Human capital futures: an educational perspective

Chris Bottrill

Chris Bottrill is based at CapU International, Capilano University, North Vancouver, Canada.

Abstract

Purpose – *Education institutions can be slow to react to the changes that are happening in human capital development content and delivery. This article highlights some of the shifts that robotics, artificial intelligence (AI) and access to information are having on jobs in tourism and the future of work. It explores the ways in which the tourism education sector can respond.*

Design/methodology/approach – *This paper draws upon content shared at several conferences and webinars addressing the future of work and the education delivery methods from experts and commentators on the subject. This was augmented by research conducted by global tourism associations, the World Economic Forum and other global associations and supported with secondary data from recent media and online content providers.*

Findings – *By highlighting emerging trends in the sector and skills to thrive in the fourth industrial revolution, we can identify what education should focus on during this period of transition and uncertainty. We need to capitalize on the digital delivery skills we have developed due to COVID-19 and build new content and accessible learning approaches.*

Originality/value – *There are many uncertainties about the future of work and the way that a rapidly digitized education delivery approach has and will affect tourism education in the future. This article is aimed to generate further thought and dialogue by identifying changes and raising points about what we are effective at in public post-secondary education and what we need to capitalize on and adapt to in the future. The core question posed is that if the tourism and hospitality workforce and work environment has changed, has, or can, tourism and hospitality training and education change as well?*

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As John Allen Paulos, a Temple University mathematics professor noted in his 2003 book, "uncertainty is the only certainty there is, and knowing how to live with insecurity is the only security" (Paulos, 2003). Tourism, as a sector, has learned to be resilient and adapt to change, even deal with insecurity as natural, political and economic events can shift destination appeal overnight, but an area that many have struggled to adapt to is the change that is looming in human capital development.

It has been difficult to comprehend the rapid shifts in technology that are impacting the human interface of tourism services, and we have had educational systems that were built on regulated delivery, physical infrastructure and limited access – at least, until COVID-19 hit. In a matter of two weeks, over one billion learners shifted to digitized educational delivery, and of course, international tourism activity all but stopped. This was an impressive response from many traditional education providers to a new global condition and need. In many ways, it accelerated us forward in an unprecedented and unexpected fashion. What have we learned from this, how can we change, what are the human capital demands of the future and how can this pause help us refocus? This viewpoint is designed to prompt some thoughts about the challenges that exist for us as

educators, of the future of work in our industry, and the potential significant shifts we need to make in education delivery in the sector.

In 2015, the World Tourism and Travel Council (WTTC) published an analysis of talent trends for the travel and tourism industry. This identified that in many of the leading destinations on the planet, there is a major talent deficit and educational need (WTTC, 2015). In dollar terms, this equates to a lost value of US$ 610 bn over the period of 2015–2025, that, by the way, is about 105 times the box office sales of the Lord of the Rings trilogy and two Hobbit movies, a decent chunk of change.

There is so much uncertainty ahead. Not only has the industry lost 100 million jobs due to COVID-19, but automation and new technologies are replacing jobs and creating new ones, we are just not entirely sure in what field and how many. The question is, how do we figure all this out? To place numbers on it, a 2019 Organisation for Economic Co-operation and Development (OECD) report on the future of jobs estimates that 14% of jobs could be completely automated and a further 32% likely to change significantly (OECD, 2019). In New Zealand, the trends were identified some time ago, with data reflecting the OECD numbers. Laborers, operators, clerical, administrative and sales fields are under significant risk (NZIER, 2015). If the jobs of the future are changing, are we teaching the right things, or teaching the right way? Will front desk operations, tour guides and drivers, servers, chefs or even marketers and human resource (HR) specialists have jobs when our learners graduate from two or more years at college or university? Are robots going to take their jobs?

The answer is that in many cases they already have. At many airports, such as Taoyuan, Taipei, Incheon and Korea, customer service robots are already roaming around the check in and transit areas, greeting customers in lounges and showing them the direction to their gates. These same types of robots can be found in the Copenhagen Visitor Information Center and many others around the world. There are hotels that are now fully automated, such as Alibaba's Flyzoo hotel in Hangzhou, China, which uses facial screening for elevators, accessing rooms and payments. Robots serve you, clean the hotel, make drinks and so on. Who is behind this? Marriott International, Alibaba, and traditional and new tourism sector organizations are working together. In Japan, the Henn-na Hotel chain sought to be the first with hotels fully serviced by robots. Their concept, built around efficiency and fun, was a genuine attempt to harmonize interactions between humans and robots in a hospitality setting (Motherboard, 2015). The fun component involved robotic dinosaurs as receptionists, humanoid piano players and a variety of other mechanical to reality impersonations. They now have 18 hotels across Japan with large robot contingents, but in 2019, they scaled back from full robotic services (Henn na Hotels, 2021). Visitors became frustrated at the inability of robots to understand them or making errors, such as assuming snoring was a signal to interact. As some noted, the novelty wore off quickly, and they in fact felt quite lonely with the lack of human interaction in the facility (Motherboard, 2015). Efficient? Yes. Interactive? Somewhat. Harmonized and fun? Not so much. Not yet, anyway.

Robots are being used for retail, travel and hospitality, financial services, restaurants, healthcare and other customer-facing applications, and this is NOT in the future. According to the Robotic Industries Association, in 2018, sales of public relations robots grew 53% over the previous year with an estimated 7,000 units sold. It is estimated that between 2019 and 2021 a further 40,500 units will be sold, and nearly half of these will be in the Asia Pacific (Arbour, 2019), not quite filling the 14 million talent gap that WTTC identified, but edging toward it.

A distinctive value-added characteristic of the customer service robot is that it is not only providing a service but gathering data about you for further application, such as customer behavior, adjustments and marketing and sales campaigns. At Dorchester Hotels for example, they have implemented an AI (artificial intelligence) system that can read 7,000 reviews in a minute to pinpoint what matters most to customer's needs that would otherwise have taken weeks to review (Pirri, 2020). Google Flights has AI systems that can even predict flight delays before the airlines announce them (Birnbaum, 2020). We need to be aware of how these changes will influence the

content and application of teaching subject matter in accounting and statistics, research methods and data management courses. The changes are happening rapidly, and some methods we teach will be redundant long before learners apply them.

While robotics and AI represent the changing work environment, the learning environment is rapidly shifting too. It is difficult to comprehend that it was only 15 years ago that Steve Jobs revealed the iPhone to the Macworld convention in San Francisco on January 9, 2007. Personal access, anytime, to information and entertainment has completely revolutionized the future of work and with it, the future of education. The next revolution is access to information. As Elon Musk, the founder and chief executive officer (CEO) of SpaceX and force behind Starlink said on March 9, 2020, "everyone wants more bandwidth, so why not have more bandwidth?". This is going to be provided by over 11,000 satellites going up into the sky for the Starlink network, already there are 700, which will mean quick and less costly access to the Internet for all (Vennavally-Roo, 2020). This will help the many individuals that currently do not have easy access to the Internet in emerging economies where the population is very large. There will be new opportunities, increased competition and changing jobs. Who is going to adapt the quickest? Those that have the fixed infrastructure and regulated systems or those that see education through a more entrepreneurial and creative lens?

Suddenly, amidst all the difficulty it has presented, COVID-19 has thrown us into the future for education delivery. We developed skill sets that would normally have taken years to implement. While some institutions were adapting, they were not to the current extent and not to the extent of the private sector. The business community long since figured out that people want to lean anytime, anywhere, and on their schedule. Boutique and large technology companies have increasing become involved in online delivery of education and training for the workforce. Some estimate that the overall market for online education is projected to reach $350 bn by 2025 (Li and Lalani, 2020).

Managers are not sending employees off to do a three-month night school course (remember when colleges and universities had active in-person continuing studies programs) or for that matter a four-year degree. They are sending them to Lynda.com to do a skills upgrade course that teaches them immediate and transferable skills, or maybe Udemy, an American online learning platform aimed at professional adults and students. As of January 2020, the platform has more than 50 million students and 57,000 instructors teaching courses in over 65 languages. There have been over 295 million course enrollments. While it is not accredited, this kind of online education makes access for everyone much easier.

As the jobs change in the future, how will education adapt? What will the balance be for public and private institutions, traditional institutions and the business training community? Fortunately, there is some consistent advice out there amongst all these uncertainties. The ten skills to thrive in the fourth industrial revolution, articulated at DAVOS 2016, are often referred to. They are as follows: complex problem-solving, critical thinking, creativity, people management, coordinating with others, judgment and decision-making, service orientation and negotiation. More recent versions have changed quality control and active listening to emotional intelligence and cognitive flexibility (World Economic Forum, 2020).

The one thing we can take away is that with the vast array of short-term training options out there to meet immediate needs and upskill the workforce, there is still space in education for deeper learning. The three top items on the "ten skills" list were complex problem-solving, critical thinking and creativity – things that educators can be pretty good at. With this understanding, we can take what is learned in one situation and apply it to new situations. Deeper learning involves the interplay of the cognitive (thinking/reasoning), intrapersonal (behavior/emotions) and interpersonal (communication/collaboration). From this, we can create a more innovative learning environment and a strong foundation to build the skills of the future that are changing all the time.

As one YouTuber, Tyler Waye commented on the future of jobs, with all the uncertainty, he had three suggestions: focus on yourself and find out what it will take to succeed, find out what you are

good at and want to keep getting better at it forever and explore how that one thing can be valuable to others (Waye, 2021). Not bad advice.

For tourism and for education and training and the future of jobs in our industry, we have some work to do. We need to stop teaching courses that will have no value in four years and really think about the structure and length of our programs. We need to focus teaching on how we think, interact with others and communicate and collaborate and apply this to differing and dynamic skill sets on an as needed basis. We need to explore new relationships in our discipline and learn how to engage and apply robotic and AI technologies proactively. And, we need to figure out how to make human interaction an on-going and essential component of our industry and maybe decide if we really want that robot to take over the job or not.

There are a few options we can explore. Micro-credentials are certainly one path forward and with a bit of creative thinking can be developed with existing and applied content from many traditional education and training programs and with creative partnerships of public and private sector organizations. Such relationships can more effectively align theory and experiential learning elements for high-quality tertiary education that capitalizes on our recently developed online learning skills and is more nimble and responsive to the digital transformation and skills gap needs that are emerging in our industry (Purbasari Horton, 2020). A second consideration is increasing engagement in applied research with computer programming, animation and visual media for tourism applications. Recognizing the efficiencies and inevitabilities of robotic and AI applications in the sector, it is important to be at the forefront of the change and proactively contributing to enhanced services in the sector. The cross-cultural human elements of tourism are an ideal framework for analysis of the human and robot interface and how to enhance capacities of digitized services through a wide array of emotional and cultural contexts. Exploring the application of digitized visual media platforms to enhance user experiences could also reduce the failings of robots and AI in the current literal translations that lead to misinterpretation and frustration of the current robotic services such as those that were offered at the Henn-na Hotel chain. Third, and linked to the former, is the notion of "robot-proofing" tourism careers. Auron (2017) explains his concept of "humanics" as a way to adapt to the new environment which involves understanding how machines function and how to interact with them, learning how to navigate the vast information generated by machines and applying the human discipline of creativity, cultural agility, empathy and the ability to take information from one context and apply it to another (McDonald, 2019). These elements align well with the notion of deeper learning by exploring cognitive, inter- and intrapersonal fields, applying the experiential learning elements of micro-credentials and emphasizing the need to become vastly more familiar with computer and visual media disciplines that we have not fully engaged with before. Some computer programmers predict major changes ahead as quantum computing and nano-biotechnology result in exponential processing power and related applications (Shein, 2020). This will change the tourist experience, operations in the sector and the investment we make in human capital. We need to be at the very least engaged in these developments and preferably, a proactive participant.

As earlier proposed, this article is designed to prompt some thoughts about the challenges we face and the needs that lie ahead. Some institutions and/or departments are already focusing on learning how to think, interact and collaborate with others, explore technology applications and even create them. They are effective in applying such skills and knowledge to differing and dynamic business contexts with entrepreneurial flair, but, arguably, many are not. As one astute global tourism leader mentioned at an event in 2017, "tourism has not had a particularly good reputation for being innovative. After all, it took thirty years after humans landed on the moon to figure out to put wheels on a suitcase". We are getting better, but we had better not take 30 years to change our delivery systems and our educational content to ensure that we prepare learners for a dynamic and different future of work. The one bright element of COVID-19 was that it accelerated our delivery systems forward. We have found ourselves in interesting times,

and perhaps we can capitalize on the skills we have learned to help us be even better in what we teach, how we teach and where we teach in the future. Things are moving fast and we should as well.

References

Arbour, A. (2019), "Record number of robots shipped in North America in 2018", Association for Advanced Automation posted 02/28/2019, available at: https://www.automate.org/news/record-number-of-robots-shipped-in-north-america-in-2018-with-more-installed-at-non-automotive-companies-than-ever-before (accessed 5 April 2021).

Auron, J.E. (2017), *Robot-Proof: Higher Education in the Age of Artificial Intelligence*, MIT Press, Cambridge, MA and London.

Birnbaum, B. (2020), "AI is growing, but the robots are not coming for customer service", Forbes May 5, 2020, available at: https://www.forbes.com/sites/bradbirnbaum/2020/03/05/ai-is-growing-but-the-robots-are-not-coming-for-customer-service/?sh=53d0fa7c5146 (accessed 5 April 2021).

Henn na Hotels (2021), "Brand concept", available at: https://www.h-n-h.jp/en/concept (accessed 28 December 2021).

Li, C. and Lalani, F. (2020), "The COVID-19 pandemic has changed education forever. This is how", *World Economic Forum*, April 29, 2020, available at: https://www.weforum.org/agenda/2020/04/coronavirus-education-global-covid19-online-digital-learning/ (accessed 5 April 2021).

McDonald, T. (2019), "Humanics: how to 'robot-proof' your career? BBC.com Worklife", available at: https://www.bbc.com/worklife/article/20190127-humanics-a-way-to-robot-proof-your-career (accessed 28 December 2021).

Motherboard (2015), "Inside the Japanese hotel staffed by robots Youtube production", available at: https://www.youtube.com/watch?v=mpzlQt6l4xY (accessed 28 December 2021).

NZIER (2015), *New Zealand Institute of Economic Research: Robot Nation? The Impact of Disruptive Technologies on Kiwis*, NZIER Insight 55-2015.

OECD (2019), *OECD Employment Outlook 2019: the Future of Work*.

Paulos, J.A. (2003), *A Mathematician Plays the Stock Market*, Basic Books, New York.

Pirri, E. (2020), "Artificial Intelligence reads 7000 reviews in less than a minute at Dorchester Collection", available at: https://www.thepeoplespace.com/practice/videos/artificial-intelligence-reads-7000-reviews-less-minute-dorchester-collection (accessed 11 April 2021).

Purbasari Horton (2020), "Could micro credentials compete with traditional degrees? BBC Worklife", available at: https://www.bbc.com/worklife/article/20200212-could-micro-credentials-compete-with-traditional-degrees (accessed 28 December 2021).

Shein, E. (2020), "Moore's law turns 55: is it still relevant?", *TechRepublic*, available at: https://www.techrepublic.com/article/moores-law-turns-55-is-it-still-relevant/ (accessed 28 December 2021).

Vennavally-Roo, J. (2020), "Space X looks to expand internet service with more than 700 Starlink satellites", *CTV National News*, September 5, 2020, available at: https://www.ctvnews.ca/sci-tech/spacex-looks-to-expand-internet-service-with-more-than-700-starlink-satellites-1.5094066 (accessed 11 April 2021).

Waye, T. (2021), "The future of work – understanding old work vs. new work", available at: https://www.youtube.com/watch?v=AhoYDn9H1p0 (accessed 12 April 2021).

World Economic Forum (2020), "The ten skills you will need to thrive in the Fourth Industrial Revolution", available at: https://www.weforum.org/agenda/2016/01/the-10-skills-you-need-to-thrive-in-the-fourth-industrial-revolution/ (accessed 14 April 2021).

WTTC (2015), *Global Talent Trends and Issues for the Travel and Tourism Sector*, WTTC, London.

Corresponding author

Chris Bottrill can be contacted at: cbottrill@capilanou.ca