Turkish Online Journal of Qualitative Inquiry (TOJQI)

Volume 12, Issue 3, July 2021:1637-1648

Research Article

ANALYTICAL STUDY OF 'RESEARCH' USED AS AN EXPERIMENTAL TOOL FOR EXPERIENTIAL LEARNING

Dr Rajeshree Gokhale, *Associate Professor, Brihan Maharashtra College of Commerce, Pune, Maharashtra, INDIA, rgokhale69@gmail.com*

Manjusha Wadekar, *Faculty, Brihan Maharashtra College of Commerce, Pune, Maharashtra, INDIA, manjusha_wadekar@hotmail.com*

Neetika Sharma, *Faculty, Brihan Maharashtra College of Commerce, Pune, Maharashtra, INDIA, neetikamahajan.sharma@gmail.com*

ABSTRACT

The formal education system provides a fixed boundary of subjects but what if the learner wants to go beyond the same? Can educators guide and mentor such learners? Can an opportunity be given wherein learners could diagnose their own needs, own objectives and learning resources, use their own strategies for better learning? Answers to these questions can be found if the teaching and learning methodology undergoes significant transformations and many new things are adapted as per the present scenario. Education in the 21st century is more dynamic and challenging as compared to the earlier centuries. Albert Einstein's quote, "*Education is not learning of facts but training of mind to think*" becomes even more relevant in the changing environment. Hence, it becomes imperative for the educator or facilitator as well, to go beyond the boundaries of the formal education and learning methods and create the urge of learning in the students. If education institutes, educators and facilitators move towards a more student-centric system, collaborative learning, creativity, and communication will become important outcomes of the process. Educators need to be constantly experimenting with new pedagogies as per the needs of their students and their subjects. This research paper is an outcome of an experiment where 'research' has been used as a teaching-learning methodology. The data collected through focus group interviews of the 'research' activity participants, upon analyzing statistically using Friedman's Q test, showed that the ranks of various parameters on which the participants were observed were statistically significant at 5% level of significance. The observed parameters have given a new dimension to the personality of the learners by acquiring the value education in the process. The outcome paved the way for peer motivation, mentor motivation, learning by choice and learning for life emphasizing the fact that choice-based learning is the key to gain knowledge that sustains. Value education is the indirect outcome of this experiment that otherwise would not have found a place in the business school curriculum.

KEYWORDS

research, experimental tool, communication, creativity, pedagogy, choice-based learning, motivation, value education

INTRODUCTION

Life in the present century is very dynamic and evolving and often more challenging. Several innovations and the technological advancements have changed the whole sphere of dynamics of learning and educational institutions must keep up to the pace of the same with evolving more student-engaging and student-centric learning experiences.

The National Education Policy (NEP) 2020 that was accepted by the Union Cabinet of India on July 29, 2020, envisages of a place of learning that is unregulated by classroom boundaries, predefined curriculum, conventional methodologies, and cultural barriers. It aims at helping education to be consistent with the interests and likings of the students. Directly or indirectly, it emphasizes on experiential learning and active involvement of the students in the teaching-learning process.

Years ago, *Gurudev* Rabindranath Tagore had the same vision when he established '*Shantiniketan*'. At the time of its inception, *Shantiniketan* was an experimental school but eventually it grew into *Visva Bharati University* attracting students from all over the world. *Gurudev* strongly believed that education should go beyond the confines of the classroom. *Gurudev's* four fundamental principles of educational philosophy are "*naturalism, humanism, internationalism, and idealism*".

As the education systems evolve, the factors associated with them also evolve. One such essential factor is 'teaching-learning methodology'. Over the years, there have been evident changes in teaching-learning style. From memorization and rote learning, it has evolved to understanding and application-based learning. The approach has changed from being theoretical to practical. If these changes were not introduced or implemented, the teaching-learning process would have lost its significance and impact. Likewise, the present need of the hour is to change the pedagogy from system or teacher-centered to student-centered.

The present teaching-learning mode majorly tends to be passive for the learners as they play a very little part in it. Most of the times, the teacher or the system controls the instructional process, and the emphasis is laid on theoretical and factual knowledge. With so much of exposure and awareness all around, it will not be a hyperbole to say that learners consider their factual knowledge to be at par with that of the teachers or at times, even more. In today's modern and technological era, they do not want their teacher to be "*a sage on the stage"* who is working 'for' them, but they expect him/her to be a "*guide by their side"* who is working 'with' them. With the changing times and needs, the conventional teaching and learning methods have become less relevant, less effective, and even burdensome at times for the learners.

Education should become an enjoyable experience for the learners. If educators are to motivate and create a spirit of learning as well as enthusiasm on the part of students, if educators do not want education and learning to lose its sheen and effectiveness, the application of innovative

teaching and learning methods becomes imperative. To make teaching and learning process as free flowing as possible, the educational pedagogy adopted should be student-centric, collaborative, and participative. Active involvement and participation on the part of learners will provide them with an opportunity to gain professional expertise, knowledge, skills and, values to prepare them for the unforeseen future.

In 2010, the UNESCO recommended various teaching strategies such as experiential learning, storytelling, value education, enquiry learning, appropriate assessment, future problem solving, outside classroom learning, and community problem solving, for the twenty-first century. Educators, therefore, need to carefully experiment with and explore different methodologies so that the best ones can be brought into practice.

With this thought in mind this research paper focusses on the outcome of an experiment that was carried out for learning beyond the confines of the fixed curriculum.

OBJECTIVES OF THE EXPERIMENTATION

1. To study the impact of 'research' as an experimental tool of learning
2. To study the effect of motivational factors on the participants of this experiment

CONCEPTUAL FRAMEWORK

Kothari Commission report (1964-66) recommended that the teaching methodologies can bring about an educational revolution in the country. Hence, they must be in accordance with the changing times. To face the challenges of the 21st century full of uncertainties and paradoxes, there is a need to transform the present educational system. For an environment which is conducive to education and research, pedagogy that offers holistic multidisciplinary vision must be designed *(New Pedagogical Challenges in the 21st Century, 2018*). The authors say that inclusive and cooperative education, intercultural education, environmental education, education in values and innovative teaching methods ensure sustainable learning.

Innovative teaching includes an array of activities such as active interaction with learners, willingness to accept the change, perseverance and specific as well as disciplined approach (*Joyce Povlacs Lunde*, 1996).

Interaction and participation of a student in the learning process results in significant learning on his part. He understands the subject matter in a better manner and considers it appropriate for his own purposes. If self-criticism and self-evaluation are considered more important than evaluation by others, it results in self-reliance and independence (*Rogers*,1969).

The author of the book '*Learning and Teaching in Higher Education: Perspectives from a Business School* (2019)', says that learning can be made an enjoyable experience if more emphasis is laid on interactive and student-engaging teaching methodologies such as experiential learning, role plays, simulation, problem solving and so on. Engaging students to contribute in their learning process is a crucial first step to effective learning.

Another book '*Freedom to Learn: Creating a Classroom Where Every Child Thrives* (2018)' talks about the behavioral science, neuropsychology and group dynamics that can give a great insight into the psyche of the students and make the educators understand the needs of the students. The traditional classroom approach needs to be reviewed. The reviews of this book "*Freedom to Learn*" by many eminent educators have revealed that children have motivating needs among other things and the bond that is formed because of open interactions of students and teachers, leads to the success of these students. Many reviewers have vouched for the simple measures that can be implemented easily and effectively by the educators.

Authors *Jillian Douglas* and *Shannon McKenzie* in their blog published in 2016 talk about "*What Is Cafeteria Learning?*". It says that the same piece of knowledge can be learnt in a variety of different ways to make it palatable. The methods matter in imparting the knowledge, so this "cafeteria" serves the "menu" of a variety of methods for learning or "complete dining experience" with self-service. The University Grants Commission (UGC) of India has also explained the term "*cafeteria approach*" to education. As per UGC this approach renders a student the freedom to choose "*what and at what pace they would study*".

Another research article emphasizes the usefulness of students being graded using "*cafeteria approach*" to go beyond the expectations of the normal course of learning (*Arendt, A., Trego, A., Allred, J*., 2016).

UNESCO report (2015) underlines that young learners must be prepared for unforeseen future and education must be made a comprehensive and continuing lifelong experience. Learning through innovative practices such as research and problem-based learning, makes students self-driven learners (*Carolyn Dickie and Leighton Jay*, 2010). If element of research is incorporated in the academic foundation, students will not only learn effective oral and written communication skills but also learn to think independently and critically. Learning through research process has a lifelong influence on the learners. (*John K. Petrella And Alan P. Jung*, 2008).

Colin Beard and *John Wilson* in their book "*Experiential Learning: A Best Practice Handbook for Educators and Trainers (2006)*", consider experiential learning as a powerful approach to teaching and learning. A plethora of experiential learning activities have been suggested in this book to enhance the effect of education and learning. Different models on experiential learning were developed by educational thinkers like *Jean Piaget, Kurt Lewin* and *John Dewey* and all modern theories on experiential learning are based on these models. They all considered learning through experience as more influential than any other methodology of learning. They advocated that learning is best facilitated through immediate experience because it involves wholehearted participation of a learner with his feelings, thoughts, and physical activity.

METHODOLOGY OF EXPERIMENTATION

A novel experiment was undertaken for undergraduate and post-graduate students at a Business School in Pune, India, who were interested to learn and experience the whole process of conducting a research activity in the proper structured format. 22 undergraduate and post-graduate students signed up voluntarily for this experiment. Since it was a research activity, the number of participants was purposely kept small. They had no prior knowledge of research methodology or

advanced statistical tools like non-parametric tests. Students along with faculty members formed the group '*KALPAK*'. The student researchers were given a free hand to choose their topic of research with brainstorming sessions and only minimal guidance from the mentors. Questionnaires were then designed by the group with lot of careful thoughts and discussions. Also, the literature review was being simultaneously done to have a more comprehensive application of the same. The data was collected over a period of one month, then the data was analyzed statistically and finally the research project report was written. The whole academic endeavor spanned over 8 months.

Post this activity, the students were asked to share their experiences through focus group interview method. In addition, a questionnaire was administered for the same. The important parameters that were included in the questionnaire were the motivational factors like mentors' motivation and peers' motivation and the ability to cope with the research activity which was previously not tackled by the participants and expectations out of this activity. The involvement or the '*participation*' was measured by 'complete participation' and 'partial participation'. The outcome of the research activity was measured on the learning factors such as '*communication skills*', '*interpersonal*', '*perseverance*', '*creativity*', '*analytical skill*', '*time management*', '*technical skills*' acquired during the activity. These learning factors are crucial in the overall development of a student.

Data collected through this feedback, was analyzed statistically at 5% level of significance. The experimentation resulted in qualitative data which was analyzed using non-parametric tests like Friedman's Q, Chi-square test. In addition, the descriptive statistics and coefficient of association were also used as tool for the statistical analysis.

DATA ANALYSIS

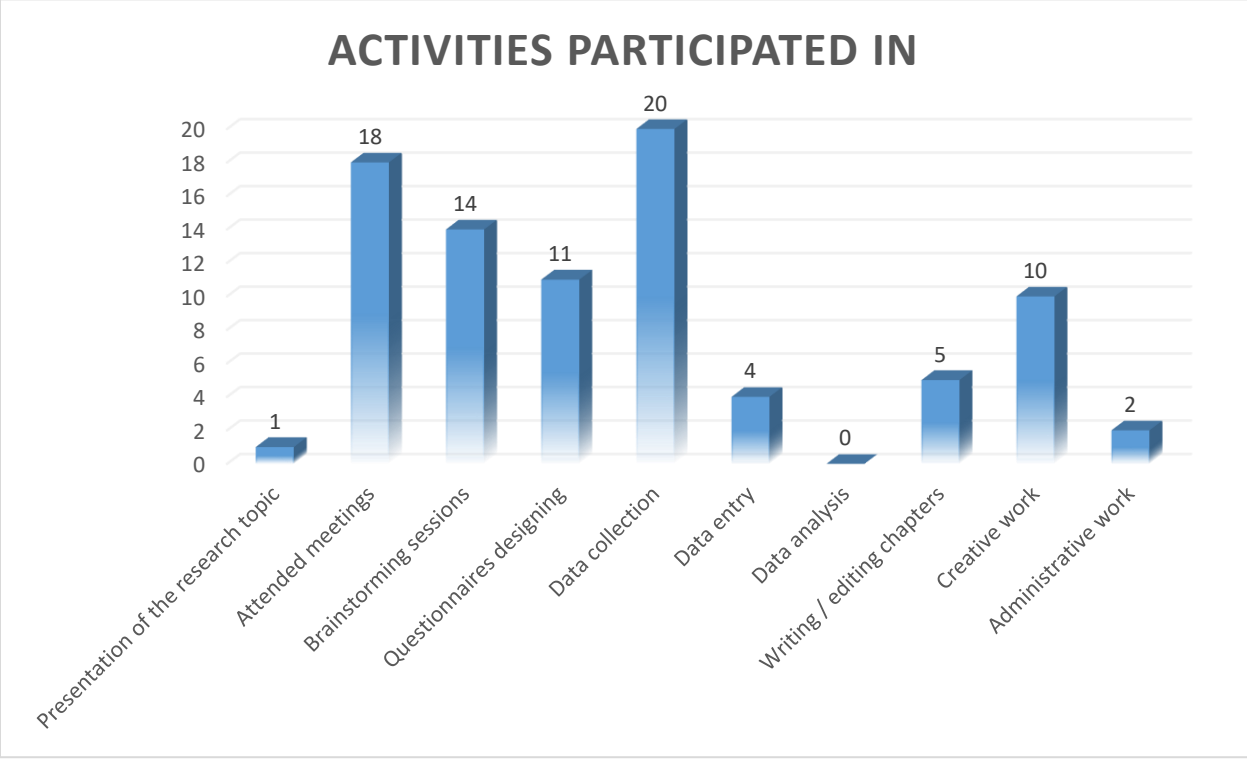
The students who participated in this novel experiment voluntarily, comprised of 64% undergraduate students and 36% post-graduate students. The experiment of learning research methodology practically had appealed to all. The proportion was uneven because the post-graduate students are less in number as compared to the number of undergraduate students in the college. In the group of 22 students, only 1 male student was there, and the remaining 21 were all females. The numbers say a lot about gender influence in the participation.

The data revealed that 64% had participated with 'complete involvement' in every process while 32% were 'partially involved' in the complete process. Their participation depended on which part of the research they found interesting or appealing. 4% had not shown much involvement besides contributing in the most obvious manner, the presence. However, the level of enthusiasm was equal among all of them.

Figure 1

It is very interesting to note that maximum number of participants had joined this research activity out of self-interest. Willingness to learn something beyond the traditional or set norms, exploring new ideas and executing them were the motivations behind this self-interest. Gaining valuable experience of a real-life project with the help of their mentors had been motivating these learners to venture into this experiment. Peer motivation is an important contributing factor as well, though often underemphasized in the Indian educational system at undergraduate level. Those participants who cited the reason of 'academic requirement' had a different goal to pursue, the higher education, where they would require or find such hands-on experience useful.

Figure 2



The data collection activity involved collecting information from numerous people, from various places. The idea of visiting or interacting with unknown people, gauging one's ability to communicate with them, exploring unchartered areas, was fascinating for these young researchers and hence data collection activity enthused more participants. All other activities, as can be seen from Figure 2, saw lesser participation. Given the age of these participants, as the degree of work became more and more intense or intellectual, the participants did not give up but remained till the end of the learning process and admitted, to have gained some priceless knowledge.

The qualitative analysis of their responses post research activity is interesting despite their involvement in various activities in varying degrees. When asked to gauge their responses on the following parameters (Table 1), on a Likert scale of 1 to 5, 1 being strongly disagree to 5 being strongly agree, the participants showed the least variation on peer learning that play an important role in learning. The 5-point Likert scale of (1) Strongly Disagree -> (2) Disagree -> (3) Can't say -> (4) Agree -> (5) Strongly Agree, showed that on an average the scale leaned more towards 'Agree' than 'Strongly Agree'. The data indicated mentors having a strong influence on the participants thus the participation largely depended on that factor.

Table 1

	Minimum	Maximum	Mean	Std. Deviation
Research activity was challenging	2	5	3.95	.844
Experience matched expectations	3	5	4.23	.752
Peer learning had a role	3	5	4.27	.631
Mentor's influence is crucial	2	5	4.68	.780

1. Hypothesis for testing the cross-table of the attributes, '*participation*' and '*research was challenging*':

   H_o: Participation did not depend on the fact that the research was challenging.

   H_1: Participation depended on the fact that the research was challenging.

   After analyzing the data for the above hypothesis using chi-square test, it shows that these attributes are statistically significant at 5% level of significance since null hypothesis H_o is rejected. The coefficient of association is also obtained and is found to be 63.1%, which is reasonably strong. It is obvious that if one participates in an activity wholeheartedly only then one realizes the challenges involved in it. No participation can then be equated to no challenges

faced. A new activity can be found challenging in variety of ways. No prior knowledge, no mental preparation to begin with, heavy dependency on the mentors to guide them, are some of the challenges that are prominent, among others.

2. Hypothesis for testing the cross-table of the attributes, '*participation*' and '*experience matched the expectations*':

   H_o: Participation did not have association with the 'experience matched the expectations'.

   H_1: Participation had association with the 'experience matched the expectations'.

   After analyzing the data for the above hypothesis, the attributes '*participation*' and '*experience matched the expectations*' are found to be statistically insignificant at 5% level of significance as H_o is accepted. When a participant is dealing with a new, unknown activity, there are no expectations set. The experience of the participation can teach a lot but due to unknown expectation, it often does not match.

3. Hypothesis for testing the cross-table of the attributes, '*participation*' and '*peer learning had a role*':

   H_o: Peer learning did not have a role to play in the participation in the research activity.

   H_1: Peer learning had a role to play in the participation in the research activity.

   After analyzing the data with chi-square test, the attributes '*participation*' and '*peer learning had a role*' are found to be statistically insignificant at 5% level of significance since the null hypothesis H_o is accepted. Participating due to peer pressure or peer motivation often is a part of 'herd' mentality among many students. But effective use of peer learning can bring in phenomenal change in the education scenario.

4. Hypothesis for testing the cross-table of the attributes, '*participation*' and '*mentor's crucial role*':

   H_o: The mentor's role was not crucial in participating in the research activity.

   H_1: The mentor's role was crucial in participating in the research activity.

   Though mentors often play an important role in the learning process of a student, it has been found that '*mentor's crucial role*' had no bearing on the '*participation*' and thus these two attributes are found to be statistically insignificant at 5% level of significance since Ho is accepted, though coefficient of association when calculated additionally, is nearly 51% indicating not necessarily strong association between these attributes. So, there is almost 50-50 chance of mentors playing the crucial role.

5. The hypothesis to test the significance of the ranks for the important learning factors is:

   H_o: The ranks of the important learning factors in the research activity are treated as the same.

H_1: The ranks of the important learning factors in the research activity are significantly different.

Table 2
Ranks of Important Learning Factors

	Mean Rank	Rank	Std. Deviation
Creativity	3.27	2	2.292
Communication	2.95	1	1.864
Interpersonal	3.73	3	2.120
Analytical	4.27	4	2.292
Perseverance	5.00	5	1.773
Organizational	5.36	6	1.916
Time Management	5.59	7	2.085
Technical	5.82	8	2.343

The data in Table 2, after being analyzed using Friedman's Q test, a non-parametric test, for the above-mentioned hypothesis, showed statistically significant result of the ranks of the learning points being treated as significantly different at 5% level of significance (*p-value* nearly 0) as null hypothesis H_o is rejected. The average of the ranks for various learning points revealed that '*communication*' took the top spot. This can easily be validated with maximum number of participants actively involved in the data collection activity. The activity mandated the participants to interact with unknown people. The communication skills were not only used but they were developed further and sharpened. Most people agree for communication to be the most important factor for success in life. Interestingly '*creativity*' took the second spot as many participants thought they could express themselves more freely, away from the pressure of performance judged by the marks and the ranks in the formal exams and structured syllabi. '*Interpersonal*' skills at third position indicates the use and emphasizes the importance of communication further. During the data collection, brainstorming sessions and meetings, the interpersonal skills were put to good use and were further enhanced or sharpened. '*Analytical*', '*Perseverance*', '*Time management*', '*Organizational*' and '*Technical*' skills got their due ranks but looking at these factors, it can be said that these skills were unevenly distributed among all the participants.

The most interesting and perhaps significant observation of the activity was the selection of the topic 'Spirituality' by the business school students.

PARTICIPANTS' EXPERIENCES ABOUT RESEARCH ACTIVITY

Participants recorded their experiences post research activity during the group interview. Some of the representative experiences in their own words appear below.

'It was indeed a great experience. I learnt many things not only about writing a research project but also the life skills. I had great experience talking to people while collecting the data. 'Writing' part of the project was challenging. It made us really think in a different way. We read many books on spirituality for this research which I wouldn't have read otherwise and it helped me on a personal level too.

All this, in fact the whole process helped us too to become 'a better human being'!'

'This experience was truly one which made me grow in many ways. It not only made me effective in presenting my perception but also understand and admire others' perspectives. Working in a diverse group with my peers holding different opinion and reaching to a conclusion considering everyone's points effectively, was something which I liked the most in this activity. The motivation, belief, support, encouragement and affable approach of my mentors and my peers was something which kept me going and contributing my best efforts in this project. It indeed was an experience which will truly help us in our careers not just because we came to know how research activity is conducted but because in this process we all developed some qualities which we will require in the corporate world. This project made us develop our own perception about the subject we choose. I am glad that I was a part of this project.'

'Joining Kalpak has been one of the best decisions I've ever made. Being a part of a research team is a lifetime experience. This journey, full of responsibilities, was like a rollercoaster ride. After great brainstorming sessions during summer, collecting samples in monsoon's extreme rains, and a hardcore data analysis and chapter writing in the cold, we finally reached to an end of a successful research project report. Visiting different locations with my fellow researchers was as much fun as going on an adventure with my friends. Working within the deadlines was something I wasn't very good at till I started working on this project. Not only that but I also became more organized and learnt how to manage my time. Becoming a team player was also one the best learnings I gain during this journey. This mission was a success because of my excellent research team and amazing mentors, who are a blessing in disguise. They supported and guided us to the very end. This research project is one of my best memories of BMCC. Kudos Team Kalpak!'

'The choice of topic was unique. Spirituality is not about praising God but about inner peace and spirit, is what I learnt from this activity.'

FINDINGS & DISCUSSION

The findings of the experiment are as follows:

- This experimental exercise, which was an activity of choice and not compulsion, taught the participants to persevere, to manage time, to deliver the assigned work, to be organized and to learn the required technical skills as well as the processes.
- In this experiment the Research Methodology and application of Statistics were the two major areas of study that the participants learned willingly and happily.
- Value education is the indirect outcome of this experiment as the choice of the research topic 'Spirituality' also affected many participants as it was experienced by them in their personal

lives and made them aware about the topic which would otherwise never have found a place in the business school curriculum.

- Perception of the group towards this activity was very encouraging and they appreciated the value of this important learning tool in their life experiences.
- Peer learning, mentors' motivation and self-directed learning had a combined significant impact.
- Choice based learning showed greater impact on their knowledge acquisition. Self-motivation, however, also played an important role in it.
- Priceless knowledge, personal development, intellectual growth, improved communication, developing skills like written and oral communication, interpersonal skills were either acquired or honed.
- An insignificant number of participants joined the research activity with 'herd' mentality which proved to be detrimental to their learning.

There have been rich dividends that have paid off by this experimental exercise and the objectives have been attained. This experiment developed the ability of self-directed learning. NEP 2020 policy would encourage the students to diagnose their own needs, objectives, learning resources and strategies. This experiment was an experience in collaborative learning that enriched the knowledge of the participants in family values, spirituality, respect for diversity and making them socially responsible citizens.

CONCLUSIONS

Educators need to innovate with new learning pedagogies on a continuous basis. If autonomy in learning is important then conditions must be created to foster it. The disparity between teachers and students is reduced if teachers become facilitators more than educators. Knowledge oriented learning has a long-lasting impact than marks-oriented learning. Continuous assessment is the key and should be done in points or grades rather than standard quantitative marking system.

Research based tool must be encouraged which can lead to development of an investigative attitude and this can further lead to more meaningful research endeavors in the later part of the student life. This would shift the focus from the traditional teaching alone to research-based learning.

Methodologies such as short lecture, simulation, role-playing, problem-based learning (PBL), cafeteria or self-service approach, learning based on research activity and so on might prove to be very useful in addressing the requirements of Generation Z learners and inculcating in them life skills such as respecting culture, traditions, and values, admiring and valuing nature, facing challenges, creative thinking, communication skills, leadership skills, working in teams and much more.

Educational institutes should be thinking of the multidimensional changes to be brought in, from right to education to right education, from forced learning to voluntary learning to make the learning process a truly engaging, enriching and enjoyable experience. This would prove to be a real game changer.

REFERENCES

Beard, C. M., Wilson, J. P. (2006). *Experiential Learning: A Best Practice Handbook for Educators and Trainers*. 127-150. United Kingdom: Kogan Page.

Cavero, O. B., Calvet, N. L. (2018). *New Pedagogical Challenges in the 21st Century: Contributions of Research in Education*. United Kingdom: IntechOpen.

Conole, G., Oliver, Martin & Dyke, Martin & Seale, Jane. (2004). *Mapping pedagogy and tools for effective learning design. Computers & Education*. 43. 10.1016/j.compedu.2003. 12.018.

Daniels, Kathy, Elliott, Caroline, Finley, Simon, Chapman, Colin (2019). *Learning and Teaching in Higher Education: Perspectives from a Business School*. Cheltenham, UK; Northampton, MA, USA: Edward Elgar Publishing.

Dickie Carolyn, Leighton Jay (2010). *Innovation in postgraduate teaching: mixed methods to enhance learning and learning about learning*, *Higher Education Research & Development*, 29:1, 29-43, DOI: 10.1080/07294360903421376.

Gutiérrez, D. C., Villegas, E.G. (2015). *The importance of teaching methodology in higher education: a critical look. Procedia - Social and Behavioral Sciences*. DOI: 10.1016/j.sbspro.2015.01.677

Petrella, J. K., & Jung, A. P. (2008). *Undergraduate Research: Importance, Benefits, and Challenges*. International Journal of Exercise Science, 1(3), 91–95.

Rogers, C. R. (1969). *Freedom to Learn*. Columbus, Ohio: Charles E. Merrill Publishing Company. 431.

Lunde, Joyce Povlacs, Wilhite, Myra S. (1996), *Innovative Teaching and Teaching Improvement*. *To Improve the Academy*. Published by DigitalCommons@University of Nebraska, Lincoln, 359.

Williams, C., Willans, A. (2018). *Freedom to Learn: Creating a Classroom Where Every Child Thrives*. Canada: New Society Publishers.

http://bhoomimagazine.org/2018/02/06/rabindranath-tagores-philosophy-on-indian-education/#:~:text=There%20are%20four%20fundamental%20principles,imparted%20in%20a%20natural%20surroundings

https://digitalcommons.unl.edu/podimproveacad/359

https://www.education.gov.in/sites/upload_files/mhrd/files/NEP_Final_English_0.pdf

https://www.education.gov.in/sites/upload_files/mhrd/files/document-reports/XIPlandocument_1.pdf

https://en.unesco.org/

https://www.sciencedirect.com/science/article/abs/pii/S0360131503001404#aep-abstract-id127

https://www.td.org/insights/what-is-cafeteria-learning

www.hindu.com/news/cities/delhi/know-your-cuppa-on-cafeteria-education/article7348370.ece

https://emerald.com/insight/content/doi/10.1108/jarhe-03-2014-0048/full/html

https://en.unesco.org/education/tlsf