

Research-Teaching Nexus to Logistics Competence and Skills: An Exploratory Study on Logistics sector from the perspective of Managers in Oman

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ABSTRACT

Research-teaching nexus is critical in designing and developing appropriate competence and skills to educational programs. Its contribution to emerging and dynamic fields like logistics above all is enormous. The increase in volume of transaction, information and financial flows is immense in our globalized world such increase in transaction requires competent and skilled manpower in the field of logistics and transport management. It is important that the change in logistical services must be continued with the changing business environment and thus, the professionals must be well trained through educational development courses to gain knowledge and skills of the logistics operations. The purpose of this research is to explore quality and quantity of logistics specialists in the Sultanate of Oman and assess the role of research-teaching nexus in filling knowledge and skill gap. Survey (Interview) was conducted to managers of selected large scale Omani companies. Experienced senior managers were purposively chosen to have valid and reliable data. Skill and knowledge deficits in the filled were explored and the role of research and teaching were recommended. Research should focus on educational needs and setting of curricula for teaching. Teaching should focus on competence and skill development and training of manpower to fit the company needs. Teaching should target on the educational level, the development of professionals, and equipping the logistical workforce with these skills that are important for the future. Partnership between companies and educational institutions would assist to narrow the mismatch in skill and competence needed by companies and produced in colleges/universities.

Key words: logistics competence, logistics skill, research-education nexus.

I. Introduction

The world population is expected to be 8 million in 2030 implying a huge increase in the volume of transactions of products and mobility of people throughout the globe demanding an efficient and dynamic logistics systems/operations.

The increase in urbanization and level of globalization needs multinational

companies to enhance scale of operation pushing them to channel goods in all corners of our world challenging the global logistics operations (Techane, 2020). The global logistics operations demand researching, educated and qualified human resources and innovation of technology to meet business and people

needs (Magdalena et al., 2019). Technology and infrastructure and efficient supply chain networks needs to be established to meet the dynamics of global logistics.

The world population is largely characterized by aged population both in developed and emerging nations and the work force is contemplating retirement; whereas, in the emerging nations, the increase in population particularly the young workforce is not skilled to meet the requirements of the dynamic logistics operations. Industries in both developed and emerging nations are constrained by a dearth of skilled manpower in the logistics areas (pwc,2012). The problem is apparent and continues to be a critical challenge in the logistics sector.

The logistics sector is an emerging sector with ample opportunities for businesses and individuals. The sector meets the businesses and people's need for products by channelling them from production industries to consumers. The last miles logistics (LML) offers products from business to consumer meeting consumers' needs for goods. The last miles logistics is essential part of logistics operation particularly in this urbanized and globalized world. However, research and education has given little emphasis (Techane, 2020).

Some emphasis has been given to business-to-business logistics though insufficient. There needs to be a shift in emphasis on LML as it has economic, social, and environmental contributions. In the LML logistic, SMEs operating in logistics and distribution are involved in large extent contribute to employment and wealth distribution. Nevertheless, the challenges related to LML logistics are not well investigated in research and sufficient

coverage is not given in teaching/education sectors. Technology, infrastructure, system management and logistics cost related challenges need to be studied; and curriculum and innovation related solutions need to be recommended. According to pwc (2012), the critical strategy for the enhancement of the logistics sector is manpower. Dearth of skilled manpower in logistics is constraining the development, expansion, and success of the sector. In addition, the perception of employees on logistics positions tend to affect the employees' preference in joining logistics in education and taking training to develop their capacity. These challenges need to be addressed in research and teaching. In addition, business executives are advised to work on branding of the positions in the logistics sector.

The logistics sector is essential to the growth of the national economy and its importance continues to increase in the future. Increase in population and level of globalization induce growth in the flow of goods and services resulting demand for more skilled manpower and innovative and well-established logistics systems. Dynamic and vibrant manpower needs to be produced in educational and training institutes to meet such dynamic and technology-based logistics systems.

Emerging economies are expected to attract the focus of the world due to the larger population which could serve as a resource and market base for multinational companies. The need for manpower due to huge logistics operations considered to be a critical challenge as the younger population is not sufficiently trained and education to meet logistics activities. The dearth of skilled manpower stifles the enhancement and efficient logistics

operations in these regions. This demands researchers to investigate the dynamics of logistics operations and propose curricula development revision to produce qualified manpower to meet contemporary company or business needs.

Skills of logistics and transport are substantial for the graduates in the field to global logistics requirements. The ManpowerGroup (2011) reported that the global economy is faced with skill mismatch though there seems oversupply of available workers, there is under supply of required skilled workers. Skill mismatch as defined by Liu et al (2016) is as mismatch between the skills supplied by colleges and skill demanded by hiring industries and asserted that such gap results in graduate recession. The study by Saeed et al. (2018) identified that skill mismatch is creating rising unemployment rate and recommending reforming of context of courses and working in partnership with entrepreneurs and hiring communities to consider new requirements. Heyns & Rose (2012) reported that skill shortage in general and lacking skills in logistics and supply chain management constrains the South African economic and trade growth. Hence, insufficiency and mismatch between graduates and real-world requirements needs further investigation in the design of curriculum to increase number of skilled manpower and reduce degree of mismatch between graduates and hiring communities. Therefore, this paper tries to meet the objective by assessing the skills needed by Omani logistics and transport companies and the status of graduates in meeting job requirements. Review of related literature and primary data collection through interview has been employed to determine the role of teaching

and research nexus in ratifying the challenges graduates face and the skilled labour shortage for logistics companies.

II. Literature

Theory of learning is an attempt to describe how people learn and the theory describes learning as a process of changing behaviour of the learner. The theory has three philosophical frameworks: behavioural, cognitive and constructivism. Behaviourism focuses on the objectively observable aspects of learning. Cognitive theories look beyond behaviour to explain brain-based learning. Constructivism views learning as a process in which the learner actively constructs or builds new ideas or concepts. The theory of learning believes in the change of behaviour resulted from the change in behaviour from the learning process. When curriculum and training modules are designed, the philosophical frameworks are considered. For high level knowledge, constructivism and cognitive frameworks guide education and curriculum design. Behaviourism framework guides design and development of technical skills.

Though curricula design and module development are guided by the various frameworks of the learning theory, employers and other stakeholders need to participate in the design and development of the curricula and modular design. The work of Taiguar et al. (2020) asserts that curriculum design and module development should take inputs from various stakeholders to produce credible and impactful graduates. Lack of stakeholders' engagement would result in mismatch between graduates' skills and employers' skill demand/job requirements. Research needs to be conducted to identify

employers demand and design teaching curricula and modules.

The teaching-research nexus is ubiquitous in academic debate and several studies are being conducted and came up with mixed results. The previous study summary conducted by Mohammed (2004) indicated mixed findings on the relationship between research and education quality. The summary found strong relations, no relation and negative relations between research and education quality. However, there seems a general recognition in the positive relations and the debate is on the strength of the relationships (Louw. & Moloi, 2013). The positive contribution of research to teaching is expressed in that research helps the transfer of expertise and contemporary knowledge to students. Research is also expected to identify deficiencies in skills and competence in the labour market and feeding educators to design and develop curricula to produce graduates that can fit to the company demands (Louw. & Moloi, 2013).

Investment in training, education and research/development are essential to identify the challenges the logistics sector is facing such as qualified manpower, technology, infrastructure, and systems management to enhance the sector and fit for the changing and the dynamic world (PWC, 2012). The critical challenges facing the sector are lack of qualified manpower, and lack of understanding of logistics functions (Magdalena, et al, 2019). Due to the aging population in many developed countries, absence of elder friendly work force and working conditions has also affected the employment situation and the transfer of skills from seniors to the newly hired young workers. Negative image on positions in the sector, Technological

challenge, infrastructure, and high logistics costs are also affecting the logistics sector; Techane 2020; PWC 2012).

Regarding skills and competences required in the real work environment is concerned, previous research have shown mixed results regarding educational, and skill needs in the fields of logistics which will contribute significantly to filling gaps in this research (Magdalena, et al, 2019). Heyns & Rose, (2012) found out that shortage of manpower in the logistics labour market constraining the development of the sector and the economy in general. Others on the other hand presents the mismatch between graduates and the job requirement (Saeed et al., 2018; Liu et al., 2015). It is reported that graduate unemployment is popular in many countries, to the contrary many companies reported lack of manpower constraining the logistics (Magdalena, et al, 2019).

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The study in relation to skill requirements in the supply chain industry shows that lack of skills as one of the main features affecting economic growth in South Africa. The lack of effective and skilled workforce is one of the constraints having an adverse effect on South African business, which was reported in the International Business Report (Heyns & Rose, 2012). The report shown also a constraint affecting key business owners in South Africa. Such lack of skilled manpower in South Africa was claimed to be the critical factor dragging the country's economy as agreed by their economists. These skills are composed of vocational skills, management, and technology (Heyns & Rose, 2012).

In the sixth annual poll regarding lack of talent, more than 50% of business owners in USA were unable to obtain employees

to occupy major positions and are critical in their business due to the lack of skills they have. Highest percentage of business owners in US had difficulties in filling critical and dependent positions on skills due to lack of talent. Also, in the study that was followed by INSEAD 2009, unemployment in Europe amounted to just under 20 million, but it is not possible to employ more than 4 million jobs, due to the lack of talent and skills in Europe. Most of the respondents from different sectors, namely transport, communications, warehousing and manufacturing, make up 68%, and senior managers and intermediates make up a little more than 78%, which means that managers can be decision makers within organizations (Heyns & Rose, 2012).

The most important skills in the logistics sector are that of work ethics and customer focus, followed by priorities and ability to plan. Also among the skills are interpersonal relationships that are not capable of developing and the ability to see the future and the broad or general management properly. These skills are very important in the logistics sector, but logistical awareness is the most important for senior managers due to the fact that it is considered as one of the most important skills they possess. Talking about analytical logistical skills being among the important skills, but less important than the skills mentioned. As for the skills related to information technology and the skills of environmental awareness, it is considered one of the least required skills in the logistical sector of the senior managers.

The summary of this study is an analysis of the skills required in the logistical sector as it is a combination of more than one skill, but six basic skills were drawn which

are logistical awareness and is considered the most important in the logistical sector, behavioural and analytical skills. Whereas this research is compatible with various previous studies in the literature review. It also included skills for the supply chain industry, such as the ability to visualize the broad picture, out-of-the-box thinking, teamwork, communication, and job coordination, as these skills are important to the success of a complex future. Also among the skills that may become in the future of great importance are decision-making, the ability to plan, improve business, leadership and change that is important to siphoning the supply chain. As per the analysis of the results in the research, which are related to the lack of logistical skills, it is not the only country where studies indicated that in America and Europe as well the logistical sector suffers from a lack of skills. Work ethics is one of the most important signs in South Africa distinguishing it from other countries. It does indicate a problem that should be focused on the future (Heyns & Rose, 2012).

According to the World Bank study, the logistical sector witnessed a major growth in the world economy in terms of spending and activity level because it is an important sector for the economy McKinnon. The logistics sector affects the economic growth of industries in all over the world. The importance of the logistical sector is crucial in economic development and the required logistical resources such as human and financial need to be available. The logistics sector depends on the skills and experience of employees in this field since the logistical performance of countries and companies depends on the quantity and quality of the workforce. The focus of national trade and

politics at the present time is on logistics infrastructure and investments, which greatly leads to facilitating trade in countries and helps in economic growth. The competence and skills of human resources has become a source of concern for all countries of the world in this sector (pwc, 2012). Previous studies in major countries such as China, India, USA, Britain, Japan and Korea indicated that it is difficult to recruit employees in logistical management and transportation because they lack the necessary skills and competence required. Shortage of staff is prevalent starting from truck drivers to the higher designations (McKinnon et. al., 2015). The lack of skills and competence of the employees on top of the difficulty of employing the top management in the logistical sector illustrates the extent of the lack of training among the workforce in this sector. Weak career planning may affect the logistics sector leading to the misuse of highly efficient workers and managers who are meant for other services but logistics, which is an inefficient and loss-making scenario in the long run.

The skills classified into four occupational levels. Skills and competencies were divided into six important elements, where each profession used the same measures-five points McKinnon et. al (2015). The results appeared on all six skill groups, which are considered important for each professional level. Where employees working in the logistical sector need to know and search for all the professional levels and skills required for each professional level. Skills are good communication and personality because of their great importance and ability to learn and develop on a regular basis and possess the skills of technicians. On the other hand, officials and supervisors identified

leadership and control skills as main skills in logistics management. The workers in the logistical sector must have high skills and competencies to be proactive to meet the daily challenges.

The study results also indicate the shortage of skills and competencies in which development must be in terms of extensive training for those skills which are important in the logistical sector avoiding problems in near future. The table (1) show the skill and according to previous studies.

Table (1) logistics skills based on previous studies

Skills	McKinnon <i>et al.</i> (2015)	Willis (2014)	Goffnett, <i>et al</i> (2016)	Saengpayap., Areesophonpichet and Suthiwatanaruput,(2020)	Heaslip, <i>et al</i> 2019.	Martinkus, Neverauskas, and Sakalas., 2002.
effective supervision	√					
knowledge and learning	√					
communication	√					
technical skill	√					√
personal skill	√		√			√
administrative skills	√		√			
information technology		√	√			
analytical skill		√				
marketing and promotion skill		√				
communication		√				√
planning skill		√				√
marketing and promotion		√				
quantitative			√			
Logistics Career				√		
Organizational Industry				√		
Behavior				√		
Management domain					√	
Technical logistics domain					√	
Humanitarian domain					√	
Methodical						√
Professional						√

McKinnon *et al.* (2015) studied countries in terms of skills and logistical

competencies, and they were classified into three categories according to the

Department of Logistics and Transportation Management in 2014, which can distinguish countries in terms of skills through this study. The study classified developed economies with huge volume of transactions, emerging nations and developing countries and ranking them in terms availability of skilled labour in logistics. The study recommends countries to train and develop workers with skills of logistics in order to be relived from their sufferings. This study also discussed the challenges facing countries in terms of the logistical industry, which all countries of the world may currently experience. It may affect the workforce in the logistics sector due to the development of technology and equipment, which faces a major challenge for human resources that must be addressed and work with traditional means so that there is no lack of the workforce and must employ the largest possible number of manpower and train them well to gain the required skills and high efficiency (Alan McKinnon, 2015).

Technology was also identified from the leadership skills to assess the skills in shipping and selling to the logistics sector. The technology of the logistical sector, although it affects the workforce, still is considered an essential advantage for the sector leading to impressive success. Hardware and software are considered to be automated processes and for companies to be competitive, they must gain specialized skills as they are in the comprehensive knowledge of the technology field. The companies' adoption of modern technologies in the future may affect the workforce, but planning companies based on the challenges companies face at the present time is a lack of skills and

competence needed by the workforce. People must understand the techniques and gain the skill of modern technologies to be register in employment to achieve the necessary skills Willis (2014).

The development of skills for workers in the logistics sector and knowledge through the development of technology has become an important factor. The development of technology may affect the workforce in the future. which enables workers to work and gain experience, as these skills are information technology where workers must have comprehensive knowledge in technological applications in terms of web design and development as well as communication skill and customer service. Logistical awareness is also one of the most important signs required at the present time through adherence to laws, rules and regulations, and access. Employees must be able to comply with the communication needs through checking the relevant accounts.

The analytical skill is a required skill in the logistical sector, through which the workers have the ability to prepare reports and save data related to performance. Whereas the planning skill is necessary for workers in the logistical sector to have the ability to plan ahead using data that might affect this aspect.

Finally, the marketing and promotion skill through enhancing the services related to the logistic sector and to overcome the negative factor and attract new talents. Ultimately, the percentage of administrative work in the logistical sector is increasing to 18%, while technical and technical professions are increasing by 28% (Willis, 2014). The operational roles in light of the development of technology will be disturbed by machinery and

equipment, which means that the logistics sector faces significant challenges in the current employment and may also affect the diminishing opportunities for the workforce as well as the lack of skills in the logistics sector. Workers in the logistic sector must consider the relevant skills in technology to be able to request on the future. The development of technology means that there is competition in future for those with skills in the logistical sector reason being that this sector faces its difficulty in employment through the administrative level due to lack of skills (Willis, 2014).

Underpinning Theory

Learning is one of the essential means for man in its various forms and methods, whether in the classroom or by experience, as it is considered vital for himself and the learner's life.

Most contemporary studies adopt constructivist theories of various kinds to demonstrate how humans learn. The idea is based on continuous construction and modification of structures in the mind that "carry" knowledge.

Constructivism tells us that we learn by matching, extending, and replacing new understanding and knowledge with old understanding and knowledge. Furthermore, the learner may have a different prior understanding, but it is necessary to add or change to the prior knowledge; otherwise, the learning process will become difficult (Wareham., &Trowler, 2007; Augustand Mezirow, 1991).

Accordingly, Willcoxson et al. (2011) assert that a practical explanation of correlation uses research to provide information as input for teaching and to provide opportunities for students to

engage in research work. According to constructivism building and transforming knowledge it can be by research or research related activities.

III. Materials and Methods

Mixed methodology is applied. Reviewing related literature as a method (Snyder 2019) is applied for analysing the teaching- research nexus and interrelate the contribution to improve the skill gap and mismatch between graduates and what the actual labour market demands. This method involves identifying, selecting and critically appraising researches in order to answer the research question particularly on the research-teaching nexus and its contribution to reducing the skill gap of graduates in logistics to meet needs of employers (Dewey & Drahota, 2016). To analyse the situation of Oman as a case study, primary data via interview have been conducted to selected large scale companies in Oman using purposive sampling. Purposive sampling is a non-probability sampling and used when the researchers believe they can obtain representative samples for the questions raised in the research which also saves time and money (Black 2010). These companies are chosen based on their size, type of businesses and number of logistics employees they possess. Thematic analysis is employed for analysing the qualitative data collected. Thematic analysis is a method employed for systematically identify, organize and offer insight and patterns of meaning across a data set and it allows the researchers to create sense of collective or shared meanings and experiences (Braun & Clarke, 2012).

The exploratory stage in this research went through several interviews with the senior officials working in the field of logistics in

the nine large scale companies operating in Oman. These interviewed companies were Civil Aviation, Oman Airports, Oman Shipping Company (S.A.O.C), Royal Flight, Kempinski Hotel, American Express, Al Ghubrah Power and Desalination Company and Royal Navy of Oman. Due the importance of the topic and getting to know more about the required skills, senior officials were chosen from them as executives of the logistical sector, as they are more experienced in their field, and it can also be used to complete this research with high accuracy and additional information.

At this stage a list of the companies was interviewed and information from employees in the high ranks has been collected. Since the coordination with the companies was through phone by setting up suitable appointment for the interview, the interviews were conducted individually. Most of which lasted from 30 to 60 minutes. Lot of relevant information on logistics was collected upon analysing the responses of the interview.

IV. Results and Discussion

This part of the paper presents results of the qualitative data analysis. Thematic analysis have been employed to analyse the data as we set each question as a theme. Accordingly, the responses of the nine large scale company executives for each question is analysed and presented separately. What follows is the analysis of each theme:

1. The first question was related to ranking the skills as per importance in their company.
2. The second theme was type of employees they would hire for their organization.

3. The third was regarding the skill levels of the employees they would hire.
4. The fourth is regarding why those skills are required in the market.

4.1 Finding

The survey, whether conducted by questionnaire or interviews is an important matter that helps in obtaining relevant information which could be useful for this research as it is derived out of the opinions given by executives of Large-scale logistics and transport companies and the solutions that are obtained through the challenges that the logistics sector provides in terms of skills and acquisition. Interestingly, senior officials from Oman Air, Royal flight, Royal Navy Oman, Oman Shipping Company, Kempinski hotel, American Express and AL Ghubrah Power and Desalination Company (in Oman) played key role in the field of logistics were successfully interviewed for which the researchers would like to acknowledge all of them.

Analysis of qualitative data (interview)

In principle, researched and read in several studies which are related to more substantial skills of the logistic industry after obtaining the most five skills which were repeated in the studies. The most repeated skills were Behavioural skill, Marketing skill, language skill and IT skill. Followed by several interviews conducted with the owners and managers of some of the companies and organization to ensure that these are the most required skills in logistics worldwide, also they were asked to arrange the skills in accordance with their importance.

The following are the answers obtained after interviewing several important

names in the arena of Private and Public sector companies:

1. Arrange the follows skills according to their importance?

Ranking matrix

Skill type \company	A	B	C	D	E	F	G	Total	Rank
Behavioural skills	1	1	1	3	1	3	3	13	1
Language skills	2	3	2	2	2	2	2	15	2
IT	3	4	3	4	3	4	5	26	4
General management skills	4	5	5	1	5	5	4	29	5
Marketing skills	5	2	4	5	4	1	1	22	3

Managers of the seven large scale companies were interviewed to rank the skills that are critical to perform logistics operations in their respective firm. Considering their experience in the company as a manager, some recommended behavioural related skills to be prioritized in the training and education of logistics professionals. Others recommended marketing and general management skills to be prioritized in logistics training. Analysis has been made based on the ranking matrix and according to the analysis result, skills were ranked as follows: Behavioural sciences is first, language skill is the second, marketing skill to be third, information technology fourth and general management skill is ranked fifth. This implies that large scale logistics companies in Oman prefer the above skills have to be included in modules prepared in logistics technicians and focus have to be based their rank.

The managers were also asked if they had sufficient fully trained manpower in their companies. Only two companies replied that they have enough trained manpower and they keep on updating and training their employees to fit with the dynamic logistics environment. However, five of them replied that they do not have enough trained manpower and need educational

institutes to produce and supply well trained graduates as the current incoming graduates still need intensive training to get them perform the current company jobs.

2. What type of employees you hired for your organization?

The company managers were also asked regarding the type of employees they currently have. Accordingly, two companies reported that many of their employees are elderly and experienced and have a plan to open their company for hiring young workforce. Two of them replied that they have skilled and qualified or certified employees where capable of performing or accomplishing projects properly. Two of them replied that they have experienced and skilled labour force to handle the operations in the companies. One of the companies replied that they have open minded employees who are continuously taking training and update themselves with the changing environment. All the respondents agree that provision of continues training is crucial for Omani companies and working with training institutions has to be well established.

3. How are the skills levels of the employees in Oman logistics sectors?

The managers were also asked to assess the skill levels of logistics professionals recruited in their company. Three of them replied that they found those graduates are performing their jobs excellently and found them match with the job they are assigned and recruited for. Three of them replied that the logistic professionals are working their level best but the logistics operation is constantly changing and growing which still demands updating of those recruited employees. However, one of the companies found that those employees are poorly fitting to the job. Logistics professionals in the air transport needs improvement in their skill levels.

4. Why are those skills required in the market?

Managers of all these large-scale companies replied that those skills are important to effectively and efficiently perform logistics activities. The behavioural skills are related to the work culture, interaction with employees and understanding employees to perform logistics activities with other co-workers. Pwc (2012) identified that one of the challenges in the current working environment is getting young fresh workers with those who are elderly and experienced employees of the company. Hence behaviour skills could help employees to understand each other and better perform organizational activities. Language skill is again critical as logistics operations are international by their very nature. Language skills would help to communicate with international customers and understand international contracts and agreements. It would also help to properly understand shipping and transaction

documents properly. Information technology is also considered relevant as companies are operating in the global or digitized world. For logistics activities are largely influenced by information technology and IT skill is crucial for those who are to be employed in logistics. General management skills are essential for those who are assigned as supervisors and it would also help to work in team. Marketing skills are believed to be relevant in logistics as operators are working with customers. Whether it is B2B or B2C, logistics workers have to do with customers requiring understanding and treating of those customers in satisfactory manner is the essence of marketing.

V. Conclusions and implications

Conclusion

The services of the logistics sector are of great importance for the growth of the National Economy in The Sultanate of Oman. The logistics sector has become highly dependent on these set skills in the Arab world through employment in the sector and providing opportunities for young people as well as its contribution to the growth of the economy since it is considered as the future growth of the National Economy. Compared to the previous decades, the logistical sector is constantly evolving in this era, and the growth rate is estimated at 6 percent which further may provide employment opportunities for more than 10 thousand jobs during coming years if implemented sooner and is better. The skills required in this sector are very important as it is necessary to keep pace with the age of technology that affects some skills. The choice of skills for the labour market is

very important due to ever-changing world witnessing an evolution in terms of technologies, engines, business and regulation, including the environment, safety and health. The acquisition of new skills provides opportunities to do business in the logistics sector.

Limitation and future research

This study was conducted to find out the link between research and logistics skills from the point of view of managers in the logistics sector who represent the labour market. The study has some limitations, the study explored research, teaching and skills from labour market perspective only, also the study was cross-sectional, also the sample size also was small, therefore future studies are needed to overcome these limitations, reconsidering the criticisms of the relationship between research, teaching and skills requires more in-depth and longitudinal studies on the relationship from the perspectives of operators, students and faculty members.

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