Survey on Vocational Education using Artificial Intelligence, Big Data and Internet

Mr. Kunal S. Tibe¹, Prof. Shrikant Nagure²

¹Third Year Computer Engineering, R.M.D. Sinhgad School of Engineering, Warje, Pune-58, India.
²Asst. Prof. of Computer Engineering, R.M.D. Sinhgad School of Engineering, Warje, Pune-58, India.

---***---

Abstract – *Application of Internet and use of domains like Big Data and Artificial Intelligence (AI) had given a lead to normal users due to reduction in cost of such technologies. Vocational Education (VE) training impacts these users, so with proper utilization of these technologies by the educational system gives secure knowledge and capacity or potential of workers training structure. This intelligent strategy lies with putting forward in all the directions along with smooth computing for exploring Big Data, Internet and Artificial Intelligence. In order to achieve the motive, the vocational education is evaluated and surveyed to increase the efficiency of resemble teaching and hands on using Big Data and Artificial Intelligence. Also the importance of other applications used in software technology are encapsulated. The main success is to remake the development of vocational education training with speeding up the cultivation growth of talents having entrepreneurial and innovative ideas.*

Key Words: Big Data, Artificial Intelligence (AI), Internet, Software technology, Vocational Education (VE), Intelligent strategy, resemble teaching, cultivation growth of talents, entrepreneurial and innovative ideas.

Motivation: The main aspect here is the Artificial Intelligence, it is going to be one of the highest priority in upcoming future mostly based on Education. From the recent reformation, the Artificial Intelligence is very necessary to carry out E-Learning platforms, generating results, online user presence**,** etc. and as well as to speed up the growth of innovative talents and exploring resources, it is going to be the main factor. But to evaluate the huge amount of data into meaningful data it requires another concept called Big Data, which is also one of the vital domain in this paper. Due to the use of Artificial Intelligence and Big Data many tasks have been resolved in educational training such as vision analysis, speech analysis, pattern recognition, data analysis, data mining, data prediction, storage platform, data acquisition and management, etc. The third and last application is Internet which everyone is very-well aware of in this century, but along with it the coming generations are going to have lots of uses in all kinds of resources as it is supporting now in vocational education aspect. And hence, with error free and accuracy the work has been established.

1. INTRODUCTION

This paper addresses about the Vocational Education reformation and development with the help of some domains and applications.

Vocational Education is the training provided to the hightech students with talents to prepare them for employment work in an organization or enterprise. In order to train the learners with high-skilled talents Vocational Education is very necessary. Many of the personalities can find their path of interest from this course.

There is an decrease in skills or talent due to the welldefined development of Internet, Big Data and Artificial Intelligence. For the moment, there is a difference between the customary education (i.e. methods of training) and changing situation in vocational education. In order to increase the high-skilled talents and to meet with the changing situations this paper proposes some suggestions and paths to ensure the integrity of all the required fields.

Artificial Intelligence (AI) is one of the important key in ensuring the needs in today's world with problems like this in educational field. Artificial Intelligence is been used by lots of organisations but for the main purpose it is been used is the education afterall. Here, for the vocational education to be reformed the Artificial Intelligence plays a very vital role. Artificial Intelligence in Vocational Education is focused on reformation, development of, evaluation of and research into platforms. Artificial Intelligence is been used to perform various analysis of data in the learning platform to increase the efficiency of teaching and many other approaches. It focuses more on the personalized training of vocation students such as their creativity , problem-solving ability, disciplinary skills, capacity of learning new, research and many other talents.
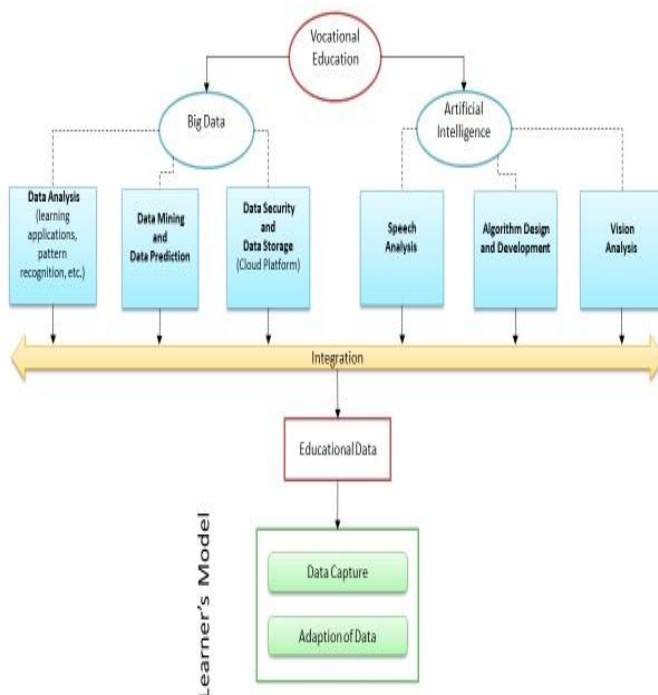
Big Data is used to essentially carry out the quality driven data required to run the process efficiently. Big Data uses its all for V's (Volume, Variety, Velocity and Veracity) in order to work out the required needs. Big Data makes it easier for the problems like coping up with changing technologies by introducing itself into administrative, managerial and academic departments. It also keeps in mind that the training comprises of both formal and non-formal education to skill the learners.

Lastly, Internet has been on of the largest known application for its use in all parts of resources. In vocational

Education it cites to efficient use of educational resources. Most of the suggested paths have gained secured education environment and promoting people for working life. The main purpose of Internet in vocational education is to improve the decision making with the available data acquired.

The appropriate measures using these three important concepts are taken to resolve problems that might come across the way and suggested the paths if necessary.

Fig -1: System Architecture

There is an integration of AI and Big Data to reform vocational education training. Big data Analysis platform is used to carry out curriculum experiment, application analysis and trend prediction. With Artificial Intelligence: speech analysis - it is interesting to search and match questions and answers dynamically from the knowledge base. With Artificial Intelligence: vision analysis - face recognition, automatic planning is carried out. Integration of Big Data and AI is discussed through the paper which is used for optimization and providing efficiency. There is also a cloud computing platform to deploy curriculum resources and mobile platform to conduct learning which is found everywhere. The key content of all this based on Internet + Big data and AI is to increase the depth of integration of production and education.

2. Literature Survey

In 2016, Hasanefendic, S., et al [1] made a study in context the role of technical and vocational higher education in order to strengthen the institutional credibility, emphasizing shortterm project-oriented research in short-cycle education. The necessary institutional and diversification according to a programme, schedule or method is encouraged here.

By the means of Big data constraints, combining the platform and standard database, Chen Zhenyu, gained the students' behavior data in daily educational activities which helped the students to find the profession they are interested in. They managed the reasonable management system and personalized curriculum system. [2]

Gong Guozhong, Wu Vissheng, Yang Shufang and Jing Zhengjun, they conducted the challenges and opportunities imposed for sustainable development with Artificial Intelligence in Education. It ensures the inclusion and equity in Artificial Intelligence in education. However, it deepens the existing inequalities. [3]

Gong Guozhong in 2018, reflected on using directions Artificial Intelligence in education for future directions. It refers to create new discussions around the uses and users sending an open indication in the paper. It reflects the urgency for talents in vocation education for training of talents through school institutes or enterprise cooperation. However, the ethical implications of collecting and mining data from learners is unnoticeable. [4]

Zhuo Yuan, puts forward the Artificial Intelligence that offered unprecedented development opportunities in 2018. The paper also includes support and guidance of national policies and Artificial Intelligence technology. AI has also brought new challenges to the development of vocational education, mainly in the form of professional construction and teaching content and transformation and innovation. [5]

The strategy of vocational education in the period of artificial intelligence, ideological thinking, integration of artificial intelligence technologies and redefining vocational education is given by Xie Qingsong. He offered change in teaching and learning approach, established the concept of life-long learning and identified obstacles to harness Artificial Intelligence in Vocational Education Training (VET) [6].

In 2018, Sun Xiaogi , in modern vocational education Big Data made tremendous changes to it which are tend to make changes in education modes and ideas. It does following necessary processes such as helping teaching reform and innovation, optimizing teaching diagnosis and evaluation, optimizing training structure and quality. It enables us to provide instrumental means in formulating data such as for communication, sending information and online activities purpose [7].

In the light of Big Data, this paper cites to improve the ability of analysis of mixed teaching mode, it uses recombination method of big data to carry out the hybrid teaching mode with information fusion ability in higher educational colleges and optimize the hybrid teaching mode. [8]

In 2019, the vocational education has come across unrivalled opportunities of development with guidance and support of Artificial Intelligence technology. In this paper, Jinhua Ma, with increased reformation in vocational education it reforms from aspects of specialty features and teaching content to meet the talent training objectives in era of Artificial Intelligence. [9]

The realization of modernization of vocational education have become a general agreement of the industry for which construction of modern vocational education system has been performed. Guangliang Zhu, wrote this paper in order to analyse the changes made by Big Data to vocational education, suggesting some paths and measures for using Big Data in vocational education along with reference value for development system. [10]

3. LIVE SURVEY

There has been some problems while reforming the vocational education in the beginning, which of them are resolved with various technologies involved. In this survey, there is a discussion about the live impact of used technologies in the vocational education earlier.

With the arrival period of Big Data in vocational education, the problems such as integration of school-enterprise cooperation with higher vocational colleges was not maintained, it was also due to lagging facilities for training inside the schools, this has overcome with increase in hybrid teaching mode and strengthening practical training. [8][11]

In 2019, Zhang yunfang and Wang Yuexi introduces teaching path analysis in vocation training. This is to overcome the problems faced by the students which puts forward the ideological and political courses in higher vocational colleges based on artificial intelligence technology proposed. [12]

Artificial Intelligence (AI) has been with everything and rising like in all fields and domains. The impact of this Artificial Intelligence in coming future and use of its algorithms is discussed in this paper, in 2019 by Prithvi Bhattacharya. The study focuses on how the AI tools replicate on supervised learning experience, one-on-one or mentor/guide based learning experience to students' performance. This will ensure resulting in better learning outcomes for students. [13]

In the early 2020, there is Big Data oriented implementation analysis for online education. This papers analyzes and studies the characteristics of educational Big Data and performs data set processing which focuses on algorithm used by Hadoop platform. [14]

4. CONCLUSION

From the above references and reviews it is concluded that Artificial Intelligence has already acquainted itself in today's world. Using Big Data and Artificial Intelligence it serves the social and economic development of vocational education. Artificial Intelligence has presented increased cultivation of high-speed talents to meet the trending changing situations of the growing society. In macro view application consideration, Big Data and Artificial Intelligence has optimized efficient teaching and learning methods in vocational education. The main goal of reformation of vocational education development structure has been successful with the help of these references and their impact on every field used in this paper.

REFERENCES

1. Hasanefendic, S., Heitor, M., & Horta, H. (2016). Training students for new jobs: The role of technical and vocational higher education and implications for science policy in Portugal. Technological Forecasting and Social Change, 113, 328–340. doi:10.1016/j.techfore.2015.12.005

2. Zhenyu, C. (2017). The Application of Big Data in Higher Vocational Education Based on Holland Vocational Interest Theory. 2017 International Conference on Industrial Informatics - Computing Technology, Intelligent Technology, Industrial Information Integration (ICIICII). doi:10.1109/iciicii.2017.59

3. Gong Guozhong, Wu Vissheng, Yang Shufang and Jing Zhengjun. 2018. Artificial Intelligence in Education: Challenges and Opportunities for Sustainable Development. https://unesdoc.unesco.org/ark:/48223/pf00003 66994

4. Gong Guozhong, Wu Vissheng, Yang Shufang and Jing Zhengjun. 2018. Application of big data in Vocational Education from the perspective of artificial intelligence: realistic challenges, application models and intelligent services [J]. Jiangsu Education Research, 2018 (27): 19-

5. 23

6. Zhuo Yuan. 2018. Challenges and Opportunities of Vocational Education in the Age of Artificial Intelligence [J]. Chongqing and the World, 2018 (24): 63-65.

7. Xie Qingsong. 2018. Transition and Development of Vocational Education in the Age of Artificial Intelligence [J]. Education and Vocational, 2018 (08): 50-56.

8. Sun Xiaoqi. Development and Innovation of Vocational Education in the Big Data Environment [J]. Hebei Vocational Education, 2018,2(06): 14-16.

9. Liu, Q., & Zeng, M. (2018). Selection Model of Optimal Mixed Teaching Mode in Higher Vocational Colleges Based on Big Data. 2018 International Conference on Virtual Reality and Intelligent Systems (ICVRIS). doi:10.1109/icvris.2018.00041

10. Jinhua Ma. 2019. The Challenge and Development of Vocational Education Under the Background of Artificial Intelligence. https://doi.org/10.2991/ichssr-19.2019.102

11. Guangliang Zhu. 2019 Thinking on the Application of Big Data in Vocational Education. DOI: 10.25236/icmeem.2019.062

12. Zhao, Y., Yang, Y., & Liu, H. (2019). Research on the Problems and Countermeasures of College-Enterprise Cooperation in Higher Vocational Colleges Under the Background of Big Data. 2019 International Conference on Virtual Reality and Intelligent Systems (ICVRIS). doi:10.1109/icvris.2019.00040

13. Zhang Yunfang ; Wang Yuexi. 2109. Interactive Teaching Path Analysis of Higher Vocational Ideological and Political Courses Based on Artificial Intelligence Algorithms. DOI 10.1109/ICMTMA.2019.00107

14. Bhattacharya, P., & Nakhare, S. (2019). Exploring AIenabled Intelligent Tutoring System in the Vocational Studies Sector in UAE. 2019 Sixth HCT Information Technology Trends (ITT). doi:10.1109/itt48889.2019.9075093

15. Zhang Dong. 2020. Big Data Oriented Mining and Implementation Analysis for Online Education Information.   DOI 10.1109/ICMTMA50254.2020.00186