed course called “Designing Your Life,” making it the most popular offering at the university. Created by the executive director of Stanford’s design program and a designer responsible for Apple’s first mouse and Electronic Arts, the course applies the process of design thinking to the “wicked problem” (any complex, quickly changing challenge) of designing your way toward your own career and life. The authors have recently published a book of the same name based on the course, focusing on design thinking elements including ideation, prototyping, reframing, bias to action, and radical collaboration (all of which are reflected in the Wayfinding Abilities domain).

The entrepreneurship perspective on Wayfinding

Perhaps no occupation operates as perpetually in uncertainty as the entrepreneur. In fact, researchers have found that entrepreneurs exhibit a high tolerance for ambiguity. A 2003 landmark study of successful entrepreneurs by Amir Bhide focused on how people are able to successfully pursue opportunity despite limited means and uncertain conditions. Rather than planning, foresight, or deal-making, Bhide’s entrepreneurs started small with whatever means and assets were at their disposal, learned the market by being in it (not studying from the outside), and practicing “opportunistic adaptation” to tweak and expand their businesses as their involvement in an industry niche revealed new opportunities. As in *The Start-Up of You*, these entrepreneurs saw themselves and their businesses in “permanent beta” — intent on continuous improvement and forsaking rigidly set plans.

A major challenge is that, while students’ choices coming out of secondary school have become increasingly complex, our school-to-life system lacks “acceleration lanes” — to use the highway system analogy in Report 5, *Preparing Apprentice-Adults for Life after High School* — where students can practice and hone these skills. Instead, developing students’ age-appropriate Wayfinding Abilities as they progress through their K-12 years and their “year 13” transition into the work/learn landscape gives students long, well-designed on-ramps to adult life. Such on-ramps let students increasingly take control of their own journey and develop the direction and confidence to survive and thrive in the adult world. This is especially crucial for low-income students and students of color for whom means are most limited and skills for transcending current circumstance are most important.
An overview of Wayfinding Abilities competencies

The five MyWays Wayfinding Abilities competencies draw on knowledge, skills, habits, and behaviors that help students navigate their own life decisions. As such, these five competencies are even less distinct from each other than those in the other four domains; Wayfinding is essentially a process — a navigation process. Like most things in life, the reality is much messier than the model. The process steps are often intertwined or can be taken out of sequence, and the wayfinder often needs to spiral back after trying some steps, creating an iterating cycle with multiple entry points. Further, the competencies involved in Wayfinding are applicable not only to academic or career decisions (although this is our focus), but also to decisions relating to relationships, personal goals, and other parts of life, and the process continues into and throughout adulthood. Regardless of how learners navigate the path, they must develop competency in each Wayfinding step:

**Survey the Learn, Work, & Life Landscapes**

The ability to research and understand information, resources, external barriers, and internal factors relevant to upcoming transitions in school, career, and life.

Addressing this competency includes helping students to: research and gain real-world exposure to the rapidly evolving career and life options; identify the knowledge and skills associated with the careers or challenges that match their strengths and interests; explore traditional and emerging postsecondary education, career, and hybrid work/learn options; and identify potential barriers that may require additional support or resources.

**Identify Opportunities & Set Goals**

The self-awareness, focus, and strategic thinking needed to cultivate individual strengths, identify and pilot opportunities, and set personal goals for learning, work, and life.

Addressing this competency includes helping students to: develop self-knowledge, through self-directed, authentic learning activities, as well as to access tools to diagnose strengths, interests, and personality traits; identify learning, work, and life opportunities likely to match these abilities by focusing on the intersection of assets, aspirations, and market realities; and create goals that point in a longer-term direction, but include interim steps.

**Design & Iterate Prototype Experiences**

The ability to translate goals into prototype experiences for each new stage or transition, especially the transition from high schooler to independent, contributing adult.

Addressing this competency includes helping students to: translate goals into action plans for each new stage or transition; iterate and refine the plans through action — starting with “junior versions” or “prototypes” of work, learn, or civic activities; and move to the next loop of the plan, adapting it based on feedback and lessons learned from the first loop.
Find Needed Help & Resources

The ability to identify, locate, and secure the time, money, materials, organizations, mentors, and partners needed to support their plans.

Addressing this competency includes helping students to: identify what resources they need; develop the help-seeking mindset and skills to successfully secure them; build the social capital needed to support all steps in the Wayfinding process, including mentors, role models, weak tie contacts, and strong family and friend supports; and deploy these relationships into a professional network that enables them to tap insights, find better opportunities, and make better career decisions.

Navigate Each Stage of the Journey

The ability to implement plans in the worlds of education, work, and life, making mid-course adjustments as required based on new experience.

Addressing this competency includes helping students to: grow personal traits related to adaptability and flexibility; develop and practice more specific skills related to pivoting, reframing, and changing direction; strengthen their ability to accurately appraise and take on risk as they pursue professional opportunities; and develop the skills necessary to navigate systems while dealing with discrimination or other challenges.

For expanded descriptions of each competency, see the primers at the end of this report.

The Wayfinding process also requires learners to call on all of their competencies and assets so that they can be effective in a way that is unique to their own profile and interests. In this sense, Wayfinding is where MyWays focuses most clearly on the agency aspect of competency; this “deep and durable self, acting to shape one’s development and environment” becomes perhaps more important here than in any other domain. The research on agency, developmental tasks, and the increasing complexity of society and the economy suggests that, as learners navigate into the postsecondary work/learn landscape — and “make their best way forward” through the rest of their lives — they must be able to do the following:

- **Navigate transitions.** Developmental transitions have always been part of students’ lives, but with the influence of major disruptors, such as artificial intelligence, reshaping the “lives and livelihoods” of young people over the next 20 years, navigating transitions will be a continuous challenge (for more on this, see Tom Vander Ark’s blog on artificial intelligence).

- **Learn from failure.** Without set paths and traditional templates for career progression, and with ever-increasing choices, students will “fail forward” more often — that is, they will learn and progress not only along straight paths, but also through pivots, reframing, and new directions (all process skills emphasized in design thinking).

- **Build social capital.** Perhaps one of the most critical things for our students to learn is how to build social capital, creating formal and informal networks to provide information and other resources, opportunities, and more. For more, see Report 4, *5 Essentials in Building Social Capital.*

Students, especially as they move through high school, know that transition is looming and will respond to opportunities to address their progress as apprentice-adults. The students in the Da Vinci Schools Extension (DV-X) have adopted the new term “adulting” to describe what this process is all about. DV-X
started offering a high-school level version of Stanford’s “Designing Your Life” course, buttressed with practical things student need to know while they transition, like managing their own finances. “We started out calling it our Grit Course,” explains director Kim Merritt, “but midway through, the students all started referring to it as ‘Adulting Class.’ It’s where they go to learn all about adulting.

**Wayfinding Abilities Competency Primers**

For more on each of these competencies, be sure to see the one-page primers at the end of this report.

We have included a primer for each of the five competencies. As indicated in the sample provided here, these primers briefly cover:

- what the competency covers;
- where to look for guidance on addressing the competency; and
- additional resources.

The primers are intended to provide a brief introduction to the most important aspects of each competency. They offer only a taste of the research and activity in each area, but we’ve tried to ensure that they include many key issues and resources. We hope that our MyWays Community of Practice and other educators will help add to and update these resources over time.

In Wayfinding Abilities, as mentioned above, the five competencies are also part of an iterative and overlapping process. In particular the first, second, and third competencies are highly integrated. If you are interested in any one of these competencies, you should look at all three primers, as you may find ideas or resources of interest in all three of them.

The place where more fluid Wayfinding suited to the rapidly changing work/learn landscape of the future comes to the fore is in the third of these competencies, Design & Iterate Prototype Experiences. As Burnett and Evans explain it in *Designing Your Life*:

> Prototypes “design an experience that allows you to ‘try out’ some version of a potentially interesting future... help build a community of folks who are interested in your journey... [and] frequently turn into unexpected opportunities — they help serendipity happen. Finally, prototypes allow you to try and fail rapidly without overinvesting in a path before you have any data.”

Existing competency frameworks do not include much on this design angle, but several of them feature related elements like personal fit, social capital, learner agency, and self-management.
Emerging Ideas on Wayfinding Abilities

While the vast majority of full goal-line competency frameworks do not explicitly include Wayfinding skills, those that do align well with the MyWays domain.

The “Go” key in the Educational Policy Improvement Center (EPIC)’s Four Keys (Think, Know, Act, Go) is consonant with Wayfinding Abilities, though it is organized by the issues involved in preparing for further education and career decisions rather than by the stages of the iterative Wayfinding process:

- Contextual issues
- Procedural issues
- Financial issues
- Cultural issues
- Personal issues

In ConnectEd’s College and Career Readiness Framework, the “Educational, Career, and Civic Engagement” category provides the closest match to Wayfinding Abilities. This category encompasses “the practical skills needed to navigate college campuses, workplaces, and civic institutions and to manage one’s future educational and career development and engagement with democratic processes.” Like MyWays, ConnectEd also highlights the fact that access to information and mentor relationships are necessary to provide the social capital that makes “the difference between success and failure,” particularly for those who are the first in their families to go to college, vote, or embark on a career in the US.

**The Pathways to Prosperity Project** from Harvard University and Jobs for the Future also offers a useful framework (see to the right, and on page 13 of Creating Pathways to Prosperity: A Blueprint for Action).

Their process-oriented framework maps closely to the Wayfinding Abilities competencies, with the first five elements of career readiness corresponding to the first two Wayfinding Abilities, and the last four incorporating elements of the three additional Wayfinding Abilities.

Continues on next page >
International efforts to define next generation competencies also offer some interesting parallels. Careers New Zealand’s educational benchmark documents cover a set of four “Student Career Management Competencies” (in the red boxes) that in fact deal with Wayfinding Abilities across a much broader set of goals than the title implies. (The organization defines career as “the sequence and variety of work roles, paid, and unpaid, that a person undertakes throughout a lifetime. More broadly, ‘career’ embraces life roles in the home and the community, leisure activities, learning and work. Work, learning and life, though sometimes distinct, are closely intertwined. Everyone has a career.”)

The concept of transitions is central to this set of competencies, as are the ideas of “social capital” and students “self-managing their life, learning, and work.” As the diagram shows, the four Student Career Management Competencies map well to our five Wayfinding competencies. Further, applying the Key Competencies to the Career Management process mirrors the application of the other MyWays competencies in the pursuit of Wayfinding.

For more emerging ideas in Wayfinding competencies, see the Relevant Competency Frameworks resource box near the end of this report.

**Key principles for addressing Wayfinding**

Instead of cocooning students in an increasingly structured environment during their school years and then releasing them into an ever-more disorderly postsecondary and adult world, we need to provide students with opportunities to work explicitly on developing Wayfinding Abilities during their school years. These opportunities should give them increasing freedom to drive their own learning and decision-making as they progress. Even students adept at applying problem-solving, persistence, or learning strategies to academic or service work are often stymied when it comes to harnessing these same skills to develop their own life path — especially if they have not had the opportunity to try it out along the way.

Of all the domains, Wayfinding Abilities is the least likely to be addressed in today’s schools, even by the leading deeper learning models that work with all three other domains. Still, the underlying research, a few pioneering school models, and lessons from youth development offer clues to work with, suggesting that efforts to support students’ Wayfinding development should incorporate **four key principles**, helping students to:

1. **Start early**, so that building awareness of one’s own profile and interests, and of the world outside school walls, informs learning choices and enhances relevance and motivation.

2. **Harness the Wider Learning Ecosystem** to engage with the adult world and give learners access to opportunities for developing Wayfinding Abilities.
3. **Access the kind of support necessary** to enable real progress in Wayfinding Abilities.

4. **Address the barriers to equity** inherent in competencies that are built on relationship-based supports and community-based lines of sight to college, career, and life outcomes.

Many next generation educators who affirm the growing importance of Wayfinding Abilities are still exploring these principles and learning how to design for them. To further these efforts, we now explore each principle in more detail.

**KEY PRINCIPLE 1:** Start early, so that building awareness of one’s own profile and interests, and of the world outside school walls, informs learning choices and enhances relevance and motivation.

One of the lessons that those who pay attention to Wayfinding Abilities note is the need to start building the muscles necessary for bold wayfinding long before the junior year of high school. From fourth or fifth grade — or even younger — educators can help students begin to develop the understanding of self, interests, and strengths that lies behind many of the Wayfinding Abilities. Developing competencies from other MyWays domains, such as Positive Mindsets, Self-Direction, Critical Thinking, and Entrepreneurship, will also contribute to successful Wayfinding Abilities.

Further, learners should take part in career awareness and exploration experiences as developmentally appropriate (typically, in later elementary and middle school) and in career preparation and training during high school. For more on this progression, see ConnectEd’s work-based learning continuum, which stretches from kindergarten through adulthood, in the Design & Iterate Prototype Experiences primer.

As the nature of future “careers” becomes less predictable and work becomes more project- and problem-based, we can also increase engagement and start kids thinking about their futures in a different way. Jaime Casap, raised by a single mom on welfare in Hell’s Kitchen, New York, and now Global Evangelist at Google, Inc., has thought a lot about how education can change lives for individuals and families. He notes, “Don’t ask a student what she wants to be when she grows up. Ask her what problem she wants to solve.” Students who are encouraged at an early age to begin to identify and tackle authentic problems in their own communities (or even on a global scale — see the UN’s #GlobalGoals in this blog on Cause + Code) also begin early to identify the skills they need to understand and solve problems. This is mostly likely to take place through inquiry-based, project-based, or place-based learning — all approaches that involve reaching beyond school walls to a wider ecosystem. For more on Whole Learning in the Wider Learning Ecosystem, see Report 11.

“Don’t ask a student what she wants to be when she grows up. Ask her what problem she wants to solve.”

—Jaime Casap
Visions of the Possible

Next Generation Learning Challenges grantee Generation Schools Network addresses its mission — Preparing Every Child for Life's Responsibilities, Challenges, and Opportunities — by deeply embedding these two Wayfinding imperatives and much more in its model for K-12 schools.

To create “visions of the possible,” Generation Schools Network increases learning time to incorporate a unique and robust college and career readiness program. For two months each school year, students transition from a typical course sequence to a full time “Intensive,” during which they explore an academic connection to high-growth industries and careers and cultivate personal and professional competencies in the classroom, in workplaces, on college campuses, and at other community locations. In grades 6–9, intensives are exploratory and horizon-expanding. In grades 10–12, they often take the form of internships, jobs, and postsecondary application activity.

Generation Schools Network continues to develop its college and career readiness offerings, which include the following:

- Career Exploration Units
- College and Career Readiness Lessons
- Peak Readiness Events:
  - Workplace visits
  - Job shadows and internships
  - Mock interviews and networking
- Business and industry partnerships
- Business ethics certification
- Career pathway development

See this College & Career brochure for their latest developments.

For other examples of career and life planning curricula differentiated by grade level or age groupings, see the following: Career Guidance Washington’s year by year curriculum for grades 6 through 12, covering eight themes important to a college- and career-ready student; and South Carolina’s Personal Pathway to Success career planning system, which spans pre-K through grade 20. During the elementary years, Pathways to Success emphasizes broad career awareness. In middle school, students identify a “high interest” career or sector and develop a flexible individual education plan with parents and the counselor, which forms the basis for ongoing progress monitoring and revision through middle and high school years. As sophomores, students identify a career major, and develop an individual post-graduation plan — for additional education or direct transition into the workforce. Counselors encourage high school
students to participate in internships and other forms of work-based learning. “We’ve tried to transfer ownership of the pathway from the counselor to the student. …Traditionally, the counselor has owned the decision, but we’re trying to put students in the driver’s seat.”

**KEY PRINCIPLE 2: Harness the Wider Learning Ecosystem to engage with the adult world and give learners access to opportunities to develop Wayfinding Abilities.**

Wayfinding Abilities, more than any other domain, relies heavily on harnessing a learning ecosystem that includes the family, one’s school or work (depending on where one spends the majority of their hours), and what some call “third places,” the other community spaces where people gather, interact, and often learn. While developing Wayfinding Abilities can happen anywhere, MyWays summarizes the most likely real world learning opportunities into what we call the Wider Learning Ecosystem (WLE): **the broad expanse of opportunities beyond classroom learning that can enrich collective and individual learning as well as student agency** – an ecosystem that is ever expanding and changing, with a spectrum from formal to informal prospects, accessed through a wide range of settings, media, and players.

The WLE includes five experience zones, seen in the graphic to the right, accompanied by a support infrastructure that enables learners to access, engage with, and get the most out of the learning, growing, and networking available across these zones. (See the Report 11 section on Wider Learning Ecosystem for more information. We will also be publishing a separate resource on this topic, funded by the Barr Foundation; the forthcoming resource will be available on the MyWays website.)

While WLE learning has distinct advantages for each of the MyWays competency domains, for Wayfinding Abilities getting out into the adult world provides, among other advantages, what Educurious calls “lines of sight” to future lives, information on pathways, and experiences that encourage learners to evaluate their own strengths and try out their interests. In his excellent paper, *It Takes a Whole Society: Opening up the Learning Landscape in the High School Years*, Robert Halpern points out that “with exceptions, high schools fail to treat vocation, work, and discovering and guiding interests and planning for the future as important curricular issues in and of themselves.” We need to find more and better ways not only to weave explicit discussion of work, careers, civic challenges, and life choices into day-to-day learning experiences, but
also to provide opportunities for real-world exposure and experiences to “try out” work, specific occupations, community service, and adult roles. Clearly career-related real-world learning experiences provide one valuable route to building Wayfinding competencies, but community-mediated, extra-curricular, and every day formal and informal learning can all help learners find and develop strengths and personal identity, iterate prototype futures, and connect with resources, mentors, and other social capital.

Developing Wayfinding Abilities through Real-World Experiences

Jackson strongly disliked English class, but truly enjoyed working with his hands. Fortunately, he lives in Vermont, which in 2013 passed Act 77, creating flexible pathways to graduation, higher education, and meaningful careers. Among other pathways, work-based experiences are encouraged, as one way to help learners “customize their education to meet their unique needs and circumstances, and gain real-world knowledge, skills, and experiences.”

At Whitcomb High School in Bethel, students manage their goals and real-world experiences through SchoolHack’s LiFT platform. Through this, Jackson had access to a Department of Labor career database and other resources (see below) to survey the work and prospects in the various building trades. (Wayfinding Ability #1: Survey the Learn, Work, & Life Landscape.)

As a junior, Jackson spent his afternoons working as an intern with a local construction company, systematically exploring the building trades to get a taste of what it is like to be a carpenter, an electrician and a plumber. (Wayfinding Ability #3: Design & Iterate Prototype Experiences.) By the end of junior year, Jackson had discovered a passion for plumbing and decided to pursue a formal apprenticeship. (Wayfinding Ability #2: Identify Opportunities & Set Goals.)

Senior year, Jackson designed a capstone project around his passion for plumbing. He alternated days on the job with days in school working on his capstone project, which involved extensive planning, locating and securing the resources to implement the capstone while pursuing the apprenticeship, and ensuring that he got the necessary graduation credits, as enabled by the Vermont flexible pathways policy. The LiFT screenshot below illustrates the kind of processes Jackson managed and the way in which the platform enables students to take ownership of their own path. (Wayfinding Ability #4: Find Needed Help)

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1 This is a real student story; Jackson is a pseudonym.
With so much of his academic credit embedded in real-world experiences aligned to his personal aspirations, Jackson began to truly enjoy school and actively engaged in his learning. His teacher Lindy Stetson describes the kind of remarkable shift often seen when learners have the opportunity for interest-driven learning in the field: “I saw a true ‘gear change’ when Jackson was able to write and read about his passion of plumbing. He used to have a passionate dislike of English class, but now there was no more prodding needed to get his English work done. He was able to complete things on his own, and produced an extremely strong research paper. He had been a shy student and disliked public speaking. But at his capstone exhibit he kept community members engaged. He even presented to younger students about his apprenticeship, internship, and senior project.”

Clearly the opportunity for Jackson to harness the Wider Learning Ecosystem enabled him to make significant progress with traditional Content Knowledge like English, Creative Know How competencies such as communication, and Habits of Success such as self-direction. At the same time, his experiences outside the school walls, as well as the guidance and support infrastructure the school provided around those experiences (including check-ins, job site visits, and personal support for Jackson to identify and reflect on the academic understanding he gained from his work experiences), provided him with authentic and meaningful opportunities to develop the kind of Wayfinding Abilities that all students will need in today’s complex and changing world.

By the end of senior year, Jackson had even earned scholarships to pay for the remaining years of his apprenticeship program to become a journeyman. We mentioned near the start of this report that, “together, the Wayfinding Abilities comprise a flexible toolkit for managing short- and long-term transitions in one’s life, developing the skills to navigate the work/learn landscape, and initiating a work path or a business.” Whether the plumbing trade encounters the kind of rapid change predicted for other occupations or not, Jackson’s experience in developing the skills to navigate a path for himself will stand him in good stead. It is difficult to imagine him being able to get some of the benefits involved (including the social capital and introduction to an authentic community of practice) had he not been empowered to step outside the school walls.
KEY PRINCIPLE 3: Access the kind of support necessary to enable real progress in Wayfinding Abilities.

As with all other MyWays competencies, the support needed to enable progress on Wayfinding Abilities is both “more than” and “different from” traditional learning support. Unlike old-style guidance activities, which often provided information on a limited range of postsecondary educational options based on students’ rapidly chosen “interests,” support for Wayfinding is more about helping learners understand themselves, explore the world and their interests in it, and develop the competencies to set goals, develop plans, find the help and information they need, make decisions, and evaluate as they go.

Again, as with the other MyWays competencies, this means providing not “information” or “classes,” but rather supports for learners to experience the real world; scaffolding for them to make choices, try options, fail, change course, and move forward; and access to mentors and coaches. The supports listed in Getting Smart’s Core & More (see box) are an excellent step in that direction.

Ten Supports Students Should Expect from School

Tom Vander Ark and Mary Ryerse, in their report, Core & More: Guiding and Personalizing College & Career Readiness, list 10 guidance functions that are “important enough to warrant dedicated time every day, ongoing staff development, strong coordination, an adopted curriculum and personalization tools.”

As the list illustrates, these supports range from relationships to choices and information and the opportunity to actively pursue interests.

The report also highlights that the most promising student advisory systems are blended (combining advisor and mentor interactions with online tools), as well as both explicitly scheduled and distributed (embedding guidance goals into all educators’ work and all students’ learning experiences).

It also provides links to resources for all of these next generation guidance elements.
KEY PRINCIPLE 4: Address the barriers to equity inherent in competencies that are built on relationship-based supports and community-based lines-of-sight to college, career, and life outcomes.

As the preface to *Creating Pathways to Prosperity: A Blueprint for Action* explains:

The U.S. school-to-career system is highly developed in some ways and underdeveloped in others. Well-developed pathways function like pristine interstate highways for our most academically skilled children from relatively wealthy communities and households. They move smoothly from kindergarten through elementary, middle, and high school on to four-year colleges from which they graduate into careers. Conversely, students possessing fewer academic skills (no matter what their family backgrounds) or growing up in less well-to-do families and communities, often face narrow and poorly maintained pathways full of potholes, detours, and missing road signs.15

In the Wayfinding Abilities domain, perhaps more than anywhere else, the pathways forward can be hard to discern and even harder to access. To develop and practice Wayfinding Abilities, learners need to connect with Wider Learning Ecosystems that often depend on opportunities available through the local community or family-provided enrichment activities. While even (and sometimes especially) high poverty communities contain significant funds of knowledge and human assets, the mechanisms to connect students to them may be less developed, or the financial resources to support learners in working with them may be absent. On the enrichment side, David Brooks, in his editorial on opportunity gaps, quotes data from Robert Putnam showing that low-income families spend an average of $480 per year on enrichment opportunities for their children, compared to $5,300 for middle- and upper-income families — creating a significant experience gap.

Because Wayfinding competencies will be critically important to the lives our students will lead, we must find ways to ensure that all students have equitable access to the adult world, community assets, and mentors. In particular, practitioners need to plan proactively to ensure equitable access to the kind of experiences required for disadvantaged students to access “visions of the possible” or “lines of sight” to careers and productive lives, as well as to enable the development of social capital that other students source more readily from their families, communities, and privileged out-of-school activities and opportunities. The following box highlights the kinds of programs that are being developed to address this reality.
## Wayfinding on Challenging Pathways

A range of programs has been developed to assist youth of low income, color, disabilities and other challenges in navigating to successful futures. These efforts include several created or evaluated by MCRC, a leading research organization that designs and studies programs intended to increase the economic and personal well-being of low-income families:

### Making It Happen
ConnectEd is the force behind California’s [Linked Learning](#) high schools, which combine rigorous academics, high quality career-technical education, work-based learning, and comprehensive support services in industry-themed pathways. As connected as such schools are to the real world, ConnectEd realized even they were struggling to make college and especially career exploration a central part of all students’ experience. ConnectEd worked with MDRC to create the [Exploring College, Career, and Community Options (ECCCO)](#) curriculum for career academies and pathway high schools including, on the career side, career exploration visits and increased school capacity to develop high quality internships. See more on this 10th to 12th grade program in this [overview video](#) (5m), and [evaluation report](#).

### Make Me a Match
The [College Match](#) program is aimed at helping low-income and first generation college-ready students who are “undermatching.” (See the section on undermatching in Report 3, *5 Decisions in the Work/Learn Landscape.*) As this [video](#) (5m) explains, a number of light touch informational interventions targeting the top 15% of test-takers appears effective at getting these students to attend selective colleges.

### A Year to Make a Difference
[Year Up](#)’s mission is to close the "opportunity divide" by providing urban young adults with the skills, experience, and support that will empower them to reach their potential through professional careers and higher education. It combines hands-on skill development, courses eligible for college credit, and workplace internships to prepare students for success.

## The state of play in Wayfinding Abilities

As we noted earlier, Wayfinding is missing or underrepresented in the comprehensive competency frameworks we studied. However, a few frameworks and school models make these competencies a major part of their learning design (for more, see the Quick Resource Dive below). Further, a large and growing number of individual initiatives, projects, online tools, and apps address Wayfinding needs, as described in the competency primers.

Across the four MyWays domains, the extent of consensus on the competencies included, the evidence for learning/instructional strategies, and the maturity level of assessment options varies — in some cases substantially. Here, we offer a few notes to inform your thinking and prompt further investigation as you design learning experiences to address the Wayfinding Abilities domain.
The state of competency definition and learning strategies

Summary: The role of schools in guiding student development in the full range of Wayfinding Abilities is far from universally accepted. Even school models that accept the importance of the Wayfinding competencies typically feel that addressing the other three MyWays domains is challenging enough, and they have yet to fully address Wayfinding. In other cases, the focus on self-management of life pathways is strongly biased toward college, leaving career and life goals aside.

- The research base for Wayfinding competencies is uneven. Programs like the College Spark Washington College Readiness Initiative undergo rigorous evaluation. Other process elements, such as Find Needed Help & Resources, are less studied, though aspects of this competency, such as the building of social capital, attract more attention (see Report 4). David Conley’s Four Keys to college and career readiness model — including his “Go” key, which corresponds to the Wayfinding Abilities domain — incorporate more than a decade of research on what it takes for students to succeed in college and career. The research base in ConnectEd’s proposed College and Career Framework draws on this and expands it to include the navigation of civic life.

- Learning opportunities and strategies provide the acceleration lanes that learners need to develop Wayfinding Abilities prior to merging onto the highway of postsecondary life. However, such opportunities and strategies are currently hit or miss at best. Most high schools offer traditional — and usually chronically under-resourced — forms of “college guidance.” Few offer real windows on careers and other aspects of adult life, or provide the kinds of self-directed learning opportunities, real-world connections, adult mentors, and other elements of active, iterative learning necessary for students to develop and practice their Wayfinding Abilities. Promising practices include integrated advisory structures, personalized learning approaches, and learning platforms that incorporate self-assessments and information on college, career, and life choices.

The state of assessment

Summary: Wayfinding competencies are often unaddressed; even when they are addressed, they go largely unmeasured. To deal with this, Wayfinding innovators are turning to badging (often internally) and/or tracking and evaluating student learning experiences to help ensure that students have opportunities that are likely to help develop agency and self-direction.

Next generation suggestions for Wayfinding assessment include:

- Start by tracking the extent to which you are providing learners with the needed experiences (for more, see the “Visions of the Possible” box above).

- Where outcomes cannot be measured, step back in the evaluation logic model from looking at outcomes to thinking deeply about inputs. Implement quality reviews of educator capacity and Wayfinding curriculum, as well as quality standards, criteria, or guidelines for service learning (NY Youth Leadership Council), career awareness experiences (Linked Learning), or internships (National Academy Foundation).

- Use standards-driven badging (such as Boston Afterschool and Beyond digital badges or Open Badges) where applicable, and use participation-driven badging for more informal learning.

- Create school-based badging systems and/or incorporate external micro-credentials that include not just metrics for participation but also student preparation for and reflection on their experiences. For example, you might award students a badge not for simply visiting three...
colleges, but for reflecting on how each of the colleges matched up to (or altered) the four factors they had chosen ahead of time to look for in a college.

**Ongoing challenges** in the assessment of Wayfinding Abilities include: carving out time in schedules to include and assess Wayfinding competencies; providing the types of student experience around Wayfinding that truly enable student agency; and creating the necessary relationships to fully involve external partners, such as families, community organizations, employers, and postsecondary institutions.

For more on Wayfinding Abilities assessments, see the Wayfinding Abilities one-page competency primers at the end of this report; Report 12, *Assessment for Broader, Deeper Learning* (especially the sections on the Badges & Micro-credentials strategy, and Quality Reviews strategy); and two recent reports: the Center for Curriculum Redesign’s *Evolving Assessments for a 21st Century Education* and the National Academies Division on Behavioral and Social Sciences and Education’s *Supporting Students’ College Success: The Role of Assessing Intrapersonal and Interpersonal Competencies*.

**A quick dive into Wayfinding Abilities resources**

Because the purpose of the MyWays Student Success Framework is to provide a rosetta stone for thinking about the broader, deeper, future-ready goals for today’s learners, we have focused on describing that goal-line in conceptual terms. We also believe deeply that school designers, educators, and learners need to invest in constructing and evolving their own competency goal-lines within the broader framework.

In doing this work, educators may find helpful the resources on the following pages: starter resources; relevant competency frameworks for Wayfinding Abilities; and school and program models with strong emphasis on Wayfinding Abilities.

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**Starter Resources for Wayfinding Abilities**

**Good introductions to this rapidly developing domain:**

- Getting Smart and the Huffington Post, *GenDIY series*. #GenDIY is an effort designed to help young adults make sense of education opportunities and career pathways that have become complicated and competitive. The site curates stories to get inspired, stories to get started, and resources to build your own GenDIY playlist.

- Getting Smart, *Core and More: Guiding and Personalizing College and Career Readiness*

**Influential resources on multiple pathways and out-of-school learning:**

- Jobs for the Future and Harvard Graduate School of Education, *Pathways to Prosperity* and *Creating Pathways to Prosperity: A Blueprint for Action*. Two seminal reports that focus on the need for multiple pathways, and the need for cultural and institutional shifts to ensure a full range of school-to-career options.

- Big Picture Learning, *Leaving to Learn: How Out-of-School Learning Increases Student Engagement and Reduces Dropout Rates*. A playbook from one of the school network leaders in engaging learners by focusing on developing Wayfinding Abilities within the Wider Learning Ecosystem.

*Continues on the next page >*
Student Wayfinding tools:

- **Career Guidance Washington** — a model program for student postsecondary planning, including student resources, as well as personalized pathways planning tools, thirty lessons for grades 6–12, curriculum maps, and a handbook on Navigating College and Career Readiness for All Students.

- **Designing Your Life: How to Build a Well-Lived, Joyful Life** — a book based on the popular Stanford University course by Bill Burnett and Dave Evans. See also this Designing Your Life [video](#) (3m), which offers an excellent, succinct introduction to the Stanford design-thinking approach to thinking about and planning your future.

- **Roadtrip Nation** helps career-seekers connect to real-world professionals and discover pathways aligned with their interests. Resources include the *Roadmap* tool, the *Interview Archive* (a career video database with thousands of interviews), *The Roadtrip Nation Experience*, a 12 lesson plan curriculum, and a *PBS TV series* in its thirteenth season. For an introduction to what it’s all about, dip into this 25m [video](#).

- **The Educurious Career Connection** — covers six core experiences (mentoring, job shadows, internships, informational interviews, work-based problems, and networking).

- Electronic platforms for success planning, such as MyBestBets, Naviance, and the Blackboard Planner by MyEdu and JobGenie (incorporating resources from Roadtrip Nation and Burning Glass).

- XQ SuperSchools has two new, free resources: Sokanu (“So Can You”) is a career assessment tool to help students learn more about themselves and careers they might enjoy based on personality and interests. [XQ College Pathfinder](#) offers five workbooks for the journey from high school to college.

Relevant Competency Frameworks

Competency frameworks that emphasize this domain include the following (the first three are featured in the MyWays alignment matrix in the Introduction and Overview of the MyWays Student Success Series):

- **EPIC’s Four Keys to College and Career Readiness** — the “Go” key is consonant with Wayfinding, but separates college awareness and action steps from career awareness and action steps, rather than following the stages of an integrated wayfinding process.

- **ConnectEd’s College and Career Readiness framework** — the “Educational, Career, and Civic Engagement” category is equivalent to our Wayfinding Abilities, and includes: college transition skills, career exploration and development skills, and engaging in and navigating civic life. (See p. 32).

- **The National Career Development Guidelines** — see relevant goals in each of the three main domains in this set of guidelines: personal social development, educational achievement and lifelong learning, and career management.

- **ACT’s Holistic Framework for Enhancing Education and Workplace Success** — the “Managing Career and Education Actions” component relates to elements of Wayfinding Abilities.


- **Pathways to Prosperity’s Elements of Career Readiness** — the nine elements map closely to the Wayfinding Abilities competencies, with the first five corresponding to the first two Wayfinding Abilities, and the last four incorporating elements of the three additional Wayfinding Abilities (p. 13).
# Models with Strong Emphasis on Wayfinding Abilities

- **Big Picture Schools** — the following “8 non-cog competencies” (from William Sedlacek) are different from most other such formulations, placing a much stronger emphasis on a) Wayfinding Abilities and agency in the Wider Learning Ecosystem (6, 7, and 8) and b) competencies critical for at-risk students who face adverse factors (3 and 5):
  1. Positive Self-Concept
  2. Realistic Self-Appraisal
  3. Skills at Navigating Systems and Understanding and Dealing with Discrimination
  4. Preference for Long-Range Goals over Short-Term or Immediate Needs
  5. Availability of a Strong Support Person
  6. Successful Leadership Experience
  7. Demonstrated Community Service and Involvement
  8. Knowledge Acquired in or About a Field

- **Generation Schools Network** — attention to Wayfinding Abilities is embedded in all parts of the school model (see the “Visions of the Possible” box above).

- **Summit Public Schools** — the development of Wayfinding Abilities is one of several purposes driving the Summit model’s Experiments component: “In Experiments, we are most concerned with helping you find and develop your passions and learn how to create a healthy, meaningful, productive life both inside and outside the classroom. As a provider of in-depth, real-world, life-changing experiences, Experiments is a key part of Summit’s mission to prepare every student for college, career, and life.”

- **Project Wayfinder** — a Stanford d.school project applying the principles of design thinking to helping high school students discover meaning and purpose for their lives. (See Project Wayfinder box above.)

We know from our beta piloting work with next generation educators that those interested in and inspired by the MyWays Student Success Framework are also thirsty for practitioner tools, as well as other implementation descriptions and documentation. In some cases, practitioners may be tempted to latch onto tools (such as the MyWays Whole-Study Competency Plot of the 20 competencies) and use them without the internal mindset-changing and learning-model-revising work required for successful implementation; we caution against this! We also realize that many thoughtful developers and practitioners simply want and need to see more concrete exemplars and tools in order to better understand the broader, deeper goal-line and to help them work through their own approach. As the MyWays Community of Practice grows, more pathways for use of the tools will arise, along with deeper levels of support and advice on building good practice around your own locally customized version of the MyWays Student Success Framework.

In addition to the resources listed above, the one-page primers on each of the five Wayfinding Abilities competencies that follow provide links to existing tools, such as standards, rubrics, or learning progressions. Such tools can help educators decide what to include or exclude in next generation student competency goal-lines and how best to shape them. Note that MyWays and Next Generation Learning Challenges do not endorse any specific tools for assessment or curriculum planning — particularly in ways that are incompatible with authentic Whole Learning (see Report 12, *Assessment for Broader, Models with Strong Emphasis on Wayfinding Abilities*).
Deeper Learning for more on this approach). This set of EdSurge resources offers case studies of schools using MyWays, and Next Generation Learning Challenges’ report, Measures that Matter Most, reviews some of the tools used by next generation schools to measure their progress in addressing the broader, deeper range of competencies.

Wayfinding Abilities one-page competency primers

The one-page primers that follow provide a brief introduction to the most important aspects of each competency, with pointers to why the competency is important (given students’ developmental needs and the challenges of today’s rapidly changing world), further description of what the competency entails, where to look for inspiration and guidance, and additional resources. These primers provide only a taste of the research and activity in each area. We hope that our MyWays Community of Practice and other educators will help add to and update these resources over time. To meet the Community of Practice members and share your ideas, see our Community of Practice page on the MyWays microsite. To receive updates on MyWays, join our mailing list.
Survey the Learn, Work, & Life Landscapes

“You can’t dream unless you know what the possibilities are because dreams don’t just pop up in your head.”

—Sonia Sotomayor, US Supreme Court Justice

“Instead of a degree in biology, emerging fields will combine biology and global health, or neuroscience and entrepreneurship... The concept of the major will erode into ... an overall portfolio with a bunch of microcredentials that speak to a whole range of strengths.”

—Randall Bass, Georgetown University

Brief description:

- MyWays defines this competency as “the ability to research and understand information, resources, external barriers, and internal factors relevant to upcoming transitions in school, career, and life.”

  - Note: This step integrates with Identifying Opportunities & Setting Goals (step #2) and Developing Personal Road Maps (step #3) in an iterative, adaptive way.

- Addressing this competency includes helping students:
  
  - Research and gain real-world exposure to the rapidly evolving career and life options available in their locality and beyond.
  
  - Identify and understand the knowledge and skills associated with the careers or challenges that match their strengths and interests (for more on the self-knowledge side of this match, see the Opportunities & Goals competency, next).
  
  - Explore traditional and emerging postsecondary education, career, and hybrid work/learn options that relate to their interests, including specific transition knowledge and skills for each option (the college or apprenticeship application, resume and interviewing skills, or the processes for participating in project or freelance collaboratives).
  
  - Identify potential barriers in their college and career landscape that may require additional support or resources.

Where to look for ideas:

College Knowledge

- Summit Public Schools has created a set of publicly accessible student playlists for college transition, including “Admissions Requirements — My Options.”

- This Hechinger Report article reviews a growing network of nonprofit college access organizations using innovative means to get college knowledge to students who want and need it; these organizations include College Summit, College Track, College Spring, College Possible, OneGoal, and College Board’s Access to Opportunity.

Traditional Career Landscape Exploration

- See the National Career Development Association’s list of sites for Career Planning, and the ACT Profile, a free online and mobile college and career planning platform that includes this World of Work Map.

Emerging Work/Learn Landscape —

- Consider experiential exploration of the landscape through avenues like Educurious and Buck the Quo.

Additional resources as food for thought:

- See the two last chapters in ACT’s Beyond Academics: A Holistic Framework for Enhancing Education and Workplace Success.

- See a visual framework for the emerging work/learn landscape in the ACT Foundation’s The New Learning Economy and the Rise of the Working Learner: An Anthology of Recent Evidence.

- The next two primers have additional ideas and resources.

For more resources, see the MyWays website.
Identify Opportunities & Set Goals

“Victor from Art First [a youth development program] ... started to connect his activities in the program (painting, interacting with adult artists) to his emerging identity as an artist.... [Youth are involved in] ‘finding fit’... a dual process of learning about potential career opportunities... and evaluating how these match their own skills and interests.”

—Nicki Dawes and Reed Larson

Brief description:

- MyWays defines this competency as “the self-awareness, focus, and strategic thinking to cultivate individual strengths, identify and pilot opportunities, and set personal goals for learning, work, and life.”

- Note: This step integrates with Survey the Learn, Work, & Life Landscapes (step #1) and Identify Opportunities & Set Goals (step #3) in an iterative, adaptive way.

- Addressing this competency includes helping students:
  - Develop self-knowledge through years of self-directed and authentic learning activities, as well as access to tools to diagnose strengths, interests, and personality traits relevant to life planning. (There is significant overlap here with Habits of Success competencies.)
  - Identify learning, work, and life opportunities likely to match these abilities by focusing on the intersection of assets, aspirations, and market realities (see the diagram in the next column).
  - Create goals that point in a longer-term direction, but include interim steps that can be pursued and evaluated in shorter loops along the way.

Where to look for ideas:

- Next gen learning models that embed self-reflection, adult world learning, and goal-setting into their systems, such as Big Picture Learning, Generation Schools Network, and Summit Public Schools.

- The College Spark Washington College Readiness Initiative’s Career Guidance Washington and AVID programs lead students to discuss:
  - Who are you? What are your interests and values? How do they align with what you want to do?
  - Where are you headed? In academics, career, life?
  - How are you going to get there? What are you doing today to set yourself up for the future?

- Roadtrip Nation’s The Roadtrip Nation Experience is designed to help students explore pathways for their futures. This project-based curriculum combines engaging video interviews with introspective activities to help students connect passions to school and careers.

- Success planning electronic platforms include MyBestBets (a postsecondary platform created by Jobs for the Future and YouthBuild USA that aligns a student’s interests with regional employment needs); Blackboard Planner (from MyEdu + JobGenie, with resources from Roadtrip and Burning Glass); Naviance; and Find Your Calling from Career Builder.

- Among the personality, strengths, and interests inventories are StrengthsFinder and AchieveWORKS, and the ACT Interests, Abilities, and Values Inventories.

Additional resources as food for thought:

- On developing self-knowledge, identifying purpose, and using these for Wayfinding or designing your way forward, see Project Wayfinder and Designing Your Life, both out of the Stanford d.school’s design thinking approach.

- For another angle on learner self-direction, see Getting Smart’s Podcast Gen DIY: Emerging Options for Students Navigating Life, and the Generation Do-it-Yourself Toolkit.

- The previous and following primers have additional ideas and resources.

For more resources, see the MyWays website.
Design & Iterate Prototype Experiences

“We prototype to ask good questions, create experiences, reveal our assumptions, fail fast, fail forward, sneak up on our future, and build empathy for ourselves and others. Once you accept that this is really the only way to get the data you need, prototyping becomes an integral part of your life design process.”

—Bill Burnett & Dave Evans, Designing Your Life22

Brief description:

- This MyWays competency is defined as “the ability to translate goals into action steps (or prototypes) for each new stage or transition, especially the transition from high schooler to independent, contributing adult.”
- Note: This step integrates with Survey the Learn, Work, & Life Landscapes (step #1) and Identify Opportunities & Set Goals (step #2) in an iterative, adaptive way.
- Addressing this competency includes helping students:
  - Translate goals into action plans for each new stage or transition.
  - Execute the plans through action — starting with “junior versions” or “prototypes” of work, learning, or civic activities, and building toward real-world experiences such as internships, research opportunities, and jobs.
  - Move to the next loop of the plan, adapting it based on feedback and lessons learned from the first loop. (For more on this, see the last Wayfinding competency, below.)
- For an excellent example of embedded prototyping experiences, read about Tech Valley High School’s 1-term experiences, which provide increasingly student-organized exposure to four different careers, helping learners discern what they like — and just as importantly, what they are not interested in pursuing.
- Work-based learning and paying work itself represent particularly good opportunities to “try on” a career choice and the social and cultural aspects of a successful transition from adolescence to adulthood. ConnectEd offers a free toolkit based around a continuum of work-based learning experiences that stretch from kindergarten through adulthood. Its expanded version of the graphic below adds sample student outcomes, quality criteria, and examples for each of the four stages.

Where to look for ideas:

- Real-world learning enables students to prototype choices, gain access to the adult world, and build social capital. See chapter 7 in Big Picture’s Leaning to Learn for a thoughtful list of approaches, including community-based learning), service learning, internships, and other work-based learning, work, travel, and early college experiences. Big Picture and Match Beyond have dual enrollment with Southern New Hampshire University’s competency-based courses. See also the work/learn options discussed in Report 3 and the Wider Learning Ecosystem section of Report 11.
- Additional resources as food for thought:
  - See chapter 6, “Prototyping,” in Burnett and Evans’ Designing Your Life for insight into the “bias to action,” “build your way forward” basis of this approach. But note that prototypes can be as “proto” as shadowing someone in a career you find intriguing.
  - The two previous primers have additional ideas and resources.

ConnectEd

- Encourage students to think outside the box in creating action steps to help them move forward, including to explore gap years and trade paths (Buck the Quo).
- Generation Do-It-Yourself is a campaign and aggregator of resources, tools, digital media, and first-hand stories of more than 100 GenDIYers navigating their own way.
- Keeping track of prototype experiences and the competencies students develop through them can be complex. SchoolHack’s LiFT platform was designed to create personalized learning plans that include real-world learning experiences.

FOR MORE RESOURCES, see the MyWays website.
“Young people report receiving erratic adult assistance... When asked whom he relies on for [help in thinking through life options] a high school junior in one study of mostly work-bound youth notes, ‘I’m not that involved with the school or with my teachers... I can’t even talk with my parents. The only people I talk with are my friends.’

Other young people report that the advice and encouragement they do receive from adults — including at times workplace mentors — does not fit, because the adults do not seem to know them or their life situation well enough.”

—Robert Halpern, It Takes a Whole Society

Brief description:

- MyWays defines this competency as “the ability to identify, locate, and secure the time, money, materials, organizations, mentors, and partners needed to support one’s plans.”

- Addressing this competency includes helping students:
  - Identify which resources they need to implement their action plans.
  - Develop the help-seeking mindset and skills to successfully secure these resources and supports.
  - Build the social capital needed to support all steps in the Wayfinding process, including mentors, role models, weak-tie contacts in their fields of interest, and strong family and friend network supports.
  - Deploy these relationships into a professional network that helps them tap insights, find better opportunities, and make better career decisions.

Where to look for ideas:

See Report 4 for the 5 Essentials in building social capital: caring friends and adults, near-peers and role models, mentors and coaches, networks and weak ties, and resources and connectors.

- Getting Smart’s “Core and More” approach to advisory provides much of the personalized support that helps learners find the help and resources they need.

- The CollegePoint initiative is partnering with the College Advising Corps and The College Board to build a network of advisors. Other college opportunity leaders, such as College Possible and Strive for College, are also working to support underserved youth. College Greenlight targets first-generation and underrepresented students. iMentor builds mentoring relationships that empower students from low-income communities.

- One sector-specific mentoring program example is the ACE Mentor Program, which inspires students to pursue careers in architecture, construction, and engineering. Generation Schools incorporates this in its intensive program; it can also be an after-school experience. Each team is set up to emulate an actual design team.

For online resources to assist students and their advisors in accessing information for all the Wayfinding competencies, see the resources links in the other competency primers, as well as this glimpse of the future of AI and push learning for guidance.

- Groups such as ACT Foundation, Business Roundtable, and National Network are working to help people find needed help and resources on emerging work and learn opportunities through developing online tools, blueprints, and models. See the ACT Foundation’s The New Learning Economy and the Rise of the Working Learner: An Anthology of Recent Evidence and Learning is Earning in the National Learning Economy.

Additional resources as food for thought:

- In addition to the wealth of resources on different types of social capital in Report 4, see also this summary of the anchor and web of support approach.

For more resources, see the MyWays website.
"The challenge is that to reach goals in the real world there is often no roadmap; problems are unstructured; there are obstacles and hidden rules; heterogeneous systems are involved (e.g. different people and institutions).

According to the ‘Law of Unintended Consequences,’ you may be trying to get to B, but end up at Z.”
— Reed Larson, “Positive Development in a Disorderly World”26

Brief description:
- MyWays defines this competency as “the ability to implement plans in the worlds of education, work, and life, making mid-course adjustments as required based on new experience.”
- Addressing this competency includes helping students⁷:
  - Grow personal traits related to adaptability, flexibility.
  - Develop and practice specific skills related to pivoting, reframing, and changing direction.
  - Strengthen their ability to accurately appraise and take risks as they pursue professional opportunities; in the new economy, it is sometimes possible to succeed sooner by failing earlier and more often, in calculated and reflective ways.
  - Develop the skills necessary to navigate systems while dealing with discrimination or other challenges.

Where to look for ideas:
- Project Wayfinder promotes the idea of self-reliant navigators rather than linear pathfinders: “We imagine student wayfinders to take on many purposeful ‘voyages’ over the course of their lifetime. They may not be linear, or neatly connect, but they each represent a sustained investment of energy and effort into a project or career chapter for a period of time... A plan is more like ‘flexible persistence’ — have a plan and a goal, but be prepared to adapt at a moment’s notice when circumstances change (and they most certainly will).” See the graphic below and Project Wayfinder website.
- MyEdu’s research study, The Academic Journey, which illustrates the changing options and directions taken by many participants over time, emphasizing how common changes in direction are, as well as the importance of testing through real-world experience. See a more complete visual of the academic journey, starting from a foundational educational memory — the kind of touchstone authentic, real world experience we describe in Report 11 on learning design — in MyEdu’s resource.
- Big Picture Learning’s 8 non-cog competencies (from William Sedlacek) include “Skills at Navigating Systems” and “Understanding and Dealing with Discrimination.”

A few resources as food for thought:
- Getting Smart and GenDIY’s podcast, “Emerging Options for Students Navigating Life.”
- The “Managing Career and Education Actions” component of the ACT’s Holistic Framework for Enhancing Education and Workplace Success details the kinds of behaviors that pertain to executing, evaluating, and amending plans for action.
- On adapting, pivoting, and re-grouping see the “Plan to Adapt” chapter in Reid Hoffman and Ben Casanocha’s The Startup of You.

For more resources, see the MyWays website.
Endnotes for Report 10

1 Bill Burnett and Dave Evans, Designing Your Life: How to Build a Well-Lived, Joyful Life, Knopf, 2016, p. 43.


5 Wikipedia entry. See also Project Wayfinder’s overview of Polynesian wayfinding, and how this inspired many of their practices.


8 In 2009, Saras Sarasvathy contributed further to this line of entrepreneurship research concluding that “the effectual entrepreneur is one who ‘fabricates’ opportunities from the mundane realities of her life and value systems” rather than discovering and exploiting “opportunities that pre-exist in the world.” Sarasvathy went on to codify the behaviors she observed into six Effectual Principles, including the Bird-in-Hand Principle (starting with limited means: who I am, what I know, and whom I know) and the Affordable Loss Principle (limiting risk by understanding what one can afford to lose at each step). Saras Sarasvathy, Effectuation: Elements of Entrepreneurial Expertise, Edward Elgar Publishing, 2009, p. xiv.

9 Burnett and Evans, Designing Your Life, p. 112.

10 Ronald F. Ferguson and Sara Lamback, Creating Pathways to Prosperity: A Blueprint for Action, Report issued by the Pathways to Prosperity Project at the Harvard Graduate School of Education and the Achievement Gap Initiative at Harvard University, 2014, p 54.


12 Halpern, It Takes a Whole Society, p. 24. And with only 10–15% of high school students in a career-technical concentration that might provide greater contact with the adult world, creating other opportunities for access to the real world grows increasingly important.

13 Susan Patrick, et. al., Promising State Policies for Personalized Learning, International Association for K-12 Online Learning (iNACOL), 2016, p. 18. The longer statement: “Multiple pathways often take advantage of learning opportunities outside of traditional classrooms and can include expanded learning opportunities such as after-school programs, apprenticeships, community service, internships, independent study, online courses, performing arts, private instruction, and career and technical and college-level coursework. These pathways allow students to customize their education to meet their unique needs and circumstances and gain real-world knowledge, skills, and experiences.” For more on the Vermont approach see this Hechinger article, A statewide school reform gains fans and concerns while letting students learn at their own pace, and for different student case study, see this related video: How Vermont is letting students learn what they like.

14 Thanks to Lindy Stetson and Owen Bradley of Whitcomb High School, as well as Josie Jordan and David Lipkin of SchoolHack for providing the information for this case. Jackson also presented his work to the Bethel School Board as part of the school’s promotion of community and work-based learning as essential elements of the next gen secondary educational experience.

15 Ferguson and Lamback, Creating Pathways to Prosperity, p. iv.

16 This quotation is from a Summit document provided to the authors by Summit Public Schools.
Our descriptions of the Survey the Learn, Work, & Life Landscapes competency (as well as the other four Wayfinding competencies) drew from the following three sources:

1) the small subset of the competency frameworks listed in the Introduction and Overview of this series that addressed personal navigation skills — including EPIC/Conley’s Four Keys (the “Go” Key), ConnectEd’s College and Career Readiness Framework (the “Educational, Career, and Civic Engagement” category), The National Career Development Association’s National Career Development Guidelines (all three domains), and The Assessment and Teaching of 21st Century Skills’ ATC21S framework (the “Living in the World — Life and Career” elements).

2) additional career management frameworks such as Pathways to Prosperity’s Elements of Career Readiness and New Zealand’s Student Career Management Competencies,


Our descriptions of the Identify Opportunities & Set Goals competency (as well as the other four Wayfinding competencies) drew from the sources cited in Endnote 19.

Burnett and Evans, Designing Your Life, p. 113.

Our descriptions of the Design & Iterate Prototype Experiences competency (as well as the other four Wayfinding competencies) drew from the sources cited in Endnote 19.

Robert Halpern, It Takes a Whole Society: Opening Up the Learning Landscape in the High School Years, The Erickson Institute, p. 25.

Our descriptions of the Find Needed Help & Resources competency (as well as the other four Wayfinding competencies) drew from the sources cited in Endnote 19.


Our descriptions of the Navigate Each Stage of the Journey competency (as well as the other four Wayfinding competencies) drew from the sources cited in Endnote 19.