

Education for the Next Generation

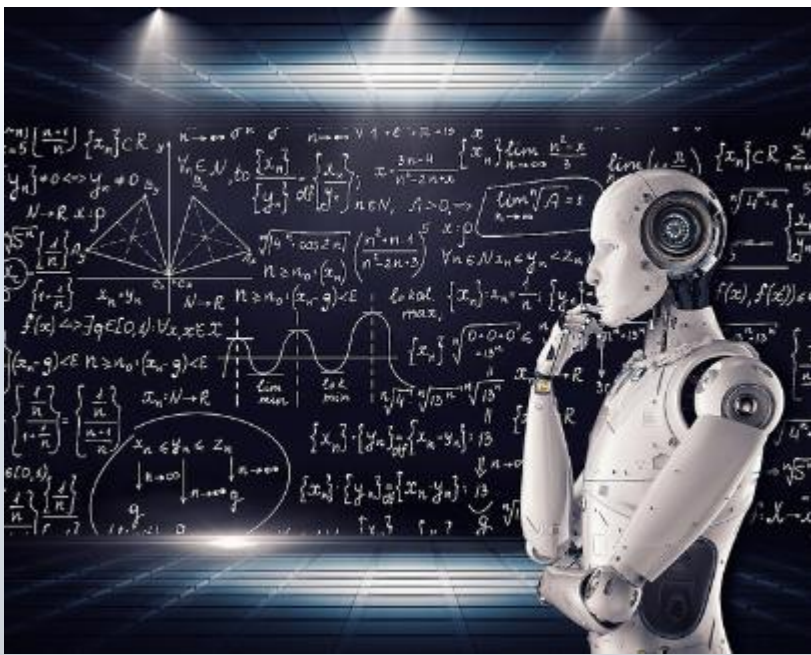
Diana Oblinger

June 4, 2019

The mission of higher education does not change, but the context does.

DIGITAL TRANSFORMATION

Professional work is being
reconfigured.



Smart Machines

- AI will contribute up to \$15.7 trillion to the world economy by 2030
- Global GDP may grow 14% as a result of AI
- By 2020 algorithms will positively alter the behavior of over 1 billion workers
- 6.2 billion hours of worker productivity recovered by 2021

- AI solves problems but doesn't replicate the thinking process of humans
- Uses “brute force” computing enabled by massive processing power and memory
- Applications span all disciplines

Occupations will evolve
alongside increasingly capable
machines.



Jobs Gained, Changed and Lost by 2030

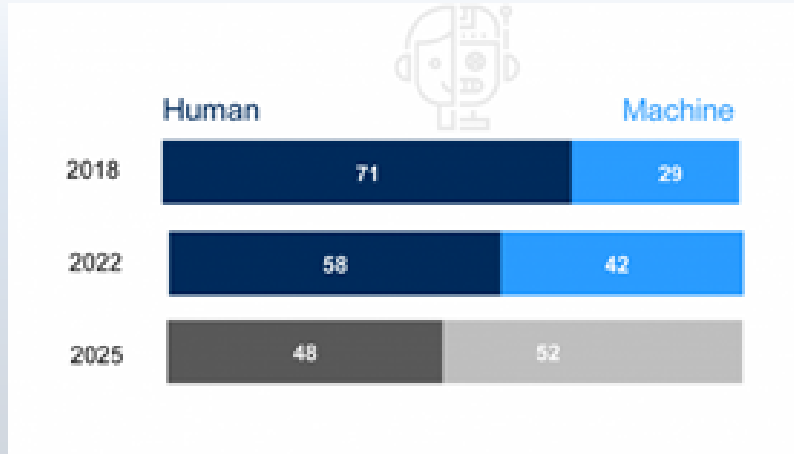
- One-third of the workforce may need to learn new skills or occupations
- 8-9% of labor demand will be in new types of occupations
- It will be a challenge to ensure professionals have the skills to support the transition to new positions

Jobs Changed

- New technologies have spurred the creation of more jobs than they have destroyed
- When tasks are automated, workers perform new tasks
- New technologies have raised productivity growth

There will be a new division of
labor between “man” and
machine.

New Ways of Working

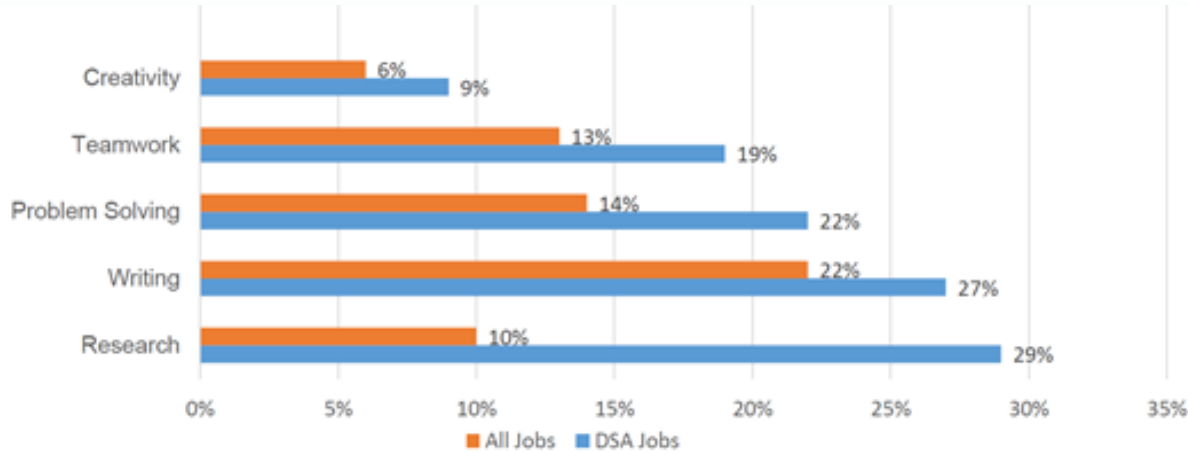


- Work will be unbundled and re-bundled
- The machine share of task hours will increase from 29% to 52% by 2025
- Workers will need the right skills to complement new technologies
- “Digital dexterity” and the ability to use information as a second language will be critical

- Tasks will shift from high-skilled workers to lower-skilled ones
- Workers will need 101 days of retraining and upskilling by 2022
- 50% of organizations will lack sufficient AI and data literacy skills
- Cross-functional and agile ways of work will increase

Sustainable career paths
depend on transferable skills.

“Mobility Skills”

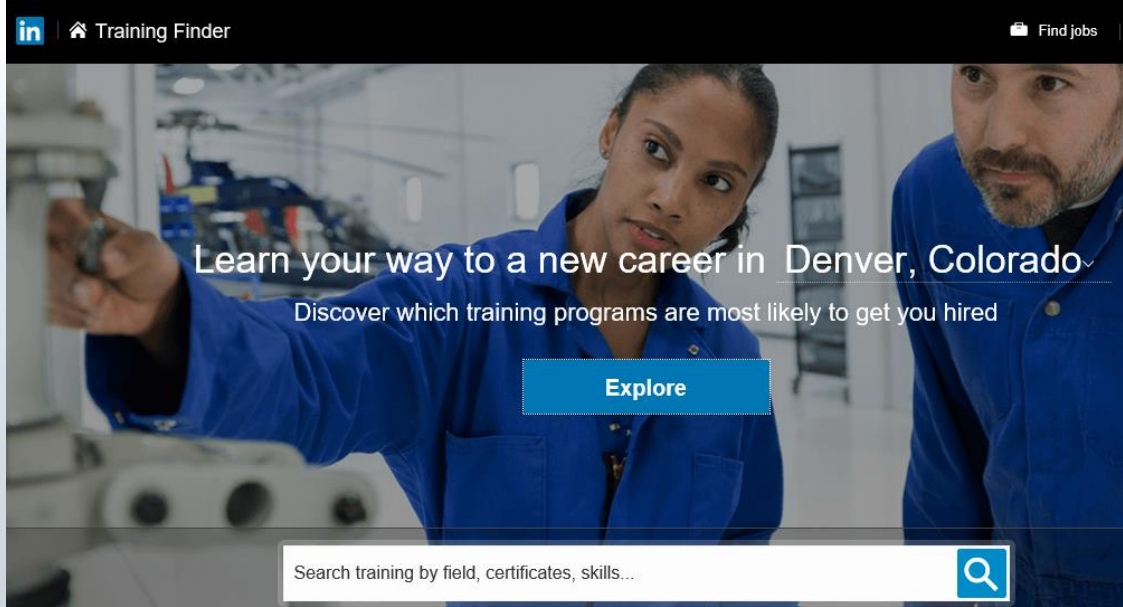


- These uniquely human skills transfer from domain to domain
- Increase in hybrid jobs: every job is “digital”
- Human+ skills combine technical skills with human skills such as
 - Programming + communication
 - Artificial intelligence + emotional intelligence
 - Logic + ethics

“Soft skills” are really employability or mobility skills

- Critical thinking
- Problem-solving
- Communication
- Collaboration
- Planning and project delivery
- Teamwork
- Metacognition

A global skills marketplace is
emerging.



LinkedIn

- Credential and competency clearinghouse, connecting and developing talent
- 562M registered members; 200 countries; 50M skills; 20M companies; 15M open positions; 60M schools
- Signaling between sectors improves career readiness
- Talent development guidance, e.g., LinkedIn Learning

Talent Platforms

- Online talent platforms help match job-seekers with skills and link to the labor market—a way of closing the skills gap
- National programs, e.g., Singapore’s SkillsFuture, aim to grow skills
- Talent development via a “60-year curriculum”

Rather than being
“disrupted,” we can use
disruptions for design.

COLLEGE SUCCESS

Digital skills will be required in
all disciplines.



Medicine in the Digital Age: Mainz, Germany

Premise: Doctors and patients have changed in the digital age, as has medical practice

- Data and biobanks of patients can be analyzed (big data and predictive medicine)
- Smart systems, digital remote systems and robotics can offer precision, personalized approaches
- Physicians need information literacy to integrate digital medicine approaches and weight risks and benefits

Medicine in the Digital Age

Medical students need key digital skills

Units include:

- Social media
- Digital physician-patient communication
- Smart devices
- Apps
- Telemedicine
- Virtual reality
- Big data

You learn to do what you do.



Experiential Learning

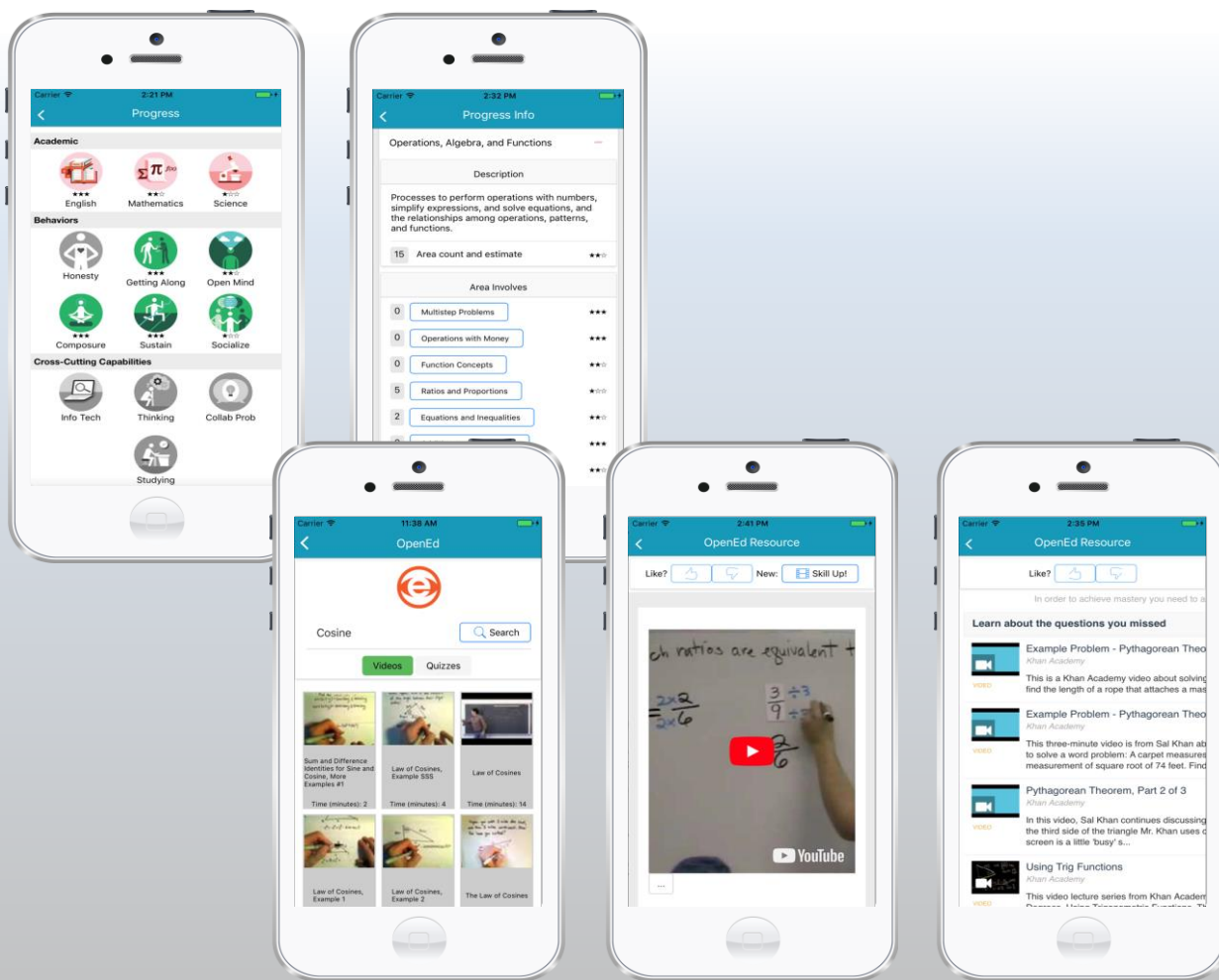
- Augmented, virtual and mixed reality embed students in their learning, resulting in greater retention
- Other forms of experiential learning include:
 - Simulations
 - Games
 - Haptics

- Experiential learning has greater learner engagement
- Outcomes include greater ability to:
 - Innovate and take risks
 - Solve complex problems
 - Collaborate across differences
 - Think critically and reflect on learning

Assessment will become
continuous and a fundamental
part of learning.

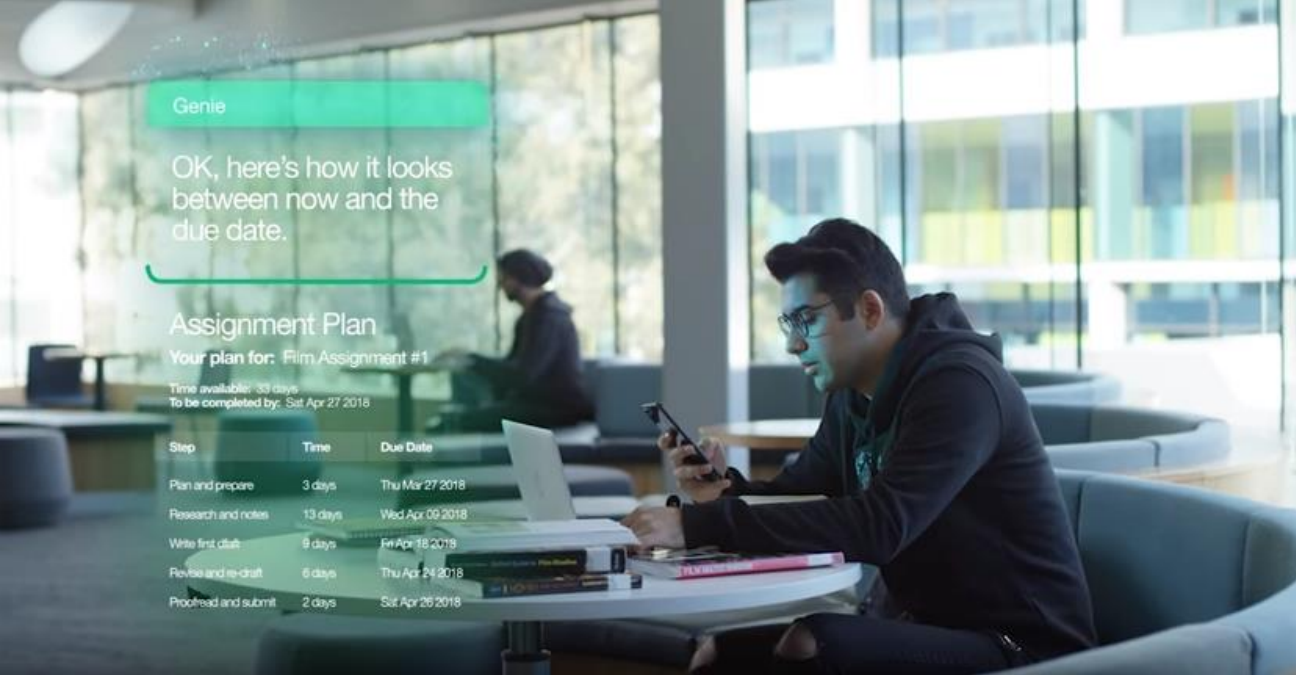
Self-Directed Pathways

- Dynamic cognitive diagnostic models and machine learning algorithms personalize pathways
- Useful for improving cognitive and social/emotional skills
- Forms an infrastructure for personalized, holistic learning
- Applicable in K-12, HE and workplace



Educational Companion App: ACTNext

Virtual personal learning assistants can augment human capabilities.

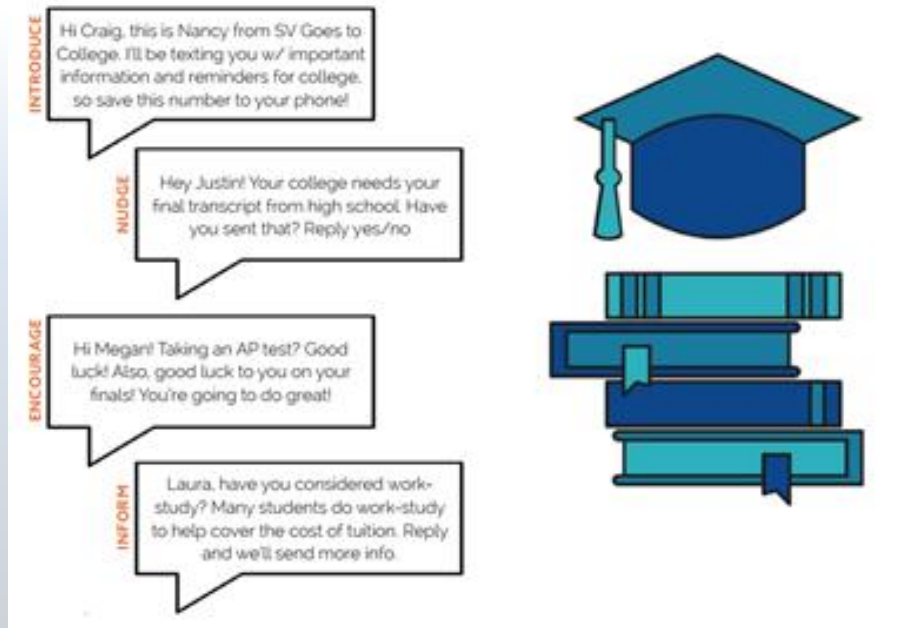


Augmenting Humans

- Personalization is an approach to engagement
- Users expect fast, easy, 24x7 tailored experiences
- Chatbots can provide first level of support
- AI can help pinpoint students who need additional support

- Intelligent virtual assistants provide student support, augmenting human capabilities
- Platforms integrate mobile, chatbots, artificial intelligence, voice recognition, and predictive analytics
- Teacherbots (e.g., “Jill Watson” at Georgia Tech) augment TAs
- Georgia State University handled 200,000 calls during enrollment period with chatbot, reducing attrition by 20%

Nudges can guide learners
to better outcomes.



Influencing Behavior

- Nudge theory: behavior can be influenced by small suggestions
- 97% of college students use texting as their primary means of communication
- Used in admissions, financial aid, student success, courses, alumni relations

- The cost of student attrition is estimated at \$16.5 billion
- Community college freshmen in financial aid campaign were 14 points more likely to persist; with an average enrollment of 12,000 students \$2.9M would be saved in tuition/year
- Students in another campaign completed more freshman credits; change was most pronounced for low-income students

Students want control of
their own records.



MIT Digital Diploma

- Digital diploma can be instantly shared for free
- Diploma can be verified by employers without going through an intermediary
- Uses block-chain technology (Blockcerts)
- The format cannot be faked

Block-Chain Records

- Students can have autonomy over their own records rather than a diploma belonging to the college
- Multiple credentials and micro-credentials may be linked

CAREER SUCCESS

Learning will come in all sizes.

Acknowledge & Appreciate

"Appreciation can make a day - even change a life. Your willingness to put it into words is all that is necessary." — Margaret Cousins

Read & Apply

Especially coming from you, a little acknowledgement and appreciation goes a long way in validating the work of your team members. This week, pay extra attention to the contributions each person on your team makes, whether big or small — especially if they have not been recently recognized by you or others. Authenticity is crucial here— only use these experiments when you genuinely appreciate what your team member said or did!

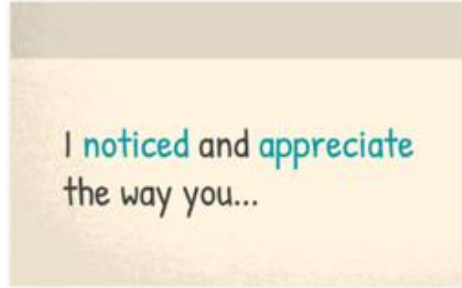
In 1:1s, you might say:

- *"I noticed and appreciate the way you [did X]"*

In a team meeting, try:

- *"That's a really thought provoking point that you brought up because..."*

P.S. Bonus experiment: Not everyone likes to be recognized in the same way. In your 1:1s, ask "how do you prefer to be recognized?" (e.g. privately vs. publicly, over email or in person)



Google “Whisper” Courses

- Microlearning is used to nudge managers to take action when they receive management survey results
- Managers who receive whisper lessons improve on the attribute by 22-40%
- 95% of participants recommend the course

Micro-learning

- Microlearning: skill-based education using micro-content
- Activities can be integrated into the learner’s daily routine
- Immediate application of learning increases participation and knowledge

Next generation assessments
can discover talent.

DISCOVER YOUR TRUE POTENTIAL

EquitySim discovers top candidates through an objective and holistic data-driven approach powered by artificial intelligence and I/O psychology

REGISTER NOW



EDUCATIONAL
SIMULATION



GET NOTICED
+ BE SEEN



COMPREHENSIVE
RESOURCES + SUPPORT



ONE APPLICATION,
MANY OPPORTUNITIES

EquitySim is the recruiting engine reinventing how employers evaluate and identify the next generation of top talent

EquitySim

- Simulation platform for trading stocks, bonds, currencies and securities
- Up to 100,000 data points feed algorithms
- EquitySim serves as recruiter for internships and entry-level trading positions

Discovering Talent

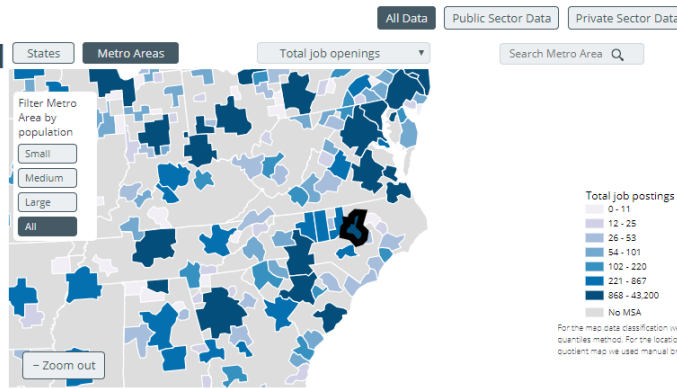
- Simulation as a predictor of on-the-job performance
- Helps identify top talent at institutions employers don't usually recruit from
- 48% of EquitySim hired students are female (compared to 25% for campus recruitment)

New skills are reshaping the
job market.

Cybersecurity Supply/Demand Heat Map

Cybersecurity talent gaps exist across the country. Closing these gaps requires detailed knowledge of the cybersecurity workforce in your region. This interactive heat map provides a granular snapshot of demand and supply data for cybersecurity jobs at the state and metro area levels, and can be used to grasp the challenges and opportunities facing your local cybersecurity workforce.

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Raleigh, NC

TOTAL CYBERSECURITY JOB OPENINGS

2,815

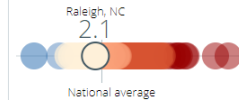
TOTAL EMPLOYED CYBERSECURITY WORKFORCE

5,988

SUPPLY OF CYBERSECURITY WORKERS

Very Low

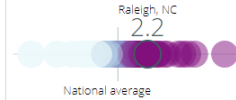
CYBERSECURITY WORKFORCE SUPPLY/DEMAND RATIO



GEOGRAPHIC CONCENTRATION

Very High

LOCATION QUOTIENT



TOP CYBERSECURITY JOB TITLES

- Cyber Security Engineer
- Cyber Security Analyst
- Network Engineer / Architect
- Systems Engineer
- Software Developer / Engineer
- Cyber Security Consultant
- Cyber Security Architect
- Vulnerability Analyst / Penetration

CyberSeek

- Career pathways tool allows users to explore jobs, salaries, skillsets and education credentials
- Identifies in-demand certifications and “feeder roles”
- Data provides feedback to educators to design or modify curricula

Skills for Emerging Jobs

- Industries are being transformed, creating new roles and the need for transition pathways
- 88% of students plan to pursue further education programs (in < 2 years)
- 49% of students believe credentials are essential to their career goals
- Certifications can carry a salary premium (e.g., 18%)

Connections can be created
between workplace learning
and degrees.

Northeastern University

College of Professional Studies



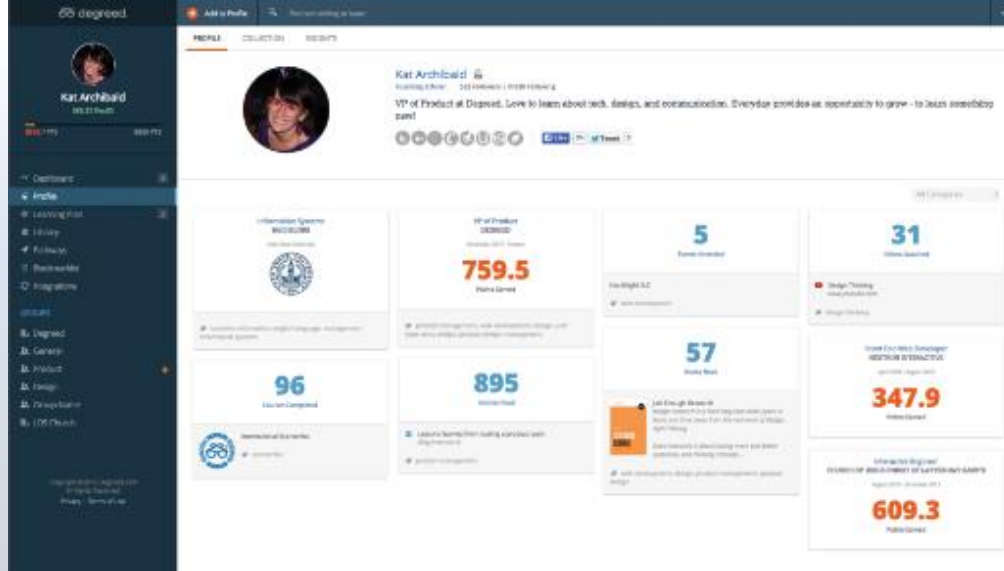
IBM Badges and Northeastern University

- IBM badge credentials can be used towards Northeastern University professional master's degrees:
 - Data analytics
 - Project management
 - Program and portfolio management
- Converts industry knowledge to college credit

Badges to Credentials

- Provides pathway from workplace learning to academic degrees
- IBM has issued more than 850,000 badges; more than half have been matched to NU's academic portfolio
- IBM developing joint badge programs (Wake Tech)

Certificates, diplomas, and
informal learning are being
integrated into online
identities.



Degreed

Skills framework creates data about what people can do and matches them to career opportunities

- Skill Review
- Individual Development Plan
- Career Pathing

Creates a personalized learning profile and dashboard with a point system, similar to a FICO score

Continuous Learning

- Online, updatable framework to track and score learning
- Tools recommend, track, organize and validate online education (e.g., TED talks, MOOCs, Lynda.com, etc.)
- Integrates academic, professional, and informal learning activities

IMPLICATIONS

For the next generation of education, consider:

- The importance of “digital dexterity,” digital literacy or using information as a second language
- The development of “mobility skills”
- Assessment as a fundamental navigation tool for lifelong learning
- Integrated, lifelong digital credentials
- Long-term learning relationships and talent development integrated with business and government

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Citations

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