International Journal of Scientific Research in Engineering and Management (IJSREM)
Volume: 08 Issue: 05 | May - 2024 SJIF Rating: 8.448 ISSN: 2582-3930

BRIDGING THE SKILL GAP BETWEEN THE ACADEMIA AND INDUSTRY: A STUDY ON LOVELY PROFESSIONAL UNIVERSITY

PARUL SHARMA[1], ALAN GEORGE [2], LAKSHAY SHARMA [3]

MITTAL SCHOOL OF BUSINESS, Lovely Professional University

Abstract Education is a crucial component of our lives. In addition to teaching morals and virtues that make students better global citizens, education also helps students become technically proficient so they may compete in the outside world. The ever-evolving landscape of industry demands a workforce equipped with adaptable and relevant skills, yet the traditional model of academia often struggles to keep pace with these dynamic requirements. This paper explores the multifaceted challenge of bridging the gap between academia and industry in terms of skill development. This paper concludes by advocating for a holistic approach that involves stakeholders from academia, industry, and government, fostering a culture of continuous learning, and redefining the metrics of success to encompass not only academic achievements but also practical skills and industry readiness. Skill development is indispensable part of education system to bridge the skill gap between industry and academia which is also confirmed by p- values for seven opinions by Chi Square test are 0.02, 0.0245, 0.0232, 0.0134, 0.0134, 0.0134, 0.00342 and 0.0245 conducted at LPU campus. For statistical Analysis, I have used ORIGIN 2019 Software. Through these concerted efforts, the gap between academia and industry can be narrowed, ensuring a more seamless transition for graduates into the workforce and enhancing the overall economic vitality and innovation ecosystem. The study also provides a roadmap of utilizing Learning Factories as an integral part for the Indian technical academic system.

Key Words: skill development, academia, skill gap, brain drain, Industry

1.INTRODUCTION

As technology advances, the education sector becomes increasingly important. Nonetheless, there is a significant disparity between the students' level of knowledge and what is required by industry. As a result, in order to address this problem and meet the challenges of the global community, Indian universities should work with the industry. The overwhelming need for implant training or internships among India's graduates suggests that what is taught in schools and what employers need is different. The higher education system in place today is unable to meet the demands of business. This forces the sector to give recently hired graduates specialized training for a while before offering them full-time job experience. This process consumes lot of time and money, since the industry needs to maintain and operate many educational infrastructures.

On demand side, a skill gap study has been conducted by NSDC over 2010-2014, which indicates that there is an additional net incremental requirement of 109.73 million skilled manpower by 2022 in twenty-four key sectors

According to the Federation of Indian Chambers of Commerce and Industry's KPMG skill development study, India's labor force demand is expected to increase from 477.9 million in 2011 to 502.4 million by the end of 2017. This astounding rate of expansion highlights the need for a competent labor force to meet this demand. In the last 10 years, the service sector has contributed the majority of India's GDP growth rate. With a present proportion of less than 15%, the manufacturing sector has yet to significantly contribute to the GDP. The Indian government launched the ambitious "Make in India" initiative in 2014. This strategy aims to establish India as a worldwide center for manufacturing and design. According to data from the All-India Council for Technical Education (AICTE), fewer young people in India are enrolled in technical programs than can be accommodated, and less than 40% of graduates find employment in the private sector. This demonstrates unequivocally how academic skill development and

industrial requirements are at odds. The UN views youth education as a critical component in addressing the objectives of Agenda 2030 when discussing qualified labor forces in the context of sustainable development. However, a closer examination of the educational background of India's labor force shows that only 5% of those between the ages of 15 and 59 have completed up to five years of basic school, and just 2% have degrees in vocational training. As a result, it becomes necessary to handle new issues through appropriate teaching and learning methods, such as technical, economic, and ecological issues as well as obstacles faced by many industrial stakeholders

The different manufacturing industry sectors are currently providing special training to the recruited graduates for a certain period, before they are ready to be fully employed in the industry. This process is both time consuming and expensive, as many decentralized practice-oriented educational infrastructures must be kept up- to-date and operated by the industry. The various stages of the Indian technical education system and the training required from the industrial perspective to make the new recruitments ready to work at the industry are visualized in Figure 1. It provides a general overview of the technical education system at various entry levels into industry; further, the additional training costs and duration of graduates entering companies are shown. Challenges Statistics show that almost 60 % of all graduates do not get jobs in industry right after their graduation. This can implicate skill gaps as the demand for professionals at present is as described before. This leads to the hypothesis that students are not readily employable for the industries, as they miss e.g. methodological and personal competencies related to self-reliant problem-solving and interdisciplinary, out-of- the-box thinking. In order to support strategic development goals, this study methodically analyzes gaps in young graduates' competences with respect to future skills and mindsets required for developing themes of the manufacturing industry.

1. Literature review:

1.1. Empowering Skill Development: A Comprehensive Government Initiative

2. Government believes that inability to pay training fees should not stop any citizen in the country from acquiring certified skill training. Government will promote grant of scholarships, rewards and Skill Vouchers (SV) for funding of training costs. All desirous candidates would be able to access credit for all certified NSQF aligned

3. skill development programs through targeted Skill Vouchers (SVs), which will be linked to their Aadhaar and their Jan Dhan Account or bank account. Levy from future incomes would be linked for recovery of loans through SVs. This is proposed to promote an environment of Learn, Earn, and Pay. Skill Vouchers can be redeemed by TPs based on performance linked payment schedule subject to successful completion of training. Scholarships and grants up to 100% linked to SVs will also be provided for certain identified disadvantaged sections of society. However, 30% of any grant will be linked to continuous employment for at least one year.

3.1.1. Policy framework for entrepreneurship

Entrepreneurship plays a vital role to bridge the skill gap between industry and academia. To deliver support covering the entire nation, 3000 College Based, 1 National, 30 State, 50 Nodal Entrepreneurship Hubs will be set up entrepreneurship policy framework. Educate and equip potential and early stage entrepreneurs across India, Connect entrepreneurs to peers, mentors and incubators, Support entrepreneurs through Entrepreneurship Hubs (E-Hubs), Catalyse a culture shift to encourage entrepreneurship, Encourage entrepreneurship among under-represented groups, Promote Entrepreneurship amongst Women , Improve ease of doing business, Improve access to finance and Foster social entrepreneurship and grassroots innovation these are the nine parts of entrepreneurship strategies to unlock entrepreneurial potential for policy frameworks, cognizant of the need for the full ecosystem. This framework proposes a plan to build a strong ecosystem for entrepreneurs in India. This will be achieved by providing education and resources through online courses, colleges and industry- specific programs. An online platform will connect entrepreneurs with each other, mentors, investors and relevant support services. A network of Entrepreneurship Hubs will be established to provide guidance and resources to entrepreneurs. The plan also includes initiatives to promote entrepreneurship through government interaction with stakeholders, creating role models, awarding young entrepreneurs and celebrating entrepreneurship nationally. Special programs will target under-represented groups to

ensure inclusive participation. Finally, the plan aims to improve the ease of doing business by simplifying registration processes and regulations. It also encourages social entrepreneurship through university courses and the creation of a social capital marketplace.

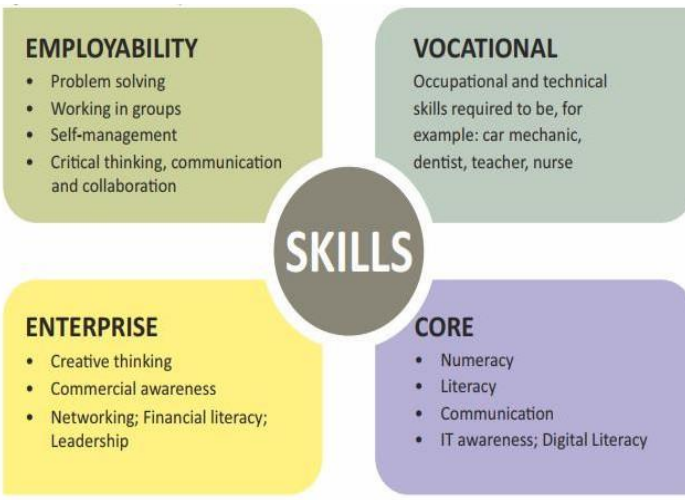

Fig 1

Source: Overview of India's evolving skill development landscape, British Council, 2016

2.1.3 Skill development value chain

The skill development value chain, considering the initiative as a whole, can broadly be classified into sourcing, curriculum, training, assessment and placement. This involves trainees, training providers and employers as primary stakeholders. The following diagram illustrates the value chain in the skilling value chain. Census 2011 was indicative of the imminent 'demographic dividend' in India by the year 2020, with 65% Indians under the age of 35 and thus making India the youngest country in the world. This could be seen as an advantage to fulfill the demand for 109.73 million skilled workers across India by 2022 (NSDC, 2014). However, if we see the other side of the coin, the National Sample Survey Office (NSSO) data reflects that out of the 470 million working age population, only 10% receive some kind of training or access to skilled employment opportunities. This clearly indicates a largescale demand-supply gap in the skill development avenues. Moreover, if the available demographic dividend is not attended to, seriously, it may lead to demographic disadvantages, as the large numbers of unskilled and semi-skilled youth population have low productivity and subsequently lower wages, but form the base of the labour force within the country. In order to bridge the gaps, skills development has been made one of the national priorities by the government in the last decade and subsequent changes were witnessed in India's skill development framework.

2.2 Navigating the Skill Gap between Industry and Academia

The growing demand of skilled manpower in the country with one of the fastest growing economies of the world has led to an emerging need to scale and enhance quality of the skill development programs to meet the needs of the sectors providing employment opportunities. The country has also been witnessing significant shifts of the labor force across primary, secondary and tertiary sectors (ESSA, World Bank, 2017). The government's recent skill gap analysis says that another 109 million skilled workers would be needed in the 24 keys sectors of the economy by the year 2022 (World Bank, 2017). The scenario may further worsen with the fact that only 3.05 percent of India's workforce receives formal skills training. Realizing the fact, Government of India has already been undertaking a number of skill development initiatives to transform the challenges in this sector into opportunities. However, there still lies a large gap in both the demand as well as the supply side. India needs to achieve and sustain a high rate of GDP growth for the next three decades to be a USD 4.0 trillion economy. India has the opportunity to supply skilled labour globally and become the world's skill capital. However, the demographic advantage might turn into a demographic disaster if the skills sets of both new entrants and the existing workforce do not match industry requirements.

Optimizing Technical Education and Industry Training in India

The various stages of the Indian technical education system and the training required from the industrial perspective to make the new recruitments ready to work at the industry are visualized in Figure 3. It provides a general overview of the technical education system at various entry levels into industry; further, the additional training costs and duration of graduates entering companies are shown. It is conspicuous from Figure 3 that the training costs incurred to the industry for the newly recruited graduate

engineers at level four are very high and that training is time consuming. Curtailing the time and money required for the decentralized training at industry-level can offer benefits such as highly specified trainings, teaching students on a higher detailed level than universities and college for all the stakeholders like students, industry, and academia.

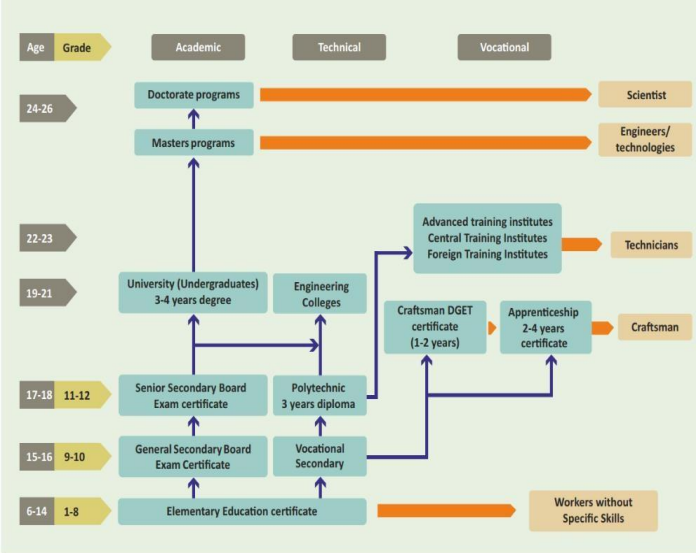

Figure 3 Indian Education and Development Structure

2.4 LPU'S INITIATIVE TOWARDS THE BRIDGING THE SKILL GAP BETWEEN INDUSTRY AND ACADEMIA

Transforming Education, Transforming India," has always been the motto for Lovely Professional University. In the endeavour to educate local and nearby people to develop technical skills for a better future, LPU organizes a variety of activities throughout the year in nearby towns and villages.

2.4.1 The Disha project

Disha is one of the initiatives under outreach activity taken by Lovely Professional University Lovely Professional University (LPU) has spearheaded numerous initiatives aimed at enhancing education and fostering innovation. These include mega events like the Bharatiya Vigyan Sammelan (BVS) and Explorica, which collectively attracted over 2 lakh school students and featured the participation of esteemed academicians. Career counseling sessions, attended by more than 70,000 students, incorporated psychometric tests to guide career choices. Workshops and seminars on pertinent educational topics were attended by over 5000 teachers and principals from reputed schools. The annual Knowledge Brainstorm (KBS) aptitude test, part of the Transforming Education Awards, evaluated students' skills and critical thinking. LPU also instituted the Transforming Education Awards to honor teachers and schools for their dedication. Additionally, LPU's collaboration with Adobe through the 'Adobe Digital Disha' program provided thousands of students and faculty members with free Adobe Spark licenses, promoting digital literacy and creativity. These endeavors underscore LPU's commitment to advancing education and nurturing talent.

2.4.2 The Gyandeep Project

The Gyandeep Project, led by Lovely Professional University (LPU), is an admirable outreach initiative designed to give impoverished children in slums access to education and empowerment. This innovative program goes beyond conventional teaching techniques by providing exercises for skill development and personalized instruction that are catered to the individual requirements of each kid. The project aims to improve young minds by empowering them with essential knowledge and life skills that can change their lives. It does this through community involvement and committed efforts. Moreover, the project's focus on delivering quality education to underprivileged children resonates strongly with SDG 4's goal of ensuring inclusive and equitable quality education for all. By addressing the unique needs of each child and fostering a love for learning, the Gyandeep Project plays a vital role in creating a more inclusive and educated society.

2.4.1 COMPETITIONS AND HACKATHONS

Lovely Professional University strives to create an ecosystem where students not only gain theoretical knowledge but also have ample opportunities to apply that knowledge in real-world scenarios. The university is known for fostering a dynamic learning environment where students from various disciplines are encouraged to organize and participate in various national, international competitions, hackathons and skill enhancement events covering wide range of fields such as technology, business, arts, and sports providing students with a platform to showcase their talents, innovative ideas, and problem-solving skills.

The provision is also given to students to utilize the skill learned through these events to equate with assessment methods. The students have participated and won prizes in the events like World Skill Competition, Supra SAE, Efficycle, Gokart, Techkriti, Smart India Hackathon (SIH) 2022, MSME Hackathon 2.0, NASA Rover Challenge, Tech-a-Thon, TCS Code Vita Competition, Zonal Skill Competitions, Code Jam Competition, Business Simulation Competition, NASA- Zonal Competitions, Net Riders competition, and 20+ LPU students bagged job at HackWithInfy Hackathon organized by Infosys etc.The policies, schemes and programmes on which LPU is working in order to accomplish SDG 4 are yielding positive results. All our initiatives at LPU like executive development programmes, extension and outreach activities such as adoption of slums and villages, arranging some development programmes for nearby villages related to new techniques in farming are directed at eradicating poverty through quality education. In future also LPU will continue to work in making India and the world a better place in terms of quality education.

3.1. Problem Statement

Despite the indispensable role of education in shaping individuals and preparing them for the workforce, a significant gap persists between the skills imparted by academia and those demanded by the industry's evolving landscape. This misalignment poses a multifaceted challenge, hindering the seamless transition of graduates into the workforce and undermining the economic vitality and innovation ecosystem. Traditional academic models often struggle to adapt quickly to the dynamic requirements of industry, resulting in graduates who may lack the practical skills and industry readiness necessary for success in the professional realm. This disparity underscores the urgent need for a holistic approach that addresses the skill gap between academia and industry, involving stakeholders from academia, industry, and government. By redefining metrics of success to encompass both academic achievements and practical skills, fostering a culture of continuous learning, and implementing innovative solutions such as Learning Factories, this study aims to bridge the gap between academia and industry, facilitating a more effective integration of graduates into the workforce and enhancing overall economic growth and innovation in the process.

3.2. Research Gap

There are many unresolved research questions related to the complex and multidimensional problem of bridging the gap between academia and industry. Here are a few of these research gaps: The need to pinpoint the particular obstacles that exist in various contexts remains despite the fact that there have been several studies on the gap between academia and industry. The gap may be caused by elements like organisational culture, communication, and resource limitations. By recognising these obstacles, effective solutions can be developed. Building strong strategies: Strong strategies must be built to bridge the chasm between academia and industry. These tactics could entail developing industry-academia alliances, giving academics and business personnel training and development opportunities, and encouraging communication and knowledge-sharing between the two sectors

Impact evaluation: It is important to evaluate the results of bridging the gap between academia and industry. This may entail following project outcomes, evaluating the advantages for academics and industry, and evaluating the efficacy of various tactics and interventions. Discipline-specific differences: Some disciplines may have a wider gap between academics and industry than others. In order to handle these discrepancies, it is necessary to investigate disciplinary gaps and design specialised techniques. Addressing global inequalities: In some regions of the world, it may be more difficult to bridge the gap between academia and industry. It is necessary to investigate the global differences in the gap and to create methods that are suitable for various situations and geographical areas

4. Objectives

- To find out the intensity of skill gap in Industry and academia in LPU
- To assess the results of closing the gap between academics and industry, including the efficiency of various approaches and interventions and the advantages for both sectors

5. Hypotheses Testing:

Acceptance or rejection of the hypothesis is determined by the significance value of the T statistics and the p-value. When the p-value is less than 0.05 and the T-statistics value is higher than 1.96 (5%) the hypothesis can be accepted.

Ha1 : Need more Collaboration between Business and Academics.

p-Value for opinion 1 is 0.02 and hence Null Hypothesis should be rejected.

Ha2: Efficient Communication between Academia and industry is absent

p-Value for opinion 2 is 0.0245 and hence Null Hypothesis should be rejected.

Ha2: Efficient Communication between Academia and industry is absent.

p-Value for opinion 2 is 0.0245 and hence Null Hypothesis should be rejected. Ha3 : Proper coordination between Academia and Industry is absent.

p-Value is 0.0232 and hence Null Hypothesis should be rejected. Ha4 : Collaboration between Business and Academics is absent.

p-Value is 0.0134 and hence Null Hypothesis should be rejected.

Ha5 : Industry relationships is bottleneck to Access Resources, facilities and data which are not available at academic center.

p-Value is 0.0134 and hence Null Hypothesis should be rejected.

Ha6 : International Credit Transfer system is responsible for bridging the skill gap between A and I.

p-value is 0.00342 and hence Null Hypothesis should be rejected.

Ha7 : Alumini meet for mentoring Ongoing Students of LPU is helping in bridging the Skill Gap between Academia and Industry.

p-value is 0.0245 and hence Null Hypothesis should be rejected.

6. Results and Discussions:-

The statistical analysis conducted at Lovely Professional University (LPU) campus yielded significant p- values for seven opinions by Chi Square tests, indicating a strong association between skill developments and bridging the gap between academia and industry. The obtained p-values of are 0.02, 0.0245, 0.0232, 0.0134, 0.0134, 0.0134, 0.00342 and 0.0245 underscore the importance of skill development within the education system. The results of the statistical analysis validate the critical role of skill development in addressing the gap between academia and industry. By emphasizing practical skills alongside academic achievements, educational institutions can better prepare graduates for the demands of the workforce. This aligns with the overarching goal of fostering a seamless transition for graduates into the industry, thereby enhancing economic vitality and innovation. Moreover, the findings highlight the need for collaborative efforts involving academia, industry, and government to implement holistic solutions. By fostering a culture of continuous learning and redefining success metrics, stakeholders can work together to bridge the gap effectively. Furthermore, the roadmap proposed for utilizing Learning Factories as an integral part of the Indian technical academic system presents a promising approach. Learning Factories offer hands-on learning experiences that simulate real- world industry environments, allowing students to develop practical skills and industry-specific knowledge. Overall, the results and discussions underscore the importance of integrating skill development into the education system and implementing collaborative strategies to bridge the gap between academia and industry effectively. These efforts are essential for ensuring the readiness of graduates to meet the evolving needs of the workforce and drive economic growth and innovation.

7. Limitations:-

India's economic boom has created a pressing need for skilled workers. However, a significant gap exists between the skills graduates possess and the skills industries demand. This mismatch stems from several challenges. Firstly, effectively mapping the specific skill sets required across various sectors and regions is difficult. Secondly, vocational training suffers from an image problem, failing to attract ambitious students. Enlisting industry participation is crucial to improve training quality and ensure its relevance to current needs. Expanding

apprenticeship programs is one way to achieve this. Additionally, integrating the vast informal sector into the skills development system remains a hurdle. Finally, establishing a robust and internationally recognized system for assessing and certifying skills is essential. Addressing these challenges is vital if India aspires to transform its demographic advantage into a pool of skilled labor, propelling the nation towards becoming a global leader in this domain. Bridging the academia-industry skill gap is a complex issue with limitations. Strategies might not work universally across all fields. The skills needed can change quickly, making solutions and challenges impermanent. Regional variations require adaptable approaches. Resource constraints like funding and infrastructure can hinder progress. Bridging the gap involves multiple stakeholders with potentially conflicting interests, making implementation difficult. Even measuring the success of solutions can be challenging due to subjectivity and long-term outcomes. Despite these limitations, acknowledging them shows a nuanced understanding of the problem and the need for flexible solutions that adapt to changing contexts.

8. Recommendation for future research:

This study has opened doors for a deeper understanding of how to bridge the gap between academia and industry. Future research can explore specific industries and disciplines to tailor solutions for unique skill needs. Longitudinal studies can track the effectiveness of implemented solutions like industry collaborations and curriculum revisions, measuring their impact on graduates' careers. Looking beyond national borders, comparative analyses of successful models in other countries can inform future approaches. The impact of a bridged skill gap on graduate employability and starting salaries warrants further investigation, strengthening the case for change. Emerging technologies like online learning platforms and virtual reality simulations hold promise in bridging the gap, and their potential should be explored. While technical skills are essential, the role of soft skills development in academic programs deserves further examination. Additionally, cost- effectiveness analysis can guide resource allocation by highlighting the return on investment for various strategies. Finally, ensuring the long-term sustainability of solutions, through institutional changes within academia or strong industry partnerships, is crucial for lasting impact. By delving into these future research areas, we can refine our understanding of the most effective strategies for bridging the skill gap, ultimately benefiting students, educators, industry leaders, and the overall economy.

9. Conclusions:-

The multifaceted challenge of bridging the gap between academia and industry in terms of skill development is a critical issue that requires immediate attention. The results of the statistical analysis conducted at Lovely Professional University (LPU) campus confirm the significance of skill development within the education system for addressing this gap. A holistic approach involving stakeholders from academia, industry, and government is essential for implementing effective solutions. Addressing the skill gap between academia and industry is essential for the long-term success and competitiveness of both sectors which is confirmed from p- values for six opinions by Chi Square test are 0.02, 0.0245, 0.0232, 0.0134, 0.0134, 0.0134, 0.00342 and 0.0245 performed on ORIGIN 2019 Software.

10. References:-

[1] L. Büth, V. Bhakar, N. Sihag, G. Posselt, S. Böhmea, K.S. Sangwan, C. Her rmann,Bridging the qualification gap between academia and industry in In dia,Procedia Manufacturing, 9 (2017), pp. 275-282

[2] Popat, Mayuri & Ganatra, Amit. (2017). Bridging the Gap between Academics and Industries through Quality Education.

[3] Gurendra Nath Bhardwaj and Shrey Kumar, "What Makes Teaching an Effective Teaching? — A Conceptual Study on Academic Environment," International Journal of Information and Education Technology vol. 7, no. 3, pp. 236-241, 2017.

[4] Singh, Rajesh. (1998). Restructuring Library and Information Science Curricula. University News. 36. 8-11. https://timesofindia.indiatimes.com/blogs/despatch/punjabs-demographic-crisis

[5] Dongyang Wang, Yan Xiao, and Jie Tao, "A Study on the Function of Academic Activities to Improve Academic Environment — Illustrated by the Academic Week of Dalian University of Technology," International Journal of Information and Education Technology vol. 9, no. 3, pp. 171-177, 2019.

[6] Kanyuma Jitjumnong, Pasapitch Chujai, and Noritsugu Kamata, "A Study on Media Literacy of Industrial Education," International Journal of Information and Education Technology vol. 10, no. 2, pp.

122-126, 2020.

[7] G. L. Liu, "Research on Innovative Training Mode of Chinese Academic Postgrad uates," International Journal of Information and Education Technology vol. 8, no. 1, pp. 77-80, 2018.

[8] Hadi Prasetyo Utomo, Abdul Talib bin Bon, and Mokhamad Hendayun, "Modeling of Academic Information System in Higher Education Institution toward Education 3.0: A Literature Review," International Journal of Information and Education Technology vol. 7, no. 10, pp. 738-742, 2017