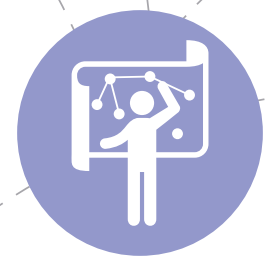
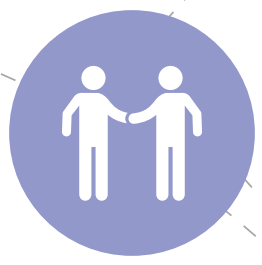


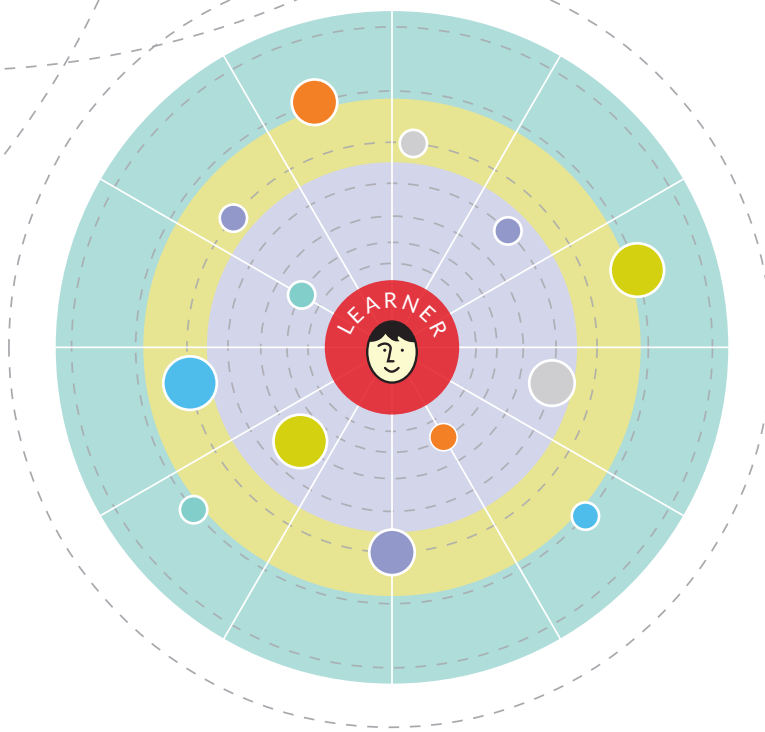


Exploring the Future Education Workforce:

New Roles for an Expanding Learning Ecosystem

Katherine Prince, Andrea Saveri, and Jason Swanson





The learning ecosystem is expanding. It is rapidly becoming more diverse and more personalized as accelerating technological change, increasingly sophisticated data systems, and changing social expectations make it possible for learners and their families to renegotiate their relationships with traditional education institutions and, in some cases, to end them entirely. As part of this expansion, new forms of “school” are proliferating in both place-based and virtual settings, and the boundaries between formal and informal learning are melding. Competency based education is spreading. Learning playlists that curate learning resources are gaining sway as a means of organizing and giving students some degree of choice over their learning journeys.

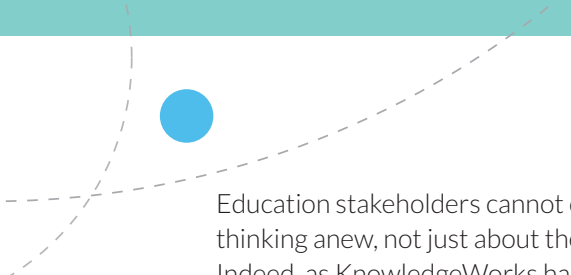
These and many other trends highlighted by KnowledgeWorks’ exploration of the future of learning¹ signal the emergence of new ways of organizing teaching and learning and, by extension, open possibilities for new educator roles. This paper explores what kinds of educator roles might be appropriate to an expanding learning ecosystem, especially one that aims to be vibrant for all learners, and what kinds of issues education stakeholders will need to manage as educator roles diversify.

As we defined them in “Cultivating Interconnections for Vibrant and Equitable Learning Ecosystems,”² vibrant learning ecosystems are learner-centered, equitable, modular and interoperable, and resilient. We think that creating flexible value webs to which many organizations contribute can help ecosystem participants bring different kinds of specialization to bear in creating effective solutions that reflect the needs and constraints of their geographies and respond to learners’ needs.³ Looking ten years ahead, any given learning ecosystem — be it local, regional, state-level, or national — could look quite different than the typical ways of organizing learning today. Indeed, at any given level, intersecting learning ecosystems of many types are likely to emerge. They will combine elements of today’s education system with new learning environments and new systemic structures.

¹ See KnowledgeWorks (2012). *Recombinant Education: Regenerating the Learning Ecosystem*. Retrieved from <http://knowledgeworks.org/forecast-3>. A Glimpse into the Future of Learning. Retrieved from http://knowledgeworks.org/sites/default/files/A-Glimpse-into-the-Future-of-Learning-Infographic_0.pdf.

² Prince, Katherine, Saveri, Andrea, and Swanson, Jason (2015). *Cultivating Interconnections for Vibrant and Equitable Learning Ecosystems*. KnowledgeWorks. Retrieved from <http://knowledgeworks.org/cultivating-interconnections-vibrant-and-equitable-learning-ecosystems>.

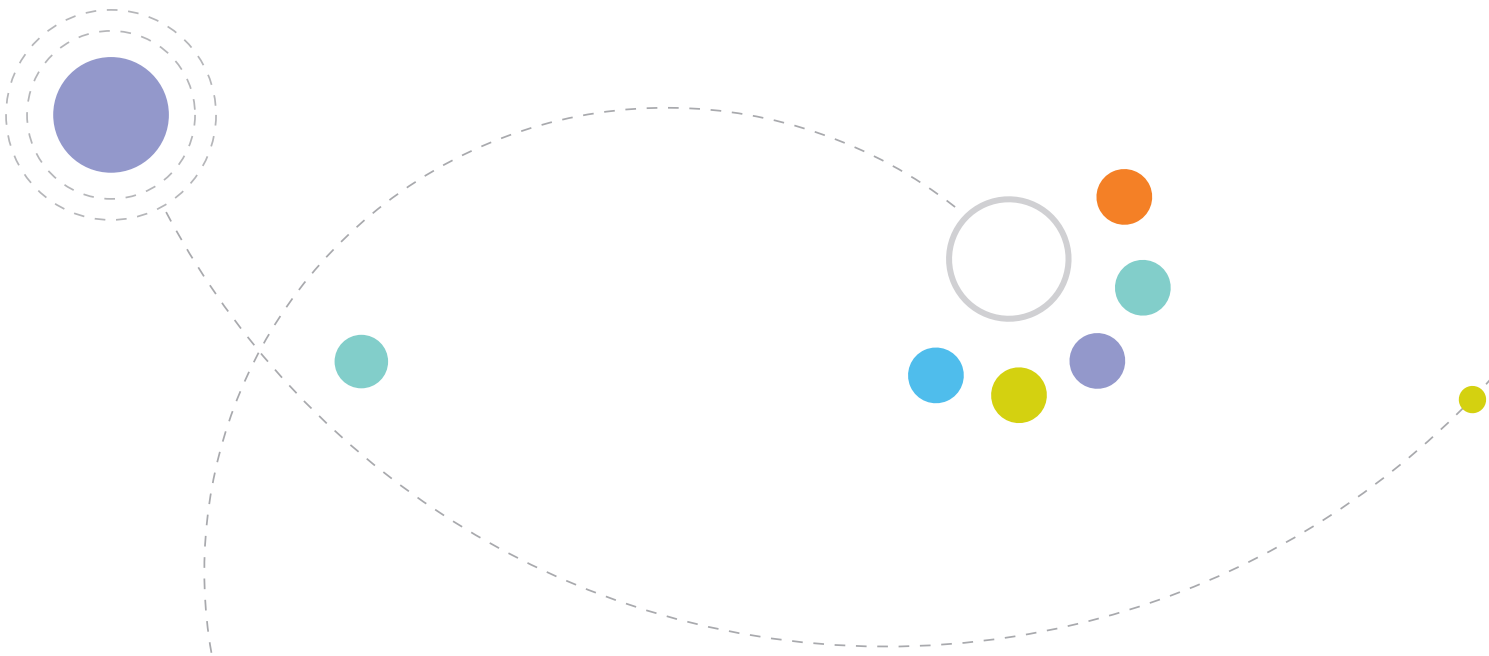
³ A value web is a network of education stakeholders interconnecting their services and supports to meet learners’ needs, as compared to a single organization working alone or with a limited number of partners.



Education stakeholders cannot cultivate vibrant learning ecosystems that work well for all learners without thinking anew, not just about their structures and cultures, but also about the people working in them. Indeed, as KnowledgeWorks has collaborated with education stakeholders around the United States to make sense of the changes affecting the education landscape and identify positive pathways forward, developing human capital for personalized learning ecosystems has emerged as one of ten innovation pathways that promise to transform learning to focus on individuals over institutions.⁴ Today, education stakeholders typically think of teachers as working for traditional schools, with teaching roles looking fairly similar from one school to the next. Administrator roles are somewhat more diverse but are also tied strongly to schools and school districts. As the learning ecosystem expands and diversifies over the next decade, educator roles must also diversify in order to provide critical linkages across settings and strengthen the webs of support surrounding learners.

Unfortunately, this diversification of educator roles is by no means a given. Katherine Prince's 2014 paper, "Forecasting the Future of K-12 Teaching: Four Scenarios for a Decade of Disruption," envisions a preferred future in which many kinds of educator roles and activities support rich, relevant, and authentic learning in multiple settings. But it also warns of a baseline future in which teachers could become increasingly constrained amid daunting fiscal challenges and narrow measures of student and teacher performance.⁵ A more hopeful alternative scenario involves teachers taking back the classroom to reclaim the learning agenda in formal settings. Another possibility is that professionals from a variety of organizational contexts could develop more ways of supporting young people in engaging in authentic and relevant learning opportunities outside of school.

However, none of these scenarios represents the deep interconnections among many kinds of learning ecosystem participants that we think best promise to prepare young people for the rapidly changing destinations of postsecondary and career. To create an equitable future of learning, education stakeholders need to shift the focus from traditional school systems to community-level ecosystems that span many kinds of learning environments and can flex around and with learners. They need to staff those learning ecosystems with diverse and networked constellations of educators representing a range of professional expertise and backgrounds.



⁴ Prince, Katherine (2014a). Innovating toward Vibrant Learning Ecosystems: Ten Pathways for Transforming Learning. KnowledgeWorks. Retrieved from <http://knowledgeworks.org/sites/default/files/innovation-pathways-transforming-learning.pdf>.

⁵ Prince, Katherine (2014b). Forecasting the Future of K-12 Teaching: Four Scenarios for a Decade of Disruption. KnowledgeWorks. Retrieved from http://knowledgeworks.org/sites/default/files/k12-teaching-scenarios-decade-disruption_1.pdf.

Seven Possible Educator Roles

To help education stakeholders imagine what kinds of educator roles might contribute to flexible and rigorous learning ecosystems that enable both learners and the adults supporting them to thrive, this paper explores seven possible educator roles.

- (1) **Learning Pathway Designer** – Works with students, parents, and learning journey mentors⁶ to set learning goals, track students' progress and pacing, and model potential sequences of activities that support learning experiences aligned with competencies.
- (2) **Competency Tracker** – Tags and maps community-based learning opportunities by the competencies they address in order to support the development of reconfigurable personalized learning pathways and school formats.
- (3) **Pop-Up Reality Producer** – Works with educators, subject matter experts, story developers, and game designers to produce pervasive learning extravaganzas that engage learners in flow states⁷ and help them develop relevant skills, academic competencies, and knowhow.
- (4) **Social Innovation Portfolio Director** – Builds networks in support of meaningful service-based learning and community impact by linking student action-learning groups seeking to develop core skills and knowledge with organizations seeking creative solutions.
- (5) **Learning Naturalist** – Designs and deploys assessment protocols that capture evidence of learning in students' diverse learning environments and contexts.
- (6) **Micro-Credential Analyst** – Provides trusted, research-based evaluations and audits of micro-credential options and digital portfolio platforms in order to provide learners and institutions with comparative quality assurance metrics.
- (7) **Data Steward** – Acts as a third-party information trustee to ensure responsible and ethical use of personal data and to maintain broader education data system integrity and effective application through purposeful analytics.

Some of these roles would be likely to involve full-time employment for a single organization, while others could reflect more ad hoc, network-based employment structures, at least for some of the people occupying them. Some of the roles might attract current teachers and administrators; others might attract people from other backgrounds, including the data sciences, anthropology and ethnography, neuropsychology, and media design.

Regardless of an individual's employment arrangements or background, educator swarms will likely form to meet the needs of individual learners or cohorts of learners. Educator swarms would be flexible and often temporary teams of educators that configured to meet learners' needs and then reconfigured differently as needs shifted. Those swarms could span organizational boundaries as well as the line that we draw today between the formal and informal or community-based learning sectors. Furthermore, the configurations of future educator swarms could be far more ephemeral than many of today's teaching assignments.

⁶ As previously explored by KnowledgeWorks, learning journey mentors would guide learners in working through their learning experiences, helping them execute their learning pathways. This role is closest to that of today's typical classroom teacher. Because KnowledgeWorks has published on it previously, we do not explore it in detail here. See KnowledgeWorks (2011). Learning Journey Mentor. Retrieved from http://knowledgeworks.org/sites/default/files/110628-Learning%20Agent%20Dossier-LJM-v4-110912-FINAL_0.pdf.

⁷ Psychologist Mihaly Csikszentmihaly defines a flow state as being completely absorbed in an activity for its own sake and using one's skills to maximum advantage. See Csikszentmihaly, Mihaly (1990). *Flow: The Psychology of Optimal Experience*. Harper.

In exploring the seven future educator roles, we outline drivers of change supporting their development and describe what these roles would entail and their potential significance through job descriptions, sample recruiting announcements, and stakeholder quotes demonstrating how the roles might add value to learning ecosystems. These images of the future assume the use of tools and technologies whose seeds are emerging today. After presenting the roles, we explore potential promises and pitfalls that such a diversification of educator roles might present, highlight some of the strategic choices that education stakeholders face, and suggest some ways of beginning to explore these roles further.





Learning Pathway Designer

Works with students, parents, and learning journey mentors to set learning goals, track students' progress and pacing, and model potential sequences of activities that support learning experiences aligned with competencies.

Drivers of Change

- Increasing demand for personalized learning
- Growth of adaptive learning tools that use student data to recommend learning options
- Reduction in enrollment in teacher preparation programs and corresponding increase in the need for each teacher to be supported with good data
- Increasing demand for rigor and relevance in learning environments

Job Description

Learning pathway designers are curators of learning journeys who work in schools, other kinds of learning centers, homeschool networks, or private practice to help learners plan their learning pathways across diverse offerings. These specialists develop close relationships with learners through regular in-person learning reflections and through the use of sophisticated learning data analysis and reporting tools that help them discern patterns in performance. Together, learning pathway designers, learners, and parents set and revisit goals that are assessed using analytic tools that provide insights into individual learning behaviors and outcomes and model customized pathways for success. As with a family physician, the enduring relationship between a learning pathway designer and a family allows that learning pathway designer to provide continuity across a learner's diverse experiences over time. Learning pathway designers operate as key architects of learners' playlists and portfolios, matching learners with learning journey mentors. These mentors help learners carry out specific learning experiences, find targeted educational programs and courses, receive appropriate credentialing, and explore further education options. Learning pathway designers are knowledgeable about neuro-education and emotional science, allowing them to strategize about how best to foster emotionally optimal learning climates for individuals so as to help them enhance personal success and academic achievement.

Recruiting Announcement

Crestwood Learning Village is a custom micro-school consisting of 50 families looking for a dedicated and innovative learning pathway designer to work with students aged 8-17 in curating their learning journeys. Crestwood believes in hands-on experiential learning and in extending learning through deep community relationships and co-learning opportunities. We are subject matter and grade level agnostic. Prospective learning pathway designers are expected to work with Crestwood faculty, learners, and families to curate personally relevant learning journeys and to coordinate resources and assessments to support success and enable equitable access. Experience working with partners and using smart contracts is a must. Interested candidates must provide a link to their digital design portfolios and complete Crestwood's interactive learning pathway design simulation at www.crestwoordrecruitgame.org.

"I used to be a lead teacher in the days of limited collaboration and one-size-fits-all curriculum. We were overloaded with the scope of responsibility and had poor tools. As a learning pathway designer, I now spend the majority of my time getting to know my students and learning about their aspirations. I let EdBots¹ and smart contracts support me in helping them achieve their dreams."

– Learning Pathway Designer

¹ A bot is an automated program or software application that runs over the Internet, sometimes with minimal input from a person.



Competency Tracker

Tags and maps community-based learning opportunities by the competencies they address in order to support the development of reconfigurable personalized learning pathways and school formats.

Drivers of Change

- Growth of competency-based education
- Increasing desire for customized learning pathways
- Growth in the number and variety of self-directed and out-of-school learning opportunities
- Postsecondary and employer demand for clarity and trust in learning provider offerings

Job Description

With learning having moved beyond the classroom into real-world settings and community contexts, competency trackers play a critical role in helping educators (especially learning pathway designers), learners, and their families navigate diverse learning opportunities. Competency trackers help codify the value of community-based learning experiences by tagging those experiences with information about the competencies they address. They also help screen those learning experiences that add relatively little value toward attainment of competencies or which only prove beneficial in certain contexts. Leveraging the open educational resources practice of tagging learning objects with descriptors such as subject matter, core concept, level, and standard, competency trackers add descriptive information that serves as a form of “learning nutrient label.” This information helps learners and their advocates forge novel and appropriate learning pathways and customized “school” experiences. Competency trackers also develop visual maps that aggregate individual pathways through and across geographic communities. These maps provide crowdsourced intelligence on the most fruitful pathways available to master academic standards and aligned competencies in order to be positioned for successful postsecondary and career experiences. Competency trackers also surface underutilized community resources, which become more visible and therefore more purposefully connected to the learning ecosystem, along with learning ecosystem gaps. Some competency trackers work full time for community or civic organizations, while others tag resources through contract arrangements. Regardless, competency trackers participate in networks and ongoing professional development to help ensure high inter-rater reliability across learning experiences.

Recruiting Announcement

The Arlington Mayor’s Office is creating a new position to make the city’s informal learning resources more visible and accessible to the families in the community and beyond. The city’s new Competency Tracking Task Force is hiring an executive director who will lead a distributed team’s efforts to digitally tag and map the offerings of community agencies that provide community-based learning experiences related to Science, Technology, Engineering, Art, and Math (STEAM); service learning; social entrepreneurship; digital arts; and communications. The Mayor’s office has already identified several museums, park programs, community centers, and after-school programs whose activities will be tagged according to the competencies that they help learners develop. Additionally, an extensive community survey identified many local underutilized organizations whose offerings provide rich and viable learning experiences that would benefit from tagging and broader exposure. Experience in developing curriculum, setting and assessing competencies, and building relationships is critical. Ability to lead a diverse team of technical specialists and practitioners is also a must.

“Tagging and mapping our community’s learning resources highlighted some stark differences in access across neighborhoods. Now, we’re working with competency trackers, learning pathway designers, and the local transit authority to help kids get out of learning deserts. We’re also working with community leaders to create more learning opportunities in underserved neighborhoods.”

– Executive Director, Access for All Community Development



Pop-Up Reality Producer

Works with educators, subject matter experts, story developers, and game designers to produce pervasive learning extravaganzas that engage learners in flow states and help them develop relevant skills, academic competencies, and knowhow.

Drivers of Change

- Growing engagement with digital gaming, virtual reality technologies, and social media platforms
- Increasing use of gaming and the achievement of flow states as a construct for learning
- Growth of anytime/anywhere, connected learning
- Expansion of hybrid classroom models

Job Description

Borrowing from the positive aspects of both rave culture and massive cultural events such as Burning Man, pop-up reality producers create dynamic, pervasive events that transform students' local geographies into learning game boards and creation spaces that engross them in developing skills and knowledge. These events encourage learners to cultivate flow states in which they become completely absorbed in their passion-based learning pursuits and use their skills to maximum advantage. Pop-up reality producers configure multiple media such as augmented reality, gaming, social media, film, audio, and text to create curriculum-based immersive story worlds consisting of content, ideas, puzzles, and quests. Building on game strategies for maximizing engagement and cultivating flow states, pop-up reality producers create transmedia curriculum that surrounds the learner, integrating play and learning into a seamless experience of inquiry and growth and helping students pursue their learning passions. Pop-up reality producers tour the country pulling together teams of school- and community-based educators and working with ad hoc learning venues to transform learning into a popular, shared celebration and collective reality. Some pop-up learning producers create schedules of their events throughout the year, providing opportunities for learning pathway designers and learning providers to coordinate activities. Other pop-up reality producers like the element of surprise and create a following by showing up unexpectedly in cities and towns with curated, pervasive learning experiences that often take over underutilized community spaces and bring them into local learning ecosystems. Pop-up reality producers often work on a contract basis to create immersive engagements for a defined period of time.

Recruiting Announcement

The Durham YMCA has a one-year contract position open for an experienced pop-up reality producer to lead and manage a series of learning events for the 2025 production season with possible contract renewal. The position is a full-time leadership and design role with responsibilities for planning a series of learning pop-ups in conjunction with local media arts developers, game designers, community organizations, and cultural agencies. It includes outreach responsibilities in interfacing with local schools and learning centers as well as with summer camps, after-school programs, and membership organizations such as museums and galleries. Applicants should have sufficient technical media design skills to work with digital story designers on various digital platforms and in-person experiences. Please provide a link to your professional portfolio showing at least three distinct pop-up reality productions within the past three years.

“My friends and I are going to spend a week at the MediaXtreme Reality PopUp. We’re going to play the ‘migrations’ track together. I can’t wait! My sister did it two years ago, and she said it was hecka fun.”

–8th Grader



Social Innovation Portfolio Director

Builds networks in support of meaningful service-based learning and community impact by linking student action-learning groups seeking to develop core skills and knowledge with organizations seeking creative solutions.

Drivers of Change

- Increasing appreciation of and focus on collaboration, teamwork, creativity, innovation, and social good as learning objectives
- Growing use of service learning and real-world problem solving to ground curriculum
- Spread of DIY culture and the use of maker tools such as 3D printers and lasers in schools and communities
- Increasing use of collective impact metrics
- Increasing use of open data to solve community problems

Job Description

Social innovation portfolio directors serve as matchmakers who connect student problem-based learning groups and design teams with local community challenges, matching the action learning objectives and skills of students with the needs of their communities. Acting as a bridge between communities looking for real solutions to pressing problems and student groups wanting to see their education make a difference, social innovation portfolio directors support students in becoming transformation agents in their own communities by linking their education to tangible change and impact. When possible, social innovation portfolio directors leverage existing student social change programs and innovation platforms such as the Conrad Challenge, DoSomething.org, and Source America, focusing the use of these platforms on addressing the needs of specific geographic communities so as to create broader, connected impact. They use coordination apps to promote community challenges, to recruit student design and innovation teams, and to network with learning pathway designers and competency trackers to help match learners with challenges and incorporate community resources. Social innovation portfolio directors also track results and impact through a collaborative platform on which student groups share strategies and support one another. Importantly, social innovation portfolio directors amplify the scope of students' impact by linking multiple student action-learning groups.

Recruiting Announcement

The Detroit Public Library and TechShop Detroit are seeking a social innovation portfolio director to provide leadership in connecting the problem-based design and innovation work of Detroit's middle and high school aged action-learning teams with community organizations, local businesses, and service agencies who are seeking creative solutions to the area's problems. The social innovation portfolio director should be versed in design thinking methodologies, working across cultural contexts, and translating pressing community needs into design challenges that attract multiple student design teams while pinpointing key problem zones. The social innovation portfolio director will act as the collaborative's primary liaison with the city's urban development organizations and will where possible establish partnerships to extend and sustain the impact of solutions. The social innovation portfolio director will be located in the Detroit Public Library's Innovation and Outreach Department.

"I've shifted my annual giving from the school fund to the social innovation portfolio. I find that it makes a double impact. The student learning is intense and real, and the community gets its problems addressed in creative ways."

– Detroit Business Leader



Learning Naturalist

Designs and deploys assessment protocols that capture evidence of learning in students' diverse learning environments and contexts.

Drivers of Change

- Increasing use of problem- and project-based learning
- Increasing ability to assess higher-order skills such as critical thinking, collaboration, creativity, and problem-solving
- Expansion in data capture methods and in techniques for analyzing audio, video, and digital interaction trails
- Increasing neuropsychological understanding of memory, attention, focus, and other aspects of cognition

Job Description

Learning naturalists provide a rich picture of student learning as it unfolds naturally in learning environments, including schools and other learning centers as well as community-based settings such as museums, maker labs, cultural centers, internship venues, and other settings. Through unobtrusive observation informed by the research methods of developmental psychology, ethnography, and the natural sciences that stress direct observation of phenomena in the field, learning naturalists combine rich qualitative and quantitative analyses of observable behaviors to discern patterns of behavior and make meaning of learner performance. They capture data both in person and via digital video and audio technologies. Among other examples, that data can include the number and level of vocabulary words communicated in student conversations, the kinds of questions and follow-up interactions among student work groups, the amount of time students spend on specific tasks, and the flow of interactions with peers and learning journey mentors. Learning naturalists use artificial intelligence tools to harvest this data for deep insights into learners' mastery of standards as well as their acquisition and application of skills and their development as active thinkers, creators, and collaborators. They also use the data to help learning journey mentors and other educators systematically reflect on and improve their own practice and address achievement gaps. Some learning naturalists work full time for organizations that pride themselves on having comprehensive teams, while others work as independent practitioners who focus on helping new programs establish their assessment protocols or on carrying out specific elements of those approaches.

Recruiting Announcement

Eaglecrest Learning Commons is seeking a learning naturalist to help set up a learning research strategy and assessment protocol for its new middle school program, "Sustaining Healthy Ecosystems." That program will combine social studies, environmental science, engineering, and communications curricula to engage learners in hands-on design and project work along with real-world data collection. Students will work on their own to build fundamental skills and content knowledge, will participate in group discussion and brainstorming activities, and will contribute to problem-solving teams at various co-learning locations in the community. The research approach and assessment protocol must address each of these settings while providing clear evidence of learning. Experience in educational ethnography, behavioral psychology, and quantitative and qualitative digital media content analysis is preferred.

"I'll know we've been successful integrating our learning naturalist when our teaching staff asks to watch the curated teaching video streams as prep for our curriculum review and design sessions. They're excited to use rich qualitative evidence about teaching and learning to design effective experiences and assessments."

– Academic Director, Eaglecrest Learning Commons



Micro-Credential Analyst

Provides trusted, research-based evaluations and audits of micro-credential options and digital portfolio platforms in order to provide learners and institutions with comparative quality assurance metrics.

Drivers of Change

- Diversification of learning opportunities, including after-school programs, internships, online games and courses, and collaborative media creation and maker centers
- Increasing interest in assessing higher-order skills such as critical thinking, collaboration, creativity, and problem-solving
- Shift from seat time to demonstration of mastery to measure competencies and aligned learning objectives
- Rise in number of alternative credentials and their increasing acceptance in diverse settings

Job Description

Playing a crucial quality assurance role, micro-credential analysts verify, rate, and communicate the rigor of micro-credentials – including badges, certificates, and other mechanisms for demonstrating mastery of discrete skills and concepts – in increasingly unbundled and disaggregated learning ecosystems. Micro-credential analysts look under the hood, so to speak, of competency-based micro-credentials to determine whether credential issuers have complied with assessment protocols and whether those protocols are sufficient to reflect and determine mastery. In so doing, micro-credential analysts provide third-party expert audits of the offerings on micro-credential and digital portfolio platforms, providing users such as learners, employers, and learning institutions with a trust mechanism for evaluating credentialing and portfolio options. Their audits report on the quality and rigor of micro-credential assessment protocols. They also take into account user satisfaction data, sometimes incorporating crowdsourced reviews alongside their expert knowledge. Micro-credential analysts also help other educators and learners understand the relative impact of various micro-credentials on learners' subsequent education and employment opportunities.

Recruiting Announcement

The California Office of Education Equity and Quality seeks an experienced micro-credential analyst to join a growing team of analysts to develop a quarterly review publication assessing the quality of micro-credentials offered by learning providers within the state. The micro-credential analyst will provide an in-depth analysis of micro-credential offerings and possible learning pathways toward achieving them. The ideal candidate must be able to conduct qualitative reviews and must also be able to work with other micro-credential analysts to determine the success rates and trajectories of various micro-credentials; verify stated assessment objectives with performance tasks; and communicate review data in formats that are accessible to learners as well as to diverse education stakeholders such as policy-makers, regional health and career services decision-makers, and employers. Experience in educational standards development and in the creation of assessment rubrics and protocols is preferred. Experience in algorithm design and statistical modeling is also a plus.

“The California Office of Education Equity and Quality’s micro-credential review process helps bring a quality filter to the micro-credential explosion. We used to struggle in helping teen and young adult learners find providers with reputable offerings and credentialing mechanisms. Knowing that someone is monitoring these credentialing options lets us focus on helping the kids.”

– Community College Student Advisor



Data Steward

Acts as a third-party information trustee to ensure responsible and ethical use of personal data and to maintain broader education data system integrity and effective application through purposeful analytics.

Drivers of Change

- Increasing volume of data being captured from student learning activities
- Increasing number and kind of entities capturing and tracking learning-related data
- Increasing concern about student privacy and the security of student-level data
- Growing need for cross-agency data to support the provision of complementary youth services
- Emerging understanding of the potential for personal data to be treated as an asset

Job Description

Data stewards function as information trustees who protect learner privacy and inform students and their families about their rights and opportunities related to third-party use of personally identifiable information. Data stewards also seek to grow the value of learners' personal data for both learning ecosystems and learners. They do so by managing learner data to provide returns in the form of collective impact to the community, the provision of personalized services, and the surfacing of patterns that need ecosystem-level attention. Through their dual focus on privacy and value, data stewards help bridge the data-related needs of education decision makers and the privacy-related needs of students and their families, with the goal of creating more effective and coherent services and interventions for learners and their families. Toward that end, data stewards manage secure cross-agency data warehouses and data sharing systems as a sustainable public asset on behalf of all learners in the community, with a particular focus on equity. They also issue guidance for learners and their families; recommend metrics packages that align to and measure goals of learning venues, individuals, and agencies; and manage infrastructure enabling learners and educators to set up secure personalized learning contracts that help learners carry out distributed learning playlists.

Recruiting Announcement

The Greensburg Tri-County region is looking for an experienced data steward who can become the new executive director of the region's learning data trust. Responsibilities include oversight of secure cross-agency data warehouse system; management of existing, and creation of any new, universal consent and permission mechanisms to facilitate data sharing; and collaboration with in-house and external data analytics developers to provide strategic recommendations to local education, health, and social service agencies to improve services through data. Experience negotiating data sharing agreements is a must, as are experience building cross-agency trust and collective impact data strategies and experience managing the implementation of data security measures.

“When our school signed on with the Tri-County Data Trust, I worried about privacy and who was going to see my kids’ data. But the targeted education, health, and social services that we get now that they have our data far outweigh any fears I used to have. I now think of my kids’ data as a resource that I use to maximize their education.”

– Greensburg Tri-County Parent

Educator Role Diversification: Promises and Pitfalls

These future educator roles reflect much greater specialization of human capital than exists in the education system today. The roles themselves are more specialized, and the settings in which people holding them are employed are more diverse and fluid. This section explores some possible implications of such a diversification of educator roles, including both promises and pitfalls.

Attracting Diverse Talent

This diversification of educator roles promises to alleviate the burden of supporting many of the core functions of learning from today's often overloaded teachers and administrators. It is also likely to create more satisfying career pathways for existing educators, both by making it more possible for each individual to maximize his or her strengths in supporting learning and by opening up more avenues for professional development over the course of an individual's career.

The diversification of educator roles will attract more kinds of people to employment in learning ecosystems, increasing the pool of talent and the range of skills and proclivities available to them. As we have suggested elsewhere, increasing the structural diversity of learning ecosystems can make them more resilient, such that they have greater capacity to adapt as circumstances and learners' needs evolve.⁸ Increasing the diversity of human capital will also be crucial for helping learning ecosystems adapt to and thrive in the changing landscape in which education operates and for which it prepares learners.

Personalizing Learning

Having more kinds of roles in learning ecosystems will expand possibilities for delivering niche offerings that reflect learners' particular needs and circumstances. Some of the roles imagined here focus on helping



Having more kinds of roles in learning ecosystems will expand possibilities for delivering niche offerings that reflect learners' particular needs and circumstances.

learners access and connect learning experiences, whether through direct orchestration of and reflection on their learning journeys or through the surfacing of assets and opportunities for use in learning. In particular, the learning pathway designer plays a key role in fostering coherent, meaningful, and goal-oriented personalized learning, using deep knowledge of individuals and enduring relationships to help learners and their families make sense of the expanding education landscape. Working more at the group level, the social innovation portfolio director helps student action learning groups connect with learning experiences that reflect their academic goals while also tailoring collaborations to the specific community

needs. The competency tracker role supports personalized and competency-based learning experiences by surfacing the assets available to learners in the community learning layer. The pop-up reality producer uses that layer, along with transmedia learning assets and resource platforms, to create immersive experiences that appeal to some learners or that mean different things to different learners. Lastly, the learning naturalist enables learners and educators to develop deep understanding of individuals' progress toward academic competencies as well as their development of core social, emotional, and cognitive capacities.

Fostering Ecosystem Interconnections


Moreover, diversification of educator roles will make it easier to foster interconnections across learning ecosystems, such that niche offerings exist not in isolation or behind clearly drawn boundaries but as part of a coherent whole across which learners move as appropriate to their interests and learning objectives. The cross-community dimension of the social innovation portfolio director role serves such a catalytic function. To the extent that pop-up reality producers travel across communities, they too link learning across communities. Thinking more broadly, the data steward role supports learning ecosystem interconnections by safeguarding and guiding the use of learner and learning-related data and by surfacing

⁸ Prince, Katherine, Saveri, Andrea, and Swanson, Jason (2015).

needs and inequities. So too the micro-credential analyst provides a layer of trust and quality assurance that helps learners and their families make sense of diverse credentialing options, inspires learning providers to attain high standards, and supports learners in moving fluidly across coherent learning and employment pathways.

Extending Partnership and Authority

Looking beyond the specialized ways in which they contribute to making learning ecosystems vibrant, the educator roles explored here reflect new kinds and new levels of partnership. Whether or not educator swarms become common, educators can expect to partner in new ways with one another and with learners as learning ecosystems become more distributed and disaggregated. New partnerships with technology are also likely to emerge. The educator roles explored here demonstrate ways in which new data streams and sensemaking tools promise to augment human contributions to teaching and learning. Intelligent machines are likely to become partners in code that help educators navigate information-rich learning environments, deepen their understanding of and support for learning, and focus their attention on the more creative and personal dimensions of learning.



Over the next decade, educational authority will broaden to include more kinds of organizations and experiences.

This potential for deeper and more extensive partnerships across an expanding learning ecosystem highlights a shift not only in how and with whom educators will work but also in the ways in which authority functions within education. Today, educational authority resides primarily with schools that are approved by state departments

of education or accredited by sanctioned bodies and with educators who have attained licensure. To a lesser extent, authority resides with community-based organizations whose stature and service records create reputation currency and with online learning providers that learners and educators vet through user experience or which states authorize as formal alternatives to brick and mortar schools. Over the next decade, educational authority will broaden to include more kinds of organizations and experiences. The lines between formal and informal or community-based education will continue to blur as many kinds of organizations and many kinds of curated and free-choice learning experiences contribute to increasingly diverse constellations of learning opportunities.


Ensuring Rigor and Quality

As educational authority resides less with institutions and more with learning ecosystems and their users, new forms of quality assurance and new ways of verifying learning instances will support educators in working across more flexible structures. Education stakeholders will need to develop quality assurance frameworks appropriate to diverse learning environments. As explored elsewhere, those frameworks will need to ensure the quality of educators and learning experiences, help monitor the distribution of resources for equity, and help integrate all levels of the learning ecosystem. Equitable funding structures and supportive policies will also serve as essential systemic supports.⁹ However, solutions designed to ensure rigor and quality or to promote equity might not look the same in all learning ecosystems. So too might educator roles be configured differently from one context to the next.

Reimagining Educator Preparation and Career Pathways

Current approaches to educator licensure will be challenged by this broadening of authority and blurring of boundaries, as well as by the diversification of educator roles and by variance in ecosystem configurations. There will need to be many more ways of certifying an individual's effectiveness in contributing to learning, both in regard to showing competency to perform a single role and in regard to the diverse requirements of more specialized roles. Some of those certifications might pertain to full-time educator roles, while others might pertain to specific competencies or contexts, such as collaborating with community institutions to develop learning resources or developing action-learning networks.

⁹ Prince, Katherine (2014a).



Educator preparation and professional development also need to diversify, with new approaches emerging as new capacities become more prominent in learning ecosystems. For example, new educators might devote time to developing core pedagogical skills while also pursuing specialized concentrations in areas such as data analytics, natural assessment design, or transmedia production. In turn, experienced educators seeking to develop their careers might pursue very targeted or experience-based learning experiences in place of traditional masters' degrees. Some of those learning experiences could take the form of sabbaticals or externships designed to help individuals bring new capacities into learning ecosystems.

Given such needs, there will be both significant opportunity and significant challenge in transitioning current programs and approaches to fit a greater range of needs and in fostering cultural acceptance of more varied educator backgrounds and preparation pathways. In addition, current educators will need significant support in transitioning to new roles or in adapting their current roles to changing organizational and systemic contexts. Even those who work as learning journey mentors, the role closest to that of today's classroom teacher, can expect to be working in new contexts and with new partners.

Current educators will need significant support in transitioning to new roles or in adapting their current roles to changing organizational and systemic contexts.

Lastly, an expansion of educator roles will call into question current employment structures and labor relations. Some educators may focus on emerging uncertainty about job security as new kinds of career pathways are forged and tenure and retirement systems adapt. However, there is potential for greater career growth and flexibility as education shifts from a hierarchical organizational model to more networked ecosystems of roles and relationships. Educators are likely to have more options in negotiating how they contribute to learning

and are remunerated, as well as greater choice about how much and in what ways they work. However, navigating the job market will get more complex, especially to the extent that some roles become primarily contract based. As these changes unfold, unions have the opportunity to provide leadership in supporting and facilitating the development of the new education professionals.

Choosing the Future

Considering possibilities for future educator roles highlights both the complexity of changing long-standing education systems and also the potential for thinking anew about how learning ecosystems configure to support learners. Our current approaches to teaching and learning were designed to reflect the needs of learners and society at particular points in time. They also reflect particular structures and assumptions about how to organize teaching and learning. As education stakeholders design education for the world that is emerging, we have the opportunity to make new choices about how human capital contributes to learning. Developing human capital for personalized learning ecosystems is an essential pathway toward making future learning ecosystems vibrant for all learners. A critical uncertainty is the extent to which new educator roles will be integrated within traditional school settings or supplemental to them. That question reflects a broader one about the extent to which learning ecosystems will integrate traditional schools with online, community-based, and self-directed learning.

Education stakeholders have the opportunity to harness current trends to create a future in which many kinds of learning environments contribute to flexible and effective value webs that enable both learners and the adults supporting them to thrive. New educator roles will be necessary to maximize the potential of the expanding learning ecosystem and to ensure that all learners have access to meaningful personalized learning. The choices that education stakeholders make about educator roles today will help shape future possibilities. We invite you to consider what roles you would like to see in learning ecosystems and how you might contribute to creating them.

Exploring Further

The questions below can help you begin to explore with colleagues what the diversification of educator roles might mean for you, your organization, and the learning ecosystem(s) to which they contribute.

1. **Pick three educator roles** that intrigue you and discuss how those roles might impact your organization or the learning environments with which you work. Where might the roles present opportunities or threats?
2. **Explore what new skills** people working in your organization or in learning environments with which you work might need to develop to contribute effectively to future learning ecosystems and thrive as professionals. How might you support them in developing those skills or in accessing appropriate training?
3. **Prototype the design** of a niche learning experience or service offering that makes use of one or more of these new educator roles while also leveraging the distinctive strengths of your organization or other assets in the learning environments with which you work. What might the offering look like? How might it connect with other offerings as part of a coherent learning ecosystem?

About KnowledgeWorks

KnowledgeWorks is an Ohio-based non-profit social enterprise that works to foster meaningful personalized learning that enables every student to thrive in college, career, and civic life. KnowledgeWorks works on the ground with schools and communities through a portfolio of innovative education approaches, helps state and federal leaders establish the policy conditions necessary to prepare all students for success, and provides national thought leadership around the future of learning. To learn more about our strategic foresight work, see <http://knowledgeworks.org/future-learning>.

About the Authors

Katherine Prince leads KnowledgeWorks' exploration of the future of learning. As Senior Director, Strategic Foresight, she speaks and writes about the trends shaping education over the next decade

and helps education stakeholders strategize about how to become active agents of change in pursuing their ideal visions for the future. Katherine holds a BA in English from Ohio Wesleyan University, an MA in English from the University of Iowa, and an MBA from The Open University.

Andrea Saveri of Saveri Consulting makes the future actionable for clients through research-based foresight, visual maps, forecast artifacts, and highly creative engagement experiences. She partners with clients to create clear strategic pathways to transformation and resilience in a highly complex world. In her practice at Saveri Consulting, Andrea has worked with diverse education clients in projects focused on bringing long-term futures thinking, emotional intelligence, and a maker mindset to all learners. She recently joined the Institute for the Study of Knowledge

Management in Education as Director of Action Collab Services and is developing methodology-based services that enable educators to accelerate their capacity for collaboration, innovation, and design. Andrea is a graduate of Harvard University and the University of California at Berkeley.

Jason Swanson is the Director of Strategic Foresight at KnowledgeWorks, where he helps lead the organization's research into the future of learning. Jason holds a BA in Public Policy from West Chester University and an MA in Foresight from the University of Houston and was an Emerging Fellow with the Association of Professional Futurists.

Acknowledgements

Many thanks to KnowledgeWorks colleagues Nancy Arnold, Sarah Jenkins, Jesse Moyer, Lillian Pace, Judy Peppler, and Matt Williams for their feedback on this paper.