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Experiencing Excellence

The Value of Experiential Technical Learning

RESEARCH BY:

Gina Smith, Ph.D.
Research Director,
IT Skills for Digital Business

Lewis Ward
Research Director,
Gaming, eSports and AR/VR

November 2022 | IDC Doc. #US49754122

Navigating this InfoBrief

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Executive Summary

It really is this simple: Humans learn better hands-on.

A century of learning theory suggests that **we grasp new material faster–and we retain new material longer–when we experience it directly.** When we can get our hands dirty. When we can practice a new skill until we master it under real-life conditions.

Experiential learning is a powerful way to help learners deepen and master new skills, especially when used in concert with other teaching methods.

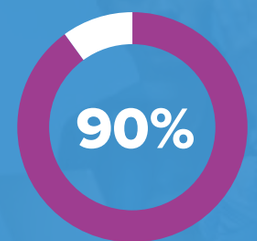
This IDC InfoBrief will explore how IT leaders can and are employing game-like experiences, quest-oriented events, hackathons, and other experiential journeys to help employees upskill faster.

As a complement to traditional classroom training, **self-paced e-learning sessions, and virtual instruction, experiential learning can help employees strengthen and hone pragmatic tech skills from a unique angle that studies show makes an appreciable difference.** The approach can enhance critical and creative thinking skills as well as improve communication.

This IDC InfoBrief will address **how and why enterprises should consider adding experiential learning to their IT tech skill regimens.**

$6.5T

By 2025,



of organizations will feel the impact of the skills shortage, costing $6.5T worldwide in delayed product releases, reduced customer satisfaction, and lost revenue and profits.

Source: IDC FutureScape: Future of Work 2022 Predictions, October 2021

The Skills Shortage: A High-Stakes Game

More than half of IT leaders in every sector, and across all geographies, tell IDC they're feeling the impact of the IT skills shortage in 2022. The race to upskill new employees and reskill current employees is on.

40% of IT leaders say the IT skills shortage has led to digital transformation (DX) project delays of four to five months, on average

39% say a lack of skills has caused lost revenue

38% say a lack of skills has resulted in lost competitiveness

- To avoid such costly delays and losses, enterprises are moving to devise and implement plans that help attract and retain more high-skill employees

53%

Continuing pandemic pressures, supply chain problems, fears around recession and inflation, global conflicts, and the Great Resignation now impact more than half the organizations IDC surveys globally.

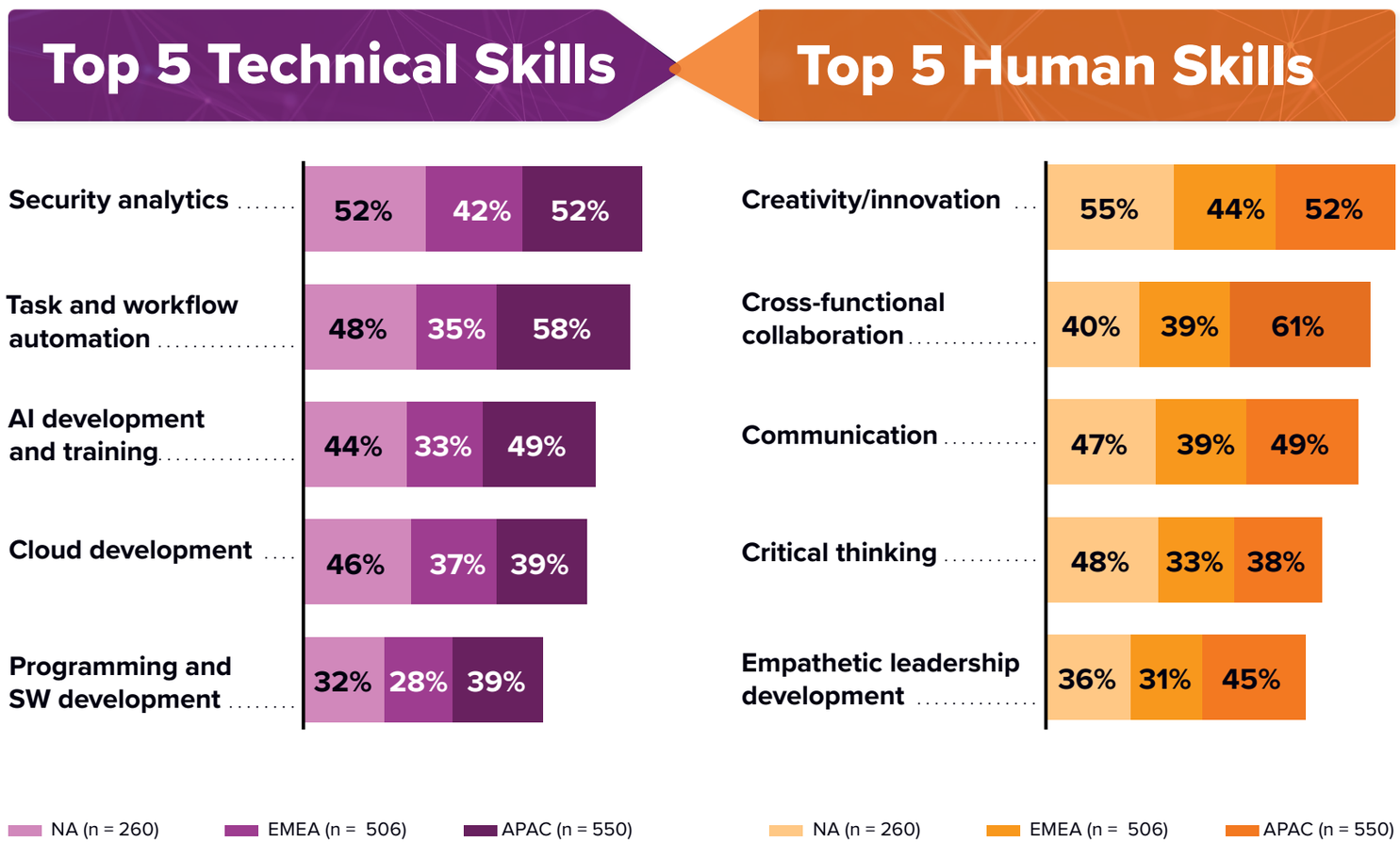
n = 816; Source: IDC's *2022 Future of Enterprise Spending and Resilience Survey, Wave 6, July 2022*

Right People, Right Roles, Right Skills

Amid a looming IT skills shortage and in the wake of the Great Resignation, training the right employees with the right skills and getting them into the right roles is an ongoing challenge.

More than **two-fifths (43%)** of IT leaders tell IDC **the skills shortage is a top concern**, even in light of global conflicts, supply chain challenges, inflation, and the COVID-19 pandemic

- The five most in-demand technical skills, according to IDC's most recent survey, are security analytics, artificial intelligence (AI), cloud, task and workflow automation, and software development.
- The top five most in-demand human skills, IT leaders tell us, are creativity, collaboration, communication, critical thinking, and empathetic leadership development.



n = 1,316; Source: IDC's *Global Future of Work Survey,* April 2022

Reinforcement: The Value of Training

Enterprise leaders say the skills most urgently needed relate to security, IT service management, data analytics, and cloud.

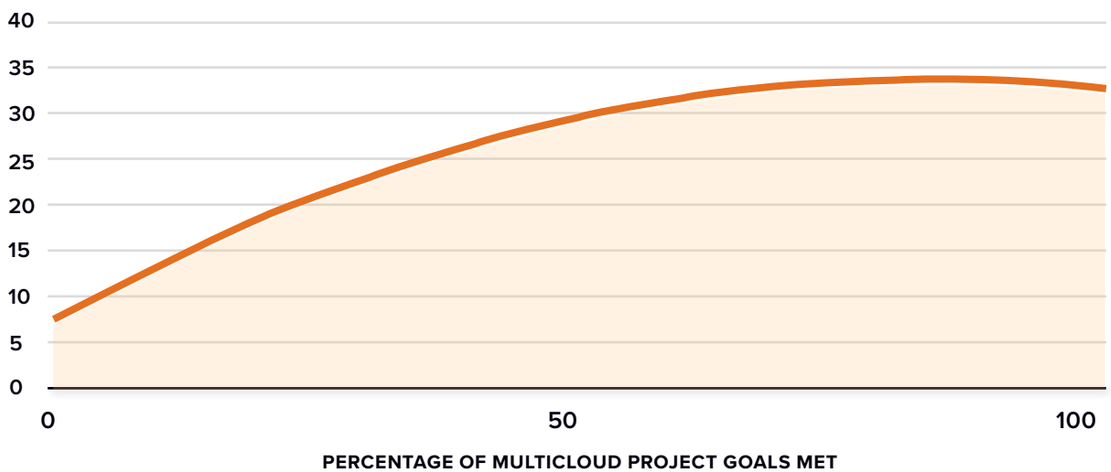
- Research shows that **more training tends to lead to more successful cloud, automation, IT management, and AI/ML projects,** with more project goals met tracking to more hours of training.
- In 2022, self-paced learning continued to surge ahead of classroom training in both use and end-user preferences.
- **Most enterprises prefer to offer a mix of self-paced courses and instructor-led training, virtually or on site.** We expect lab-based and virtual courses to experience growth in 2023.
- IT leaders not only need people with tech skills but also stakeholders who can create and think critically together.
- We believe most enterprises will benefit from leaning into smarter hiring and more effective employee retention policies. **Enterprises should also reap upsides from holistic, multidisciplinary approaches to employee upskilling.** Not everyone learns the same way. Some skills "sink in" better via a specific channel.

More Training Means More Project Success

(Cloud example. Hours of multicloud training)

Q. Approximately how many hours did each involved (multicloud) team member receive?

Q. What percentage of business or IT objectives did the project fully meet?



In every sector, global IT leaders in charge of automation, cloud, AI/ML, and IT management projects say more training correlates with more project goals being met

n = 1,820; Source: IDC's *2022 Global IT Skills Survey,* July 2022

Enter Experiential Learning

Experiential learning transforms lessons into memorable, real-life experiences.

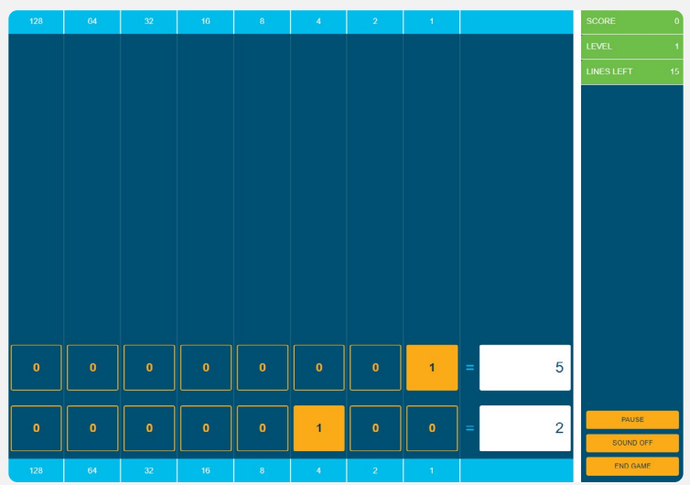
Experiential training is about learning by doing. Every animal first learns through this channel as a newborn. Classroom learning moves front and center for humans as we begin to learn language, but none of us outgrow the innate ability to learn from experience, from the successes and failures flowing from our decisions and actions.

Microsoft Learn Cloud Games Who Hacked?

In this sense, experiential learning is a return to basics. **What's new is that this process has been digitized in the past generation.**

Skills training games and quest-driven journeys have emerged in a corporate training context in recent years.
A few examples include:

- *Microsoft Learn Cloud Games Who Hacked?* and *Data Feeds*
- Amazon Web Service's *AWS Cloud Quest*
- Cisco's *The Binary Game*
- Non-commercial modules that use the sophisticated digital twins and AI-based simulation tech that's supported by NVIDIA's Omniverse Enterprise solution



Cisco's The Binary Game

The latest wave of experiential learning content **allows people to engage with game-like experiences and challenges,** and these assets point to the metaverse's potential to impact IT training across all screens and even "back" in the classroom.

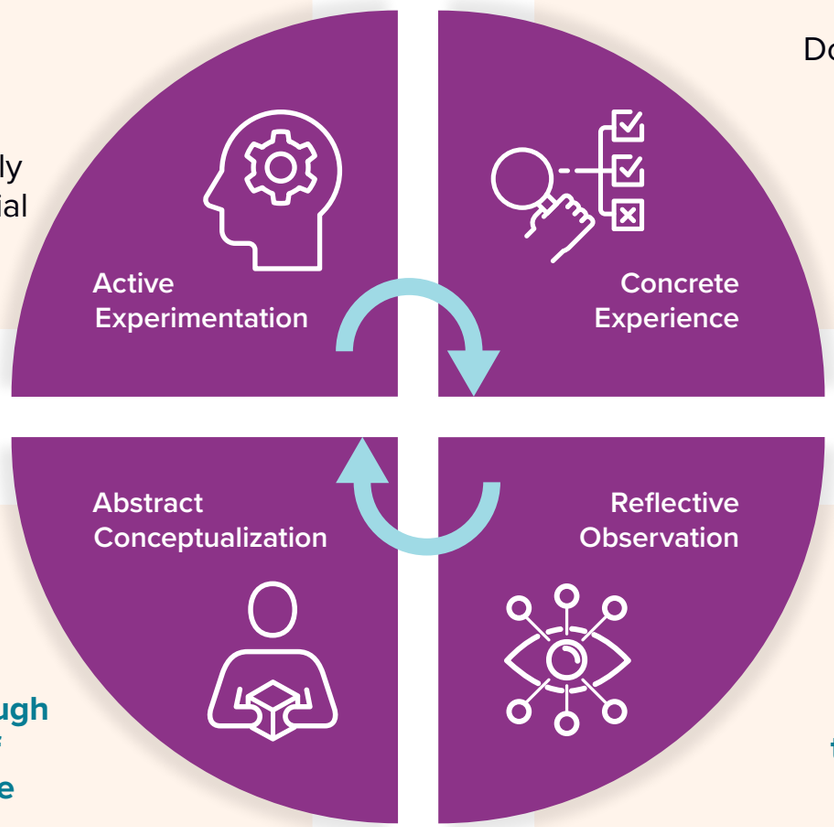
Images courtesy of Microsoft and Cisco.

The Kolb Experiential Learning Cycle

Published in 1984, David A. Kolb's Experiential Learning Cycle describes how humans learn by experience through reflection, life lessons, and active experimentation.

Purposefully practicing to improve based on newly learned material

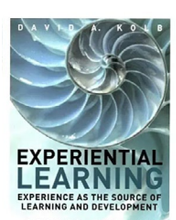
Doing something and **having an experience**



Thinking through the lessons of the experience

Reflecting on the experience

- As babies, we learn about the world by trial and error, through our senses. The Kolb Cycle harnesses nature's "original way" of teaching people – and this process works on both an individual and a group level.
- If one thinks about it, unstructured, self-directed and role-based on-the-job training is a type of experiential learning; work activities that are grounded in real-world experience, reflection and experimentation fit this mold as well – whether those experiences are labelled "classes" or not.



In the mid-1980s, David A Kolb, Ph D , introduced his theories around experiential learning, which held that humans learn most effectively via action

Source: Kolb, D.A. (1984). *Experiential Learning: Experience as the Source of Learning and Development.* New York: Pearson Publishing, 2nd Ed.

Advantages of Learning Through Journeys, Challenges, and Serious Games

To err is human, to learn from errors divine.

Educational psychologists have long emphasized the power and value of hands-on learning. People also tend to learn faster when they can practice new material with others.

Hackathons have exploded in popularity over the past decade, partly because these events help supercharge innovation. Now and again, hackathons yield startups that also flourish in the market.

A review of 38 published studies concluded that team-based learning produced outcomes that were nearly .5 standard deviations higher, on average, compared to text, video, or teacher-led methods.

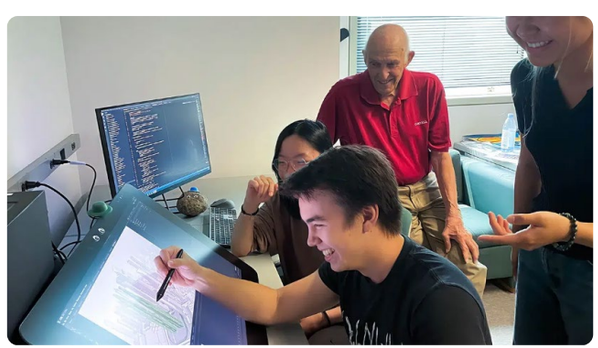
A well-received 2016 book, ***Peak: Secrets from the New Science of Expertise***, helped to buttress the notion that expertise can be achieved based on deliberate practice of newly learned skills. These skilling efforts may involve complex simulations that help students and professionals practice and fine-tune new skills.

Education in the Metaverse: Digital Twins + AI Teaching Assistants for the Win?

Let's double-click on NVIDIA Omniverse to explore where digital experiential learning in an enterprise context might be within a few years. Consider:

1

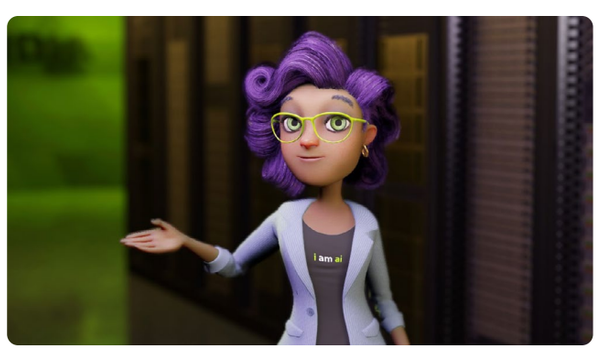
Cornell University Professor Don Greenberg is working with NVIDIA to co-develop Omniverse-based lecture materials, hands-on exercises, and strategies for **rapid and physically accurate early-stage architecture and structural engineering design prototyping.** Architecture students, for example, will be able to simulate the effects of weather, earthquakes, and fire on their building designs with accurate physics and in the context of nearby buildings and landscape features. They can iterate to improve their designs while optimizing for cost and time to build.



Cornell Prof. Greenberg with students. Source: NVIDIA blog

2

NVIDIA's new Avatar Cloud Engine (ACE) tech can be leveraged to train AI-based teaching assistants (TAs) who can run individual- or team-based learning modules in instances when human teachers, SMEs or other educators aren't available or needed. Using tools like NVIDIA ACE and Tokkio, **simulated instructors can be trained with "real" courses taught by humans and then step in and run those same courses anytime, anywhere.**



Violet, an AI-backed domain expert reference design. Source: NVIDIA

3

The combo of these two factors implies how enterprise trainers can begin to put digital experiential learning into their organization's metaverse instance in the late 2020s: **complex, immersive learning modules will be deployed that couple physically accurate digital twins and AI-based instructors that can manage Kolb Cycle-based instruction for individuals so** they can hone complex skill trees rapidly, while also largely automating the underlying process, creating efficiencies for training managers and their organizations.

Winning Strategies

Experiential learning games, events, and challenges can supplement almost any enterprise's hiring, upskilling, and reskilling efforts.

With the rise of hybrid and remote work, enterprises now rely on a raft of IT training modalities and solutions, from self-paced e-learning to formal on-sites and structured hackathons, informal in-person sessions, and virtual instructor-led courses online.

Experiential learning-based games, challenges, and events can help build on and reinforce associated skilling investments.

Experiential learning works especially well in the context of reinforcing tech skills that rely on decision trees and nimble, on-the-fly thinking. Security, Kubernetes, data analysis, and cloud storage are just a few of the many tech skills that are best practiced in a simulated real-world game, match, or drill. It's like pilots and astronauts training in a simulator rather than reading a manual or watching a video.

Experiential learning can be especially potent in these contexts because participants/players are *doing* rather than *being told* something, which tends to create a more visceral, memorable learning experience. There's one great way to learn to swim: get in a pool.

Essential Guidance

Game-like journeys, events, and quests can be used to augment and reinforce critical IT tech training. This approach can help enterprises overcome their upskilling challenges. IDC recommends the following in this vein:

- Establish excellent learning options in multiple modalities (self-paced, instructor-led, lab-based, etc.). Investigate what roles, skills, and processes benefit most from additional physical practice and reinforcement, or that have a particularly nuanced set of branching "correct" response options.

- Specific tech skills certainly meet this last criteria, but bear in mind that other human skills, such as critical thinking and creativity, can have a major impact on the complexity of seemingly straightforward learning modules.

- Approach training and learning holistically. Use challenges, games, and events in spots where *doing* is most likely to ingrain critical learnings. Go over crucial information and processes from multiple angles because it's more likely to "sink in" that way.

- Over time, streamline and customize lessons to more specific skills for narrower job roles. Upskilling is the long game. Enjoy the journey. Consider how AI-backed instructors and the metaverse might impact your enterprise's training road map. Next-generation training options may get here sooner than you might think.

References

- Ericsson, A , & Pool, R (2016) *Peak: Secrets from the New Science of Expertise.* New York: Houghton Mifflin Harcourt
- Kolb, D A (1984) *Experiential Learning: Experience as the Source of Learning and Development.* New York: Pearson Publishing, 2nd Ed
- Larson, K (2020) *Serious Games and Gamification in the Corporate Training Environment: A Literature Review.* TechTrends 64, 319–328
- Liu, S -N C , & Beaujean, A A (2017) *The effectiveness of team-based learning on academic outcomes: A meta-analysis. Scholarship of Teaching and Learning in Psychology,* 3(1), 1–14
- Loomis, A , et al *IDC's FutureScape: Global Future of Work 2022 Predictions,* October 2021, IDC # US47290521
- Loomis, A *Comparing Key IT and Human Skills for Hybrid Work,* August 2022, IDC #US49414022
- Smith, G (2022) *IDC Market Analysis Perspective: IT Skills for Digital Business.* IDC, September 2022 IDC # #US49222822
- Smith G (2022) *IDC Survey Spotlight: What Is the Impact of Training on Worldwide Multicloud Projects?* IDC, August 2022, IDC #US49628722
- Smith, G (2022) *IDC Survey Spotlight: How Is the IT Skills Crisis Impacting Organizations Worldwide?* IDC #US48019522
- Smith, G (2002) *IDC Market Analysis Perspective: Worldwide and U.S. IT Skills and Training for Digital Business.* September 2022, IDC #US48020022

About the Analysts

Gina Smith, Ph.D.
Research Director, IT Skills for Digital Business

As a Research Director at IDC, Gina Smith is responsible for producing research in the IT education and skills sector Her responsibilities include primary research, analysis and report writing and the production of market insights worldwide

More about Gina Smith, Ph.D.

Lewis Ward
Research Director, Gaming, eSports and AR/VR

Lewis Ward is a Research Director whose coverage area includes the global video game and augmented and virtual reality (AR/VR) marketplaces In terms of gaming, he covers home video game console hardware, software and services market, the digital PC gaming landscape and aspects of the associated hardware and peripherals market, and mobile and handheld video game software and hardware Regarding AR/VR, he covers off-the-shelf and custom software and services in depth, and contributes to IDC's hardware coverage (i e , head-mounted display shipments)

More about Lewis Ward

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Two: Enjoy the thrill of solving real-world challenges in immersive role-playing games that can help you sharpen your technical skills.

Three: Designed for technical pros, Cloud Games offer experiential learning in worlds with captivating storylines. They're a great way to learn how to implement solutions using Microsoft technologies in a fun, risk-free, simulated environment.

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