Higher education's role in capacitating retail businesses' well-being, resilience and efficiency post-COVID-19

Ms L Steynberg
Hebei University of Technology
People's Republic of China
and
Tshwane University of Technology
South Africa
steynbergl@tut.ac.za

Dr JP Grundling
University of Johannesburg
South Africa
grundlingjp@tut.ac.za

Prof B Liu
Hebei University of Technology
People's Republic of China
liubing@hebut.edu.cn

Associate Prof Y Li
Hebei University of Technology
People's Republic of China
yuan.li@hebut.edu.cn

ABSTRACT

The COVID-19 pandemic is challenging business confidence and sustainability globally. This paper explores the critical role of higher education institutions (HEIs) in supporting retail businesses to capitalise on the realities of the pandemic. Following a corpus-review approach, 147 articles on higher education, COVID-19, and retail that were published from January to May 2020 were analysed. A constructivist grounded theory approach driven by a data coding process and qualitative analysis was adopted to identify underlying concepts for constructing appropriate responses. First-level coding identified substantive codes that were converted into broader abstract concepts, while a word-tree analysis identified the core theme. A series of codes were classified into reduced final concepts and dimensions using NVivo 12. Finally, a binary similarity index (Jaccard's coefficients) was used to calculate the similarities between any two sets of substantive concepts. The results revealed three driving forces determining post-COVID-19 retail business survival and sustainability: quality, omni-channel retailing, and accountable management. The demand for flexible and blended forms of life-long learning will require employee up-skilling and re-skilling, and has increased the demand for short-term online courses. The future of retail businesses will depend more on science and technology that focus on the green economy, health and safety, and daily business operations. The future of retail relies on big data, artificial intelligence and automotive learning devices to act ex ante on expected changes in the retail ecosystem. More research is required on how to cultivate HEI partnerships to collectively develop a noösphere capacity to protect the retail sector from micro and global challenges.

Keywords: accountable management, constructivist grounded theory, COVID-19, higher education, omni-channel retailing, quality

INTRODUCTION

Recently, Grewal, Roggeveen & Nordfält (2017) found that five factors would shape the retail sector's future, namely decision-making technologies and tools, visual display and merchandise offer decisions, consumption and engagement, collection and use of big data, and analytics and profitability. In addition, emerging trends were identified that would have a further compounding effect, for example the internet of things, virtual reality, artificial intelligence, robotics, drones and driverless vehicles. During the COVID-19 pandemic, these findings and trends developed rapidly and gained momentum. The outbreak highlighted the importance of health as an ecosystem factor that must be included in retail operations. The pandemic is increasingly fostering an awareness that retail businesses cannot continue to adopt a hands-on approach to cope with the consequences of COVID-19. Rather sustainability and success rely on a dramatic shift in operations and the full participation of stakeholders, including higher education institutions (HEIs), to support innovative ways of doing business and accelerating the demand for innovation.

Considering the above, HEIs could play a crucial role in this new reality while remaining true to their core functions of nation-building, modernisation, community development, and a country's self-development (Steynberg, Grundling, Liu & Li, 2020). This agency role is particularly important in serving its principal constituency, namely business, and especially the retail sector, in times of crisis. Consequently, this paper focuses on the current global crisis, COVID-19, which has resulted in a new kind of living and conducting business, and will challenge HEIs to reflect on how to provide relevant value-added services.

COVID-19, the disease and global business disrupter, is caused by a highly infectious new coronavirus (SARS-CoV-2). This new coronavirus caused a global pandemic, resulting in radical public and health policies and extreme country lockdown measures worldwide (La, Pham, Ho, Nguyen, P Nguyen, Vuong, Tran, Khuc, Ho & Vuong, 2020; Naicker, Yang, Hwang & Chen., 2020; Sawahel, 2020; Sutkowski, 2020). Even before the epidemic was announced on 10 January 2020, COVID-19 was already a major crisis in China, a crisis in the making abroad, and a pandemic that would threaten people's daily economic, business, health, and social lives globally (Burke, Burton, Fishpaw, Greszler, Michel, Michel, Sheppard & Winfree., 2020; Khan & Razvi, 2020). COVID-19 is still not under control at the writing of this paper, and it continues to spread rapidly without a cure in sight (Abrami, 2020; Gong, Xiong, Xiao, Lin, Liu, Wang & Li, 2020).

At macro-level, COVID-19 poses a huge threat globally due to the interconnectedness between the global economic and political systems, and also because little is known at present about this under-researched virus, its behaviour and effects (Maital & Barzani, 2020; Platje, Harvey & Bacchus, 2020). COVID-19 has already demonstrated its global impacts far beyond mortality and morbidity by signalling power shifts in the direction of Asian countries, shifts to automated production infrastructure, increased confidence in technology, reduced working hours, more emphasis on health and health care, and a decrease in business travelling (Al Omian, 2020; McKibbin & Fernando, 2020). It has, in addition, disrupted global supply chains and restricted transport within and between countries, resulting in a sudden worldwide resource scarcity (Bacq, Geoghegan, Josefy, Stevenson & Williams, 2020; McKibbin & Fernando, 2020). On the positive side, COVID-19 has created global opportunities for countries and nations to clean and green their economies, making them more sustainable, healthy and resilient (Guterres, 2020).

In general, the COVID-19 outbreak led to expectations of a global economic meltdown. The impact of this meltdown differs from country to country and it has the greatest impact on countries with low per capita incomes. These countries rely on a small number of economic giants, and production is transferred to countries that benefit from economies of scale, while long supply chains increase weaker countries' fragility.

At micro economic level, many businesses with a limited product or service mix leave the extremely vulnerable behind in times of a crisis (Altbach & De Wit, 2020; De Alwis, 2020). The closure of production facilities as well as shops, restaurants, and hotels worldwide has not only increased unemployment, but has also adversely impacted economic growth, financial markets, national income, stock markets and government budgets. This, in turn, exerted pressure on pension funds and public goods and services (Platje, Harvey & Bacchus, 2020). The overall slowdown in the economy will lead to a contraction in the supply of goods and services in the short term, leading to a rise in the prices of goods and services. However, central banks are expected to have limited effect on stimulating economic demand because of already low interest rates. This could lead to significant contractions in the demand for goods and services, which could place downward pressure on prices and increase unemployment (Maital & Barzani, 2020). All in all, the net effect still necessitates further investigation, because some affected consumers may reduce spending or decide permanently against a particular spending, while other lost demand may be temporary, and only related to the pandemic. As the pandemic recedes, consumers may tend to catch up with their spending, such as spending on vacations (Maital & Barzani, 2020).

On the other hand, the COVID-19 pandemic created new opportunities for building a productive workforce that exploits new and innovative approaches to hiring, training and retaining employees and assisting employees to succeed (Harker, 2020). Another positive effect is that most central banks have lowered their interest rates, enabling consumers to spend their money elsewhere, including on monthly bond repayments (Harker, 2020). Most importantly, an opportunity exists to drive economic recovery by focusing on "clean and green" jobs and business development in policy-making, financial support to businesses, and infrastructure provision (Guterres, 2020).

At the business level, COVID-19 has once again forced businesses to reflect more on a future characterised by agility, digitalisation, automation, and investment in renewables (Heading, 2020). There also is a need for more clarity on why the most job losses were experienced by Millennials (individuals currently between the ages of 25 and 39), who had also been adversely impacted in their early careers during the recession of 2008/9, followed by Generation X (individuals currently aged 40 to 54), and why those who are unable to work from home lost their jobs (IHE staff, 2020). McGuigan & Ghio (2020) warn businesses against over-reliance on a single global market, economic rationality, standardised business governance and accountability approaches. For this reason, globalised business monoculture became a risk vulnerability in favour of diversity and multi-cultural approaches to the production of ideas, system diversity and even economic diversity. The relentless presence of "wicked problems" confirms this point. Wicked problems (or baskets of problems), require simultaneous holistic solutions, as individual solutions are sometimes in conflict with one another. This forces business decision-makers to make trade-offs based on solution rakings, ethical notions, social choice, utility, and personal choice considerations. This may require the use of artificial intelligence capabilities (Mathur, 2020). With the opening up of Asian businesses, businesses from other countries can use the opportunity to observe what can be learned from the return to a new "normality" (Tonby & Woetzel, 2020).

The retail sector experiences their own wicked problems. More specifically, the sector directly manages transactions between sellers and consumers, and was also severely affected by COVID-19, as many retailers temporarily closed their doors in response to either regulatory mandates or reduced consumer demand and/or supply chain disruption. Only a few remained open under strict constraints to render essential services to the market (Chapuis, 2020; Stephany, Stoehr, Darius, Neuhäuser, Teutloff & Braesemann, 2020). The retail sector supply chain was also severely disrupted, as many products traded are not sourced locally (Fernandes, 2020). Furthermore, the COVID-19 outbreak in China also resulted in a considerable number of customers switching between retailers because of government-ordered business closures. It is still unknown whether this switching between retailers represents a temporary phenomenon or will continue, and if this is a general phenomenon. Nevertheless, the disruptions in the retail sector resulted in large-scale restructuring of the industry, bringing new retail formats into the retail system and more opportunities and choices for consumers (Li, Hallsworth & Coca-Stefaniak, 2020).

To fulfil its agency role to support the retail sector, HEIs are responsible for generating and assimilating knowledge, working side by side with communities and businesses to craft effective responses in times of crisis, and engaging in shared endeavours to create substantive benefits for society and industry as a whole (Abrami, 2020; Yong, 2020). Although this stance is widely accepted in academia and even in business circles, the current COVID-19 pandemic raises questions regarding the practicality and value-added role that HEIs should play in times of crisis and paradigm changes. Scientific evidence and information about how businesses, especially retail businesses, should protect themselves in terms of well-being, resilience and efficiency, is alarmingly scarce. In this context, the aim of this paper is to present solutions in which HEIs could rapidly capacitate retail businesses to achieve business survival and sustainability post-COVID-19. The aim gives recognition to the need of multi-stakeholder participation, ecosystem considerations and innovation demands of retail businesses to survive and thrive during and after crisis events such as COVID-19.

RESEARCH METHODOLOGY

This paper was developed while COVID-19 was still in the progressive phase and scientific knowledge of the pandemic was still in its infancy. The content is confined within a global health pandemic context that started late in 2019 and caused worldwide crises and havoc, with its impact and consequences still escalating. Since the COVID-19 pandemic represents an evolving crisis, a constructivist grounded theory approach was followed.

Textual analysis from a corpus of publications was used (Quinlan, 2011) and focused on retail in its broadest global sense rather than on a particular type of retail or geographical context. This approach enabled the researchers to identify and create theoretical concepts about, in the first place, the needs of the retail sector in COVID-19's living social context, and, secondly, about appropriate responses expected from HEIs to guide the retail sector to survival and sustainability. By providing content to the identified concepts through an intensive coding of 147 articles covering the period from the beginning of January 2020 to the end of May 2020 the researchers were able to formulate

recommendations to HEIs and retail institutions on capacitating retail businesses to ensure their well-being in terms of their survival and sustainability in an "in-construction" reality. This was done in full realisation of the fact that the impact of COVID-19 is distributed unevenly across countries, and that a detailed response plan requires substantial heterogeneous responses. However, the conclusions drawn provide useful information for both HEIs and the retail industry to consider.

A constructivist grounded theory approach was followed by not assuming the presence of a pre-existing reality according to which the retail industry should operate during and after the COVID-19 pandemic. Rather, the decision to adopt a constructivist grounded theory approach presupposes that reality is constructed by the meanings that social actors, in this case, retail and HEI actors and also meaning making of the researchers, ascribe to their experiences and observed phenomena (Mills, Bonner & Francis, 2006; Saunders, Lewis & Thornhill, 2016).

The researchers used a data mining approach for data collection, data cleaning and processing, and analysis to obtain concise and practical insights from the available text data (Aggarwal, 2015). This was done to firstly contextualise the paper within a pandemic, global, economic, business, retail and HEI funnelling perspective. The ultimate aim is to explore how HEIs can capacitate retail business well-being, resilience and efficiency in times of crisis. A broad heterogeneous corpus of articles of both scientific and practical value were identified by applying a Boolean search query approach using Google Scholar and Google search engines. The following keywords were used as singular search items and in various combinations with each other to provide an appropriate timeframe and target framework: Higher education, retail, business, government, COVID-19, 2020. Finally, the abstract of all publication files were scrutinized for appropriateness before selection for analysis.

A corpus theoretical sample of 147 published files was selected from the entire corpus population of scientific and grey publication files published over the period January to May 2020 in reputable international HE newspapers and magazines for analysis. The use of grey publication files was done with the purpose of identifying novice ideas on how HE could respond to the post-COVID-19 retail environment. With the hope of encouraging more informed dialogue from more novel discoveries and contributing to academic and practical business discourse, a non-traditional data search approach was implemented. All qualitative text data was converted to a Word Version 10 or PDF format for coding and analysis. No dependencies were specified between any of the data records or data items, so the captured text data were of a non-dependency-orientated nature. This implies that the data records did not have any specified dependencies between either the data items or the attributes. During the coding process, relationships between codes were synthesized based upon the disciplinary knowledge of the researchers in the fields of economics, business economics, entrepreneurship and psychology, as well as the research team's cumulative higher education experiences of more than 100 years. The compiled transformed data and relationships were captured in the NVivo Version 12 software program.

In the first round, text data were coded into a substantive code classification, article by article, in sequence. The researchers identified types of articles for further data collection during the coding process and the first-level analysis. Each code represents a summative concept capturing the primary content of data under the name of that code (Saldanha, 2015). In text coding, there is always the possibility of coding text into multiple classifications, with the result that some substantive codes are not mutually exclusive (Bramer, 2007). In order to improve code classification accuracy, the researchers used two qualified social scientists as coders, who had to reach consensus before the text was classified into a particular substantive code. In cases where there was still double coding, thus overlapping, the researchers reflected and engaged in an encoding process to merge and rename the resultant code with a more appropriate name. The coding process entails more than just labelling codes. It also implies linking concepts by determining the relationship between concepts. For example, in this research, information construction and technology in higher education was associatively linked to data and technology in the retail sector.

There are also words that are repeated in different codes. As a result, the researchers engaged in a search process for possible patterns in the data. According to Saldanha (2015), patterns in data may occur due to regularity or similarity. The researchers conducted cluster analysis using Jaccard's coefficients to identify patterns in similarity. The purpose of the cluster analysis was to determine the core abstract concepts that HEIs could use to capacitate retail businesses' well-being in times of crisis. Guided by the values of the Jaccard's coefficients, the researchers determined the scope of the content to be addressed under each identified core concept. The researchers also relied

on the weight of significant words in the text and the researchers' code definitions. The frequency of words appearing in a word tree, for all substantive codes were determined to identify the core theme (concept) on how HEIs could capacitate retail businesses in times of crisis, while word frequencies within a code were used to describe the core meaning of the code. The five most frequently used words were used to formulate the core theme.

DISCUSSION OF FINDINGS

The findings on the impact of COVID-19 on global retail and how HEIs could capacitate the retail sector suggest that the pandemic needs to be understood both from the perspective of a strategic and operational ecosystem and from a content priority perspective. The results cast new light on the consequences of underestimating prospects in an eco-environment, while at the same time demonstrating how ecosystem factors can quickly change the expected behaviour of all participating actors during and after the event.

Strategic and operational eco-system perspective

The cause of the COVID-19 pandemic can be seen as an ecosystem factor affecting the well-being and sustainability of retail businesses worldwide. While the researchers acknowledge that an economic lockdown on this scale was unforeseen, it can be speculated that retail businesses were not adequately prepared for integrating crisis-related ecosystem factors such as the COVID-19 pandemic into their strategic and day-to-day operational decisions. They were thus caught off guard and unable to respond to drastic and rapid changes and challenges in the business environment. The effects are apparent in mass layoffs, staff reductions, temporary closures, supply chain disruptions, reduced consumption of non-essential products and services, production interruptions, financial vulnerability of retail businesses, and concerns about employee and consumer health. These effects are expected to be long-lasting.

The above effects should be minimised as far as possible, and, more importantly, should be harnessed to improve the resilience, efficacy and sustainability of retail businesses post-COVID-19. To this end, retailers would need to improve their predictive decision-making ability and increase their market awareness. This interpretation is in line with the views of Özden & Gürlek (2020) and Zhang & Watson (2020), namely that the meaningful use of unstructured, diverse, related and unrelated data, trends and other kinds of observed data requires better and consistent sense-making and insight. Sense-making and insight capabilities should be improved and extended, and resource-searching and sense-making recommendations should be provided to retail businesses operating in a crisis environment (outside-in effects), or experiencing a crisis caused by endogenous factors. This calls for greater reliance on artificial intelligence capabilities created through machine learning. Machine learning techniques can offer structure to data, uncover complex relationships, and improve the predictive performance of data, especially in times of crisis. In essence, this means that retail businesses require digital transformation and implementation. When the first crisis signals are detected via virtual and real change agents, such transformation to greater reliance on artificial intelligence could provide immediate personalised advice and assistance to retail businesses. The data based on these signals could be related to anticipated demand, automated store operations, automated product assortments and automated supplier renegotiations, amongst others. This challenge has brought about profound responsibilities for HEIs to provide the retail sector with more talented people who are technically well-prepared to become effective big data insight consumers and make the right decisions. According to Dekimpe (2020), this brings into question a topic that still requires further research, namely whether computational skills should be emphasised more in retail curricula, so that students will be just as comfortable with algorithms and data analysis than with retail domain-specific insights.

The domain-specific content concepts identified in this research are presented in hierarchical order in Table 1, and addressed briefly in the following paragraphs. These concepts are intended to provide a conceptual understanding of emerging retail priorities worldwide, and could be used for theory building in subsequent studies. Therefore, conceptual understanding remains relevant in the context of the recognition that data-driven capabilities still need a sound conceptual understanding of retail. This can be achieved if future academic research is guided by the short- and long-term impact of COVID-19 on both consumer behaviour (Roggeveen & Sethuraman, 2020) and retail networks.

The central key concept derived from the research can be labelled “Comprehensive Retail Network Compliance”. According to the findings of this research, the key message of “Comprehensive Retail Network Compliance is that a retail business needs to be accountable for how its decisions and actions comply with total product and service quality requirements that may influence the well-being of both the business and the members of its dispersed retail network. This core concept emerged as a necessity for the retail sector during the COVID-19 pandemic, but also to improve the resilience (the ability to recover after adversity) and efficiency (to do the right things right) of the retail sector post-pandemic. According to Chen (2019), networks have enormous market power that can easily be exploited, particularly in the field of digitalisation and machine learning. The research revealed three important domains that require special attention to ensure the well-being of the retail sector, network members and consumers, namely quality, omni-channel retailing, and accountable management. A key ingredient of retail business competitiveness in the post COVID-19 period will be to ensure that the interests of retailers, network members and consumers are protected and supported. This must be achieved within and across an open and interconnected system approach, and in collaboration with various stakeholders, including HEIs, who need to provide the right talent and technical expertise to the retail sector.

The problems faced by the retail sector and industry may force HEIs to refocus from a supply-side service delivery approach to a more demand-side approach dominated by market demand. This shift would not only affect curriculum content, but also influence instructional modes and programme composition. The challenges faced by HEIs are even more arduous because the pace of change is so fast that the traditional education structure cannot be maintained, as students will need to learn what they need when they need it. This type of learning depends heavily on the development of artificial intelligence algorithm learning capabilities that provide students with personalised, engaged, and reflective learning opportunities (Krishnamurthy, 2020).

This key conceptualisation stands on the three critical pillars of quality, omni-channel retail and accountable management. Although these three concepts are not new in retail literature, COVID-19 has undoubtedly accelerated the need to adopt and integrate these transformative models into any retail business model and day-to-day retail operations. In the first place, these transformative models rely on the availability of and accessibility to information from digital media, social media, big data and other emerging technologies, artificial intelligence, and virtual reality (Cai & Lo, 2020). Thus a need exists to avail information across consumers to provide data about purchase behaviour and consumer trading, across products to offer information about products and product properties, across time to give information on stocks, stock-outs and purchase trends across time periods, across geo-spatial locations to provide information to hyper-target customers and information about network channels relating to online and offline retailing. Secondly, accountable management practices must be implemented that make provision for consumer protection, responsible data management and the establishment of resilient and efficient supply chains. Lastly, the focus of all retail activities must be vested in quality.

The discussion of the major findings is presented on the basis of the content presented in Table 1, which shows the hierarchical needs of retail post-COVID-19.

Quality

Although the Total Quality Management (TQM) concept based on the continuous improvement of all aspects of the retail sector remains important in the face of increasing competition and consumer demands, three new concepts emerged from the findings. Firstly, COVID-19 has prompted a greater awareness of product quality than ever before. Secondly, there is a growing demand for promotional savings, and, thirdly, a higher demand for goods with increased longevity can be seen. Typical product attributes include non-iron, stain- and scuff-resistant materials, as well as environmentally friendly and “at its best” products that support healthier and “good for you” lifestyles. The economic effect of the pandemic on household income and disposable income has given rise to consumers demanding more product-saving promotions. Therefore, in considering the health and cost savings of consumers, collective promotional sensitivity is required during and post-COVID-19, as a result of stronger “social herding behaviour”, which strongly correlates with safety and confidence in product quality (Khan, 2020).

TABLE 1
HIERARCHICAL NEEDS CLUSTERS FOR THE RETAIL SECTOR

Core concept	First order concepts	Second order concepts	Third order concepts	Content
Comprehensive Retail Network Compliance	1. Quality			• Money saving promotions • Product longevity • Shelf-life
	2. Omni-channel retailing	Sales approach	Interaction intentions	• Less physical interaction • Expand consumer base (Promotion)
			Channel characteristics	• Early movers benefit • Online shopping • Smaller outlets benefit • Focus on technological savvy • Convenience and speed • Healthy, green and quality products • Comparisons • Expand reach • Growing options • Product shortages
			Transaction features	• Check-out free shopping • Process shoppers quickly • High volumes • Rapid turnover
		Customer practices		• Employee and customer distancing • Changing customer routines
	3. Accountable Management	Supply chains		• Cost • Lead times • Material and stock management • Resilience vs efficiency • Distribution channels revised • Movement to retail buyers • Expand local services
		Demand management	Customer Safety	• Social distancing • Hygiene measures • Antibacterial properties • Supply chain safety
			Data	• Customer buying patterns • Artificial intelligence data • Machine learning • Customer-relationship • Sales data
			Technology	• Mobile transfers (Mobile phones) • QR and Bar Coding • Virtual fitting with needs

Omni-channel retailing

The research findings correspond to the essential nature of omni-channel retailing defined by Verhoef, Kannan & Inman (2015:176) as "the synergetic management of the numerous available channels (i.e. online, off-line, blended, pick-up options and so forth) and customer touchpoints, in such a way that the customer experiences across channels and the performance over channels are optimized". This type of retailing is already a popular and widely accepted retail approach (Cai & Lo, 2020). In alignment with and in addition to the views of Haines (2020), online shopping will stabilise at far higher rates pre-COVID-19, new consumer purchasing trends will emerge, home delivery will increase,

the demand for automation will be greater, and the greater emphasis on local micro-fulfilment strategies will provide more concrete clarity for the sales approach and customer practices of the retail sector.

Sales approach

Changes to the sales approach will be visible in three domains, namely interaction with customers, channel characteristics and transaction features.

Interaction with customers – The findings revealed that omni-retailing will continue to gain strength as consumers have less need to experience physical in-store interaction because of COVID-19. Due to a decline in non-essential retail activities during COVID-19, retailers are considering new ways of attracting and expanding their customer base, even globally. The changing needs of customers and retailers' need to expand the customer base, provides a reasonable argument for the use of omni-retailing. Therefore, the new sales approach supports the view of Haines (2020), who urges retailers to procure more Goods-to-Person (GTP) technologies in order to ship a greater variety of goods, thus expanding the customer base in a shorter time. If retailers were to take advantage of these technologies, it could become a powerful promotional strategy.

Channel characteristics – The results revealed that early or first retail movers, especially smaller retail outlets, not only benefit from providing online shopping opportunities, but simultaneously add new benefits, such as convenience and speed, to what is offered. This requires developing smart supply chains that build on smart technologies. As technological knowledge grows, the reach of all participants in the channel is expected to expand, particularly those committed to providing healthy, green and quality products. It is envisaged that, in the distribution of goods post-COVID-19, transport vehicles will be equipped with connectivity, fleet-greening infrastructure, and even autonomous driving capabilities to comply with the vehicle-to-everything principle, such as vehicle-to-safety, vehicle-to-energy, and vehicle-to-customer identification, vehicle-to-retailer indication, and vehicle-to-geographical space adaption principles. It is evident that maximising social and environmental safety and benefits will be given top priority post-COVID-19. These new additions to the retail channel system will provide consumers, and especially the local community, with enhanced and extensive purchasing opportunities.

Transaction features – The findings revealed that transactions in the retail sector are characterised by demands for check-out free shipping and quicker processing of customers, and focus more on high shopping volumes and assortments, resulting in high turnover. Where consumers visit retail stores physically, significant investments in safety and epidemiological protective equipment would be required to secure a human-saving eco-system in the store.

Customer practices

Clearly, consumer consumption patterns have changed as consumers became more aware of the usefulness and ease of use of products, trust in retailers, and retailers' awareness of compliance with hygiene and safety measures such as physical distancing. In addition, Pantano, Pizzi, Scarpi & Dennis (2020) assume that as consumers reassess their established habits, retailer switching may occur post-COVID-19. Consumer habits could change, taking into account spatial proximity, availability during emergencies, attachment to retailers during a pandemic, and the discovery of services that offer benefits they did not use before the pandemic. The findings also indicate that consumers who switch to online shopping will largely remain online or shift to small local retailers or supermarkets. Retailers also need to accommodate the fact that consumers' discretionary income will be lower for some time, and that they could therefore postpone certain types of purchases and become more sensitive to value-for-money purchases. The post-COVID-19 era will once again bring to the forefront a need for studies to examine own and cross-price elasticities to identify new consumer substitution patterns and reallocations. Such studies may be important, as past estimates do not provide a true reflection of post-COVID-19 realities. Lastly, consumers who are classified as high-risk groups, like the elderly, are more likely to change their consumer behaviour to comply with regulations and health and safety standards.

Accountable management

Accountable management refers to public accountability to all stakeholders as it relates to the operations within the business itself, the supply chain and the management of demand. In the operation of retail businesses, more emphasis will be on measures to protect the health of customers and employees, educating employees, and the need to disseminate more health-related information to all stakeholders. This ensures that businesses comply with the expected code of conduct. In all supply chain activities, such as cost, material, inventory, distribution and lead time management, it is envisaged that the new balancing norm will be a trade-off between the resilience indicators and efficiency criteria. On the other hand, demand management will be driven by greater reliance on data and information technology, with more emphasis on consumer safety.

Content priority perspective: the role of higher education

A core function of HEIs is to assist in ensuring the readiness of retail businesses before, during and after a pandemic or crisis. This view is supported by Brandenburg, de Wit, Jones & Leask (2019) that HE has an obligation to society through its research, teaching and learning engagements and the involvement of all actors in the business-HE system to produce knowledge that can be applied in various contexts. The findings revealed that the retail labour market faces an increasing demand for flexible and blended forms of lifelong learning that proceed beyond initial education, focusing more on the upskilling and reskilling of employees, especially in preparation for the digital economy, and providing more short-term online courses. This requires a shift from the supply side focus of HEIs to being more demand driven. Therefore, HEIs need to be more involved in active and diverse labour market programmes that respond more appropriately to global developments and crises (Grigoli, Koczan & Topalova, 2020). This necessitates rethinking the conventional role of HE to adapt to new conditions and social reforms post-COVID-19. Amongst others HE will have to build capacities to enable scholars to collaborate on life-world problems in the retail environment, enhance its competitive advantage in information technology, cater for students to freely select education options as smart consumers and respond to the discourse of the fourth industrial revolution (Peters, Rizvi, McCulloch, Gibbs, Gorur, Hong, Hwang, Zipin, Brennan, Robertson, Quay, Malbon, Taglietti, Barnett, Chengbing, McLaren, Apple, Papastephanou, Burbules, Jackson, Jalote, Kalantzis, Cope, Fataar, Conroy, Misiaszek, Biesta, Jandrić, Choo, Apple, Stone, Tierney, Tesar, Besley, & Misiaszek, 2020.). As such, HE cannot be restricted to a nation centric retail approach.

The results emphasise the greater dependency post-Covid-19 of retail on science and technology. HEIs will play an increasing role in supporting and preparing the retail sector to participate and contribute to a clean and green economy, safeguarding consumer and employee health, and empowering all stakeholders in the retail chain with the dissemination of relevant health information as part of their daily operations. The level and types of technology required, such as big data and artificial intelligence, as well as rapid changes in the retail sector, will compel HEIs to participate actively in this sector, not only by providing talented participants, but also by ensuring that the correct capabilities are provided when needed. In order to fulfil this responsibility, HEIs will have to assess how to align their traditional supply-driven curriculum offerings with the new demand-driven challenges. In the authors' view, a shift towards the development and use of automotive learning devices that enable self-driven, participatory, reflective, and lifelong learning is required. In addition, HEIs will develop artificial intelligence technologies through machine learning research, which could provide retailers with ex ante guidance on expected changes and decisions in the retail ecosystem, retail channels, consumer behaviour and competition, and offering the proper product and service mix. Hence, HEIs need to engage more with retailers to seek new and innovative business models for sustainable development, in the event of major operational disruptions caused by crisis.

DIRECTIONS FOR FUTURE RESEARCH

Since the findings of this research cover a short period in an unprecedented crisis, there is a need to assess whether permanent or temporary changes occurred in consumer demand and habits. More applied research is required to determine how HEIs could position themselves to provide individual and immediate assistance to retailers in the framework of a multi-party stakeholder interest with multiple competitive influences. Since most HEIs are

unable to address all retailers' needs in a comprehensive manner, more research is required. Such research should explore how to foster effective HEI partnerships to collectively build a noösphere capacity that shapes and changes global challenges, and protects lives and livelihoods as well as national economies, including the micro challenges and protection needs experienced in the global retail sector. Moreover, research is required to assess whether HEIs have gained or lost the respect of science and technology providers in times of crisis, and what measures need to be taken to maintain or regain institutional respect. The latter is important because, despite advancements in science and technology, humanity remains vulnerable.

CONCLUSION

The global retail sector is experiencing radical transformation as a result of the technological and digital revolution, and is developing rapidly due to the COVID-19 pandemic, which caused a simultaneous demand and supply challenge. Some of the expected retail-sector changes are structural changes that will continue for a long time. This requires retailers to use more sophisticated and accurate analytical procedures. In this, HEIs can contribute by providing the retail industry with talented people who have the insight and capability to interpret big data, develop appropriate automotive technology, respond appropriately to ecosystem factors, understand the geopolitical circumstances of the local environment, and provide guidelines to model changes in consumer behaviour.

The core focus of the retail sector should be to ensure full compliance with comprehensive retail network requirements. The growing online retail trend is expected to continue and therefore there is a need for further research to determine whether online retailing will become more localised in terms of territorial space and distance as a result of better knowledge of local health-related circumstances and support of retailers in close proximity.

The challenges discussed in this paper do not intend to introduce a new discourse for HEIs. On the contrary, it serves as a reminder to HEIs to remain true to their core functions of nation-building, modernisation, community development, and the self-development of a country. To remain relevant and provide value-added services in times of modernisation and crisis call for a review of what needs to be done and how to engage in shared participation with stakeholders.

ACKNOWLEDGMENTS

The authors wish to extend their sincere gratitude to Hebei University of Technology and Tshwane University of Technology for their support and financial contribution. This research was also partly supported by the Higher Education Reform Fund of Hebei Province, People's Republic of China (No. 2017GJJG022), the Postgraduate Demonstration Course Construction Project of Hebei Province (No. KCJSX2018014), the South African Department of Higher Education and Training and the Faculty of Management Sciences, Tshwane University of Technology.

DECLARATION

The authors declare that there is no potential conflict of interest with respect to the research, authorship, and publication of this manuscript. The manuscript was furthermore not submitted for publication previously and was language edited before submission.

REFERENCES

Abrami, R. 2020. How will Covid-19 change business education? Available at: https://www.aspeninstitute.org/blog-posts/how-will-covid-19-change-business-education/ (Accessed: 1 May 2020).

Aggarwal, C.C. 2015. Data mining: the textbook. New York: Springer.

Al Omian, K. 2020. Are we witnessing the awakening of a new world order? Forbes Middle East, April, 1-9.

Altbach, P.G. & De Wit, H. 2020. Post pandemic outlook for HE is bleakest for the poorest. World University News, 4 April. Available at: https://www.universityworldnews.com/page.php?page=Trans_Lead (Accessed: 7 April 2020).

Bacq, S., Geoghegan, W., Josefy, M., Stevenson, R. & Williams, T.A. 2020. The Covid-19 "Virtual Idea Blitz": marshalling social entrepreneurship to rapidly respond to urgent grand challenges. Available at: www.virtialideablitz.com (Accessed: 2 May 2020).

Bramer, M. 2007. Principles of data mining. Third Edition. London: Springer-Verlage.

Brandenburg, U., de Wit, H., Jones, E. & Leask, B. 2019. Internationalisation in higher education for society. World University News, 20 April. Available at: https://www.researchgate.net/profile/Elspeth_Jones/publication/ 340535564_ Internationalisation_in_Higher_Education_for_Society/links/5e8f2a97a6fdcca789023e69/Internationalisation-in-Higher-Education-for-Society.pdf (Accessed: 30 September 2020).

Burke, L., Burton, D.R., Fishpaw, M., Greszler, R., Michel, M., Michel, N.J., Sheppard, P. & Winfree, P. 2020. The senate's coronavirus bill: bailouts, missed opportunities, and positive reforms. Backgrounder, 3479: 1-13. Available at: www. heritage.org (Accessed: 27 March 2020).

Cai, Y. & Lo, C.K.Y. 2020. Omni-channel management in the new retailing era: a systematic review and future research agenda. International Journal of Production Economics, 229, 107729. Available at: https:/doi.org/10.1016/j.ijpe.2020.107729 (Accessed: 3 July 2020).

Chapuis, P. 2020. Covid-19 will bring lasting innovation to retail. Available at: https://www.retailcustomerexperience.com/ blogs/covid-19-will-bring-lasting-innovation-to-retail/ (Accessed: 6 May 2020).

Chen, Y. 2019. Improving market performance in the digital economy. China Economic Review. Available at: https://doi. org/10.1016/j.chieco.2020.101482 (Accessed: 29 March 2020).

De Alwis, A. 2020. Coronomics-Plan your eggs and the basket. Wisdom Window, 10(2): 15.

Dekimpe, M.G. 2020. Retailing and retailing research in the age of big data analytics. International Journal of Research in Marketing, 37: 3-14. Available at: https://doi.org/10.1016/j.ijresmar.2019.09.001 (Accessed: 2 April 2020).

Fernandes, N. 2020. Economic effects of coronavirus outbreak (Covid-19) on the world economy. 22 March. Available at: https://ssrn.com/abstract=3557504 (Accessed: 10 May 2020).

Gong, F., Xiong, Y., Xiao, J., Lin, L., Liu, X., Wang, D. & Li, X. 2020. China's local governments are combatting Covid-19 with unprecedented responses – from a Wenzhou governance perspective. Frontiers in Medicine. Available at: https:// www.doi.org/10.1007/s11684-020-0755-z (Accessed: 21 March 2020).

Grewal, D., Roggeveen, J. & Nordfält, J. 2017. The future of retailing. Journal of Retailing, 93(1): 1-6. Available at: http:// dx.doi.org/10.1016/j.jretai.2016.12.008 (Accessed: 1 April 2020).

Grigoli, F., Koczan, Z. & Topalova, P. 2020. Automation and labor force participation in advanced economies: macro and micro evidence. European Economic Review, 126(C). Available at: https:/doi.org/10.106/j.euroecorev.2020.103443 (Accessed: 3 June 2020).

Guterres, A. 2020. UN urges countries to "build back better". Available at: https://www.un.org/en/un-coronavirus-communications-team/un-urges-countries-%E2%80%98build-back-better%E280%99 (Accessed: 24 April 2020).

Haines, A. 2020. How COVID-19 will permanently change your omni-channel supply chain. Available at: https://www. bastiansolutions.com/blog/how-covid-19-will-permanently-change-your-omni-channel-supply-chain/ (Accessed: 27 May 2020).

Harker, P.T. 2020. The opportunities of a tight labor Market. University of Delaware, Newark, DE: 2020 Lyons CEEE Economic Forecast.

Heading, S. 2020. The answer "what now", companies are asking "what next". Available at: https://home.kpmg/xx/en/ blogs/home/posts/2020/04/covid-19-clues-what-to-watch.html (Accessed: 30 April 2020).

IHE staff. 2020. Coronavirus live updates archive from April 12-18. Inside Higher Education. Available at: https://www. insidehighered.com/news/2020/04/20/ coronavirus-live-updates-archive-april-12-18 (Accessed: 21 April 2020).

Khan, A.U. & Razvi, S. 2020. How India must tackle China's killer bug. Policy Watch, 9(1): 19-23.

Khan, N.A. 2020. Outbreak of Covid-19: its impact on brand health and marketing communications. Available at: https:// economics.iba.edu.pk/articles/nida-v3.pdf (Accessed: 2 June 2020).

Krishnamurthy, S. 2020. The future of business education: a commentary in the shadow of the Covid-19 pandemic. Journal of Business Research, 117: 1-5. Available at: https://doi.org/10.1016/j.jbusres.2020.05.034 (Accessed: 26 April 2020).

La, V.P., Pham, T.H., Ho, M.T., Nguyen, M.H., P Nguyen, K.L., Vuong, T.T., Tran, T., Khuc, Q., Ho, M.T. & Vuong, Q.H. 2020. Policy response, social media and science journalism for the sustainability of the public health system amid the COVID-19 outbreak: the Vietnam lessons. Sustainability, 12(7): 2931.

Li, J., Hallsworth, A.G. & Coca-Stefaniak, J.A. 2020. The changing grocery shopping behaviour of Chinese consumers at the outset of the Covid-19 outbreak. Tijdschrift voor Economische en Sociale Geografie. Available at: https://doi.org/10.1111/tesg.1420 (Accessed: 20 May 2020).

Maital, S. & Barzani, E. 2020. The global economic impact of Covid-19: a summary of research. Technion City, Haifa: Samuel Neaman Institute for National Policy Research.

Mathur, A.N. 2020. Strategies for solving wicked problems of true uncertainty: Tackling pandemics like Covid-19. Ahmedabad, India: Indian Institute of Management.

McGuigan, N. & Ghio, A. 2020. How will Covid-19 change business education? Aspen Institute, 15 April. Available at: https://www.aspeninstitute.org/blog-posts/how-will-covid-19-change-business-education/ (Accessed: 1 May 2020).

McKibbin, W. & Fernando, R. 2020. The global macroeconomic impacts of COVID-19: seven scenarios. CAMA Working Papers 2020-19. The Australian National University: Centre for Applied Macroeconomic Analysis, Crawford School of Public Policy.

Mills, J., Bonner, A. & Francis, K. 2006. The development of constructivist grounded theory. International Journal of Qualitative Methods, 25-35. Available at: https://journals.sagepub.com/doi/10.1177/160940690600500103#articleCitationDownloadContainer (Accessed: 30 September 2020).

Naicker, S., Yang, C., Hwang, S. & Chen, J. 2020. The novel coronavirus 2019 epidemic and kidneys. Kidney International, 1-5. Available at: www.kidneyinternational.org (Accessed: 20 March 2020).

Özden, G.A. & Gürlek, R. 2020. Automatic interpretable retail forecasting with promotional scenarios. International Journal of Forecasting. Available at: https:/doi.org/10.1016/j.forecast.2020.003 (Accessed: 21 May 2020).

Pantano, E., Pizzi, G., Scarpi, D. & Dennis, C. 2020. Competing during a pandemic? Retailers' ups and downs during the COVID-19 outbreak. Journal of Business Research, 116: 209-213. Available at: https://doi.org/10.1016/j. jbusres.2020.05.036 (Accessed: 3 April 2020).

Peters, M.A., Rizvi, F., McCulloch, G., Gibbs, P., Gorur, R., Hong, M., Hwang, Y., Zipin, L., Brennan, M., Robertson, S., Quay, J., Malbon, J., Taglietti, D., Barnett, R., Chengbing, W., McLaren, P., Apple, R., Papastephanou, M., Burbules, N., Jackson, L., Jalote, P., Kalantzis, M., Cope, B., Fataar, A., Conroy, J., Misiaszek, G., Biesta, G., Jandrić, P., Choo, S.S., Apple, M., Stone, L., Tierney, R., Tesar, M., Besley, T. & Misiaszek, L. 2020. Reimagining the new pedagogical possibilities for universities post-Covid-19. Educational Philosophy and Theory. Available at: https://www.tandfonline.com/doi/citedby/10.1080/00131857.2020.1777655?scroll=top&needAccess=true (Accessed: 30 September 2020).

Platje, J., Harvey, J.A. & Bacchus, L.R. 2020. COVID-19 – reflections on the surprise of both an expected and unexpected event. Central European Review of Economics and Management, 4(1): 149-162. Available at: https:/doi.org/10.29015/ cerem.874 (Accessed: 19 April 2020).

Quinlan, C. 2011. Business research methods. Hampshire, United Kingdom: Cengage.

Roggeveen, A.L. & Sethuraman, R. 2020. How the Covid-19 pandemic may change the world of retailing. Journal of Retailing, 96(2): 169-171. Available at: https://doi.org/10.1016/j.jretai.2020.04.002 (Accessed: 2 June 2020). Saldanha,

J. 2015. The coding manual for qualitative research. Third Edition. Arizona: Sage Publications Ltd.

Saunders, M., Lewis, P. & Thornhill, A. 2016. Research methods for business students. Seventh Edition. Cape Town: Pearson Education Ltd.

Sawahel, W. 2020. Coronavirus outbreak: what should universities be doing? University World News, 28 January. Available at: www.universityworldnews.com (Accessed: 29 March 2020).

Stephany, F., Stoehr, N., Darius, P., Neuhäuser, L., Teutloff, O. & Braesemann, F. 2020. The CoRisk-Index: a data-mining approach to identify industry-specific risk assessments related to COVID-19 in real time. arXiv preprint arXiv: 2003.12432.

Steynberg, L., Grundling, J.P., Liu, B. & Li, Y. 2020. Assessment of China's 1985-2017 higher education policy reform: nation-building directives. 3rd International Conference on Education Research and Policy (ICERP 2020), 22-25 May, Beijing, People's Republic of China.

Sutkowski, T. 2020. Covid-19 pandemic; recession, virtual revolution leading to de-globalization? Journal of Intercultural Management, 12(1): 1-11. Available at: https://doi.org/10.2478/joim-2020-0029 (Accessed: 3 April 2020).

Tonby, O. & Woetzel, J. 2020. Could the next normal emerge from Asia? Mckinsey & Company Briefing note 20 April. Available at: https://www.mckinsey.com/ featured-insights/asia-pacific/could-the-next-normal-emerge-from-asia (Accessed: 24 April 2020).

Verhoef, P.C., Kannan, P.K. & Inman, J.J. 2015. From multi-channel retailing to omni-channel retailing. Journal of Retailing, 91(2):174-181.

Yong, Q. 2020. Time for universities to show their commitment to society. University World News. Available at: https://www.universityworldnews.com/post.php?story= 20200401154815248 (Accessed: 4 April 2020).

Zhang, J.Z. & Watson, G.F. 2020. Marketing ecosystem: an outside-in view for sustainable advantage. Industrial Marketing Management, 88: 287-304. Available at: https:/doi.org/10.1016/jindmarman/2020.04/023 (Accessed: 21 May 2020).