Education

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EXPERT VIEW

Whether a child is discovering new cultures around the world or learning physics using a catapult, educational AR toys will help positively integrate physical and digital play to develop foundational STEAM learning skills.

—Vivek Goyal, CEO, PlayShifu

New AR toys announced by Playshifu at CES

FE BUREAU

PLAYSHIFU, THE augmented reality (AR) educational toy company that teaches foundational STEAM skills through physical and digital play, launched its newest products ahead of CES 2020 in Las Vegas. These include Shifu Tacto, three new gaming kits for Shifu Plugo, and a new experience of its popular AR globe, Shifu Orboot, with two new planets to explore.

While the Tacto turns any tablet into an interactive board game, the Plugo is an AR gaming system that helps build STEAM skills through story-based challenges. With the Orboot, parents and teachers can teach children about planets through interactive experiences.

"As we enter a new decade, our latest toys will continue to positively integrate physical and digital play to develop foundational learning skills," said Vivek Goyal, CEO of PlayShifu. "Whether your child is discovering new cultures around the world or learning physics using a catapult, our toys use the benefits of modern technology combined with tactile play to enhance the STEAM learning experience."

PlayShifu is already popular among schools in the US and India, with the Orboot opening up children to the world of dinosaurs and planets. It was founded by IITians Vivek Goyal and Dinesh Advani, and has offices in the Bay Area in the US and in Bangalore in India.

What to learn at workplace in 2020

In 2020, employees will be chosen based on skills they can offer for projects and short-term assignments, not because of their roles

IRWIN ANAND

THERE HAS BEEN a fundamental shift in the way we work, and learning and development (L&D) leaders have the task of preparing the workforce in this changing environment. Learning at work has to be redefined so employees can cope with automation and AI in the business sphere. Employees must not only be very good at their jobs, but also be agile and continuously learn new skills to stay competitive.

As per a PwC report, automation is set to affect all processes, making it a priority to upskill or provide training to current employees. So it is imperative that L&D leaders have insights about skills such as AI, data science and machine learning.

A recent report by Udemy for Business focuses on the top learning predictions for 2020. It outlines the learning trends that L&D leaders around the world are practising to help upskill employees, and foster an environment where the new retention narrative is to focus on skill fluidity.

Skill-mapping will chart the future

Automation has led to new responsibilities to existing roles and upskilling has become a bigger priority at the workplace. Today, upskilling for future responsibilities has gained momentum and L&D leaders are trying to get ahead of that. Skill-mapping has emerged as an area of focus where organisations are focused on predicting what kind of skills will be relevant for their workforce next. Organisations are even hiring experts to map their current workforce and bridge the skills gap and prepare the workforce for the future.

Focused capability academies will replace ad hoc training

Ad hoc training for current employees or hiring fresh talent has been a standard practice when organisations fill their skills gap. But since the workplace is evolving, the approach to fulfilling the demand for skills needs to change. There is an emergence of academies that are focused on providing workers with in-depth training and upskilling across all areas of expertise.

Communities will help keep skills up to date

The aim of social learning communities is to harbour an environment of collective learning. For example, if a group of employees knows a certain skill, it can share the knowledge with peers and help them better understand the context of the job. L&D leaders are integrating social communities to create a structured learning programme, and while online resources can be a prerequisite, live sessions within groups can help identify key areas that need to be addressed.

The L&D function is set to radically transform

The Fourth Industrial Revolution has cultivated an environment where technological processes are taking the front seat, disrupting businesses such as education, healthcare and real estate, among others. In 2020, L&D will continue transforming by implementing processes such as adaptive AI and chatbots to personalise learning paths. Leaders are set to be more agile in terms of content, imposing a shift from the era of creation to curation.

Organisations will build an internal talent marketplace

In 2020, much like the gig economy jobs, the workplace is transitioning to an area where employees will be chosen based on the skills they can offer for projects and short-term assignments, and not because of their roles. The aim of shifting to a role-less organisation is to provide existing workers with the chance to build themselves, mitigating the need to shift to other companies for the sole purpose of identifying a new role. The internal talent marketplace will provide them with a number of tasks with varying degrees of effort, so that at the end of it all they can choose what they want to do.

The author is MD, Udemy India

HR PRACTICES

How talent agility leads to business success

Right human capital talent creates the most value

KAMAL DUTTA

EVEN AS MORE and more people are joining the workforce globally, an increasing number of organisations across sectors are witnessing skills gap due to technological advancements. The WEO's *Future of Jobs* report noted that 54% of all professionals will require reskilling/upskilling by 2022. Professional roles are evolving, driving the need to change the composition of talent in organisations. The ability to do this fast and cost-effectively is called 'talent agility'. It considers all the levers needed to build a robust talent pool, including learning and development, acquiring and retaining talent, and employee engagement. In fact, historically, companies saw 'strategy' as the most crucial factor for success, but now they realise that retaining the right human capital talent creates the most value.

Continual learning: Technology, business processes, workflows are changing. To stay on top of this change, leaders must encourage a culture of continual learning. Organisations must assess the strengths and weaknesses of their workforce, and devise learning-based interventions.

Growth opportunities: People seek out companies that would help them in their pursuit of excellence. Here, deploying a continual training process can help. Moulding the employee mindset as per the goals of the organisation can also drive an increase in quality and performance.

Employee engagement: Companies that are boosting talent agility are the ones that are nimble in their approach. They are flexible enough to be open to non-traditional workforce models. Companies must invest in a learning model that is personalised as per the needs of the employees.

Agility is success: Many companies are making continual learning and talent development as a business strategy. Those that provide such opportunities transform into 'employers of choice', which, in turn, makes it easy for them to attract and retain top talent. These are the ones that achieve business agility, which is a sure-shot way to succeed in today's business landscape.

The author is MD India for Skillsoft

Team building is not just art, it's science too

SANJIV MARWAH

A GROUP OF individuals, all working towards a common goal, is a 'team'. Most team members usually have similar interests, thought processes, attitudes, perceptions and likings; the team leader has to direct these into a common objective.

In the modern era, delivering quality at all times requires continuous improvement in efficiency and productivity of the human resources involved. This is done by hiring talented people and investing in their professional development by providing opportunities for growth. The management style of a leader involves not just completing tasks, but also driving results. So, what can improve team performance?

Right composition: Team members need to be chosen carefully. A small team can make faster decisions because of little friction. In a small team, every individual's opinion can be heard, leaving a positive influence on team bonding. Due importance should be given to include people with different types of skills and abilities.

Team dynamics: A team should be such that all members share the same vision and are equally motivated towards achieving the predefined goals. Effective and high-quality communication is the key in boosting team dynamics, which, in turn, helps producing positive results.

Beyond pull-and-push: The leader must know how to create enthusiasm in the team, which will help members be more focused. Inspiration plays a vital role in achieving goals and objectives.

Trust: The leader needs to build a positive and healthy relationship by increasing the team's trust in him/her.

The author is director, JK Business School, Gurgaon

The Oxford Atlas for India gets updated

Oxford University Press (OUP) has launched an updated edition of the Oxford Student Atlas for India. "The atlas uses state-of-the-art techniques to produce maps that are accurate and easy to read. Thoroughly researched, this third edition of the atlas caters to the needs of students preparing for competitive exams conducted by the UPSC, state public service commissions and other bodies," OUP said in a statement. The atlas includes 24 maps focusing on the history of Indian subcontinent, eight maps on environmental concerns and natural disasters of the country, and the map of the newly formed Union Territories Jammu & Kashmir and Ladakh.

FE BUREAU

Science & tech

Technically feasible, ethically undesirable?

China's CRISPR convictions have sparked debate on use cases for gene-editing. Again

SARTHAK RAY

CHINA HAS JAILED biophysicist He Jiankui, who created the world's first gene-edited babies. Jiankui used CRISPR-Cas9 to edit the gene that coded for a protein allowing a particular HIV form to enter the human cell. The genome-edited pair of embryos were later borne to term. Almost immediately after He made the announcement in November 2018, there was backlash. Senior researchers from all over the world poured scorn on He and his collaborators—two of his colleagues have been handed shorter prison sentences—but the worst came from his Chinese peers. Part of that was perhaps because Chinese scientists are aware of the scepticism with which the West looks at research standards in China. A handful supported He. But, in the end, a Chinese court found He guilty of flouting regulations and medical ethics in his search for "fame and profit". He and the other two are also banned from work in human reproductive technology in China and can't apply for government research funding. US scientists, including one from Rice University, who was reportedly involved in the research, and some others from Stanford who were investigated by the university, haven't faced any reprisals.

At the time of He's announcement, scientists had said that gene-editing technology was nascent and shouldn't have been used for reproductive purposes, more so, given the risk of introducing unintended mutations. Besides, the babies were not at high risk of contracting HIV. There have been calls from both, the academia and the policymakers, for a moratorium on gene-editing in reproductive technology. He's sentencing sends out a clear messages to researchers in the country—zero tolerance for any research, even if it is pioneering, if there is a ethical question that could crop up because of it. The handling of the matter by China—in the run up to the trial, discussions about the experiment on social media were widely censored, signalling the country not only treated the experiment as an embarassment, but also wanted to nip the chance that favourable views could consolidate into some sort of show of support right in the bud—shows that the government is keen on shielding research in the country from doubt or distrust from the West.

Apart from the signal to scientists at home, He's sentencing is also perhaps China throwing down the gauntlet to the Western democracies. It is almost like it is telling the US, the UK and European nations, where the criticism of the He's experiment was strongest, that they too should conform to similar standards on ethics in genome-editing and other controversial research areas. To be sure, it is completely up to countries to decide on how to regulate such emerging technologies that could shift the paradigm. But, the fact is at the first international meet on human gene-editing, held in Washington in 2015, a voluntary global moratorium on reproductive application of gene-editing—until "a broad societal consensus" had been achieved on scenarios where such modification was ethically acceptable—was proposed.

There exists no formal consensus today, on whether to go forward or refrain from it. And, researchers are locked in an unacknowledged, but quite real race towards a "famous first", which, of course, unlocks celebrity-status and commercial gains through licensing and patents. In 2017, US researcher Shoukrat Mitalipov shot into limelight after creating nearly 100 viable human embryos for gene-editing—the scientific community and the policymakers in that country looked the other way because the altered embryos were neutralised. But, it will be very difficult to say that treating Mitalipov's research as kosher couldn't have encouraged others elsewhere to push the boundaries of what is acceptable.

The fact is, each day, CRISPR-Cas9 is being tested for newer applications in disease control—from cancer to sickle cell anaemia to blood disorders. China's Sichuan University demonstrated its use in therapy for lung cancer. And, all this research is necessary, considering the knockout it could deliver to some genetic diseases that have long plagued humans.

The question now is what should mankind choose: should we go with the "not everything that is technically feasible is ethically desirable" line of the French National Ethics Committee, or is Arthur Caplan, bioethicist at NYU's School of Medicine, who was quoted by *New York Times* as saying, "There are many cultures in the world, including the US, that are highly competitive, market-driven societies where individuals are looking for their children in particular to get an edge and advantage. This idea that we're not going to do gene editing when it gets close to enhancement or improvement, I find it silly and head-in-the-sand kind of stuff" Indeed, won't future parents be considered negligent if they don't choose the option even if its safety is demonstrated?

TECHSPLAINED@FE

Positioning right

ISRO, ACCORDING TO a report in the *Economic Times*, will be tying up with phonemaker Xiaomi to incorporate its chips to run navigation system in its phones. Qualcomm has agreed to produce chips for Isro.

While most smartphones come equipped with US-powered GPS, this will be one of the few attempts by a national space agency to collaborate on a commercial scale. Isro itself will develop solutions for defence, but for commercial operations, it plans to rope in other players.

What is GPS?

Global Positioning System is a network of 30+ satellites controlled by the US. While the system was developed for military, it has now been put to commercial use. These satellites are located at an altitude of 20,000 km and work via radio signals. While the acronym GPS has come to denote all navigation systems, the names are different for other countries. Russia's system is called GLONASS. Europe has Galileo, and China has Beidou. The Japanese system is called Quasi. The Indian navigation system, which is the most recent of them all, has been named NAVIC (Navigation with Indian Constellation) or Indian Regional Navigation Satellite System (IRNSS).

How does the GPS in phones work?

Your phone has a GPS receiver, which, when turned on, is pinged by nearby satellites, which help triangulate the position. So, for instance, if there are three satellites, they will each create an area of reference, and the intersection of these areas will reveal your location. The more the satellites, the more accurate GPS becomes. While this is ideally how the technology should work, phones come with something called assisted GPS or AGPS. As location and radio signals may take time and are also battery consuming, AGPS uses the cell-phone triangulation to provide faster transmission. So, when cell towers can triangulate your position, you can get your location on the move, whereas the GPS can adjust till then to your actual location. The location is certainly not as accurate as of the GPS but is undoubtedly quick.

Is NAVIC any different?

Not really. India will not have to rely on the navigation of other countries for its defence needs. But the principle for phones remains the same. Phones will house a receiver for NAVIC satellites so that they can use Isro's navigation system. Isro has tied up with Qualcomm to create NAVIC chips, its association with Xiaomi would ensure that there are enough NAVIC-enabled phones. Over time, it can tie up with other manufacturers.

Why does India need a native GPS?

One reason is defence. At present, our navigation needs depend on systems of other economies. This will ensure that Indian forces have an indigenous system. More important, it shall also help the government with data on transportation and location in the country, helping it improve services. Two, there are limitations to GPS that NAVIC may overcome. NAVIC can give local data with much more accuracy.

Will NAVIC be better than GPS?

This depends on the government. NAVIC can provide the government with traffic data, which can help with the planning of new infrastructure. It can also help with geo-tagging and recognising, which areas need more public services. Google Maps, for instance, has been successful in India, but it still encounters problems as the government does not allow Google to survey Indian areas. If NAVIC is allowed these capabilities, it could surpass Google in local transportation.

Isn't it better to mandate these chips?

Diktats may not have the same impact as collaborations. Besides, roping in private players can help expand the base much faster than the government trying to build on technology. Allowing private players to operate on capabilities can also help discover new areas where NAVIC can be of use.

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Global IT skills that are most in demand

IT skills that European and US markets need today

ABHISHEK AGARWAL

THE FUTURE OF European and US job markets will revolve around technology and finance. It is expected that, by 2030, around 66,000 new technology and data science jobs will be floated in the US and other developed nations. The trends of the first five months of 2019 support the argument. In this period, 35% of jobs announced by 19 banks and asset managers of Europe and the US were specifically related to tech and data roles.

Changing job market dynamics: The demand for network and information security experts in the European market will continue to see a rise due to two major factors. One is the growing number of malicious threats and cyberattacks threatening enterprise security for organisations of all sizes, and the other is the implementation of the General Data Protection Regulations (GDPR), which companies need to comply. Also, employers are looking for people with digital marketing skills to improve their companies' web presence and visibility. This tech skill is in demand for obvious reasons: more site visits mean more conversions, customers, revenue.

Also, 61% companies insist machine learning and artificial intelligence will be among their top data initiatives. Cloud computing jobs are on the rise because more and more companies are switching from the classical server infrastructure to cloud solutions. According to Gartner, the market for public cloud services is projected to grow by 17.3% in 2020. The most in-demand cloud computing skills are Amazon Web Services (AWS), Java, Linux, software development, DevOps, Docker and Infrastructure as a Service (IaaS).

Future beyond transition: Skills that cover infrastructure management, cloud migration, application analytics, social media integration and mobile-led user experience will drive future IT ecosystem.

The author is senior vice-president, Judge Group. Views are personal