DEVELOPMENT OF E-LEARNING MODULE FOR TRAINING OF TRAINERS (TOT)

Seema Sharma, Ph. D.

Associate Professor, Department of Education (Meerut, College, Meerut)

Abstract

Indian vocational education system lacks a systematic approach for the development of learning strategies for online training(e-learning) that takes the real-world context into account. The field of instructional design offers a valid and systematic process for developing learning strategies for vocational training and performance support. In the present research paper, the ADDIE(Analyze, Design, Develop, Implement and Evaluation) model of instructional design framework is applied to develop and evaluate the e-learning modules as one strategy among a multifaceted approach to implement vocational education and training for Training of the Trainers(ToT) on various pedagogical development and latest trends of the same. Online learning and training have become a necessity in pandemic times but it has not been effectively developed in our country, especially in the vocational education sector as the majority of the courses are practical-based and hence a need was felt to successfully implement instructional design models in the development of a module that is able to provide guidance to the trainers of the pedagogies available for practical-based content and evaluation. Trainers play a significant role in developing a skilled workforce and so it becomes all the more important to keep them abreast of the latest technologies and pedagogies as well.

Introduction

The application of e-learning has gained increased importance and acceptance in the Skill development sector because of the challenges posed by the pandemic, Covid-19. The quick adoption of digital technologies has redefined businesses globally. However, in the current skill development environment, digital is not only about technology, it also captures how some work is done, how the data lies at the core of decision-making, how innovation is approached in any field, and how cost and efficiencies are rationalized. As a result, the skill and talent landscape in this new e-environment is being re-imagined and online education has opened a door of opportunity for both teachers and students, ensuring greater participation in the learning process. With the advancement in connectivity and aspirations of tailor-made learning, skilling through e-learning has become an important part of the training methodology.

Skill development through e-learning has gained momentum for both domains as well as soft skills. As per a study conducted by KPMG in India and Google (Online Education in India:2021), the Indian online education market will be worth a staggering $1.96 billion by the end of 2021.

Vocational Training in India needs to be improved exponentially. There is a requirement to upgrade teaching methodologies, the latest online pedagogies, and enhance the knowledge resources. Online learning is going to be the face of future vocational education in India. Presently, both the learner and the academia are using e-learning methodology more as a temporary solution for pandemic times, but the requirement is to take the e-learning forward and embrace it as a long-term framework to existing teaching-learning models.

The Indian government is formulating policies to foster digital skilling. There is a collaborative effort to enhance the digital infrastructure for facilitating the use of advanced educational tools. Digital skilling will no longer be an innovation but an essential mode of imparting vocational education.

Innovative online learning platforms have been attaining popularity. Learners can attend classes and participate in discussion forums online, at their convenience, from their offices, homes, and so on. Over the past few months, millions of trainees and trainers have adopted online education and required skills. This comprises the vocational training apparatus like technical training institutes engrossed in practical and shop-floor training, which have also transferred to online delivery.

Method

Quantitative and qualitative methods were used to develop and evaluate three e-learning modules for pedagogical training. Throughout the development of e-modules using ADDIE process, formative and summative evaluations were conducted and identified determinants of implementation. Formative evaluations comprised of qualitative feedback received from the learners and providers during early pilot work. The summative evaluation comprised of levels 1 and 2 (reaction to the training, self-reported knowledge, and practice change) quantitative and qualitative data using the Kirkpatrick model for training evaluation.

Pedagogical Framework

Three frameworks were utilized to aid the development of e-learning modules (ADDIE), identify determinants of future training and implementation (CFIR), and evaluate the ToT e-learning modules [Kirkpatrick model]. The ADDIE model comprises five phases, starting with

the need identification of the key stakeholder, training goals, and ideal methods of delivering the content (Analysis). This collected information was used to establish an Instructional Design Document(IDD) for the training (Design) that was vetted by key stakeholders prior to creating the e-learning modules (Development). After refined iterations, e-learning modules were circulated and evaluated using the Kirkpatrick model for evaluating the training (Implementation/Evaluation). The barriers to the training were identified using the results from the formative and summative evaluations conducted during the ADDIE process. This helped to iteratively ensure sufficient attention to contextual variables, aligning with the larger conceptual and empirical implementation literature and selecting strategies to build a multifaceted approach to ToT training module implementation.

Pedagogical Format

1. Analysis: Key Learning Outcomes

In this phase, the instructional problem was identified, the instructional key learning outcomes and objectives were established, and the trainee's environment, existing knowledge, and skills were determined. The module development team identified the instructional problem and understood the expectations for performance after completing the modules in conjunction with the key stakeholders. Because the e-learning module had not been previously implemented in the training of the trainers for vocational education, it was expected that trainees' existing knowledge and skills of e-learning would be insignificant. A formative evaluation was carried out using preliminary discussions with trainers, industry experts and included questions about trainees' experiences with and opinions about traditional vocational training methods, attitudes about e-learning, awareness of or experiences with e-learning, and expectations and attitudes about the likelihood of ToT program recipients. These discussions exposed several needs like

- lack of understanding of the evidence for e-learning based ToT
- discomfort with some e-learning principles which are inconsistent with traditional approaches to vocational training
- lack of knowledge about the specific skills and tasks involved in the model
- lack of experience with how to do job development and its importance, and
- lack of appropriate tools to be used in real-time meetings with potential employers

This data guided the development of a curriculum for a pilot training program in ToT and consisted of face-to-face training, webinars, and on-site technical assistance. Observations were made about trainees' strengths and additional training needs using this pilot process.

2. Design

The design phase established the key learning outcomes, exercises, activities, content, lesson planning, and media selection using an instructional design document, which served as the blueprint for developing the ToT program. The instructional designer collected feedback from the analysis phase and resources on the topic provided by Subject Matter Experts (e.g., books, research publications, online information) and identified content to support the learning outcomes for the e-learning modules. The module development team designed a 20-item knowledge quiz and a 20-item level 1 survey consisting of both closed as well as open-ended questions. Iteratively, the instructional designer presented instructional design documents for review and feedback from the module development team.

3. Development

During this phase, the course developer received the reviewed and finalized instructional design document and used an authoring tool software, Articulate Storyline to create multimedia e-learning modules according to the instructional design document. The e-learning modules were animated using video, graphics with narration, check your understanding, quizzes, and images. An Employment Resource Book was also developed based on the formative evaluation done in the analysis phase, which can be utilized by the key stakeholders during any phase of and one of the modules was developed to provide guidance regarding using this resource. The ToT program was built into three short e-learning modules to reflect trainees' time availability and attention span during the workday, and then it was tested in prototype with the module development team and revised as per the requirements.

4. Implementation

During the implementation phase, e-learning modules were hosted on the identified LMS(Moodle-based) for usability testing. During this, the module's functionality was evaluated before implementing the training, for example, the module development team tested whether videos play, weblinks open the correct page, and the course navigation works appropriately (e.g., next and submit buttons etc.) on a variety of web browsers and devices. Feedback from the usability testing phase was used to fix errors in navigation and improve user

experience. After addressing the usability testing issues, the modules were ready for implementation.

5. Evaluation

Quantitative and qualitative methods were applied as part of the formative as well as summative evaluation in the ADDIE process. Formative evaluations comprised of qualitative feedback received from the trainees and other stakeholders during early pilot work, which led to the identification of the training needs. The summative evaluation comprised of quantitative and qualitative data and was guided by the Kirkpatrick model for training evaluation. The four levels of evaluation are:

- Reaction of the training about the training experience
- Trainee's resulting learning and increase in knowledge from the training experience
- Trainee's behavioral change and improvement after applying the skills on the job, and
- Results that thetrainee's performance has on the provided program.

For this module development, the first two levels were focused, precisely,

- Level 1—Reaction of the trainee including training experience, self-reported knowledge acquisition, and self-reported practice change through a survey and
- Level 2—Resulting knowledge through the post-module quiz

To keep the trainee experience unified, the knowledge quiz, assessing knowledge of ToT model-related concepts, skills, and tools, within each module were embedded. To mark the module as completed, trainees were required to answer at least 80% of the knowledge items correctly. Trainees were able to retake the quiz as many times as required to meet this criterion score. Once the module is completed, the trainee was asked to complete the Level 1 survey. This reaction survey was based on learning outcomes set forth in each e-learning module and the accreditation requirements. A rating scale was developed to rate the overall modules if they met stated learning outcomes if the content presented was new to the learner, and questions about module-specific self-reported knowledge and practice change. Additionally, three open-ended questions were included: What could be improved? What do the trainee like the most about the module?, and Where do the trainees can use what they have learned in the ToT program?

Analysis

Descriptive statistics were applied to the quantitative Level 1 summative evaluation sheet using the SPSS Statistics Version 24. For the qualitative evaluation data, a thematic analysis was

employed to identify themes within the open-ended question data. The open-ended question data was reviewed independently by the coders to determine codes and create an initial code list. The coders then combined the codes into predominant themes, and then reviewed and labeled them.

Result

A range of learning needs that was conversant with the development of a pilot training program in ToT was identified through formative evaluation with the key stakeholders. Feedback on the pilot training program guided the development of the design document of e-learning modules on ToT. Each module was developed iteratively and consisted of an assessment of learning needs that further guided successive modules. All modules were dispersed and evaluated using a learning management system. A summative evaluation discovered that trainees rated the modules positively, and the self-report of knowledge acquisition was high (mean range: 4.5–4.7 out of 5). About half of the trainees reported that they would change their practice after watching the modules (range: 50–53%). All trainees who completed the level 1 evaluation demonstrated 85% or better mastery of knowledge on the level 2 evaluation implanted in each module.

Conclusion

Instructional design models such as ADDIE might offer the trainers a flexible and organized approach for the development of e-learning modules in a multifaceted approach for training in Vocational education. There are many more models of instructional design that can be applied for developing sound e-learning training modules. E-modules can be designed for various requirements in the industry based on the nature of the subject and training to be imparted.

References

Aliyu, M. (2012). Integrating e-Learning in Technical and Vocational Education: A Technical Review. International Journal of Academic Research in Business and Social Sciences, 52.

Andreas Schober, F. M. (2014). Development of an e-learning platform for vocational education systems in germany. International Conference e-learning, 329-332.

Arh, T. P. (2009). Enhancing the E-learning in Vocational Education and Training with "VET Community Portal". Recent Advances in E-Activities, Information Security and Privacy, 99-104.

KPMG and Google. (2017, MAy 1). Online Education in India:2021. Retrieved from assets.kpmg: https://assets.kpmg/content/dam/kpmg/in/pdf/2017/05/Online-Education-in-India-2021.pdf

Mattox T, K. R. (2016). Supporting Effective Implementation of Evidence-Based Practices: A Resource Guide for Child-Serving Organizations. Santa Monica: Europian Union.

Ministry of Education, Government of India. (2021, October 27). Retrieved from https://www.education.gov.in: https://www.education.gov.in/en/e-contents

NV, D. (2021, November 10). *Inside the Learning Brain. Association for talent development. Retrieved from www.td.org:* https://www.td.org/Publications/Magazines/TD/TD-Archive/2013/04/Inside-the-Learning-Brain

Shdaifat, S., Shdaifat, N. A., & Khateeb, L. A. (2020). *The Reality of Using E-Learning Applications in Vocational Education Courses During COVID 19 Crisis from the Vocational Education Teachers' Perceptive in Jordan. International Education Studies , 105-112.*

Wiggins, G., & McTighe, J. (2005). *Understanding by Design. Alexandris: Association for Supervision and Curriculum Development.*