READINESS OF MANAGEMENT TEACHERS AT TERTIARY LEVEL FOR FOURTH INDUSTRIAL REVOLUTION IN NEW BHARAT

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ABSTRACT

The present study aims to study the Readiness of Management teachers at Tertiary Level for Fourth Industrial Revolution in New Bharat. This study is a descriptive survey in which data is collected from 50 university teachers as sample. A self made questionnaire titled as "Teachers Readiness for IR 4.0" was used for data collection. After doing percentage analysis of the data it was found that although management teachers teaching the various undergraduate courses in Delhi may not have the idea that they are working in Industrial revolution 4.0 and not aware about the terminology of IR4.0 but they are using student centric methods of teaching in classrooms and trying to create collaborative learning space in the class in which creativity and critical thinking of the students can be developed. The main areas in which the tertiary level management teachers are facing the challenges emerge to be less use of Learning Management System, not promoting students to enroll MOOC's as a step for bridging the academia industry gap and also teachers are not able to supplement book knowledge with the current updated facts related to the curriculum.

Keywords: Fourth Industrial Revolution (IR4.0), Tertiary Level teachers,Readiness

Introduction:

Revolutions always bring reforms. All the industrial revolutions in the past starting from Industrial revolution I to Industrial revolution III and the ongoing Industrial revolution 4.0 have directly or indirectly brought reforms in the various sectors of India. The journey of industrial revolution started from 1784 and will keep going till the survival of humankind. The various industrial revolutions till 2018 are:

S.No	Industrial revolutions	Characteristics	Tenure	Gap years
1	IR1.0	Based on mechanical production equipment driven by water and steam power	1760-1870	More than a century (approx 150 years)
2	IR2.0	Based on mass production enabled by the division of labor and the use of electrical energy	1870-1969	Less than a century (approx 99years)
3	IR3.0	Based on the use of electronics and IT to further automate production.	1969 - mid 2000's	More than 4 decades (Approx 46years)
4	IR4.0 (Ongoing)	Based on the use of cyber-physical systems.	Mid 2000's till date	More than one decade

After analyzing the timelines of all the industrial revolutions till date, it can be seen that the rate of change from one industrial revolution to the next industrial revolution is increasing day by day. So may be the next Industrial revolution after IR4.0 could be faster and scalable and will impact not just the lives of few people but all the people in the globe.

Talking about India as developing country it is still progressing towards the fourth Industrial Revolution in present era about which many of people in our nation are not even fully aware of it. The term "Industry 4.0" originates from a project in the high-tech strategy of the German government, which promotes the computerization of manufacturing industry. The "Fourth Industrial Revolution" or "Interoperability Revolution 4" is the revolution which is influencing not just India but all the countries of the globe. To coin an acronym Industrial Revolution 4.0 in India is,

R-Research

E-Emerging Technologies

V-Value Creativity

O-Open Global Knowledge Exchange

L-Large scale digital investments

U-Updated Skills

T-Transformations

I-Innovative Technologies

O-Open Source Software

N-Networking

The Fourth Industrial Revolution (4IR) is the era which would be the most transformational for India. It comprises of robotics, artificial intelligence, nanotechnology, quantum computing, biotechnology, the Internet of Things, 5G Technologies, 3D printing and autonomous vehicles technologies that is blurring the lines between the physical, digital, and biological spheres. Klaus Schwab, Founder and the Chairman of the World Economic Forum has linked IR 4.0 with the "second machine age" in terms of the effects of digitization and artificial intelligence on the life, work, relationships, networking, education, manufacturing and governance of the societies in the globe.

The technologies in IR 4 are being developed for the society, by the society and of the society. The need of revolution in education sector has arised due to the transformational and high scale revolution 4.0 in industries. Industries of any country cannot grow without compatible education system. For instance the change from Industrial revolution1.0 to Industrial revolution 4.0 is being supported by transformational change in India from being an Agricultural economy(IR1.0) to a Innovation economy(IR4.0). Education 4.0 is a challenge for the traditional teachers because digital technologies will not expect the humans to change the way of doing the things but will transform the humans in all aspects completely. But to live with this change there is a dire need to transform the human resources of India by imparting them the technology driven education and re-skill and upskill them for future global competition. A new report titled as “Skill Shift Automation and the Future of the Workforce” from the McKinsey Global Institute(May,2018) has highlighted that there would be rise in the demand for Higher cognitive skills, Social emotional skills and Technological skills for job survival in the era of Artificial Intelligence and automation. Moreover in comparison to 2016 it is predicted that by 2030 the future workforce would need to use additional 52% technological skills, 22% social emotional skills and 7% higher cognitive skills per day for their jobs. By looking at the data it is very clear that till today the Indian Education system is preparing the future generations for the jobs those would be replaced by automation in the near future. In spite of the efforts done by Indian government to adapt IR 4.O through the Make in India Initiative, Digital India, Industrial corridor etc. the various challenges in readiness which India as a developing country is facing for Fourth Generation Industrial Revolution and need to be dealt with immediate effect.

Education sector is a sector which should spontaneously respond to the requirements of IR4.0 because IR4.0 requires teachers to be technological driven so that the **STEad Skills** (Synthesizing skills, Transferable skills, Entrepreneurial skills and Data literacy skills) of millennials’ can be developed with the technological driven attitude. Now is the time for teachers to say goodbye to the old ways of teaching and move towards more

flexible, innovative, inter disciplinary and research oriented teaching learning approaches. The role of tertiary level teachers during Industrial revolution 4.0 is very crucial as they develop those skills of the students which make them directly employable and generate qualified human resources for the New Bharat.

Literature Review:

Muhammad Sukri Saud Et Al (2018) assessed the Readiness of Malaysian Public Universities in implementing Teacher Training Programmes Based on IR 4.0.It was found that the readiness of university teachers to implement parameters of IR 4.0 was at a moderate level. Thus, there is a dire need to equip our teachers so that they become capable to apply elements of industrial revolution 4.0 in higher education.

Norizan Abdul Razak, Hussien Alakrash & Yasmin Sahboun (2016) explored, "Readiness of English Language Teachers for the application of Technology towards Fourth Industrial Revolution demands" .It was found that the English language teachers are moderately ready and that some policy must be formulated to persuade teachers to implement IR 4.0 technologies during teaching learning process.

Katharina Schuster, Lana Plumanns et al (2015) tested Collaborative Virtual Learning Environments with Students and Professional Trainers to check their readiness for IR4.0.For the purpose of the study a collaborative VLE was created within the open world game Minecraft. Through focused group discussions-a connection between communicational behavior and successful collaborative problem solving in virtual environments was found. Moreover the trainers accepted that the new technological possibilities have great potential and would consider using it in future.

Research Questions:

After the review of the past studies and going through related literature the following questions came to the mind of the researcher:

- Are the teachers teaching the various management courses at tertiary level tready for IR4.0?
- Which elements of IR4.0 are the management teachers able to apply during teaching learning process?
- Are the management teachers able to integrate technology in their teaching pedagogies, assessment and interaction style with the classroom?

Objective of the study:

The objective of the present study is to identify the readiness of management teachers teaching at tertiary level for fourth Industrial Revolution in new Bharat.

Research Methodology:

In the present research study descriptive research method was used.

Sampling:

In the present study purposive sampling was used. The teachers teaching B.B.A course in the various educational institutions of Delhi were selected for the purpose of data collection. The final sample for the present study comprised of 100 teachers.

Tools Used:

In the present study a self-made "Teachers Readiness for IR 4.0" questionnaire was prepared and used.

Data Analysis Techniques:

The analysis of the results was obtained based on the questionnaire filled by the teachers who are teaching at tertiary level in various educational institutions of Delhi.Percentage Analysis was used for data analysis and bar graphs charts were used for diagrammatic representation of the findings.

Results and Discussion:

For Data analysis the researcher has done the question-wise percentage analysis of the statements which were asked from the tertiary level teachers to check how prepared and ready they are for the Industrial revolution 4.0 .The analysis is presented as under:

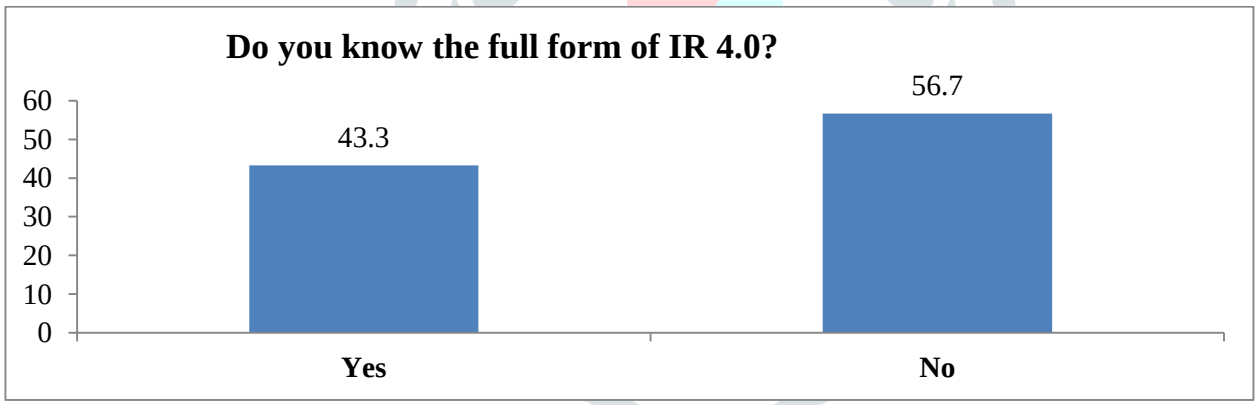

Figure I

According to Figure I, it is evident that out of the total 100 teachers more than 56.7% tertiary level teachers are not aware about the full form of IR4.0.

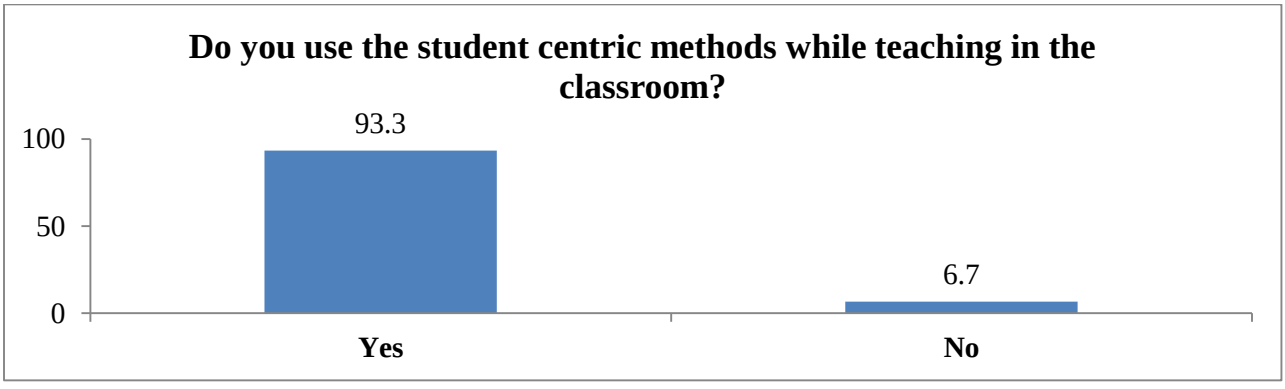

Figure II

According to Figure II, it is evident that more than 93% tertiary level teachers are using student centric methods and only 6.7% are using teacher centered methods.

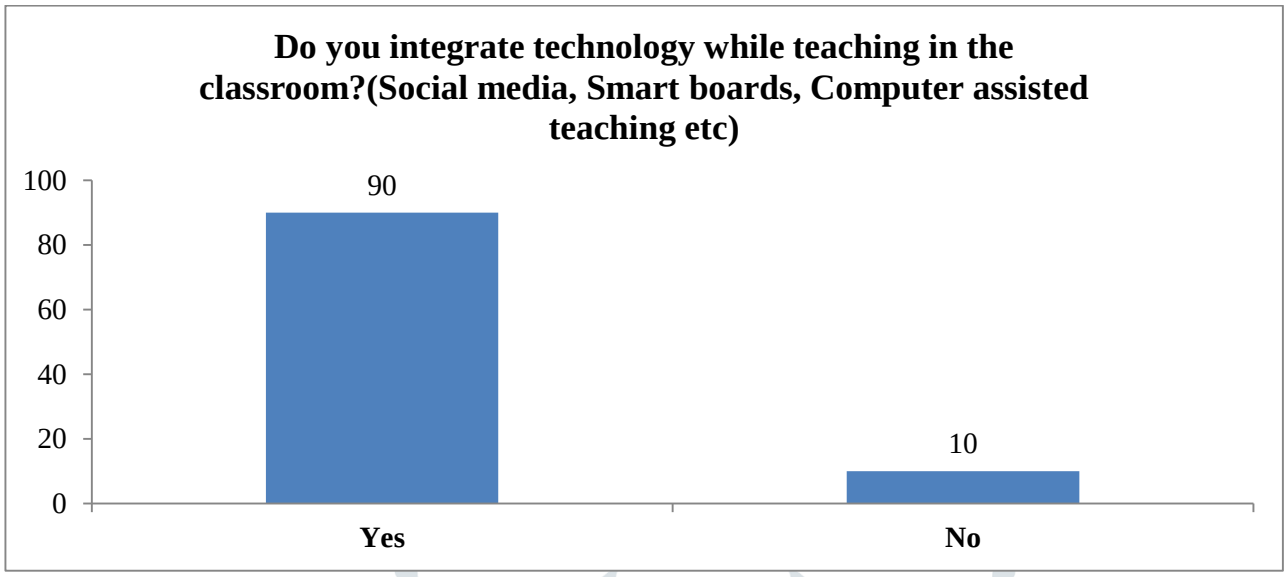

Figure III

According to Figure III, it is evident that 90% of tertiary level teachers are using social media, smart boards, computer assisted instructions and trying to integrate technology while teaching in their classrooms.

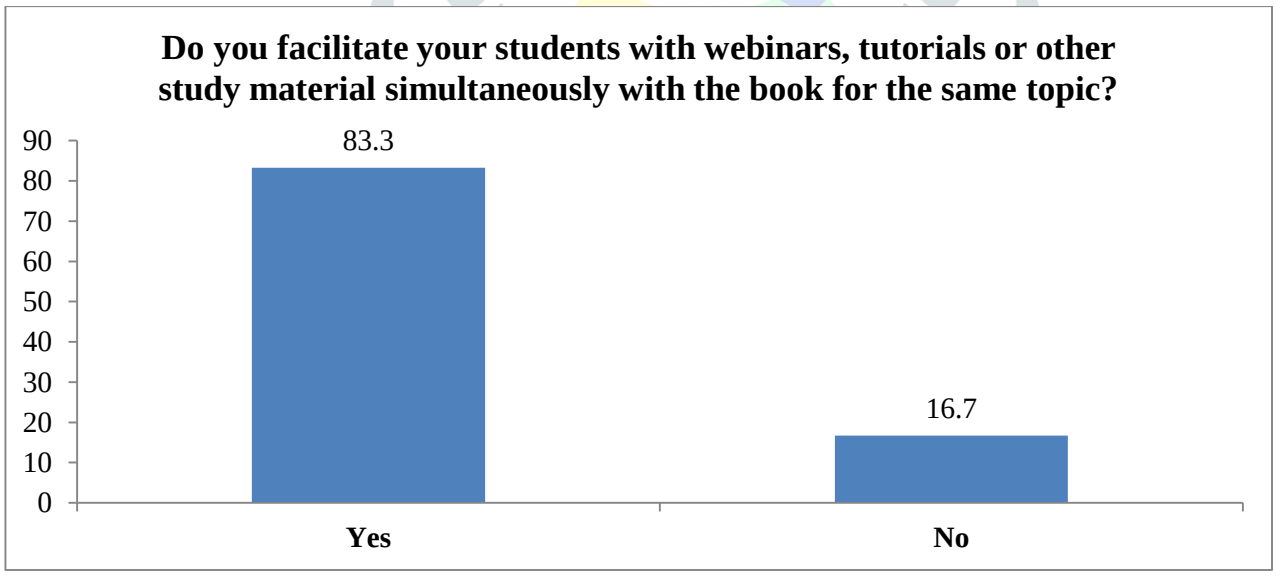

Figure IV

According to Figure IV more than 83% teachers facilitate the students while teaching through webinars, tutorials or other study material simultaneously with the book.

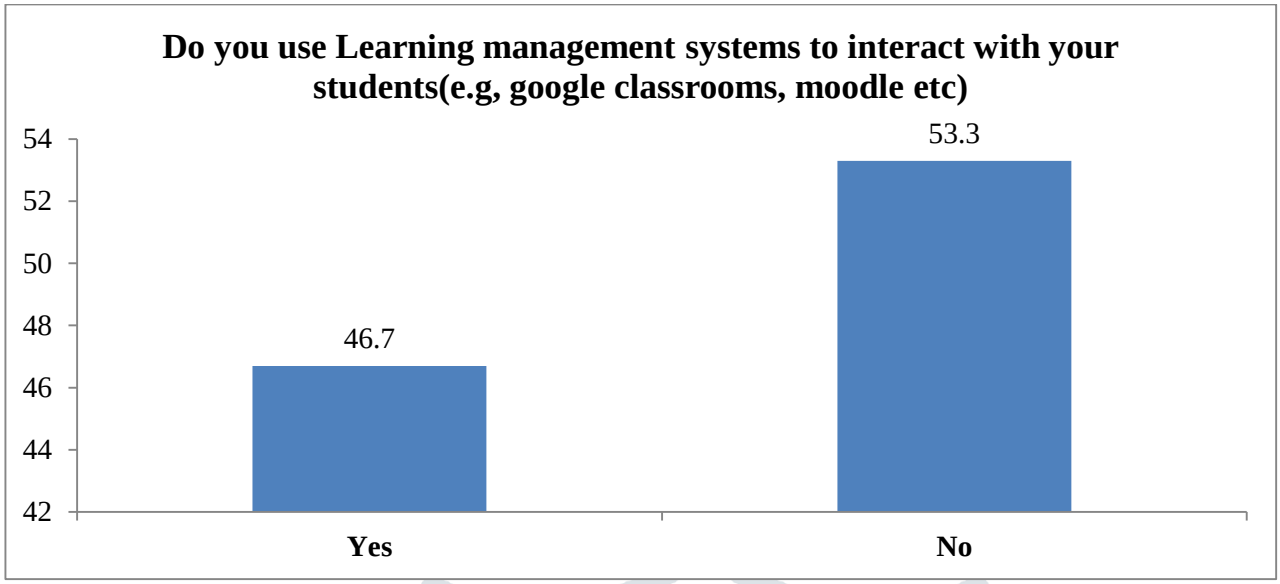

Figure V

Figure V shows that 53.3% of teachers are using Learning management system to interact with their students, like google classrooms, Moodle etc and 46.7% are not.

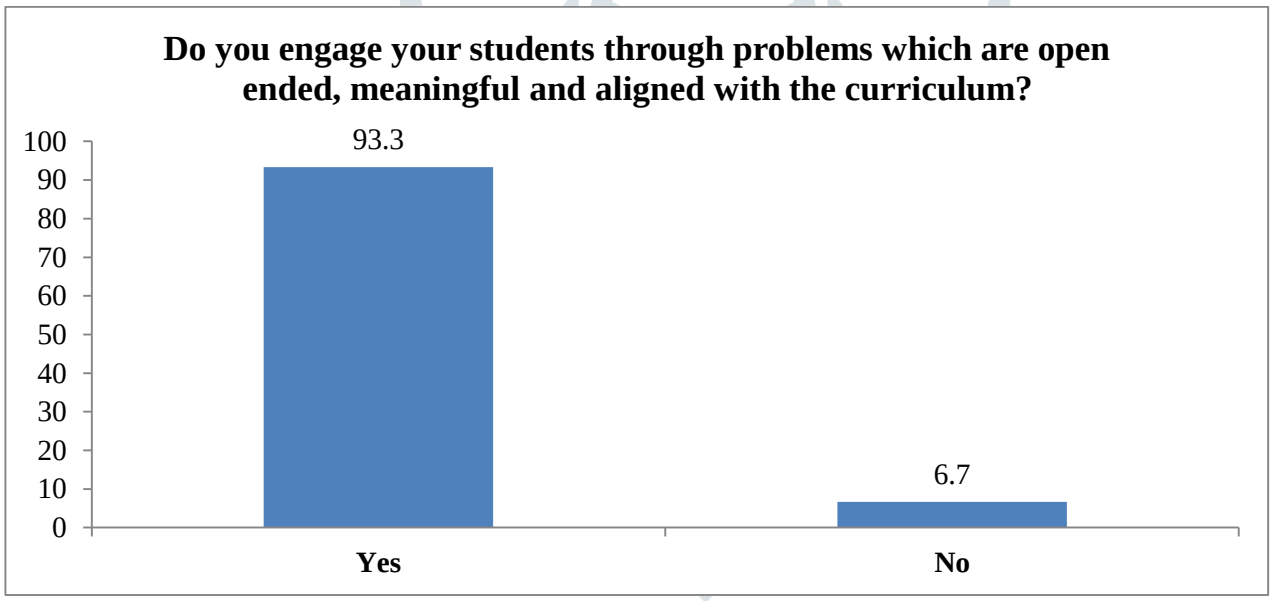

Figure VI

Figure VI shows that to develop critical thinking and problem solving skills of the students, more than 93.3% teachers are engaging their students by creating an environment where students have to independently or in a group solve the problems which are open, meaningful and yet aligned with the curriculum.

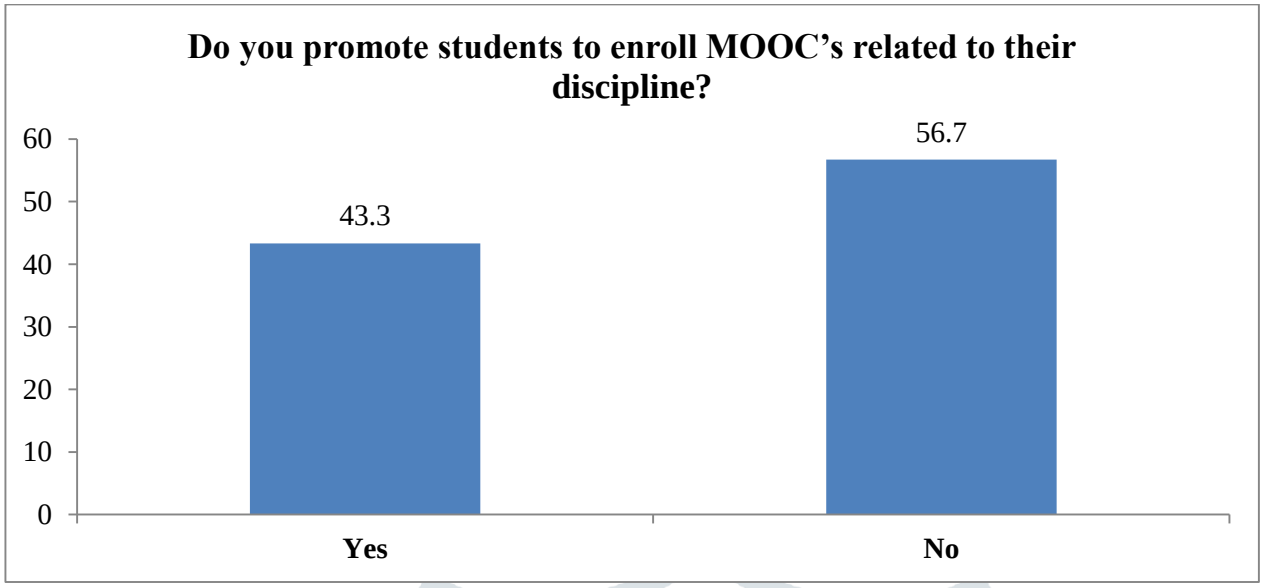

Figure VII

Figure VII shows that more than 56% teachers are not promoting their students to get enrolled in MOOC's which can help the students to bridge the skills gap after the completion of their course and make them more employable in the job market.

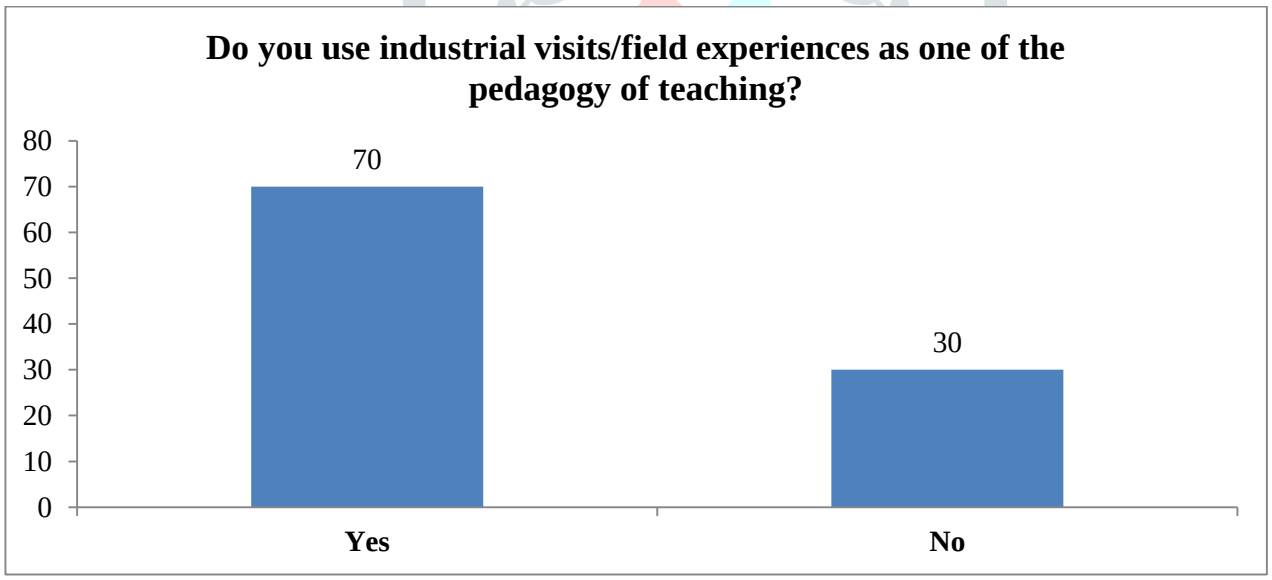

Figure VIII

It is evident from figure VIII that 70% of teachers are using industrial visits or the field experiences to support students learning which ultimately bridges the industry-academic gap for the students

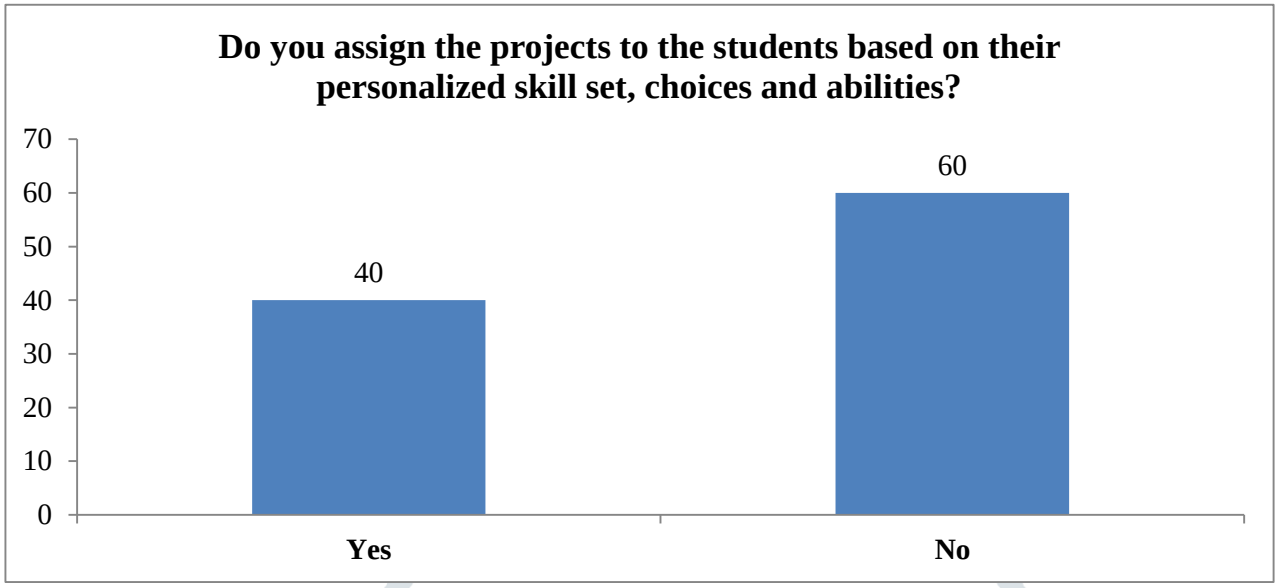

Figure IX

It is evident from figure IX that 60% of the tertiary level teachers are not assigning the curriculum centered projects based on their personalized skill set, choices and abilities, and only 40% assigning on the basis of their skill set to support individualized and self paced learning.

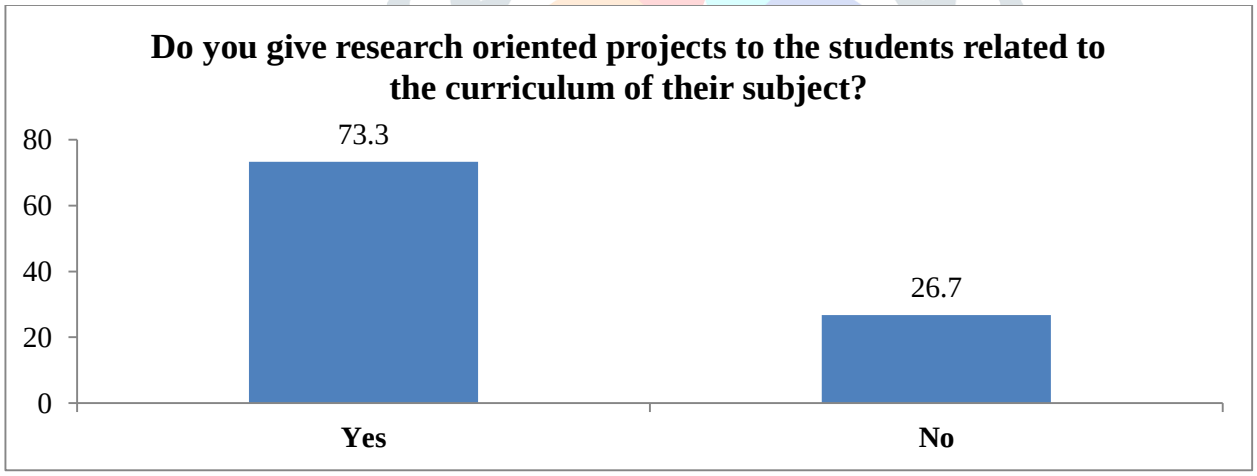

Figure X

It is evident from figure X that to develop the research skills of the students more than 70% of teachers are assigning research oriented projects to their students and only 26.7% are not.

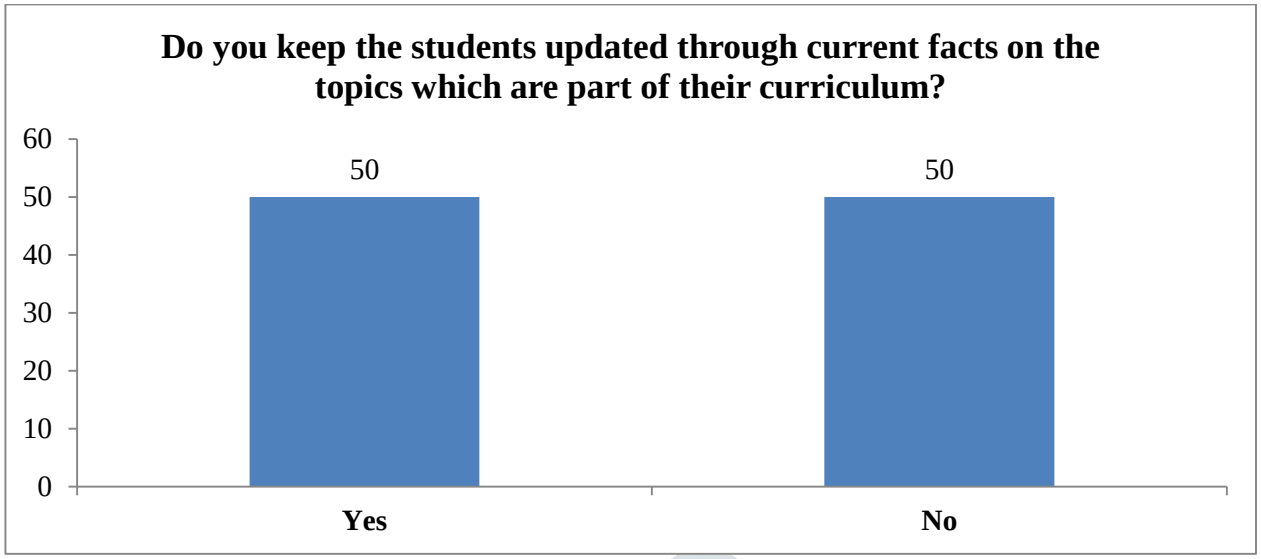

Figure XI

Figure XI shows that only half of the teachers are keeping their students updated with current facts on the topics which are part of their curriculum and remaining 50% are not.

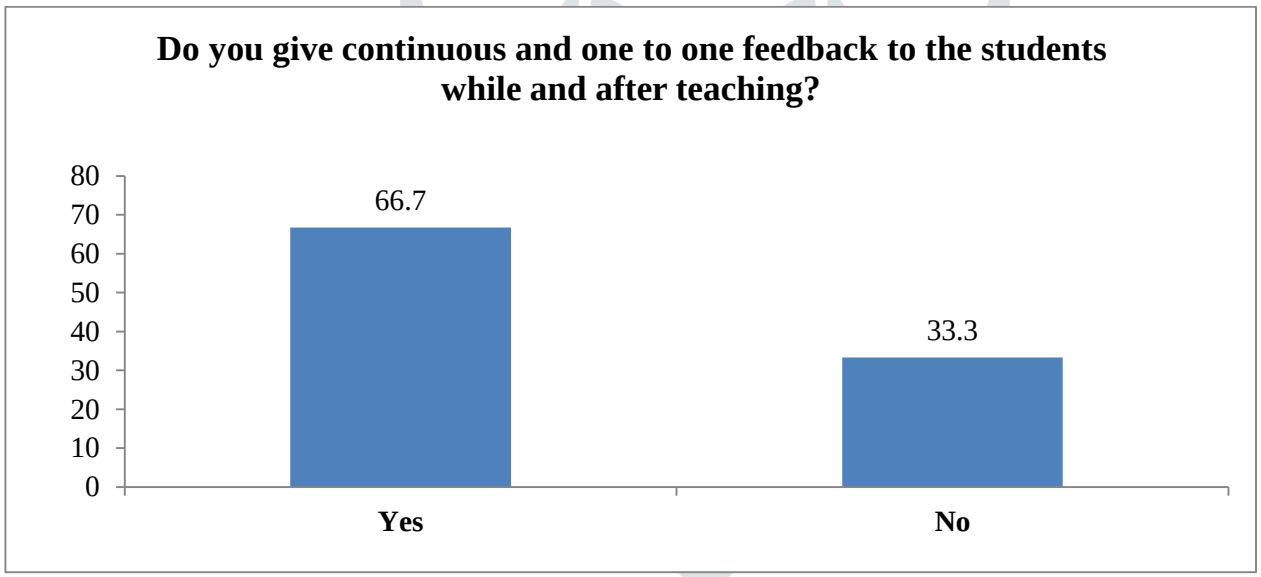

Figure XII

Figure XII is evident that more than 60% of the teachers are giving continuous and one to one feedback to the students during and after teaching and only 33.3% are not doing that.

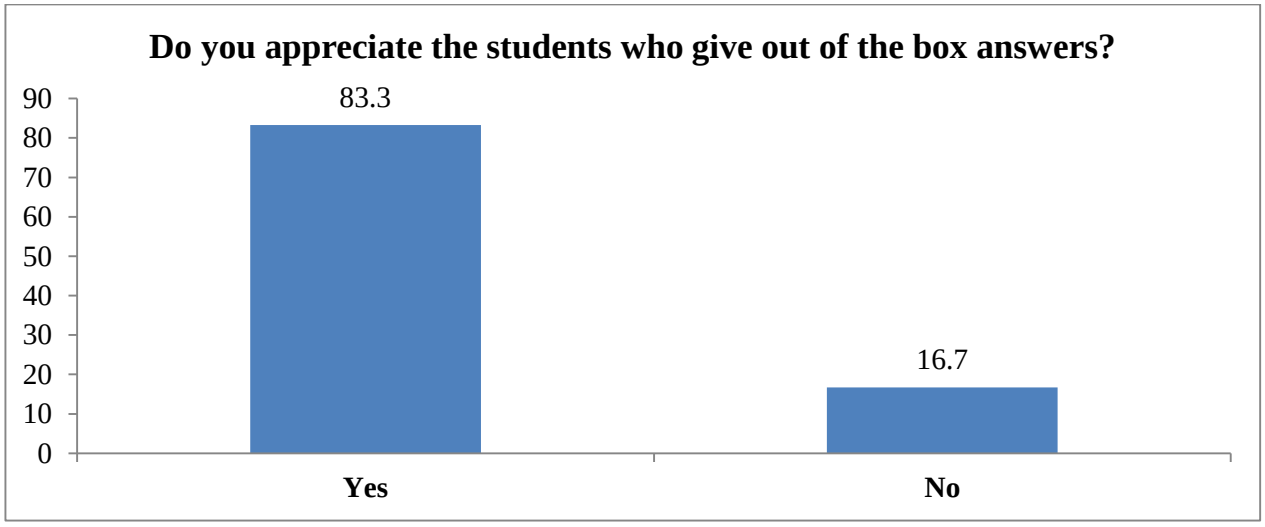

Figure XIII

Figure XIII shows that to develop creativity and original thinking among the students, the teachers at tertiary level appreciate them when they give out of the box answers and other 16.7% don't appreciate.

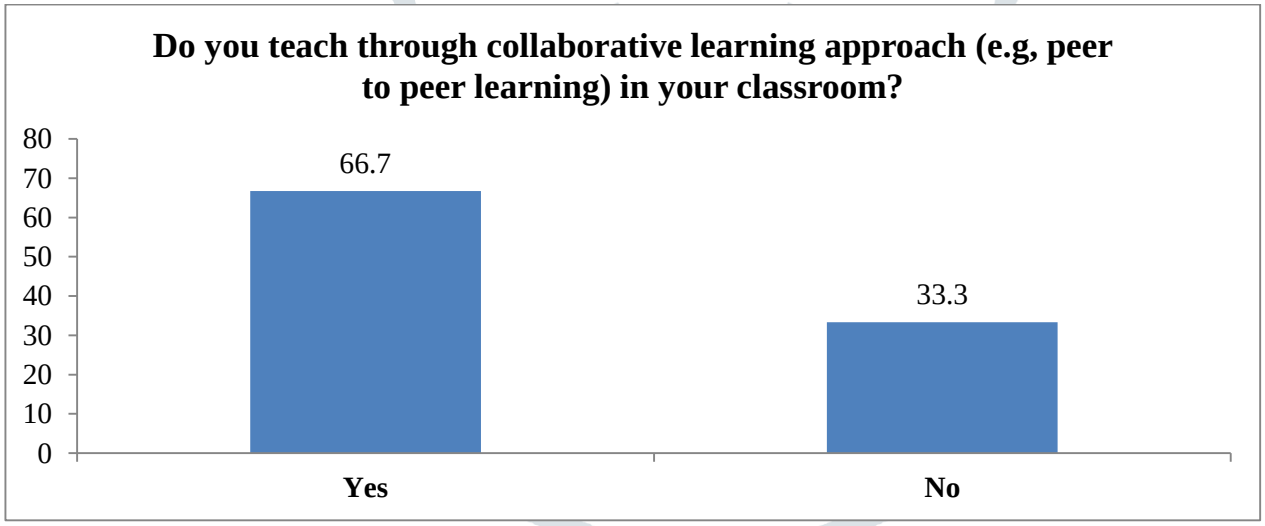

Figure XIV

Figure XIV is evident that 66.7% teachers at tertiary level are using collaborative learning approach while teaching and 33.3% are not using it.

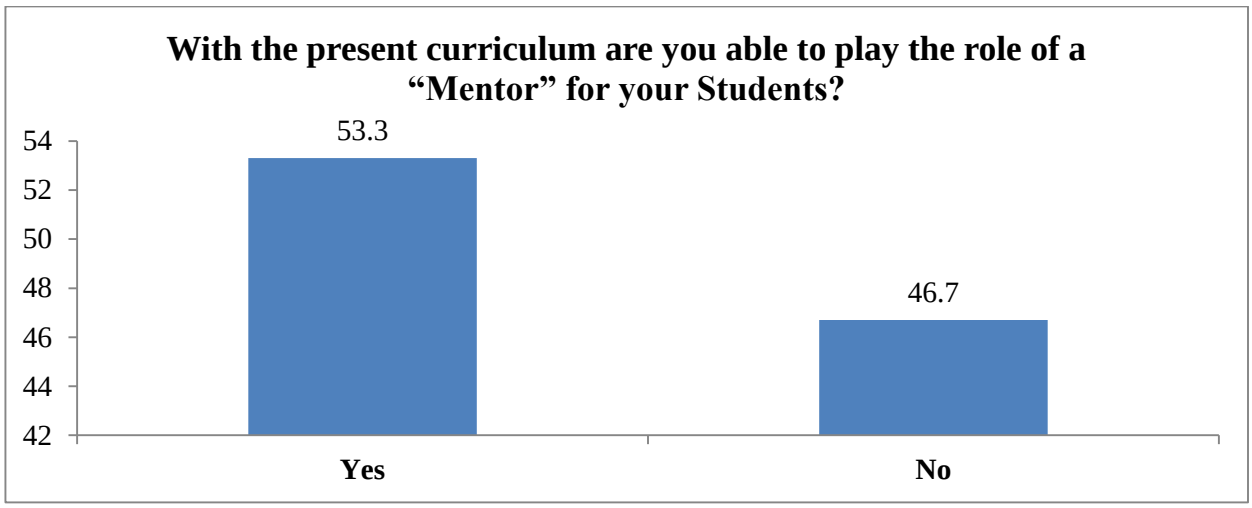

Figure XV

Figure XV shows that 53.3% of teachers at tertiary level are playing the role of mentor also for their students and 46.7% don't get the time due to time bound completion of course and the other administrative work.

CONCLUSION:

The findings of the study show that although the teachers teaching Management undergraduate course may not have the idea that they are working in Industrial revolution 4.0 and not aware about the terminology of IR4.0 but they are using student centric methods of teaching in classrooms and trying to create collaborative learning space in the class in which creativity and critical thinking of the students can be developed. The main areas in which the tertiary level teachers are facing the challenges emerge to be less use of Learning Management System, not promoting students to enroll MOOC's as a step for bridging the academia industry gap and also teachers are not able to supplement book knowledge with the current updated facts related to the curriculum. So, we can say that the teachers have fasten their seatbelts for taking the millennial to the IR4.0 society but still there is a long way to go. Thus, to conclude with a quote by **Charles Darwin,**

"It is not the strongest species that survive, nor the most intelligent, but the one's most responsive to change."

References:

- Abdelkader, D., Belkhodja, O., Linda, C. (2013) "Understanding and managing knowledge loss", Journal of Knowledge Management, Vol. 17 Issue: 5, pp.639- 660, https://doi.org/10.1108/JKM-12-2012-0394
- Sivathanu, B., Pillai, R. (2018) "Smart HR 4.0 – how industry 4.0 is disrupting HR", Human Resource Management International Digest, https://doi.org/10.1108/HRMID-04-2018-0059

- Donate, M. J., &
- Sánchez de Pablo, J. D. (2015). The role of knowledge-oriented leadership in knowledge management practices and innovation. Journal of Business Research, 68(2), 360- 370. doi:10.1016/j.jbusres.2014.06.022
- Kim, T. H., Lee, J., Chun, J. U., & Benbasat, I. (2014). Understanding the effect of knowledge management strategies on knowledge management performance: A contingency perspective. Information & Management, 51(4), 398-416. doi:10.1016/j.im.2014.03.001
- Knowledge Management in Theory and Practice. (2013). doi: 10.4324/9780080547367 Wilkesmann, M., Wilkesmann, U. (2018) "Industry 4.0 – organizing routines or innovations?" VINE Journal of Information and Knowledge Management Systems, Vol. 48 Issue: 2, pp.238-254, https://doi.org/10.1108/VJIKMS-04-2017-0019
- Muthaiyah, S. (2014). Knowledge Management Technology Implementation - Bridging the Gap between Theory and Practice. Proceedings of the International Conference on Knowledge Management and Information Sharing. doi:10.5220/0005156403930399
- Powell, P. (1999). Strategic Information Management: Challenges and Strategies in Managing Information Systems, 2nd ed. R. Galliers, D. Leidner, B. Baker (Eds.); Butterworth– Heinemann, 1999, 590 pages, ISBN 0-7506-3975 X, £22.50. The Journal of Strategic Information Systems, 8(3), 319-321. doi:10.1016/s0963-8687(99)00028-1
- Sadeghi, A. & Mostafavi Rad, F. (2018). The role of knowledge-oriented leadership in knowledge management and innovation. Management Science Letters, 151-160. doi:10.5267/j.msl.2018.1.003
- Zanda, S. (2018). Building Efficient Management and Leadership Practices. Innovation, Technology, and Knowledge Management. doi:10.1007/978-3-319-60068-0

Web Resources

- https://digitallearning.eletsonline.com/2018/12/is-indian-education-sector-ready-for-industrial-revolution-4-0/