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Examining the Effectiveness of Virtual Training under the Kirkpatrick Model: A Post-COVID Study

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ABSTRACT

Teaching and training through online tools were used by most Higher Education Institute (HEIs) worldwide during COVID-19 to cater to the needs of students who stay far away from educational institutions. After the pandemic, the virtual model of education and training became a trend. The students and teachers are also more used to this trend which is giving more opportunities to both learners and instructors. One of the notable benefits of virtual teaching and learning platform is that it provides a flexible environment to gain knowledge, skills, and attitude simultaneously along with formal off-line education. From the earlier studies it is found that the majority of studies have focused on traditional, offline training methods and only a few studies have focused on virtual training. Therefore, the present study examined the effectiveness of virtual training using the Kirkpatrick model. For this purpose, a research instrument based on the Kirkpatrick model was constructed and distributed among the UG and PG students in Mangalore City. A total of 143 responses were collected, of which 132 were completed responses and all of them were considered for analysis. Descriptive statistics and one sample t-test are employed to analyse and interpret the data. The findings revealed that virtual training is more effective compared to traditional and offline training methods. Henceforth, the training and education provided through virtual platforms made significant contributions to the employability of youngsters.

Keywords: Evaluation; Information technology; Kirkpatrick; Online training; Post-COVID; Training effectiveness

1. Introduction

Teaching and training through online tools were

used by most of the (HEIs) Higher Education Institute worldwide during COVID-19 to cater to the needs of students who stay far away from universi-

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ties/colleges. After the pandemic, the virtual model of education and training became a trend. The students and teachers are also more used to this trend which is giving more opportunities to both learners and instructors. One of the notable benefits of a virtual teaching and learning platform is that it provides a flexible environment to gain knowledge, skills, and attitude simultaneously along with formal off-line education.

On the other hand, the efficiency of HR functions including training is more observed during the pandemic period and if the organizations adopt virtual techniques to teach and train their prospective learners and employees, the firm may enjoy more competitive advantage^[1]. In the same way, educational organizations are also required to integrate technology to enhance their competitive advantage and that directly influences the employability of outgoing UG and PG students^[2,3]. In this paper, an attempt has been made to assess the perceived effectiveness of virtual training and education among outgoing graduates under the Kirkpatrick model.

2. Literature review

To determine the research gap, an extensive literature survey has been made through an online search environment by using various keywords. A total of 260 research articles have been found on predetermined keywords of which 87 were more relevant to the current title. The important earlier literature and their summaries are presented below.

According to Malik et al.^[4], training is essential to establishing a two-handed context for implementing various innovations in the healthcare sectors, particularly in poor nations. According to Nyathi^[5], the HR (Human Resource) function becomes a strategic partner to assist firms in taking strategic initiatives, concentrating on the tasks at hand, and adding value. Ishaq et al.^[6] centered their study on the push factors for employee economic development as well as cultural variations in the links between HRM-CSR (Human Resource Management-Corporate Social Responsibility) performances. The empirical study on the “HRM and performance” disputes over the

previous ten years^[7], and “demonstrates evidence that HRM does matter”^[8-11]. Sadly, the connections are frequent.

According to Priyashantha^[12], the adoption of E-HRM (Electronic Human Resource Management) and the outcomes it produces are influenced by the aim, perceived effectiveness, effort and performance expectations, social influence, and support for communication technology. Nyathi^[5] put up an integrated model that improves the utilization of E-HRM and its effects. The six dimensions of the dark side of HRM, according to Bhel et al.^[13], can be investigated and used in future studies with the PROMPT (Proactive Recruitment of Multi-cultural Professionals for Tomorrow) model. According to Kurni et al.^[14], training and development had a substantial impact on the organization’s performance, productivity, and financial return. According to Bondarouk et al.^[15], the term “E-HRM” refers to the combination of HRM and IT (Information Technology) that is intended to benefit specific managers and employees.

By analyzing the perceptions of a split sample of senior managers in Singapore, Zhang et al.^[16] concluded that there was a vacuum in the research. It highlights an intriguing disconnect between their claims and the realities of their performance management systems and offers ideas for future investigation. In their work, Deaton^[17] drew on critical realism philosophy to explain precisely why the scientific’ approach favours under-theorization and lacks explanatory power and why the proposed solution is ineffective.

HRM integration is both necessary and somewhat sufficient for HRM performance^[18]. To create a systems perspective on comparative human resource management. Mear et al. and James^[19,20] identified a set of high-performance HRM practices that are beneficial for innovation and motivation that are based on the subsidiarity principle of institutional design and place a strong emphasis on education and training. These practices enable businesses to give employees more individual responsibility and decision-making authority, increasing employee motivation and productivity. Garengo et al.^[21] noted four

themes and an increase in the number of publications on human resource management in performance measurement and management. According to Abdul et al. [22], there are both variations and similarities among the public agencies' adoption of HRM strategies that support innovation.

According to Shafaei et al. [23], green HRM management positively correlates with an organization's environmental performance at the organizational level. Organizational environmental culture is also positively associated with green HRM. Employee turnover, as defined by Marler et al. [24], is equally important because it enables the integration of the numerous themes found. According to Ludwikowska [25], the better the correlation between servant leadership and job performance, the more employee-focused human resource policies there are. According to Sabiu et al. [26], the EC can mediate a performance appraisal. According to Iqbal et al. [27], AM, lean manufacturing, and supporting management and infrastructure strategies all improve a company's performance. Managers should continuously adjust the organizational context as the business advances in the CI learning process [28].

The novel HRM scale is internally consistent and distinct from traditional HRM indicators [29]. The HRM bundles, HRM practices, and HRM activities within show how a gentler approach to managing employees can be applied during a crisis [30]. Al-Alawi et al. [31] suggest a model for DT adoption based on seven elements that were taken from the literature review. Three social e-HRM configurations discriminate between various goals for employing SM in HRM: non-use, relational use, and extended relational use [32]. Effective HRC can be supported by HRM through a combination of thorough education and training, empowerment, and incentives supported by a suitable HR system [33].

Online data represent a naturally occurring source of behavioural data collected in real time without the interference of researchers or the effects of retrospective bias [34]. According to Benuyenah et al. [35], for HR courses to be relevant, they must put a greater emphasis on professional work-based abilities that

are relevant to the modern workplace and restructure exam formats to reflect the competencies needed for the HR profession. The course appeared to have positive effects on student engagement, learner autonomy, connection of learning to real-world situations, and flexibility [36].

According to Przytuła et al. [37], HR procedures are significantly impacted by Industry 4.0. Although HRMS has been linked to product innovation, more proof is required to assist process innovation [38]. An analysis of the available HR literature for SMEs by Ghassemieh et al. [39] presents a decision-making framework to assist SMEs in selecting a cost-effective HR strategy, outlining a variety of possibilities from hiring the HR department to outsourcing and electronic HR (EHR). Amorin et al. [40] found that the attitude of HR professionals was receptive, responding to organizational leadership with minimal commitment to the changing circumstances. According to Qamar et al. [41], developing AI-based technology for use in HR operations is necessary.

Technology is the giant today in all the corner points of life of the human being. Many organizations moving from traditional training towards virtual training because of their fruitfulness in enhancing the overall efficiency and competitiveness of students [42]. A study by Guimond et al. [43] highlighted the challenges faced by higher education institutes during placement programs due to the lack of virtual training and capability of students. Another study by Anastasiu et al. [44] stressed the significance of bridging the gap between academic curricula and market needs and they also suggested that virtual techniques are more suitable to develop the same. From the literature review, it is found that the majority of studies have focused on offline and online training during the non-pandemic period, therefore, the present study is intended to analyse the *Effectiveness of Virtual Training in the post-COVID-19 period Using the Kirkpatrick Model*.

3. Theoretical background

Virtual platform plays a prominent role in the effectiveness of virtual training programs during the

pandemic [45]. Online learning support applications such as the use of teleconferences or video call applications, such as WhatsApp, Zoom, Google Meet, and Teach Mint, etc. were supported unimaginably [46]. The use of online learning technologies has helped to preserve the educational infrastructure even during impossible times [47]. There has been increased awareness of the importance of implementing blended learning [48]. The future potential of blended learning will advocate for developing an integrated framework and curriculum for architecture education in India [49]. The future blended model of training and education should be based on more effective training models like the Kirkpatrick method which is focused on four-level training approach (see **Figure 1**). In addition, the inputs from these models are to be included in virtual education and training platform to eradicate the differences that exist between online and offline mode of training and education.

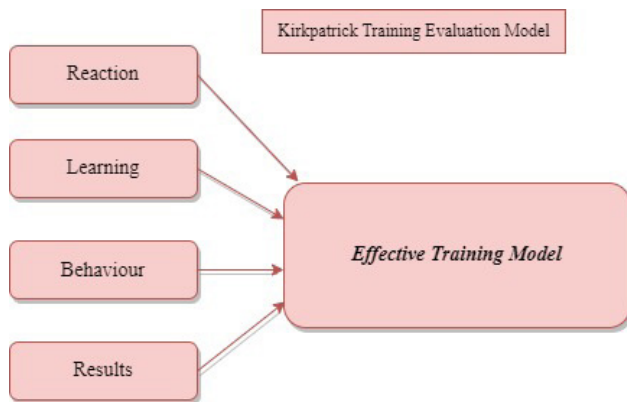


Figure 1. Kirkpatrick training evaluation model.

Source: Kirkpatrick model.

4. Methods

The present study followed the mixed method of research design which includes both quantitative and qualitative approaches. The qualitative method is used to finalise the questionnaire and the quantitative method is employed for the further process of collected data.

The study is both a qualitative and quantitative nature. This study adopted survey research in an educational institution. The research instrument was constructed based on the Kirkpatrick method. The

Kirkpatrick model is one of the best models applied in most training institutions to evaluate the effectiveness of training. Therefore, the study was based on both primary and secondary data. The primary data was collected through a structured questionnaire to study the views of outgoing UG and PG students.

The secondary data was collected from various published sources such as reports, case studies, journal articles, books, magazines etc.,

The instrument contains 13 core items designed on a 5-point Likert-type rating scale ranging from 1 (strongly disagree) to 5 (strongly agree). These items were based on the Kirkpatrick model of the training evaluation model. To test the internal consistency of the research instrument reliability statistics were performed, the Cronbach's Alpha based on standardized items was 0.913 which indicates the internal consistency of the research instrument was excellent.

The study distributed questionnaires to 150 students of which 143 responses were collected. Of the collected responses 132 are completed and all of them were considered for the analysis. Respondents consist of 65 (49.2%) male students and 67 (50.8%) female students.

The students are from the Commerce and Management discipline of which 62 belong to UG-Commerce, 11 belong to UG-Management, 2 belong to PG-Commerce, and 57 belong to PG-Management. Most students (97%) are experienced in online education and training. 35.6% of students did not like the online session and 64.4% liked the online session. 55.3% of students have gained online education and training through the Teachmint application, 31.1% of students have acquired education and training through the Google Meet application and 13.6% have experienced it through the Zoom application.

5. Results and discussion

To analyze the perceived effectiveness of virtual training among outgoing UG and PG students under the Kirkpatrick model during the post-pandemic period, a one-sample t-test at a 5% significance level is employed.

The results revealed that the trainee's perception

of the effectiveness of online training was positive and statistically significant which is indicated in **Table 1**. Their *reaction* toward virtual training was also positive because they liked online sessions. The major reason for this is that the session was of optimum duration, more responsive and they also have positive opinions on the trainers’ style of delivery of training. These findings are consistent with the outcome of the studies ^[50-52].

Regarding the *learning* aspect of virtual training, they agreed that they have gained the expected knowledge and skills. Further, they also learned the expected contents. In addition, they strongly agreed that the trainer was knowledgeable in all the topics covered in virtual training. This outcome supports the arguments made by many authors ^[53-55].

Regarding the *behavior* parameter, the trainees agreed that they could take up training sessions with their teammates after the completion of virtual training. They also strongly agreed that they observed that the relevant skills and knowledge were used by the trainer during virtual sessions. Further, they spe-

cifically agreed that they have found positive differences in their skills after the virtual training program. This is also on par with discussions made by many authors ^[56,57].

Finally, concerning the *result* parameter, the trainees strongly agreed that they have observed the benefit of virtual training during their internship. The majority of the trainees strongly agreed that they had completed the assigned work in the internship as per the expectation. In addition, they also gained recognition during internships from their supervisors. This indicates the effectiveness of virtual training in an optimistic way. This finding is also consistent with the observations made by various studies ^[58-60].

6. Conclusions

It is not just the pandemic that benefited the virtual platform for teaching but also the situations like floods, droughts, and other natural calamities were one of the reasons to switch over to online learning, where now students can cope with and learn even

Table 1. Effectiveness of virtual training during the post-pandemic period under the Kirkpatrick model.

Parameters	Questions	Empirical results
Reaction: It measures whether learners find the training engaging, favourable, and relevant to their jobs.	Did you like the online session?	Overall Trainees’ perception of Significantly positive (M = 3.7860; SD = 0.625; t = 14.435; P < 0.05)
	The session was of adequate length.	
	The teacher was responsive.	
	The teacher’s style and delivery were effective.	
Learning: It measures whether learners acquired the intended knowledge, skills, attitude, confidence, and commitment from the training.	The teacher was knowledgeable and reached the trainees’ expectations.	Overall Trainees’ perception of Significantly positive (M = 3.702; SD = 0.739; t = 10.909; P < 0.05)
	Have you learned what was intended to be taught?	
	The teacher was knowledgeable in all topics covered.	
Behaviour: It assesses the behavioural changes and makes it possible to know not only whether the skills were understood, but also logistically possible to use the skills in the workplace.	Will you be able to take up sessions for your teammates?	Overall Trainees’ perception of Significantly positive (M = 4.000; SD = 0.698; t = 16.437; P < 0.05)
	Were the relevant skills and knowledge used?	
	Did you find any difference in your skills?	
Results: It defines goals, measures results and identifies areas of notable impact.	Did you find the virtual training useful during the internship?	Overall Trainees’ perception of Significantly positive (M = 3.810; SD = 0.752; t = 12.369; P < 0.05)
	Were you able to complete the work as per their expectation?	
	Did you gain any recognition in the internship?	
Overall Effectiveness of Virtual Training	The majority of trainees positively agreed that virtual training is effective during the post-pandemic period (M = 3.827; SD = 0.621; t = 15.189; P < 0.05).	

Source: Authors compiled.

in these difficult situations without any pause for their studies through online platforms. Hence, it is necessary to make use of a “Blended” approach of both online and face-to-face learning in teaching which is going to be the future of education. The study observed the effectiveness of virtual training programs among UG and PG students in India using the Kirkpatrick model. Based on the results, this study concludes that virtual platform plays a vital role in enhancing the effectiveness of training programs among graduates. Henceforth, the training and education provided through virtual platforms made significant contributions to the employability of youngsters. The study also recommends that corporate leaders adopt the virtual or blended model of training for their employees to trade-off between costs and benefits. The limitation of this study is that it is considered a private institution, which does not allow generalization concerning the effectiveness of virtual training programs across all higher education institutions in India. Therefore, future research may focus on these aspects. Further, the study contributes to the existing literature in the area of virtual training in a significant way as this study focuses on the effectiveness of virtual training and education among outgoing UG and PG students. Further, the HEIs may adopt the virtual education and training pedagogy to make future employees more efficient from the college stage itself.

Ethical Aspects

The study followed all ethical aspects as per COPE guidelines and Helensky declaration. Respondents were informed and given consent before collecting data. The research instrument and ethical issues involved in this study are reviewed and approved by the institutional review board of Srinivas University, Mangalore, India (No.126;16/05/2023).

Conflict of Interest

There is no conflict of interest.

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