

Transforming learning Education 4.0 for the Fourth Industrial Revolution and beyond

Not so long ago, education was a simple affair: a classroom, an educator, perhaps a chalkboard, and, if you were lucky, a projector. It's remarkable how far we've come since then, with technology transforming the learning landscape beyond recognition.

According to Juliette Fourie, managing director of the training academy Metro Minds, the Fourth Industrial Revolution has transformed industries and significantly impacted education.



Juliette Fourie

"As many are referring to it, Education 4.0 is characterised by personalised learning, independence, and the integration of smart technologies," she explains.

Given the transformative shifts witnessed in businesses and industries globally, driven by advancements in technology facilitating automation, connectivity, and data-driven decision-making, it's evident that education must evolve to impart essential workplace skills.

Image by Ziehefzie,
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Integrating artificial intelligence, robotics, and other technologies has increased efficiency, improved customer experiences, and tailor-made solutions. However, with technological advancements come challenges, and one of the biggest challenges of this revolution is aligning new skill sets with jobs of the future.

"There is a need to bridge the gap between traditional education and the rapidly changing demands of the workplace. Lifelong learning and upskilling are essential to adapt to the automation of tasks and processes. Future employees

must possess cognitive agility, critical thinking, problem-solving, emotional intelligence, and teamwork skills. Education institutions must focus on knowledge retention and cognitive flexibility, entrepreneurship, and creativity. As work becomes more automated, agility in task and context-switching will become increasingly important."



Dr Kenneth Moodley

Dr Kenneth Moodley, Strategic Partner, Supply Chain Lecturer, and Coach at The Supply Chain Academy – SCA Global, a division of the University of Supply Chain -Africa (USCA), shares the sentiment, saying some of the biggest disruptors which have resulted in supply chain leaders either rethinking their strategy or



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speeding up implementation has been the rapid development of technology – particularly 4IR, the Internet of Things (IoT), and AI. He told *Supermarket & Retailer* ...

“There is a realisation that people and technology have to be integrated to maximise benefits and address the volatility in global economics and supply chains such as the Covid pandemic and geopolitical events.”



Ansonet van Niekerk

According to Ansonet van Niekerk of Bizzco, a Chartered Institute of Logistics and Transport (CILT) accredited training provider, education has to adapt to changing business requirements. “Automation

and e-commerce has drastically changed the retail sector.”

“Automation has streamlined numerous processes to improve the flow, as well as allowing the human workers to focus on other important tasks. E-commerce has created easy purchases from anywhere at any time with easy delivery options – this is convenient to consumers and has the ability to widen your target market as a business.”

“Training content needs to meet two criteria in Bizzco’s view, the first being the requirements set by the accrediting body of the qualification and the other relevance to the market.”



EMBRACING CHANGE: Adapting to the shifting landscape of education

The Covid-19 pandemic, in particular, is a significant catalyst for change. Not only did it disrupt supply chains, leaving them in disarray, but the surge in global e-commerce brought about unprecedented and notably unforeseen transformation.

“There is no denying that the pandemic accelerated the adoption of technology and the advancement of online retail for social distancing massively,” says Michael Henning, sales manager at Easy Clear.



Michael Henning

“The growth of fast fashion retail like that provided by Shein, Temu, Superbalist and Takealot or Amazon and facilitated by last-mile delivery logistics service providers, changed the consumer behaviour patterns irreversibly and created employment opportunities for many, particularly in this country. Look at the proliferation of scooter and bike delivery personnel today – it’s hard to miss.”

“The increasing demand for tighter deadlines and faster delivery expectations is directly linked to the technological advancements enabling retailers to connect with consumers more directly.”



Truman Hadebe

Truman Hadebe, CED and Global Business Lead at The Supply Chain Academy – SCA Global, division USCA, says in South Africa, there has been a rapid adoption of e-commerce platforms and Apps that allow retailers such as Spar, Checkers, Woolworths, Pick ‘n Pay and Sibaya Foods to name a few, to deliver not only a brick and mortar presence but also online shopping. Sixty60, WooliesDash and Spar2u are now a common phenomenon in the country.

“It has not only created convenience and good online customer shopping experience, but it has also gradually led to efficiencies in the logistics front of the retail supply chain.”



Image by <https://emeritus.org/>



Henning explains that IoT, online ordering (Web browsers), same-day delivery, and real-time tracking have made it possible for the retailer – using smart devices and apps – to improve the consumer experience significantly. “It has also placed increased demand on the retailer and subsequently the last mile delivery operator to meet that experience level and the subsequent growing demand.”

He says the supply chain, particularly the last mile delivery segment, has been significantly affected by the increasing consumer demand and rapid increase in volumes, which can only be met through technology to cope with steadily increasing volumes.

“Innovative ways to cope with unplanned and real-life inefficiencies (like load shedding and subsequent traffic) mean that operators need to turn to clever algorithms for route planning, AI and merged technology like the IoT and 5G.”

Collaborative computing can converge for predictive planning and distribution of stock to local warehouse or distribution hubs closer to the clients for more efficient delivery and cost savings.”

Image courtesy of www.datapine.com/



FOSTERING INNOVATION: Navigating the evolving landscape of supply chain skills development

“Undoubtedly, a fundamental shift in skills development within the supply chain is imperative for operators to adapt to the evolving landscape, where online shopping rivals the traditional brick-and-mortar experience in popularity.”

Retailers will require fresh skills from their supply chain service providers to maintain competitiveness and stay at the forefront. Innovation is critical to success in this dynamic environment.

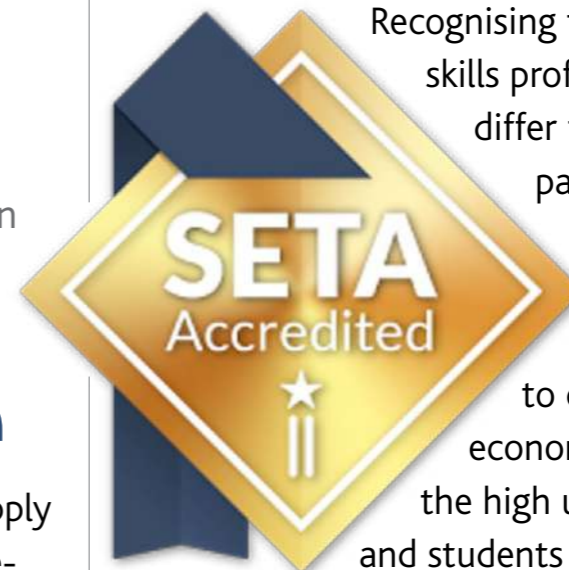
“There are probably a myriad of things that one can list that are needed and required for this sector, and they would probably vary by organisation and

sector,” says Moodley. “However, whilst technical skills are important, leadership skills and a systems thinking approach to decision making are vital.”

Henning agrees, saying adaptability and forward thinking are also skill sets that are becoming increasingly important.

“Research conducted by Metro Minds identified three types of skills mismatches in the South African context: demand mismatch, educational supply mismatch and qualification-job mismatch.”

Learning more about the skills mismatches in the South African labour market and workforce implies that the workforce’s education level must rise for South Africa to be more competitive.



Recognising that the country’s skills profile and workforce differ from those of other parts of the world, the challenge is to respond in ways that improve skills to compete in a global economy. Coupled with the high unemployment rate and students needing to complete their secondary and tertiary education, the SETAs are mandated to play a critical role in developing the correct strategies for an improved skilled labour market.



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“Instead of following a systems approach in assessing current realities and linking them to a desired outcome, skills shortages are being addressed by short-term fixes. What we receive as demand and what the actual demand is, is not accurate as we do not know if businesses are merely ticking a compliance box or training because of a specific, well-assessed skills shortage or gap in their part of the business. Skills shortages that are completely overlooked are the skills linked to Jobs of the Future,” explains Fourie.

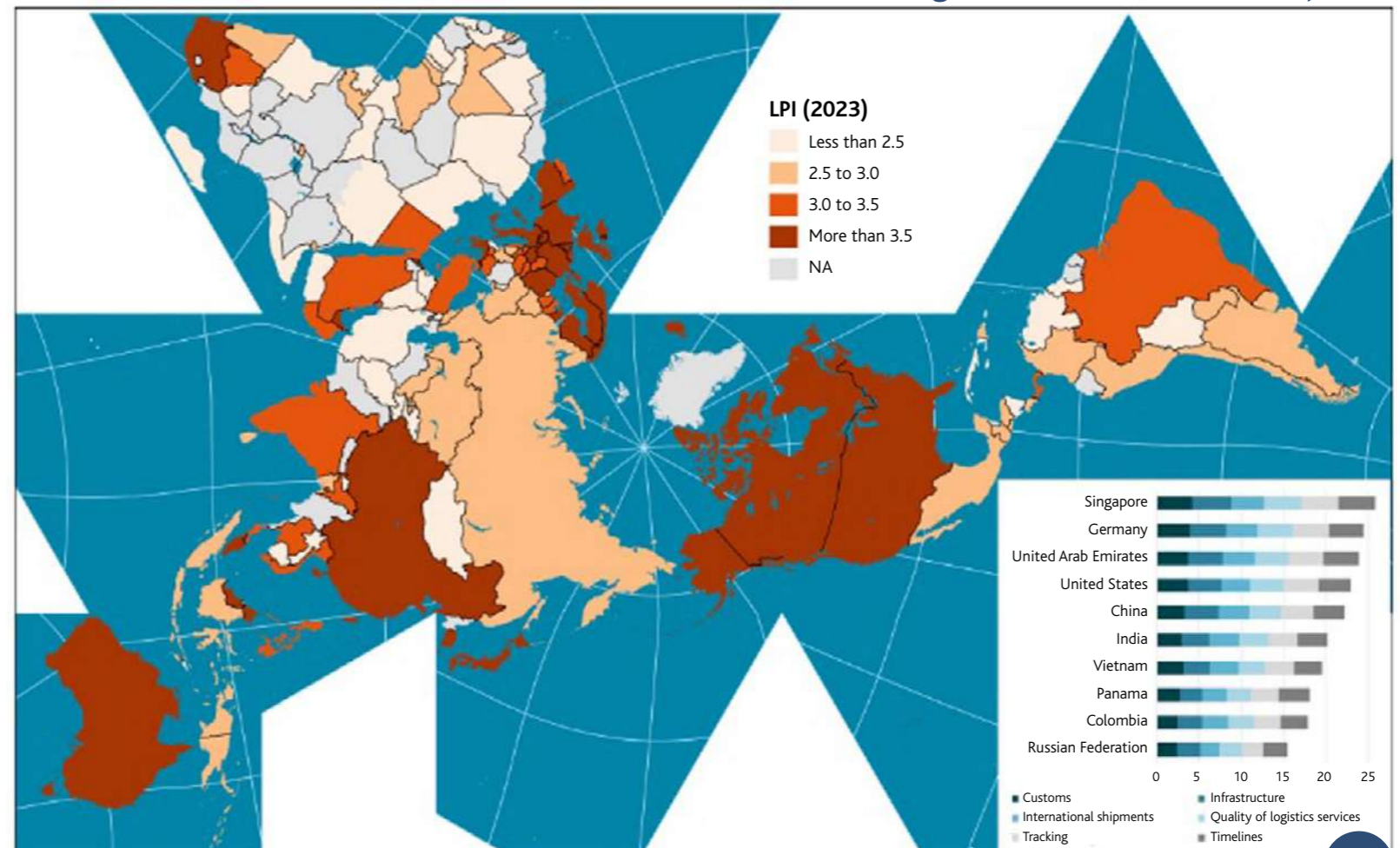
“The Fourth Industrial Revolution (4IR) is characterised by a fusion of technologies that blurs the lines between digital, physical, and biological spheres. Artificial intelligence, robotics, autonomous vehicles, 3-D printing, nanotechnology, quantum computing and the Internet of Things are already around us, reducing transportation and communication costs and improving the global supply chain and logistics. Due to the growing transparency and different consumer behaviour, businesses have been

Logistics Performance Index, 2023

Published by the World Bank (2018), a country scorecard for South Africa has been compared to a global Logistics Performance Index (LPI). The score indicates six dimensions as a benchmark to display the overall LPI index. The scorecard allows comparison to the rest of the world. The index indicates a significant skills gap in the logistics sector.

South Africa was mentioned as one of the countries with skills shortages in supply chain and logistics talent. The critical challenges to developing a competitive logistics sector are encapsulated in how the government should assist with this and adapt to changes around technology, automation, and the impact on the labour market.

“The skills shortage is linked to the planning of skills development. The intention of addressing any skills shortage is executed inaccurately.”



Infographic courtesy of <https://transportgeography.org/>



forced to design, market, sell and transport goods differently. The shortage of skilled workers is also due to the increasing use of technology and automation within the sector, affecting many jobs at many levels. The workforce needs modern skills like digital literacy, logistics operations, and skilled people to manage customers' operations and service delivery."

Future jobs are being explored, and there is a growing demand for enterprise skills. Enterprise skills are transferable skills that allow people to navigate complex job functions in different industries. These skills include digital literacy, communication, creativity, teamwork, problem-solving, critical thinking, and financial literacy.

It is estimated that future jobs will demand 70% more of these types of skills than jobs of the past. Skills development will be provided through experiences, immersion, and augmented learning – instead of traditional education practices.

The percentage of jobs that demand critical thinking has increased by 158%, creativity by 65%, presentation skills by 25% and teamwork by 19%. Enterprise skills are becoming just as crucial for job entry as technical skills.



Image: Olivier Le Moal, <https://www.regenesys.net/>

DRIVING TRANSFORMATION: Shaping training initiatives for industry evolution

Training and skills development, regardless of what sector one operates in, is not an emotional luxury but a necessity. Fourie says most businesses need to go back to the drawing board regarding skills development.

"The Fifth Industrial Revolution (5IR) is the combination of human engagement at the centre of drawing humans, machines, artificial intelligence, and technology, together. The 5IR follows the 4IR, driven by key technology impacting governments, businesses, and society. Humans should be at the front and centre of connecting critical thinking, creativity, and technology."

"When we as educators are asked to train people, it should be driven by the business with purpose, not compliance," says Fourie. It requires training institutions to change their approach fundamentally. The Supply Chain Academy, says Hadebe, has introduced its Work Integrated Study Program (WISP) for some of its supply chain

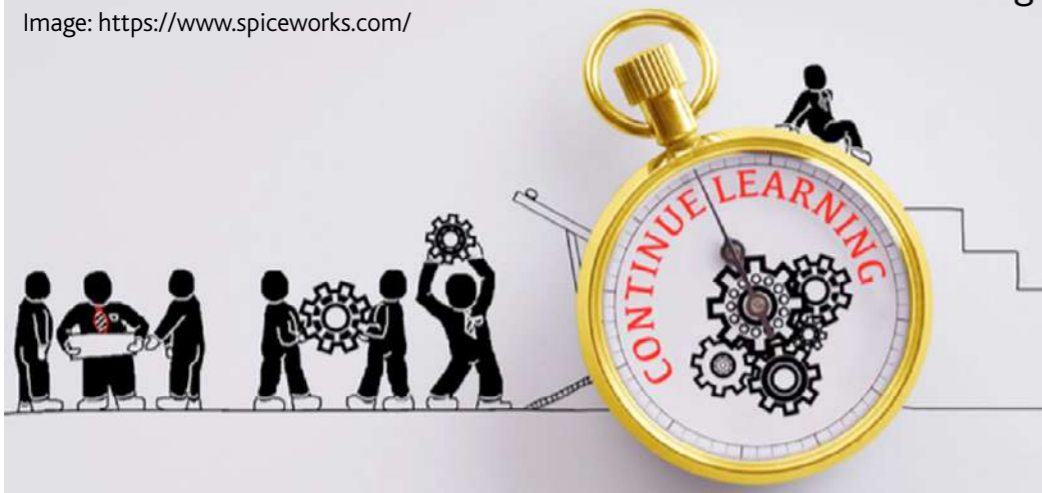
programs, where students acquire work experience virtually through retail e-commerce platforms and cloud-based ERP systems, amongst other tools utilised, whilst studying. This is all project-based and can be taken to the next level – a year or more, given proper financial backing through collaboration with the industry. Hadebe says ...

“Most of the traditional (public) institutions, especially in South Africa and probably across Africa, are far behind and are becoming more and more irrelevant to the skills industries need as we continue to see the high level of disconnect from what is taught to Supply Chain graduates and the kind of skills required by industry.”

"We need more industry-centric programmes like the WISP initiative by Supply Chain Academy -SCA Global."

Fourie agrees, saying the business model for educational institutions has very much been

Image: <https://www.spiceworks.com/>



affected by the new world we are faced with. “Our new products have expanded and diversified in many ways. At Metro Minds, all our accredited and formalised qualifications and skills programmes are accessed through an online learning platform. This platform is the foundation for all our accredited programs whereby a student can complete a course fully online or with a blended approach, adding classes to the program.” She says they have changed the classes’ methodology into entirely virtual, hybrid or fully online.

“Our offerings extend to cater to students who can only attend after-hour virtual classes and master class sessions. In other words, instead of your traditional 3-day course, we would run this over a few weeks with shorter engagement.”

“The retention of learning improves, and the application of knowledge is easier to transfer into the student’s world.”

They have also created a system where customers can make their training menu according to their needs and budget. “This way, we become their internal academy for a set few days per month, paid with a flat fee – regardless of the number of students attending.”

The move away from traditional training is underscored by the fact that only some these days want to do formal courses, but somewhat shorter, more impactful courses at a lower cost. “This has seen us develop a non-accredited, fully online



Graphic courtesy of <https://www.iienstitu.com/>

platform. The courses range from human skills to technical and life skills. We focus on shorter courses for logistics, supply chain and freight forwarding,” says Fourie.

Workplace simulation has also become a huge focus point for either any new industry entrant or existing employees needing continuous development. The simulated courses are convenient and are based on the cognitive flexibility theory of accelerated learning. Five days spent with a simulated course is equivalent to 25 days practical work experience, says Fourie.

According to Hadebe, education institutions must infuse the new concepts of the new world

in their delivery of Supply Chain programmes by employing technological tools such as Virtual Reality, Augmented Reality, and gamification, among other tools that could enable them to drive the necessary change required for their Supply Chain programmes and tuition delivery approach to be industry-centric.

Bizzco’s Chantell Coetzer says the focus in the occupational based training space is shifting from being predominantly knowledge based with workplace experience to a more balance training experience of knowledge vs practical vs work experience.



Chantell Coetzer



Canva Creative Studio, www.canva.com



“The programmes are more focused on the individuals actual role within the working environment and practical application of skills. Training content has to evolve over time to ensure the technology component remains relevant and applicable to the industry.”

Education institutions need to adapt to the digital economy, which has caused a massive transformation in the workforce and has led to a shift in the role of human resource management.

While machines excel at repetitive tasks, humans possess superior cognitive and sensory skills. As a result, jobs with low qualification requirements and repetitive processes are being replaced by machines, while positions that require decision-making and leadership skills are in higher demand.

The logistics industry has experienced significant workforce transformation due to Industry 4.0. Human resource management and training institutions must redesign development programs, policies, and recruitment strategies to adapt to these changes. The future workplace will require individuals to possess technological understanding, effective communication, creativity, innovation, and high emotional intelligence.

“We need to teach and train differently,” says Fourie. “Continuous learning, self-directed learning, and collaboration with peers and colleagues are becoming essential for managing disruptions caused by digital advancements. As Industry 4.0 influences society and the workforce, skills development must incorporate real-life business cases, combining theory and practice.

Image by courtesy of www.iienstitu.com/



“ Competencies such as technical knowledge, decision-making skills, emotional intelligence, digital literacy, and adaptability are crucial for success in the changing work environment. Mental well-being, stress management, and employee recognition are also emerging as key skills in this era of disruption. ”



Photo by pugun-photo, www.canva.com

The experts agree that education institutions must focus on knowledge retention and cognitive flexibility, entrepreneurship, and creativity. As work becomes more automated, agility in task and context-switching will become increasingly important.

More collaboration between industry and higher education is also necessary, says Hadebe. “This can be done in a variety of ways. One possible way is through retailers sponsoring education

programmes and getting involved in the curricula design and delivery approach. This could breach the skills gap from the Supply Chain Graduates over, if done correctly, across the higher education sector and consistently over time,” he says.

“As the Supply Chain Academy -SCA Global, we have decided to collaborate with SMMEs, which are more accessible and seem to have more appetite for growth and impact on society.” Moodley says that internships are just as important. says ...

“ It is a critical partnership as it ensures that students are able to make the linkage between theoretical knowledge and practical application. Yes, education institutions will always strive to include practical laboratory and case study content, but the on-the-job experience is irreplaceable. ”



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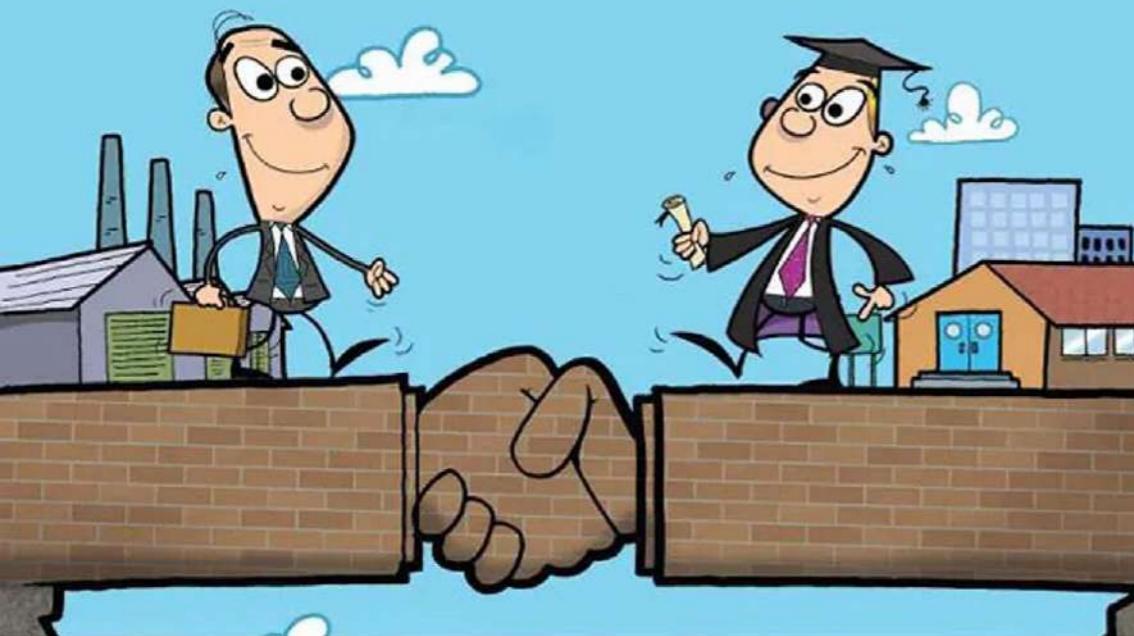
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Says Van Niekerk, "Practical on-the-job training is vital to the success of a candidate. It adds a level of competence that cannot be achieved by studying theory alone. The best way to learn is

by doing the actual activity. You can learn something better and faster if you practice it."

She says Bizzco collaborates with Subject Matter Experts within a field with both academic and practical work place experience to develop training materials that meet the academic requirements as well as the practical application of the theory.

Hadebe says institutions like SCA Global continue to leverage digital contact tuition delivery and eLearning platforms to drive the impact and professional development of supply

chain professionals across the globe.

Amid constant change, education must evolve. Digital learning isn't just about new technology; it fundamentally changes how society imparts students knowledge, values, and skills. Ultimately, education needs to become more practical, relevant, and adaptable to meet today's and tomorrow's demands. **SR**

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Catherine Larkin is a communication and marketing professional, specialising in Logistics, Transport and Supply Chain. Her company, CVLC Communication, is a corporate public relations, communication, marketing and events consultancy. Its services range from full secretariat support, project management and administration.

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