

The Amalgam Of Machine Learning

Today, learning happens in a much broader and a more social plane. A true learning organisation is one wherein employees can share their learning experiences and add their own content. Personalization, collaborative learning, virtual reality, augmented reality are some pathways that a L & D practitioner will have to venture into.

By Shruti Chadha and S. Ajay Kumar

The world is evolving rapidly. Learning & Development (L&D) professionals risk being left behind unless they adapt their skill set to ensure continued relevance and survival in this new environment. Artificial Intelligence (AI) and Machine Learning (ML) are the buzzwords of the day, and, are seemingly used interchangeably. Though the two are not the same, the perception that they are, can at times prove to be misleading.

Artificial Intelligence (AI) is the broader concept of machines being able to carry out tasks in a manner that we would attribute as 'smart', and Machine Learning (ML), the present day application of AI, is based on the concept that we should make available data to the machines and allow them to learn by themselves. Machine learning is all about mimicking human decisions, making processes, and carrying out tasks in a seemingly human way of doing things. AI-based devices are designed to act intelligently, and, are often classified among one of the two fundamental groups- applied or general. Applied AI

is far more common in systems such as those designed to intelligently trade stocks and shares, or, manoeuvre an autonomous

vehicle. Generalized AI devices, which in theory can handle any task, are less common, but this is where some of the most exciting advancements are taking place today. Though a subset of AI, Machine learning is the most cutting-edge technology at present.

"Machine intelligence is the last invention that humanity will ever need to make." - Nick Bostrom

For a long time, learning professionals believed that their roles were all about development. Now, development is just one of three talent pillars of focus along with attraction and retention. Today's learning professionals carry a more holistic approach to managing talent. And, that forms the reason behind Chief Learning Officers becoming Chief Talent Officers. The nine new pathways, critical to the success of learning and development function by 2020, must be traveled by every talent

officer before they make their learning choices for their organisation.

9 Pathways for the Learning Experiences of 2020

PATHWAY 1 Understanding Neuroscience: The Brain not Culture is vital for Learning

The development of neural networks has been the key to teaching computers to think and understand the world in the way we do, and, at the same time, retain the innate advantages they hold over us, such as speed, accuracy and lack of bias. L&D practitioners now have access to a thorough understanding of the science behind learning and memory, specifically:

- The biological processes involved in learning
- How the brain works and processes information
- How to identify and improve the drivers that optimize brain performance
- How to determine the unique neuro-design and learning potential of the people
- Personal motivation and social and emotional learning

HR has traditionally been behind other organisational functions to adopt technology as it has been always seen as a cost function. But, it is fast catching up with the advent of Artificial Intelligence and Machine Learning. The data which had been captured for analytics is now being seen as useful to eliminate a lot of mundane tasks using machine learning in all aspects of HR viz a viz recruitment, engagement, and retention of talent. Machine algorithms minimize the biases in appraisals by objectively measuring in a regular and unprejudiced manner. Machine Learning can also help in individualizing training given to the employees based on their learning styles which would be more effective, by detecting patterns in their learning behaviours. Leave process, payrolls can be automated using preset patterns which can be fed into the system and one does not need much manual intervention unnecessarily delaying the process. But a word of caution, ML, though a great tool, needs to be used with care, since a wrong algorithm fed to the system may lead to erroneous conclusions. AI and ML can support the HR functions but cannot always deal with sensitive human issues which require empathy and compassion.

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- How a person's neuro-design impacts health and safety in the workplace
- How a person's neuro-design impacts their sense of purpose and engagement

The main purpose of focusing on these specialized topics is to provide predictive analyses for the learning potential so that the L&D function can optimize talent in organisations. It involves an accurate understanding of the mechanisms of learning and assessing the drivers that impact brain performance. Having an appreciation of brain physiology is also connected to enhancing brain effectiveness. Therefore, a working knowledge of neuroscience will be an essential part of the professional knowledge of L&D in future.

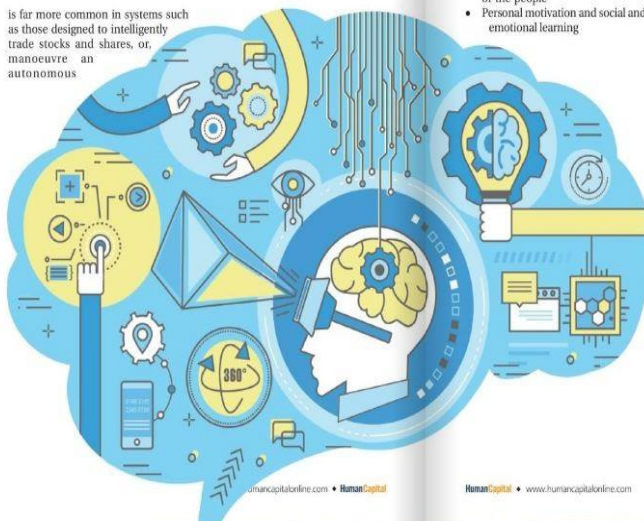
PATHWAY 2 Moving from LMS to Talent Development Platforms

High-performing companies are seizing the opportunity to promote a new culture of learning that upends the traditional models and transforms the very manner in which employees learn. Learning Management Systems (LMS) are closed systems by design, and, only permit the top brass to input information and courses for employee

learning. Thus, an LMS does not give everyone the opportunity to teach skills, add content from external sources, and, seek education in a wide variety of skills. A talent development platform, on the other hand, is open-ended and permits everyone within the organisation to add content, share expertise, and seek knowledge in assorted areas, while learning in the most convenient ways possible, even on a palm-held device.

Businesses are discovering that their competitors are eons ahead, and therefore, it is best that they ramp up quickly. With an open talent development platform, employees may already be learning those skills and sharing knowledge. This is one way in which the learning mindset can shift from Push to Pull. Today, learning happens in a much broader and a more social plane. A true learning organisation is one wherein employees can share their learning experiences and add their own content. And, it is crucial to make all the learning available on mobile devices, so that the people can be engaged whenever and wherever they find it convenient.

By creating a single centralized hub, the learning experience can be truly leveraged. Recommendations about great content in specific areas can be received from co-workers and



managers who lead projects in those areas. A learner can view newer emerging skills being developed by co-workers, and offerings that are most helpful - be it YouTube videos, TED Talks, Massive Open Online Courses (MOOCs), etc. This is the time to be progressive and build experiences for today's workforce.

PATHWAY 3

Micro, Mobile and Video based Learning

With global employee collaboration and connectivity on the rise, videos have increasingly become one of the premier platforms for learning and development programmes. Organisations are looking to meet L&D needs of an increasingly diverse workforce, and videos are cost-effective, and at the same time, an engaging way to achieve that. People may refer to Millennials and Gen Z as the 'selfie generation,' but, when it comes to their workplace mentality, it is more about self-development. This empowered generation is also one that is extremely visual, and video is a great way to demonstrate skills and processes. User-generated training videos allow team members to record and share clips of them performing the tasks with their team members, creating more opportunities for training and engagement.

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In 2018, we can expect to witness the effect of YouTube over L&D even harder than the past years. Individuals are looking for very short, targeted instructional videos that teach one specific task or item at a time. From employee onboarding to technical or sales training, video learning will turn internal subject matter experts into community leaders much like YouTube stars. Interactive videos are also becoming increasingly popular with machine learners. Content such as interactive videos, user-generated presentations, quizzes, timelines and more will make learning as mobile as its learners.

PATHWAY 4

TV Learning

Josh Bersin, Principal, Bersin by Deloitte, says, “Imagine the corporate

training page that reads “Mandatory courses to complete this week.” “Recommended based on your current role,” and interesting categories like “Programmes to prepare you for promotion” or “Tips and techniques for your current role.” All, including much more sophisticated recommendations based on prior learning experience and job role of the candidate, and what other peers in the company are taking.”

It is not too long before the L&D Manager starts imagining a series of channels based on leading content from well-known vendors (i.e. Saba, Pluralsight, General Assembly, Lynda.com, TED, and a hundred others). These third-party courses, which would typically be hard to find, and would perhaps be buried in the traditional course catalogue, would simply be new channels; channels that can be quickly found and easily browsed at any time, just like the TV in every room. These channels will not just be classified with the power of content, they will also have SEO (search engine optimization) and real-time data feeds, creating channels like “most read by your peers” or “most popular by your team” making it finally possible to socialize internal content in a compelling and easy to use interface.

PATHWAY 5

Personalization

From a personal pedagogy teaching a student in a one-to-one relationship to tech-enabled social learning, personalized learning has been around for ages in some form or the other. With the evolution of technology, personalized learning has grown in potential. The problem with personalized learning today is that there is a gap between the expectations

of what it promises to deliver and what it truly delivers in reality. Personalization is a particularly critical issue in corporate learning. Traditional learning solutions have been corporate-centric, focused on mandatory training and compliance, which has resulted in low employee engagement. Workers are more likely to turn to a colleague or to the World Wide Web to satisfy their on-demand learning needs. Professional development and continuous learning carry significant importance to the millennials since it indicates that they are valued, and, provides them with an opportunity to move into newer areas, discovering new talents. While recommendations by an L&D Manager based on an employee's role were the old ways of creating a personalized experience, newer ways such as social recommendations from friends, colleagues, or managers, and system recommendations derived on the basis of data received about the user, have been successful in meeting the personalization goals.

PATHWAY 6

Gamification

In the past year, we saw the emerging title of learning experience designers, instead of instructional or learning designers. The people behind these terms often draw in the fields of user experience and game design as well as learning design. Experienced designers place the learner in the driver's seat, which creates room for greater creativity and positions gaming in an ideal place to serve as inspiration. Gamification techniques strive to leverage people's natural desires for socializing, learning, mastery, competition, achievement, status, self-expression, altruism, or closure. Gamification strategies include the use of rewards for players who accomplish desired tasks or competition to engage players. Types of rewards include points, achievement badges or levels, the filling of a progress bar, or providing the user with virtual currency. Allowing rewards to become visible to other players, or creating leaderboards, have been older ways of encouraging players to compete. However, with gamification attaining a certain order of maturity, points and

Advanced data-trends such as capturing and managing real-time data are quickly making inroads into the HR industry. With Machine learning and Artificial Intelligence (AI) in place, an organisation can enhance the efficiency of HR functions. Firstly, the data from a 360-degree feedback can be broken down into pieces of information that can be easily interpreted. Secondly, with Machine Learning (ML), these feedback and responses can be harnessed for finding out patterns on which actions can be modified accordingly. These insights garnered with the help of ML can prove beneficial for HR department to take quick actions towards the problem areas. They can motivate existing employees, attract new employees and also reduce attrition. These technology-backed recommendations can lead HR teams to take reference from previous instances and resolve similar issues arising in the workplace. It would also enable HR leaders to initiate employee-centric programs in the organisation.

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badges can be pushed into the background. Narrative, messaging and storytelling is what that will gain center stage. More and more result-focused learning designers and certain keen-sighted business managers want results over pretty graphics. Well-designed games provide a scenario at each level that the players need to navigate. At every level they learn as they navigate through battling opponents, overcoming obstacles and scoring points. Scenario-based learning gamification is indeed the way forward. Performance management and learning have often been brought together. Gamification design provides the space for both learning and performance at the same place. Managers are often required to learn to support their team members. The members of the team, in turn, have their own strengths and weaknesses that can be enhanced by way of helping them to focus on the behaviors that can be effective in a role and be pointing out the specific areas where

they are lagging behind. Gamification can close the feedback loop between the two, and thus, lay the blueprint for the creation of fantastic success stories.

PATHWAY 7

Virtual Reality and Augmented Reality

Virtual Reality (VR) and Augmented Reality (AR) have a definite place in learning. Most organisations can create a blended experience, where traditional classroom training benefits from augmented reality or a blend between regular e-learning and virtual reality. At this stage, Augmented Reality emerges as the clear winner, and with tools such as Metaverse and Zappar and the others, it allows for the creation of fun interventions from treasure hunts to knowledge collection points. Mobile devices are the key to making this work and they are widespread in both educational and corporate sectors. Gamification can act as the bridge that ties the mixed reality experiences into the learning experience.

Virtual Reality immerses the users in a completely virtual environment that has been created through a computer programme. The most advanced VR experiences even provide the freedom of move wherein users can roam in a digital environment and experience sounds. Most standalone VR headsets work in combination with

Artificial intelligence is currently in its prime and has an estimated market worth of US \$ 70 Billion. The flurry of these advances is the result of three factors: the rise of big data, combined with the emergence of powerful graphics processing units (GPUs) for complex computations and machine learning. Machine learning (ML) is the computer's way of learning from examples, and it's one of the most useful tools we have for the construction of artificial intelligence (AI). We can surely say that it will act as a fuel for huge innovation and will make a categorical change in almost everything from the way we operate currently. The efficacy of L&D programmes, employee engagement or tracking attrition levels, there are many issues plaguing the HR fraternity today. However, I believe Machine learning may be a response to all these issues. As applied to predictive analytics, this feature has a wide-ranging impact on the activities normally undertaken to develop, test, and refine an algorithm for a given purpose. So, the next time



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smartphones, and the moment the smartphone is readied, the user is required to wear the headset and allow himself/herself to be immersed in virtual reality. The small cardboard icon that we see underneath the videos on YouTube is the 360-degree mode which indicates that one can wear a VR headset and experience a fully immersive video.

Augmented Reality, on the other hand, works to enhance the user experience, and with the ability to interact with computer-generated enhancements layered over physical reality, it makes for a more realistic and a meaningful experience. In simple terms, the environment around us, be it a room or a garden, become augmented with the aid of computer-generated graphics. For instance, picture your wall turning into a big computer-generated screen or your coffee table turning into a monopoly board. Technology, in this way, uses your real-life environment as its platform and builds on top of it. AR technology is fast turning mainstream, and, Pokémon Go is an example of AR being used in a very mainstream way, as are the filters in Snapchat. It is also being used to display score overlays on broadcasted sporting events and pop out photos, 3D emails, or text messages on smartphones. The tech industry leaders are also using AR to achieve amazing things with motion-activated commands.

Mixed reality, in fact, introduces the

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concept to the user that the real world has virtual objects, which simply are not overlaid on the real world, but that the user can interact with them. In this case, a user stays in the real-world environment and digital content gets added to it. Such form of mixed reality can be considered as an advanced form of AR. A mixed reality that begins with the virtual world has the digital environment anchored to and replaced by the real world. In this case, a user is fully immersed in the virtual environment, while the real

world is blocked out. Here, the digital objects overlap the real ones, whereas, in conventional VR, the virtual environment is not connected to the real world around a user.

PATHWAY 8 Collaborative Learning

“Today learning is about ‘flow’ not ‘instruction,’ and helping bring learning to people throughout their digital experience”

- Josh Bersin

Group discussion and team collaboration are key elements of powerful training interventions. More organisations are looking for ways to extend this sort of group collaboration beyond the classroom, especially when learning programmes are delivered remotely or extend over a period of time. Learning cohorts can keep up the interaction using tools such as Spark, Totara, and Yammer. These tools keep channels open for ongoing conversation, in which participants respond to question prompts by the facilitator, plan the next steps on an action-learning project, discuss pre-work, or develop case studies.

Today, a training course is likely to be a sophisticated, self-managed online programme, and, when we add a social element we enable a collaborative learning platform. Learning is most effective when students are encouraged to think and talk together - to discuss ideas, question, analyze and solve problems - without the mediation of a teacher. So ‘collaborative learning’ is an umbrella phrase covering a range of approaches involving inputs from students and tutor. The tutor seeks to create an environment where learners are able to work collaboratively with opportunities to share emerging ideas and understandings. The aim is to stimulate the development of autonomy, responsibility, and creativity by engendering meaningful communication and co-operative effort. The model works really well where the learning can be integrated into working life because students value the input and recognize the importance of the issues and topics covered. It is about shared responsibility and ownership of educational materials that inspire, engage and challenge learners.

PATHWAY 9 Content Curation

“Employees find it most difficult to learn, NOT because there isn't enough content, but because there is TOO MUCH of it, and they cannot find what is valuable.”

According to a study on High-Impact Learning Organisation carried out by Bersin by Deloitte, employees find it most difficult to learn, NOT because there is not enough content, but because there is TOO MUCH of it, and they cannot find what is valuable. As has been defined by Bersin by Deloitte, content curation is both an art and a science. It deals with identifying the most relevant information for a specific group of the target audience and contextualizing and organising it before presenting it to them. The process of curating content is not just scooping up articles, podcasts, posts, courses, and videos from around the web and dishing them to learners.

Some of the key steps curators follow are:


- **Aggregating:** This refers to searching

and collecting information from multiple sources.

- **Filtering:** This means sifting through mountains of data and zeroing on the most relevant piece of information that will serve learner needs exactly.
- **Organising:** This means chunking the content to impart logic and structure. This helps in learning by easing the comprehension.
- **Contextualizing:** This refers to enhancing the value of the content by adding your own comments, title, a brief explanatory note or an overview, more information, and/or tags.
- **Sharing:** Sharing does not merely mean putting up a blog post or organising a training session to educate the audience. Content Curation is effective when the resources are shared with the right group of learners, just when they are searching for the information, and on channels that they can readily access.
- **Storing and Archiving:** The curated content needs to be stored, put in a catalogue, and archived to facilitate easy future reference. Tagging is critical and to ensure that the guidelines for tagging are in place, and different content curators are on the same page when they name the files or use specific words within the contextual information.

Content Curation is most effective when learners take the lead to organise information according to the set-out curator guidelines. Platforms like

Corporates behemoths are implementing technology solutions to help smoothen their recruitment process, but, most of them are still content with ‘Recruitment Process Outsourcing (RPO)’. If 320 lives in an AI & ML, enabled ‘light’ can be trusted with auto-pilot why not take a look at ‘Recruitment Process Automation (RPA)’. Artificial Intelligence & Machine Learning coming into the hiring space implies that predictive algorithms and machine learning are fast emerging as tools to identify the best candidates. Companies are using AI & ML to assess a candidate's qualities, depending on research to investigate everything from word choice and micro-gestures to psycho-emotional and psycho-passionate qualities. Data is crucial here. AI & ML's strength is the capacity to go over such information, inspect various factors, and discover patterns that humans might not see. Simply put, this is what's called ‘supervised’ learning: HR administrators and information researchers together may set up and change factors that ought to be weighted in - in light of characteristics of high performers.

Degreed are now integrating artificial intelligence to create curated focused learning pathways that cover several content platforms across multiple fields. Becoming a content curator hero will prevent wastage of time and money and create a learning experience that people would love to talk about. Machine learning can be used for competitive advantage, however, just as people need regular assessments, appraisals and performance reviews related to their work, they also need to regularly evaluate and refine the software related to machine learning. The future of HR/L&D will comprise of digitally smart professionals working hand in hand with AI/ML, automated solutions. Machine Learning and Artificial Intelligence are sure to play a prominent role in the future of e-Learning, and more so given the numerous benefits they can bring to individual online learners and organisations. The secret for the L&D manager who wants to stay one step ahead is to live through each of the above tech trends and evaluate their integration into the organisational e-learning strategy. 

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The biggest nightmare that today's HR departments face is, scanning through mountains of resumes to shortlist one right candidate. Applying Machine learning in HR can help identify which candidates are most likely to be successful for a particular position or, ascertain who may not be suitable, in the next few years. Machine learning can improve the recruitment process by creating patterns from applicant's resumes, social media activity, and interview responses etc. Not only recruitment, Machine learning can also be put to use in identifying early warning signs of employee attrition by monitoring employee satisfaction survey results, drops in efficiency, and absenteeism. The role of Machine Learning/ AI in HR, will enable a smarter and more responsive HR function. Technology is helping HR professionals automate some of the regular operational transactions, enabling more time in hand to focus on Employee engagement. Ironically, machines will help human resources department feel more personalized.



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