IMPACT: International Journal of Research in Humanities, Arts and Literature (IMPACT: IJRHAL)
ISSN (P): 2347–4564; ISSN (E): 2321–8878
Vol. 9, Issue 8, Aug 2021, 39–50

'LEARNING BY DOING': A CASE OF A FLAGSHIP PROGRAMME OF AN ENVIRONMENT CLUB OF AN ENGINEERING COLLEGE FROM CENTRAL INDIA

Deepshikha Mehra

HOD, Department of Humanities, Shri Ramdeobaba College of Engineering and Management (RCOEM), Nagpur, India

Received: 17 Aug 2021 **Accepted:** 18 Aug 2021 **Published:** 23 Aug 2021

ABSTRACT

The concept of 'Learning by doing' was introduced with the emphasis that students will learn though "doing" an activity. Yet in the 21st century the traditional methods of passive and theoretical learning are still in focus at the school or higher education level. The same being the case with environment education where the current system of environment education is still leaving a gap between the intended objective of environmental education and the actual learning as well as the need for value and generic skills development of undergraduate engineers.

The objective of this paper is to bring out the fact that environment as a subject cannot be learnt effectively in the classroom using traditional methods. This paper presents an innovative 'learning by doing' activity taken up the students of an environment club of an engineering college of Central India and the impact of the activity on skill development, values and knowledge building. Seven parameters were used to measure the effectiveness of the activity. Data was collected from the primary source through a questionnaire and feedback reports.

The paper concludes that 'learning by doing' is an effective method to not only disseminate the knowledge about environment to engineering students but it is also an effective way to develop generic skills of the students which are very use fu l for effectively cracking the campus placement process. Such activities need to be incorporated more aggressively in the teaching learning process, a fact that apex bodies like AICTE are now endorsing for imparting environment and value education.

KEYWORDS: *Environment Education, Technical Institutions, Central India, 'Learning By Doing', Skill Development, Knowledge Development*

INTRODUCTION

The concept of 'Learning by doing' was introduced in 1913 by John Dewey, where his emphasis was that students will learn though "doing" an activity by engaging with the material and not through the lecture and rote methods of learning (anonymous, 2020a).Educators have proposed many examples of active teaching and learning strategies based on a constructivist view of learning. Constructivism suggests that people build knowledge by acting on the world around them and reflecting on their experiences (Write, *et. al.* (2017).The expected outcome of 'leaning by doing' was not only in terms of knowledge but also its other direct and indirect benefits such asindividuals who become resilient and self-aware, scholars with in-depth knowledge, citizens that follow ethical principles, individuals that become creative and inquisitive (Ark, 2018).Alexandar and Poyyamoli (2014) have cited various studies that have concluded that traditional class room lecture based teaching-learning approach are less effective in facilitating

among students retention of information, ability to become self-learners, and develop skills in transferring knowledge and problem solving.

Even though John Dewey introduced the concept at the turn of the 20th century, its relevance has slowly grown in the contemporary world where many of the technical subjects now have been introduced as practicals at the school level. Yet this student-centric learning approach is treated as a new approach (Scott, 2020) with traditional methods of passive and theoretical learning still in focus at the school or higher education level. This is so because some of the subjects do not have the 'doing devices' (Schank, 1995). Schank (1995) also feels that in many cases, it is not clearly defined what *doing* might mean in terms of a given subject and how to implement the same in a realistic way in a classroom setting. However, knowledge about environment and its conservation can only be effectively imparted by 'doing' and it has all the required 'doing devices'. Environment education will be less effective if it's taught through traditional teaching methods through curriculum as compared to active teaching learning approach (Alexandar and Poyyamoli, 2014). The same applies for skill development whether technical or generic.

Environment education is considered to be a lifelong process (Siddique and Khan, 2015) that not only provides lifelong lessons and values but also provides the skills required to work individually and collectively to deal with environmental issues. Environment education was first given recognition at the Stockholm Conference on Human Environment organized by UNESCO in 1972 followed by the launching of its IEEP or the international environmental education programme (Acharya 2016). The Supreme Court of India made Environment education compulsory in schools and colleges in 1991. In order to make environment education teaching effective National Education for Teacher Education (NCTE) in India recommended that it should be made a mandatory course for all teachers (Dhull and Varma, 2017).

Higher Educational Institutions (HEIs) have introduced environmental education and Education for Sustainable Development (ESD) into their curriculum in India. Technical educational institutions have done so too with some that have introduced degrees in environmental engineering with a large focus on the technical aspects of environment. Despite this, AICTE, the apex body of technical education in India, has been stressing rigorously about development of values of environment conservation and has brought out its new environment policy in 2020.It has introduced subjects such as Universal Human Values (anonymous, 2018) so as to teach students, among other aspects, to develop harmony with nature. The approach that AICTE has taken up is indicative of a gap between the intended objective of environmental education and the actual learning which has to focus on development of value for environmental conservation and sustainability. One of the statements of the policy (Anonymous, 2020b), reflects this when it says "to help building up a society that has conservation-orientated attitude and exists in harmony with nature". Another important aspect that technical institutions have always focused on is development of values and generic skills in undergraduate engineers so that they can work better in teams, in particular, and the society, at large. However, traditional methods of teaching and learning still find this aspect challenging to achieve.

The objective of this paper is to bring out the fact that environment as a subject cannot be learnt effectively in the classroom using traditional methods. The non-traditional methods of 'learning by doing' have larger ramifications not only on knowledge building but other aspects of a student's values and skills too which a standard classroom teaching cannot achieve effectively. This paper presents an innovative activity taken up by the students of an environment club and the impact of the activity on skill development, values and knowledge building along with its larger ramifications on the

participating students. The significance of this impact in case of a technical institution is more as these activities were carried among future technocrats who would be responsible for developing future technologies, the sustainable nature of which is of utmost importance.

The paper will begin by presenting the profile of the environment club which will then be followed by the case of a flagship event undertaken by the club and the outcome of this activity on various aspects of learning. The paper will conclude with the lessons learnt.

CASE STUDY

REEF that stands for Shri Ramdeobaba College Engineers for Environment Forum is the environment club of RCOEM. REEF was established on 25th January 2012 with the moto of 'engineers with a mission towards sustainable environment' and four objectives, which are:

- To create awareness and take up various activities for the conservation of various aspects of the environment.
- To establish active association with various organizations working for environmental conservation.
- To take up various activities for underprivileged children and in the process initiate and ingrain the value of environmental conservation.
- To encourage the development and execution of ideas on role of technology for protection of environment.

In its nine years of existence, REEF has carried out various activities on environment conservation and awareness building (http://www.rknec.edu/Students/REEF.aspx).In 2015 it won the international Earthian Award by Wipro.

One of the flagship events of REEF has been Global Tiger Day that is conducted on 29th July, each year. This week-long event in 2013, 2014, and 2015 turned into a month long event from 2016-17 for school students. Since this was a month long event with over an additional month of planning, the exposure that the students got for developing life-long skills was the most, thus making the event significant. The other yearlong activities had their own supplementary and significant role to play.GTD from 2015-16 became a research and activity based event where participating schools were assigned tasks that were time bound. The objective of the tasks centred around creation of life-long learning skills, values and knowledge which would help the school students to continue taking up eco-friendly activities in their school as well as in their day-to-day dealings.

METHODS

This paper covers Global Tiger day event organized by REEF from 2013-14 to 2018-19 (the years the author was the mentor of the club) which saw a significant shift in the methods and quality of methods used for the effectiveness of the event. The parameters used for judging the effectiveness of Global Tiger Day event as a 'Learning by doing' activity were in the form of the following outcomes:

- Knowledge, value, and skill development of students.
- Increased number of participating schools,
- Consistent participation of schools

- Constant innovation in GTD activities
- Establishment of environment club at school level
- Continuous engagement
- Development of future activities
- **Data Collection:**

The Data for this Paper was Collected through the Primary Source using the Following Methods

- A feedback was taken from REEF students each year to understand their difference in learning through the activities conducted by REEF. A survey was conducted from May to July 2020 of REEF alumni to understand how being a part of REEF has had an impact on them. 82 percent of all those students who were a part of REEF from 2012 to 2019 responded to this survey. Some data from the survey is used for this paper to measure the first parameter.
- For the remaining parameters, the data comes from the information when the events took place in each of these years. The author being the founder and mentor faculty of REEF was witness and participant of the process from day one to D-day of the Global Tiger Day events during these years. The event was recorded each year in the form of the annual report of the club (http://www.rknec.edu/Students/REEF.aspx#) as well as the REEF's social media platforms.
- A feedback of the mentor teachers of the participating schools was also taken to understand the impact of GTD event on students who participated. Some of the school students also sent their feedback.
- All the feedbacks have been quoted verbatim as part of standard practice in qualitative social research (Corden and Sainsbury, 2006).

RESULTS

Based on the seven parameters that were evaluated to judge the effectiveness of GTD the environment outreach programme, the following outcomes are presented:

Knowledge, Value, and Skill Development of Students

- **Knowledge and Value Development**

One of the outcomes of events like GTD on REEF student members and students of participating schools was environment knowledge building.

REEF students had to gain as well update their knowledge about Tigers in particular and environment in general so that they are able to guide the school students during the GTD events. When asked about the knowledge that they gained on environment, 69 % very strongly believed that their years as a member of REEF including GTD added to their knowledge on environment, while 24 % strongly believed about the same. Seven percent felt that it somewhat added to their knowledge. When this knowledge building was compared to the mandatory Environment Science classroom course in the college, 66.66 % respondents who had also undergone the course work reported that the courses added no value or little value to their environment knowledge. 17.5 % found the Environment Science course very useful. In fact as part of their

course work, some of the REEF students presented the outcome of the projects that they had undertaken in REEF like building the biodiversity register, etc

53 % of the REEF members surveyed reported that the knowledge of environment helped them during the placement or job interviews. 96 % mentioned that they have developed the value of environment conservation and continue to follow environment friendly activities in their day to day life as it has become a part of their habit.

"GTD helped me gather knowledge about various aspects from understanding crux of wildlife conservation to managing and planning an event. It made me understand why environment conservation is significant and why we humans are connected to the environment. Me as an individual got an exposure towards nature and aspects of environment"

Atharva Mangrulkar, IT (REEF member from 2015 to 2018)

"In all the GTD events, I learnt how our day-to-day actions, directly and indirectly, affect the tiger population and what can be done to conserve them. We tried various mediums like street plays, social media, radio, signature drives and much more to reach people and spread the message across. All this experience in GTD has played a key role in making me an environmentally conscious citizen".

Aaditya Somani, EN (REEF member from 2012 to 2016 and continued as alumni advisor till 2019)

"It helped gain a perspective towards environment. The current scenario, diversity of my surroundings, I became aware of many things. It has helped me sensitize towards environment. Which is basically the concept of organization I'm working with, integrating technology with nature".

Rohit Hazare, (REEF member 2014-2018)

- **Skill Development**

One of the by-products of handling and conducting events like GTD has been development and polishing of generic skills such as team spirit, persuasive/convincing skills, negotiation skills, public speaking, writing and listening skills, adaptability, time management, leadership skills, objective thinking, analytical and critical thinking which eventually was a significant advantage during their placements or further studies. 98.56% of the respondents felt that REEF activities like GTD helped develop or polish their generic skills. 69% of these responded that the skill development through REEF helped them in the placement process. The following section presents experiences of some of the REEF students shared about REEF in general and GTD in particular. These verbatium quotes of the respondents were shared as part of the survey conducted in 2020 as well as the yearly feedback that the mentor faculty took:

"I learn time management and balance with academics and extra curricula activities. In GTD, I got to know that I have convincing skill which I do not know before…As I'm tester now I need to find out bugs/mistake in my application and that require more observation skill which I learnt in REEF specially in jungle". Vishakha Jaiswal EN (REEF member - 2013 to 2016 and alumni advisor till 2019).

"Working in REEF involved interacting and working with people from different backgrounds ranging from kids to colleagues to experts to teachers and common people. So it helped develop people skills like team work, discipline and respect for others. These skills helped me adjust easily in corporate job". Purva Waldey, IT, (REEF member - 2015-2018)

"The skill of taking initiative that I learnt while my time with REEF gave me a courage to take a few initiative to improve client's experience". Pratik Gupta, (2012-2015).

"I got a chance to live my vivid dream of RJing through hosting the events, going live on AIR, enhancing my communication skills and to see the world through tinted glass, harmony in mayhem. I got close to nature, closer to myself. I had never thought I could be writing blogs, editing them and managing people. Most of the people in college know me due to REEF. It's not just an organization, it's a feeling and it's my identity". Shruti Rathi, EC(2016 to 2018).

"Interviewer asked me about features of Indian Roller and I was able to answer it because of REEF. Interviewer was also a bird watcher". Chitra Dangra, IT, (2015-2018)

"While I was in my final round of interview i.e HR interview... One question was asked to me about what are the things which you do other than student in engineering field, where I confidently told about all the activities I was part of whole in REEF and the interviewer was quite impressed with it, even when I was able to speak fluently cause of the interaction and exposure to strangers which helped me to sharpen my speaking skills". Abhisekh Paliwal, EN, (2016-2018).

"I never took up birding before REEF. It built up as a hobby during my time in REEF which has now led me to the point where I'm currently working on my Master's thesis on Nightjars. The knowledge that I received in REEF has definitely been a part of the process." Mayuri Kotian, IT, (2014-2018)

While selecting students through campus placements Jio selected a REEF student due to the ethical practices she followed in REEF for the blogs that she wrote for the club. "The environment blogs I wrote on Reeflog were helpful for me to stand out in the eyes of recruiter and get selected. He was impressed and curious to know more", Apurva Bhiwapur, EC, (2013-2016). "My JUST hobby of Photography became SERIOUS Hobby only because of REEF. REEF provided me the platform and gave me every opportunity to develop as an individual nd polishing my skills". (Atharva Mangrulkar). This helped him clear the first round of MuSigma selection which was based on creative use of photography and videography skills that he had developed while making research based videos for REEF's social media platforms. He was selected by this dream company.

Clearing the GD and PI rounds of Accenture, Capgemini, and Think & Learn Pvt. Ltd. due to constant brainstorming and GD sessions of REEF on environmental issues gave Aaditya the edge during the placement process. "It definitely helped me. I was placed in 3 companies; all the placement process had a 'Group Discussion' as one of the rounds. My skills developed in REEF helped me to nail all of them. During the interview process, I was confident to face the interviewer because I had recruited students in REEF. Also, I was in a position to justify all my skills with appropriate example during the interview which was a clear winner."(Aaditya Somani).

- **Impact on Participating School Students**

Mentor faculties and students of participating schools shared their experiences of GTD which indicates about the impact of GTD on their knowledge and skill development. Some of these mentor faculties and students participated year after year.

"I was fortunate enough to get into the REEF Family when i was in 8th grade and Again in 9th grade…….I personally loved REEF because it gave wings to my imagination and a fuel to my curiosity. In that, I learnt a lot about India and its wildlife. Infact, day by day, it got soo interesting that I started the birdwatching, started knowing the animals

and species in India which I might have not studied. Also it taught me many qualities like leadership ones, the importance of striking the balance in the team, the management of tasks and planning accordingly, etc! REEF had rules of course but inspite of them, we had total freedom to become the 'Nature's Brigade'. REEF brought us closer to Nature, REEF made us serve the nature! The first year, i enjoyed it so much that in the next term, i was myself curious about it and when my teachers informed me abt it, without any hesitation, i got into it straight! It taught me one of the main things that success is a combined effort and for that, you need to trust the partners who are working with you because the success gets distributed and so is the thirst for being the best!

REEF is a competition where every team compete with each other for the brightest plans for the nature! REEF is the most enjoyable experience which not only gives you immense knowledge but also helps you explore yourself in dimensions you never knew! If given information about it, I would register in it straight away and so would every student who was a part of this REEf family unanimously! REEF is a 'Nature nurturing movement in the youths' in a nutshell with excellent volunteers for it! And given a chance today, I feel highly privileged to give words to my immense love for this competition which built up so many qualities in me and taught me very valuable and important lessons. Also i take immense pleasure in thanking RCOEM for supporting this movement and for giving us a chance to get out of the four walls and study the nature, study with nature!

United for the cause of betterment, together!

Sincerely yours,"

Sanskruti Jawade from T.B.R.A.N Mundle School, Nagpur (participant of GTD event)

"GTD event by REEF was a fun and fulfilling experience for everyone with lot of learning and fun and at the same time a huge awareness spreading opportunity. The students not only got to know a lot about Tigers but about the whole ecosystem and their interdependency on nature quite well and as they quote 'a learning of lifetime'. The students became more comfortable working in groups, their public speaking capacities increased and so did logical thinking because of a huge platter of tasks". Gunaditya Patil, student participant from School of Scholars, Wanadonri branch

"Celebrating tiger day brought awareness about wildlife and nature. The different competitions enthused them with creativity. Meeting students of different boards helped to bring out the best. Being a winner build those to perform better n come up with more novel ideas. The students learnt coordination cooperation n spirit of team work. Love for their peers and guides were also present. The organisers Reef came up with new ideas to contain the interest n the spirit of competition. The plant and tree count was appreciated by our school management as it gave vital statistics about our flora. Students loved identifying birds and animals in the campus. Yes the student mentors were friendly n helpful too. Students enjoyed jungle treks n visit to Rajbhawan too". Mrs. Deepa Ghoshal, Mentor Faculty from Mt. Carmel – GTD participating school

"Better organizational skills, team work, problem solving, investigative mind, observation skills, innovative and critical thinking……Apart from this list, this project also helped the students realise how the tiger is a crucial and pivotal aspect of our ecosystem. It also made us realise that it is our first and foremost duty to revive the vanishing tiger population and save them from extinction. Truly, it was a very memorable and we could never have got such an amazing opportunity if it wasn't for REEF experience". Mrs. Bhakti Bobde, Mentor faculty of eco club of Center Point School, Amaravti Bypass

"Reef taught us various things like how one can conserve trees and why tigers are so important in the food cycle, why their conservation is important, also made the students realize about the various flora & fauna around us that we barely know about, & about the conservation of wildlife for our own benefit. Not only students but we teachers were equally excited for the event. REEF helped us develop various skills like bird watching, identifying birds by their chirps, and also qualities like creativity, innovating and exploring new things, & making the best out of waste. We'll always be thankful to the whole team of REEF for this unique initiative and the hats off for the excellent teamwork n very well execution of the event. Congratulations team REEF. Will remember life time." Mrs. Shilpa Dongre, Mentor faculty of eco club of Mundle School, GTD

Increased Number of Participating Schools

The number of schools that participated in GTD in its most challenging "avatar" in 2015-16 was six that nearly doubled in 2018-19 to eleven. This was an indication of the growing brand of REEF and GTD, in other words its effectiveness in achieving its intended objective. From 2015 to 2018, 18 schools participated in the research and activity based GTD event.

Consistent Participation of Schools

Some of the schools that had participated in GTD 2015-16 continued to do so till 2018-19. Despite the event being tough and demanding a lot of time, energy, innovation and creativity of the faculty mentors and the school students, these schools continued to take part. This was an indication of the positive impact that the schools also felt on their participating students. In six years of GTD, REEF was engaged with 43 schools with an intensive involvement of 18 participating school teams from 2015-2018 consisting of 216 students. Six out of 18 schools consistently participated from 2015 to 2018, despite not winning the main trophy or segment prizes each year. Another 6 schools participated for two consecutive years out of 4 years of GTD's research based event. So, for 50 % of the research based events of GTD, 66.66% schools were consistent participants.

Constant Innovation in GTD Activities

Each year the nature of the GTD event changed which taught innovation and resourcefulness to REEF students as well the participating school students. In 2013 the activities were restricted to the RCOEM college campus and school students were not involved. These were awareness activities like guest lectures; signing of petition to save the tiger, talk on All India Radio, nature walk in Raj Bhavan, inter-departmental debates. REEF was new as an environment club, thus its own students needed the awareness.

In 2014, REEF stepped out of the campus and conducted a signature campaign on tiger conservation in 25 schools of Nagpur city. This campaign was used by REEFians to speak to the school children in their morning school assembly about the need to save the tiger and its long terms impact on humans. The same campaign was also done in the busy malls of the city.

In 2015, REEF took a bigger step and created an eight-day event which took a month before that to plan along with effort to make presentations by REEF students before the schools Principals so that schools submit their consent to participate. This GTD event was called as "How Green is your campus? Challenge". A rule book was designed for the schools. The event was divided into 3 segments - -"Know Your Campus", "Tiger's Tale", and "The Green Idea". The schools had to then present the findings of their research/task on 29thJuly 2015 on RCOEM campus.

In 2016, the event continued to be called "How Green is your campus? Challenge" but was divided in six segments, each of them were given a Sanskrit name – Vrukshawali (creating a mini herbarium), Khagajidnyasa (bird watching competition), Paryavarana Mapanam (ecological footprint of the school on parameters given by REEF), Haritaprasaar (to create an environment club in the school and post relevant videos and material on environment club's FB page), Swanubhuti (when students of each schools presented on College campus on their learnings from the tasks given during the event) and Praadushyam (each school performed various acts such as dance, skits, songs, and plays in front of an audience on College campus)

In 2017 the nature of the event changed and so did its name. It was titled as "How Green Is Your Campus? - Challenges beyond Boundaries". All the activities were divided into two categories-'within boundary' and 'beyond boundary'. Both of the categories had some compulsory and some optional activities. Activities like making a wall art, organising a competition, performing a cultural act, making a digital herbarium, making an awareness video etc. were included under 'within boundary' which is within the school campus. And tasks like cleaning campaign, tiger rally, awareness in municipal schools, and research and bird race were included under 'beyond boundary' which is the school students had to step out of their campus. Like REEF slowly moved out of the campus to spread awareness about tigers and environment, the aim was also to ask the participating schools to move out of their school boundaries and spread awareness. An exhibition, 'Tigervaganza' was also organized on RCOEM campus where students presented their creatives made out of waste.

In 2018, the month-long event was called "How Green is your campus: An Insight into tiger Reserve". Along with multiple online and offline tasks, the key task was to make 3D models of the tiger reserve of India assigned to each school along with a logo of each tiger reserve. The same model was exhibited in the respective schools as well RCOEM campus where the Conservator of Forests of three tiger reserves of Nagpur judged the models. The conditions for model making was that only recycled material had to be used and each school was asked to present the cost involved in making the models.

Establishment of Environment Club at School Level

One of the positive outcomes of GTD was that 18 schools established environment clubs in their schools too. Establishment of an environment club was one of the compulsory tasks of the GTD events thus schools had to create one to participate. Some of these environment clubs continue to work on environment conservation activities as reported by their mentor faculty.

"Tree plantations and worked to clean the Sonegaon lake. Regularly the std ten and nine students conduct awareness programmes in school like old newspapers made into bags and supplied to neighbourhood shops."

Mrs. Deepa Ghoshal, Mentor Faculty from Mt. Carmel – GTD participating school

"We are working to reduce garbage in school. Reduce the use of plastic"Mrs. Erena, BVM, Trimuti Nagar branch

"Yes ma'am we continued with the activity of bird watching for 1 to 8 students of science club at our school. Also as a part of art activity they have made posters on save tiger. Our school still tries to avoid use of plastic. Even paper is used minimum and most communication with parents is also online not just this year during pandemic". Mrs. Bhakti Bobde, Mentor faculty of eco club of Center Point School, Amaravti Bypass

Continuous Engagement Established

REEF continued to work with the environment club of some of the schools even after GTD was over. E.g. bird watching sessions were conducted each year by REEF for all the members of science/environment club of Centre Point School, Dhabha. Additionally, REEF in collaboration with the Forest Dept., took all the participating students of GTD to Bor and Pench Tiger Reserves for an awareness trip.

Development of Future Activities

The associations established with the experts who came as judges for the GTD events turned out to be long lasting which led to many suggestions and guidance to REEF students to take up more environment conservation activities. As a result of this REEF students of EN (2012-2016 batches) developed the concept of a wireless Camera Trap as part of their final year project. Similarly the 2015-2019 batches of REEF students from IT worked on their final year project of identifying bird species through images by developing a virtual platform for the same. As guided by the experts, REEF also took up the concept of "Season Watch" and applied it to the flora and avifauna of the College campus.

CONCLUSIONS

REEF's six years of experience with GTD in particular and the experiences from its eight years of existence in general has brought out the fact that 'learning by doing' is an effective method to not only disseminate the knowledge and values of environment conservation to engineering students but it is also an effective way to develop generic skills of the students so that they can effectively crack the campus placement process. Activities such as GTD also have a ripple effect in terms of future learnings as well as positive impact on the society as the participating students pick up eco-friendly values which in today's times of serious repercussions of climate change are much needed.

Thus, 'learning by doing' as a method of imparting knowledge, values and skills should be taken up especially in technical institutions. AICTE approach towards environment by introducing values of nature conservation as part of their Universal Human Values course as well as the new Environment policy (anonymous, 2020b) are clear endorsements of the methods followed by colleges like RCOEM through their environment clubs to impart environment and value education.

REFERENCES

1. *Anonymous (2020a), 'learning by doing: what you need to know'. In: The learning Curve, The Learning Agency Lab. 2020aAvailable: https://www.the-learning-agency-lab.com/the-learning-curve/learning-by-doing.*
2. *Anonymous, AICTE Environment Policy. 2020b. Available: https://www.aicte-india.org/sites/default/files/Enviroment_Policy.pdf.*
3. *Anonymous, "Human Values in the AICTE Model Curriculum for Engineering 2018", 2018. Available: https://fdp-si.aicte-india.org/download/ModelCurriculum/AICTE%20Model%20Curriculum%20UHV%20Courses.pdf.*
4. *A Corden and R. Sainsbury, "Using Verbatim Quotations in Reporting Qualitative Social Research: The views of research users, Social Policy Research Unit", University of York, ISBN 978-1-871713-38-1, 2006. Available: https://www.york.ac.uk/inst/spru/pubs/pdf/verbusers.pdf.*

5. *A.K. Acharva, "Environmental Education: Role of Colleges and Universities", Scholarly Research Journal for Interdisciplinary studies, 26(4), 3028-3041, ISSN 2278-8808, 2016.Available: http://www.srjis.com/pages/pdfFiles/148094696942.%20AMULYA%20ACHARYA.pdf*

6. *Dr. Poonam Dhull and Gunjan Verma, "Environmental education in teacher education and challenges", International Journal of Academic Research and Development, ISSN: 2455-4197, Volume 2; Issue 5; September 2017; Page No. 84-87.*

7. *L.M. Scott,"Engaging Students' Learning in the Built Environment Through Active Learning". In Mostafa S and Rahnamayiezekavat P (eds.). 'Claiming Identity Through Redefined Teaching in Construction Programs', pages 1-25, ISBN9781522584520, IGI Global Publisher, 2020. Available: https://www.igi-global.com/chapter/engaging-students-learning-in-the-built-environment-through-active-learning/234857.*

8. *M.C. Wright, I. Bergom, and T. Bartholomew, "Decreased class size, increased active learning? Intended and enacted teaching strategies in smaller classes". Active Learning in Higher Education, 20(1): 51-62, 2017. Available at: https://journals.sagepub.com/doi/full/10.1177/1469787417735607.*

9. *R.C. Schank, "What We Learn When We Learn by Doing". Technical Report No. 60, Institute for the Learning Sciences Northwestern University, 1995. Available: http://www.cogprints.org/637/1/LearnbyDoing_Schank.html.*

10. *R. Alexandar and G. Poyyamoli, "The effectiveness of environmental education for sustainable development based on active teaching and learning at high school level-a case study from Puducherry and Cuddalore regions, India", Journal of Sustainability Education, 7, December 2014. ISSN: 2151-7452, 2014. Available: http://www.jsedimensions.org/wordpress/wp-content/uploads/2014/12/Alexandar-Poyyamoli-JSE-Vol-7-Dec2014.pdf*

11. *Tauseef Z. Siddiqui and Anna Khan "Environment Education: An Indian Perspective", Research Journal of Chemical Sciences, ISSN 2231-606X, 5(1), 1-6, 2015. Available: http://www.isca.in/rjcs/Archives/v5/i1/1.ISCA-RJCS-2014-179.pdf.*

12. *T.V. Ark, "Learning by Doing: 6 Benefits of Experiential Learning", 2018.Available: https://www.linkedin.com/pulse/learning-doing-6-benefits-experiential-tom-vander-ark/.*