Influence of Artificial Intelligence on Automotive Major in Vocational Education Training

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Abstract:- **This paper has assessed the influence of artificial intelligence development on automotive major in vocational education curriculum. Different literatures related to vocational education and artificial intelligence development has been collected and qualitative analysis by using MAXQDA has been done. Humankind has the ability to create and learn new things due to the inborn capabilities. The innovation and development in use of machine has been through different stages. Intelligent machines are made to complete tasks without help from human. Application of science and engineering to make the machine intelligent enough that can understand human language and perform as human is known as artificial intelligence. Artificial intelligence is one of the major aspects of modern life about which most people have some degree of awareness. In the current era of artificial intelligence and ever hasty pace of technology innovation; economic development, employment, competitiveness, and vocational education and training schools impacted incredibly hard. These unprecedented changes brought by artificial intelligence has also challenged automotive major of vocational education training. Vocational education produces working force personnel for different companies and enterprises. Therefore, teaching curriculum of vocational education has to fit the requirements of companies and enterprises to mitigate the influence made by AI. The existing automotive curriculum is unable to catch the rapid changes made by the industries, consequently, it is concluded that it needs to be restructured with core courses of artificial intelligence with the cross integration of disciplines to cultivate highly skilled and comprehensive talented graduates. To be able to reduce the gap, automotive has to include the basics of AI into its teaching curriculum such as smart technology products, big data, physics, programming, cloud computing, deep learning and trending technologies. Furthermore, close cooperation of vocational school and industry is crucial to strengthen transfer of AI knowledge through learning by doing principle in company practices. Therefore, there should be changes according to the current technology changes in school education as a whole to not let AI obsolete its trainings.**

Keywords: AI, vocational education, training, reform, curriculum

1. INTRODUCTION

Artificial intelligence is one of the major aspects of modern life about which most people have some degree of awareness. In the current era of artificial intelligence and ever hasty pace of technology innovation; economic development, employment, competitiveness, and vocational education and training schools impacted incredibly hard which implies teaching in higher vocational education and university needs to be restructured. Artificial intelligence is incredibly important since it can be used to do work which difficult for human being. The current direction of social development is use of smart technologies. With the rapid development of artificial intelligence such as internet of things, big data and cloud computing, smart products, smart homes, smart robots, smart toys, autonomous vehicles and intelligent buildings have emerged bringing people's lives and working methods put in huge impact [3]. Artificial intelligence is arguably the driving technological force of the first half of this century, and transform every industry and human endeavors at large. Government organizations and business companies in world are pouring enormous amount of money for implementations [4]. Due to the emergence of artificial intelligence, vocational education is facing unprecedented challenges and opportunities, and one of these is an increasing employment pressure of vocational education graduates. The labor market has rigorous requirements for graduates and employees with high comprehensive and high professional quality is required. Literally, artificial intelligence replaced simple repetitive mental work as well as employment system and occupational patterns of the traditional society. Therefore, he suggested that vocational education sector should fully understand the changes to development of social trends brought by artificial intelligence and adapt to it. The sector has to bear the impact of artificial intelligence on innovative teaching methods, employment, and help students to understand the new social employment changes and find themselves a better fit. It is concluded that vocational education needs to improve the quality by strengthening the teaching staff, increase the cooperation of enterprises, provide internship and training, changing teaching models and curriculum settings [8]. Vocational schools faced two challenges in the context of the digital transformation. The first one is that it has to prepare young people for a technology-based working world. Secondly, vocational schools as educational institution must themselves undertake a digital transformation. Topics such

as optimization of digital processes and smart products, networking and automation as well as analysis of data and processes should be included in vocational education and training curriculum [9]. Artificial intelligence is in a period of rapid development which deeply changing all daily routines. The state should conduct corresponding intelligent education through artificial intelligence integrated with education, however, there is still no systematic discussion on the issue [3].

Artificial intelligence is an interdisciplinary subject which covers a wide range of disciplines and technical fields such as computer vision, human language understanding and communication, cognition and reasoning, robotics, game playing, machine learning, statistics and brain neurology. Many scholars have defined artificial intelligence as a new technological science that develops and researches human intelligence based on simulation, extension and expansion [12]. The term artificial intelligence stands for a machine or system that exhibit behavior commonly considered to be human intelligence. This refers to machines, robots and software systems which independently process and solve abstractly described tasks and problems without the interference of human beings and the system should also be able to adapt to changing conditions and their environment [9, 23]. Artificial intelligence can copy the information process of people's consciousness and thinking. Artificial intelligence is not human intelligence however it can think like human beings and even surpass human intelligence [6]. Similarly, Yang Lu [14] defined AI as any technique, method and theory that can help machines do exploit, simulate and analyzed behavior and thinking process of human. According to J. Huang et al [7], artificial intelligence development process is started in 1943 at which artificial neuron model was proposed and opening the era of artificial intelligence. Neural network research conference held in 1956 in the Dartmouth on concept of artificial intelligence marked as the birth of artificial intelligence. Today, artificial intelligence technology consists of technologies such as speech semantic recognition, image recognition, augmented reality/virtual reality, machine learning, brain neuroscience, quantum computing, block chain, big data, retail terminal, industrial internet-of-things, wearable equipment, smart city, intelligent medical treatment, vehicle network and so on. L. Chen [12] Defined that artificial intelligence is a field of study resulting development and innovation that have ended in computers, machines, and other artifacts which have human-like intelligence characterized by cognitive abilities, decision-making capabilities, adaptability and learning. Yuzhen Shang [28] posited that AI is new technological science which studies, simulates and extends human brain power and intelligence so as to apply in the daily life. Human intelligence counterfeit in machines that are liable to think like human and mock their actions [25]. AI is an intellect exhibited by machineries [26] and intelligence incurred human referred as human intelligence whereas intelligence in machines called artificial intelligence [27]. On the other hand, [18] has defined AI as the ability of a system to interpret external data so as to learn from and to use those learnings to achieve specific goals and tasks.

Beyond this, artificial intelligence is also being used in education instructions including student management system, analysis of student writing, intelligent agents in game-based environments, and student-support chatbot and AI facilitated tutor that puts students in control of their own learning. J. Huang et al [7] described, with the development of artificial intelligence technology, many more artificial intelligent products are being applied to the education sector. Many countries in the world have also promulgated relevant policies to enhance the application of artificial intelligence technology in education. The United States, India and Singapore are identified as the leading countries which have successively launched new educational reform strategies for the future, relevant policies and regulations which is formulated to design a road map for smart education development in their countries. Besides, in China, the government pays high attention to the integration and development of artificial intelligence and education, and vigorously promotes information-based education. At present, many countries in the world are concerned about the application of artificial intelligence in education. Artificial intelligence applications in education include intelligent tutor-assisted personalized teaching and learning, intelligent assistants such as educational robots, children's partners at home platform, intelligent assessment, mining and intelligent analysis of educational data, learning analysis and digital portraits.

The existing automotive major of vocational training curriculum is unable to cope rapid changes made in the industries. Therefore, it needs to be restructured with some core courses of artificial intelligence of different disciplines to cultivate comprehensive and high skilled talent graduates. Currently, employers require skilled and knowledgeable vocational graduate of automotive major with fundamental know how of artificial intelligence. therefore, employment posts of industries, standards and national policies can be meet.

2. ARTIFICIAL INTELLIGENCE

Artificial intelligence can be classified into humanized AI, analytical and human-inspired based on the intelligence types it exhibits which is emotional, cognitive and social intelligence. on the other hand, it can be classified into artificial general, super intelligence and narrow [18]. W. Hongyuan [34] Posited that artificial intelligence is divided as general and special artificial intelligence as per its application range. D. Kumari and S. Bhat [34] have shown as there are three types of artificial intelligence namely; narrow/ weak AI, general/strong AI and artificial supper intelligence.

2.1 Artificial intelligence development

Use of artificial intelligence has been improved rapidly in fields of science, engineering, education, medicine, business, accounting, stock market and economics. In recent years, artificial intelligence has shown development making robots to think, feel and act like human being. M. Haenlein and A. Kaplan, [16] and Y. Lu [14] stated artificial intelligence was established in 1950s as an academic discipline and remained an area of limited practical interest for over half a century. These days, it has entered the business environment. The roots of artificial intelligence can probably be traced back to

the 1940s, specifically 1942. Alan Turing developed a code breaking machine called the Bombe during World War II. In 1950, he published his article named as 'computing machinery and intelligence' where he demonstrated the way to create intelligent machines and how to test its intelligence. Later in1956 artificial intelligence was then officially created when John McCarthy and Marvin Minsky hosted Dartmouth summer research project on Artificial Intelligence. At present, artificial intelligence has become part of our daily activities. In the future, artificial intelligence increasingly going to be a part of our day-to-day lives. S. Yang and H. Bai [16] has indicated that John McCarthy is called the ''father of artificial intelligence''. He thrived to make machines think, cognize and learn like people. in recent years, artificial intelligence has caught people's intention causing a boom of artificial intelligence because of rapid development of machine learning and deep learning algorithm. Use of educational artificial intelligence products such as interactive teaching materials, learn smart, smart books and intelligent educational resource production tools are emerging. Y. Lu [14] claimed artificial intelligence develops rapidly. He posited AI gone through three stages of development; the first was from 1956 to 1980 and it was used only to solve algebraic problems. The second stage of development was from 1980-2000 in which machine were made to support human- machine dialogue, image recognition and translation. The third stage was from 1993 to present and this is where image recognition, speech recognition, big data and internet of things have been applied to the life of ordinary people. Now, it reached the level of independently complete complex tasks as human being. He stated that the gradual improvement of semiconductor technology and computing hardware capability helps artificial intelligence to break through. Since 2006, artificial intelligence has entered the era of cognitive intelligence, and in 2012 deep learning algorithm achieved a breakthrough in speech and visual recognition, then 'artificial go' triggered in 2016. He summarized development of artificial intelligence technology in to four modules namely machine learning, natural language processing, picture processing and man-machine interaction. Y. Wang and Y. Yang [29] suggested artificial intelligence is still in the weak artificial intelligence stage. However, its development is moving towards strong and super artificial intelligence stage. They also mentioned that AI in the future will exceed human intelligence. B. Hu Li et al [13], artificial intelligence in manufacturing sector has been integrated. It facilitates production quality, high efficiency, cost-effective and environment friendly services for the customers. Industrial internet is one of the applications of artificial intelligence which works by smart connection of intelligent equipment, intelligent system and intelligent decision-making components. Germany introduces industry 4.0 which emphasis intelligent production and intelligent factories. H. Luan et al [6] stated, in recent years, applications of big data and artificial intelligence in education have made significant headways. Y. Shang, [25] has posited due to the ramped development of AI around the world, research and exploration to thrive to apply AI mainly in medical, automotive, culture and education fields.

2.2 Artificial intelligence disciplines

Artificial Intelligence is a science and technology with a combination of many disciplines such as computer science, big data, psychology, linguistics, mathematics, biology, neurology and fields in engineering. Developers of artificial intelligence are required to learn a lot of things to become productive programmer. W. Hongyuan [17] Posited that artificial intelligence integrates physiology, computer science, philosophy, math's, sociology and neurology disciplines.

3. ARTIFICIAL INTELLIGENCE TECHNOLOGY APPLICATION IN AUTOMOTIVE INDUSTRY

In 21st century, life without manufacturing robots, marketing and stock trading bots, virtual travel agents, smart assistance are unimaginable and other things in other fields wouldn't have come into existence without the achievements in artificial intelligence and machine learning. The role of artificial intelligence in the automotive industry is huge. Self-driving and driver assistance in vehicle system are the prominent application of AI in automotive industry. Autonomous vehicles are currently deployed in cities and airports around the world. AI is also majorly used in pre-manufacturing, manufacturing process and production management of automobile. AI can carry out tasks which are normally performed by human with high accuracy.

Advancement in technology has changed automotive manufacturing industry and automobile technology. Internet of things is one of the new technologies used to make communications among various devices through sensors, actuators and internet as [19] D. Bhosale described. He added, internet of things is an emerging technology with which automobile manufacturing companies are making connected car systems. Navigation system and driver behavior sensor are some among many technologies being applied on cars. [20] O. Gusikhin et al have overviewed usage of AI in automotive industries. Artificial intelligence is applicable in manufacturing, diagnosis, on-board system, warranty analysis and design domains of automotive industry. In-vehicle AI systems such as fuzzy neural system control, neural-network based virtual sensors, speech recognition, intelligent safety systems and on-board diagnosis system. [21] Zhiqiang Lv assured that age of information and internet has been substituted by the internet of things. In advance, internet of everything and artificial intelligence will continue the main stream of technology. Intelligent transportation system has emerged and electric vehicle will be the intelligent transportation landing. [22] J. Li, H. Cheng et al. described intelligent vehicle produced these days consists of artificial technologies such as path planning, vehicle communication, driverless car, detect pedestrian, lane change, map building, driver assistance and environmental perception functions. U. Hasan et al. [24] vocational high school needs to anticipate this so that there is no over-supply of the workforce because existing jobs require fewer people. Automobile is experiencing revolution as sensors, computers with big data and communication advances. He also ascertained that autonomous vehicles will be available in great number in the few years to come.

Building smart cities in the future is a must for better mobility which is going to support autonomous vehicles. [38]L. Jiang et al. developed an intelligent system that can detect and diagnosis engine faults real-time based using neural-networks based fault diagnosis system. This fault can be diagnosed by the automobile user.

AI is being applied in almost all systems of automobile. Companies like Google, Waymo, Motional, Rethink robotic, Tesla and Nauto and many more companies have developed autonomous vehicle with the help of AI. Car manufacturers use AI in every stage of car-making processes.

4. REFORM NEEDS BASED ON THE DEVELOPMENT OF ARTIFICIAL INTELLIGENCE

Computer model of parabolic leaf spring of existing S. Yang and H. Bai [15] claimed, in the future era of intelligence, deep integration of artificial intelligence with normal education will be the main trend of educational development. Currently, though, development of education intelligence faces problems like lack of consideration of student's learning characteristics, teacher's quality of educational intelligence and lack of understanding of student's personal learning. He proposed a solution by designing integration model of artificial intelligence and normal education. Students have lack of practice, outmoded curriculum, lack of innovation and lack of independence. Deep learning, intelligent tutor and expert system was the suggested solution. In the design, deep learning is used to analyze learning characteristics, providing learning resources and promote independent learning. He concluded that effective implementation of this integration can establish strong relationship college with enterprise, constantly innovate technology and improve innovative ability of artificial intelligence products. W. Holmes et al [5] reported that courses are now replaced and departments have been merged, so that schools can offer courses related to big data analysis, cloud computing and internet of things to meet the demands of industry. Working in collaboration with industry can help schools update their laboratory equipment and eliminate the gap between learning and practice by equipping students at technical and vocational schools with the right competitiveness. Vocational schools should precisely design vocational education courses according to future graduates' new work fields and opportunities. Y. Han [12] suggested that the curriculum structure design needs to integrate horizontal integration of courses in the same professional field and cross-border integration of courses in different professional fields to have overall and comprehensive professional ability. Y. Zhou et al [2] described that the basics of artificial intelligence include terminology, reference architecture, data, test evaluation, and others. AI product services are categorized into robots, vehicles, terminals and intelligent services. He concluded that with cooperation of school and enterprise real work place project can be transformed into artificial intelligence professional course teaching project, which can make teaching close to practice in the form of learning by doing. J. Ma [1] suggested, way of transformation would be by adding large data and artificial intelligence courses and contents to the existing professional curriculum system of vocational education, as well as flourishing resources, library and training system. Production, teaching and research should also be integrated. The key content of the reform is to let enterprises participate in the process of teaching practice and update teaching contents according to trending technologies. He concluded that according to the needs of vocational skills professional foundation and core curriculum series related to AI should be added. P. Wang [10] described that artificial intelligence plays an important role of structural change of vocational education which is actually in teaching thinking, teaching content, teaching mode, talent training and professional construction. He reported, developing the vocational teacher's ability and updating training curriculum content is necessary in the era of artificial intelligence. A. Alnahdi [10] has reviewed the impact of artificial intelligence on vocational education systems specifically on teaching methods and learning systems. The author indicated that there should be a change to vocational education training to not let the artificial intelligence to take many jobs in the coming near future. F. Hui [8] depicted that the emergence of artificial intelligence made the requirement of employee quality stricter and graduates with comprehensive quality would be selected. Hence vocational education colleges should understand the trends of artificial intelligence, influences and the role on the development of education to reform curriculum as counter measures to cultivate high quality talents. According to P. Sudira [11] in the present industry 4.0 the production process has shown quick changes with excellent service because of use of the implementation of cyber-physical production systems. The author indicated that, in order for the vocational education to be more effective in supporting the development needs of industrial 4.0 it requires a frog leap in the curriculum development, learning, program management through a multi and trans-disciplinary across study program.

D. Zeng et al. [30] claimed industries have put new requirements and competence level of practitioners so as to achieve high quality product development. Therefore, vocational education needs to reform to cultivate complex technical and skilled labor force to satisfy high-quality human resource needs. This demand emerged due to the upgrading and transformation of industrial structure and inclusion of new technologies. Reform in talent cultivation mode and evaluation mode realizing the connection between industries and education is important. I. Koricanac[31] posited that high level of competitiveness among automotive industries facilitated the implementation of AI in the system such as driverless features among many others resulting the demand for highly skilled personnel on the field. B. Ziblima and J. Nkrumahb[32] indicated that auto mechanics in Ghana lack the ability to use computer, manuals and modern equipment in their repair practice. Cars running in the street have become computerized and so do the repair job requirements. S.S. Guan, L. S. Lu[33] described that students' professional knowledge is affected by curriculum structure, curriculum process and curriculum content. This further affect labor force required by industries. Therefore, technical and vocational training shall understand industrial

needs and design teaching curriculum which incorporate the needs of industries. S. Yang and H. Bai [15] in the era of intelligence, deep integration of education and AI will become pertinent trend in education development.

4.1 Required student prior knowledge

Students come to the vocational school with different prior knowledge, beliefs, attitudes and skills which influence how they are going to conceive and organize in-coming knowledge. This will in turn affect how they apply, think, remember and create new knowledge. Since new knowledge and skill is dependent on pre-existing knowledge and skill. High achievers are characterized in high general cognitive capabilities and prior knowledge or past academic achievement. They can also contribute more often on higher levels of conceptual complexity during group discussion and in response to teachers. L. Boström [39] claimed that there are many factors for the need of knowledge for vocational education entrant. The first reason is an increasingly complex reality comprising rapidly changing working environment that face students upon enrollment, in order for students to be able to participate in these successfully, they must be able to absorb more advanced levels of theoretical and practical knowledge during training. A. Dong et al. [40] shown that students with more prior knowledge and lower cognitive load are able to exercise higher levels of instrumental help-seeking, leading to good quality learning engagement.

4.2 Teacher's capacity and development

In recent years, it is imperative to improve student learning outcomes which in turn improves the quality of the teaching workforce. In light of rapid changes in business and industry workplace technology, teachers have to be encouraged to update their knowledge constantly. These days, however, recruiting and retaining good quality teachers has become a challenge. Assigning teachers to teach subjects for which they were not trained well affects the quality of teaching in negative way. In other words, teacher's quality is important factor in imparting gains in student achievement. In addition, pedagogical knowledge of teachers is another indicator of teacher quality. Pedagogical knowledge refers to the knowledge of teachers for creating effective teaching-learning environment for students. Therefore, teachers are expected to have good quality on content and pedagogical knowledge as well as learners' knowledge and characteristics. N. V. Verloop et al. [41] concluded that an understanding of teacher knowledge would be useful to foster teacher education and to make educational innovations more successful.

5. EXISTING PROBLEMS OF VOCATIONAL EDUCATION SYSTEM

Investing in skill development through vocational education is a crucial component of human capital development of a country. Education of vocational colleges lacks the consciousness of innovation. The teaching and training objectives of vocational colleges lack innovation consciousness, and only clearly define the specific objectives related to the major, and the cultivation of the innovation consciousness and the ability of innovation in the major is relatively rare. D. Zeng et al. [30] asserted that there is obvious gap between training specifications, training objectives and talents required by the industry. They also stressed training curriculums are not flexible enough to adapt the rapid changes in the industry. Reference [32] depicted that computers are being used in different systems of automobile even in component parts of steering, chassis and brake systems. Thus, these features can only be achieved practically through use of computer/digital skill. Technologies in automobile are rapidly becoming standard features in all automotive company, thereby vocational graduate need to work comfortably in those companies as a result reform of curriculum is important to incorporate basic computer skills. On the other hand, R. Liu and Y. Zhan [42], apparently, AI in China is one of fastest growing industry which has 14 percent annual growth rate since 2015.

Therefore, currently, vocational education curriculum is not flexible enough to accommodate the changes undergone in industries which result lack of manpower in working fields of real world.

General problems in vocational education

- o Change and increase the teaching concept of artificial intelligence
- o Innovation of content and practical training
- o Establish support to the development of artificial intelligence in vocational education
- o Development of vocational teachers teaching ability in the age of artificial intelligence

5.1 Skill mismatch

The high unemployment/jobless of vocational graduate is exacerbated by the skills gap that exists in the actual market where a number of graduates are channeled out without skills that meet the needs of industry. Skill and intelligence are closely related. Intelligence is perhaps best defined as the unconscious application of skill to the conscious solving of problems. Therefore, the more skill someone has in any area, the more intelligently that person can function. Having numerous skills lets a person perform better in real problems which would otherwise require couple of personnel qualified

on each skill. L. Lu, S. Guan et al. [40] this work has aimed to explore practical courses that conform to industrial design, visual communication and multimedia design. The author has analyzed existing courses and then investigated the industry needs. As a result, courses of marketing knowledge, skill and cognition aspect for communication design are proposed to be added in curriculum.

There exist skill and knowledge gaps of automotive technician graduate from vocational education due to lack of laboratory works, outdated curriculum, practice and lack of well-organized internship training.

IJERTV12IS040027

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6. STRATEGIES OF REFORM TO ENCOUNTER THE INFLUENCE OF ARTIFICIAL INTELLIGENCE IN AUTOMOTIVE FIELD

According to D. Zeng et al. [30] professional talent training programs in vocational colleges and universities should integrate important artificial intelligence contents and reform vocational level skill standards with teaching standards. For instance, the main requirement of certificate training program includes deployment of intelligent computing software and hardware platforms. Reconstructing with various learning modules integrated into the curriculum would help graduates fit to the intelligent computing platform deployment and etc based on the business needs. D. zeng and his colleagues stressed that the concept of integration perspective should be from students, teachers, subjects, enterprises and stakeholders. With the help of technology, tasks that were completed only by senior workers may be completed by high school graduates, therefore, the curriculum must consider the changes of the industry demands for 3-5 years ahead. Consequently, they concluded that talent training programs must be able to adjust their curriculum with the changes of industry's needs. J. Shi and X. Ran [35] indicated, reform of vocational education under this AI era will accelerate integration of artificial intelligent process with vocational education and modernization. [29] Y. Wang and Y. Yang posited that the rapid development of AI can only emulated with timely implementation of AI education in schools. The development of AI has transcended the scope of traditional science and technology and involves different fields. It requires a definite intervention of social science and humanities. He and his colleague added that the position of the country in the world is measured with the level of artificial intelligence education. They have also indicated artificial course contents needed to be integrated in education curriculum such as computer science, physics, mathematics, linguistics, logic psychology and engineering. N. Mockler [36] claimed that curriculum integration is not new to the world. There are many ways to integrate curriculum such as multidisciplinary and interdisciplinary approaches which uses different subject area content that are related, however, [37] A. J. Plasschaert has argued that as there is no single educational method superior than others, including problem-based leaning.

According to the references, to reduce the influence of AI application on automotive field vocational schools have to develop new curriculum which has course from different fields like computer science, electrical and mechanical engineering in addition to the core courses of automotive technology. These courses can be integrated with one of the curriculum integration approaches called multi-disciplinary.

7. CONCLUSION

Artificial intelligence is a machine or system that exhibit behavior as equal as human intelligence. On the other word, it refers to machines, robots and software systems which independently process tasks and problems without the help of human beings. The current social development is through artificial intelligence. Artificial intelligence such as internet of things, big data and cloud computing, smart products, smart homes, smart robots, smart toys, autonomous vehicles and intelligent buildings have emerged as a result it changes people's lives, education and labor market requirement. This demand emerged due to the transformation of industrial structure and inclusion of new technologies. The employer has rigorous requirements for vocational graduates to recruit. Graduates only with high comprehensive and high professional quality would join the company or the enterprise. This increases unemployment pressure of vocational graduates. Based on the review, courses and departments are now being recombined or closed to so as to respond to the developments of AI components such as cloud computing, big data, deep learning and internet-of-things. Working with industries would help the school upgrade laboratory works and close the gap between school learning and work place tasks.

Therefore, vocational education should understand the change due to artificial intelligence and adapt the curriculum accordingly to fit the requirements of the labor market. Vocational education needs to improve teaching methods, teaching staffs, increase enterprise cooperation, curriculum setting and internship training. Currently, employers require skilled and knowledgeable vocational graduate of automotive major with fundamental know how of artificial intelligence. Besides, there is no artificial intelligence integrated vocational education curriculum so far. Thus, the curriculum has to be reconstructed towards integration with AI by considering the applications, so that employment posts of industries, standards and national policies can be achieved. Modern vehicles maintenance and repair complexity increases from time to time due to the rapid development of AI technologies in the sector. As a result, pressure and incapability of automobile technicians rising significantly. Most automotive mechanics in developing countries like Ethiopia do lack the ability to use computer, manuals and modern equipment in their repair practice. To overcome the problem, reform on curriculum to integrate artificial intelligence can be done by including artificial course contents such as intelligent computing software, hardware platform, computer science, physics, mathematics, electronics, English, linguistics, logic psychology, smart products, automation, digital process and engineering. Among many, it is suggested by many respondents that multi-disciplinary approaches are better ways to integrate vocational curriculum. AI covers a wide range of disciplines and technical fields such as computer vision, human language understanding and communication, cognition and reasoning, robotics, game playing, machine learning, statistics and brain neurology. Based on the interview result, vocational curriculum needs to integrate courses horizontally to certain professional field as well as cross-border disciplines to have overall comprehensive training. In addition, student's prior knowledge and teacher's capacity building are the influencing factor of implementation of AI integrated curriculum in vocational education.

This research work is completed with MAXQDA software. Literatures and interviews have been collected and imported in to the aforementioned software and qualitative analysis has been done.

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