



Optimization of Job Training Through the Implementation of the ADDIE Model in the Safety Academy Program at PT XYZ

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Abstract

This study examines the optimization of job training through the application of the ADDIE instructional design model within the Safety Academy program at PT XYZ. The research highlights issues related to the effectiveness of occupational safety training, particularly in material planning, delivery methods, and evaluation of training outcomes. By applying the ADDIE model, comprising Analysis, Design, Development, Implementation, and Evaluation—the training program was structured to enhance employee competencies in health and safety. The findings demonstrate that the ADDIE-based approach contributes to more systematic, relevant, and needs-oriented training, thereby improving both individual performance and organizational outcomes.

Keywords: ADDIE, Employee Training, Job Training, Performance Improvement, Safety Academy

1. Introduction

The rapid advancement of science and technology compels organizations to continuously adapt to dynamic changes and challenges while simultaneously leveraging emerging opportunities to sustain growth. Failure to adapt may result in competency gaps, inefficiencies, and declining competitiveness. Therefore, companies must strategically anticipate these transformations by strengthening their internal capabilities, particularly through systematic human resource development. Human resource development represents a planned and structured investment designed to equip employees with the skills and competencies required to fulfill both current and future job responsibilities. Employees with adequate competencies are vital assets whose contributions directly influence organizational performance and competitiveness [1]. Beyond technical expertise, training initiatives foster self-confidence, motivation, and job satisfaction, thereby enhancing overall productivity and organizational resilience. Training programs essentially consist of learning activities that are deliberately designed and developed to facilitate the learning process within participants. Through this learning process, participants in training programs are expected to acquire competencies encompassing knowledge, skills, and attitudes required to effectively perform specific tasks and job responsibilities [2].

In addition to general competency development, knowledge related to occupational health and safety has become increasingly critical in modern organizations. Occupational Safety and Health (K3) is one of the fundamental aspects in workforce management. Employees who work in a safe environment, free from the risk of accidents and occupational diseases, will feel more appreciated and motivated [3]. Workplace safety is not only a regulatory requirement but also a strategic necessity to ensure sustainable operations. Employees who possess strong health and safety awareness are better prepared to prevent accidents, reduce risks, and maintain operational continuity. The integration of health and safety knowledge into organizational practices provides tangible benefits. It minimizes workplace hazards, reduces costs associated with accidents, and strengthens employee trust in the company. Moreover, a workforce that prioritizes safety contributes to the achievement of long-term corporate objectives, including sustainability, efficiency, and competitiveness.

Given these considerations, organizations are required to formulate and implement systematically structured job training programs that address both general competencies and specific safety-related skills. Such programs must be carefully designed to align with employee needs, organizational goals, and the dynamic conditions of the workplace. Effective training management ensures that employees not only understand their roles and responsibilities but also perform them efficiently and safely. To achieve these outcomes, the ADDIE model comprising Analysis, Design, Development, Implementation, and Evaluation has emerged as a comprehensive solution. This model provides a structured framework for developing training programs that are responsive to organizational needs, well-managed, and outcome-oriented. By applying the ADDIE model, companies can optimize training effectiveness, bridge competency gaps, and ultimately cultivate a workforce that is both competent and safety-conscious, thereby supporting sustainable organizational success. This study, entitled

“Optimizing Job Training through the Application of the ADDIE Model in the Safety Academy Program at PT XYZ,” focuses on examining critical issues concerning the effectiveness of occupational safety training. The analysis emphasizes three main aspects: instructional material planning, delivery methods, and evaluation of training outcomes. The Safety Academy, jointly developed by the Department of Corporate Learning and Development and the Department of Safety, Health, and Environment, is designed to strengthen employee competencies in health and safety. Its ultimate objective is to support the operation of the PT XYZ cement plant as a Safe, Sustainable, Successful, and Self-Sufficient Plant (4SP), while aligning with the company’s strategic initiative, Strive for Excellence in Employee Health & Safety.

2. Main Body

2.1. Literature Review

From a modern management perspective, human resources are no longer regarded merely as essential organizational components; rather, they have evolved into strategic assets that contribute to the long-term sustainability and competitiveness of organizations, commonly referred to as human capital. Training constitutes an individual development activity designed to systematically enhance employees’ knowledge and skills, thereby enabling them to perform professionally and competently within their respective fields [4].

Competence is a key factor in enhancing performance; therefore, organizations need to give serious attention to the development and management of employee competencies. Competence represents an individual’s fundamental characteristics that distinguish one employee from another in carrying out tasks and responsibilities. Competency refers to an integration of individual traits, knowledge, skills, and behaviors that collectively form the foundation for achieving effective and desired performance. In this context, competency reflects an individual’s capacity to perform tasks by applying relevant knowledge and skills [5].

Occupational Health and Safety (OHS) training plays a crucial role in safeguarding workers’ health and ensuring workplace safety [6]. OHS is an integral component of the labor and human resource management system, as it not only enhances social protection and employee well-being but also contributes positively to the sustainability of work productivity. In this context, OHS training represents a systematic effort to equip employees with the necessary knowledge, skills, and understanding to identify potential risks, mitigate hazards, and implement safe work practices. Consequently, OHS is no longer viewed merely as an obligation imposed on workers; rather, it has become a fundamental requirement embedded within organizational work systems and an essential necessity for all forms of occupational activities [7].

The ADDIE model represents a widely adopted instructional design framework for developing effective training programs [8]. This model was selected due to its systematic and structured stages—Analysis, Design, Development, Implementation, and Evaluation which enable the identification of training needs, the design of learning interventions, the development of instructional materials, the implementation of training activities, and the evaluation of program effectiveness. Applying the ADDIE model allows the Safety Academy to deliver training that is structured, efficient, and effective, thereby ensuring high instructional quality. Reference [9] further conceptualized the ADDIE model as a comprehensive learning system design, illustrated as follows.

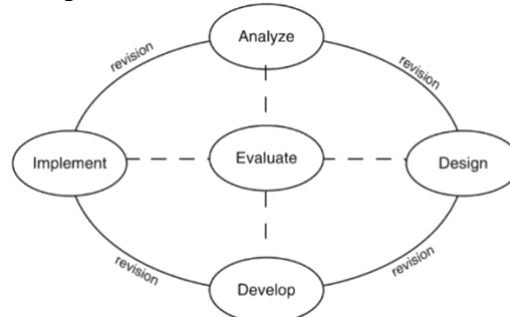


Fig. 1: The ADDIE model as a comprehensive learning system design

In the Analysis stage, employee competency gaps were identified by examining training needs aligned with the company’s occupational safety standards. The Design stage involved the preparation of curriculum and training materials according to the targeted competencies. The Development stage emphasized the creation of modules and learning media to support the training process. The Implementation stage consisted of conducting training through the Safety Academy program. In the Evaluation stage, the effectiveness of the training was assessed based on participant feedback, learning evaluation results, and achievement of competency targets. Application of the ADDIE model enabled comparison between training implementation conditions before and after optimization. The findings indicate that the ADDIE-based approach facilitated the development of more structured, relevant, and needs-oriented training within the actual work environment, demonstrating its applicability in enhancing the quality of training programs at the Safety Academy.

2.2. Methods

The research employed a quantitative approach to provide a comprehensive understanding of the training program’s impact on employee performance within the Safety Academy. The training program was developed using the ADDIE Research and Development model with a procedural approach, in which each stage was implemented sequentially and systematicall [10]. The ADDIE model consists of five interrelated phases: Analysis, Design, Development, Implementation, and Evaluation, all of which were applied in accordance with the results of the initial needs analysis and the objectives of the training program.

1. Determination of Training Participants

Participants of the Safety Academy Program are drawn from employees across PT XYZ units and subsidiaries who hold strategic responsibilities in occupational safety and health management. These include supervisors, operational officers, safety officers, and other relevant technical personnel. The selection process is intended to ensure that occupational safety competencies are consistently applied throughout all operational lines.

2. **Determination of Training Materials**
 Training materials are developed based on the competency requirements of occupational health and safety within the cement industry. The content encompasses Job Safety Analysis (JSA), Safe Working Procedures (SWP), Permit to Work (PTW), Working at Height, Electrical Safety, Machine Guarding, Tool Safety, incident reporting and investigation, as well as fire emergency procedures. The materials are designed in both theoretical and practical formats to facilitate comprehension and applicability in the workplace.
3. **Determination of Training Methods**
 The training methods adopted in the Safety Academy Program employ an integrated learning approach, consisting of:
 - a) **Formal Learning:** delivery of instructional content and evaluation through pre-tests and post-tests.
 - b) **Social Learning:** mentoring, coaching, and interactive discussions with mentors.
 - c) **Experiential Learning:** simulations and direct practice within the work environment.
 This integrated approach is intended to enhance both conceptual understanding and practical skills among participants.
4. **Determination of Instructors and Mentors**
 Instructors and mentors are internal PT XYZ personnel with proven competence and experience in occupational safety. Subject Matter Experts (SMEs) are responsible for developing instructional materials, delivering training, guiding participants, and conducting assessments throughout the program.
5. **Program Implementation and Supervision**
 The implementation of the training program is overseen by the Quality Assurance (QA) Team, which ensures that the program meets established standards of quality, effectiveness, and compliance. The QA Team also provides recommendations for continuous improvement and further development of the training program.

2.3. Results

After all stages of job training implementation are comprehensively described, further analysis is carried out using the ADDIE model (Analysis, Design, Development, Implementation, Evaluation). The optimization of on-the-job training within the Safety Academy program is structured through the application of the ADDIE model as a systematic instructional framework. The utilization of this model ensures that the training program is developed in a manner that is effective, measurable, and sustainable, thereby aligning learning processes with organizational competency needs and long-term performance objectives

Table 1: ADDIE Model in The Safety Academy Program

Program Name	Analyze	Design	Development	Implementation	Evaluation
Safety Academy Program	a) Identifying health and safety training needs within the operational environment of PT XYZ.	a) Formulating specific and measurable objectives for occupational safety training.	a) Developing occupational health and safety training modules and materials in accordance with company standards.	a) Implementing the Safety Academy program in accordance with the established schedule and grand design.	d) Conducting evaluations of learning outcomes through testing and practical observations.
	b) Analyzing gaps in occupational safety competencies between actual conditions and established company standards.	b) Designing a structured learning program that integrates formal learning, social learning, and experiential learning approaches.	b) Designing instructional media such as presentation materials, case studies, and workplace safety simulations.	b) Engaging Subject Matter Experts (SMEs), instructors, mentors, and coaches throughout the learning process.	e) Collecting feedback from participants, Subject Matter Experts (SMEs), and the Quality Assurance (QA) Team.
	c) Mapping workplace risks and safety competencies that require enhancement among participants.	c) Establishing evaluation methods for each phase of the learning process.	c) Constructing evaluation instruments including pre-tests, post-tests, and practical performance assessments.	c) Encouraging active participant involvement through discussions, mentoring, and field-based simulations.	f) Formulating recommendations for improvements to support the future development of the training program.

Application of the ADDIE Model in Optimizing the Safety Academy Training Design:

1. **Analysis**
 The analysis stage involved identifying occupational safety training needs within the PT XYZ operational environment. This process included mapping competency gaps between actual conditions and company safety standards, as well as assessing workplace risks in cement plant operations. The outcomes of this stage served as the foundation for determining training content and objectives.
2. **Design**
 In the design stage, training objectives were formulated to be specific, measurable, relevant, and aligned with corporate occupational health and safety policies. The structure of the Safety Academy program was developed to integrate formal learning, social learning, and experiential learning, with evaluation methods tailored to each phase of instruction.
3. **Development**

The development stage focused on preparing training modules, instructional materials, case studies, and evaluation instruments such as pre-tests and post-tests. All materials were produced by Subject Matter Experts (SMEs) in accordance with company safety standards and adapted to participant characteristics and operational requirements.

4. Implementation

Implementation was carried out through the scheduled delivery of the Safety Academy program. Participants engaged in theoretical instruction, discussions, mentoring, and practical safety simulations. Active involvement of participants was emphasized to strengthen comprehension and application of safety practices in the workplace.

5. Evaluation

The evaluation stage assessed the effectiveness of the training program in terms of competency achievement and overall program quality. Evaluations were conducted by SMEs and the Quality Assurance (QA) Team using test results, practical observations, and participant feedback. The findings provided the basis for continuous improvement and further development of the Safety Academy Program.

3. Conclusion

The application of the ADDIE model in the Safety Academy Program at PT XYZ provides a systematic and comprehensive approach to optimizing occupational safety training. Through the sequential stages of Analysis, Design, Development, Implementation, and Evaluation, the training program was developed in alignment with organizational needs, safety policies, and operational conditions. The analysis stage identified competency gaps and workplace risks, which formed the basis for designing clear training objectives, relevant learning content, and appropriate instructional strategies.

The development and implementation stages ensured the effective preparation and delivery of training materials by Subject Matter Experts (SMEs) through structured learning activities, including theoretical instruction, mentoring, and practical safety simulations. The evaluation stage, conducted by SMEs and the Quality Assurance (QA) team, confirmed the effectiveness of the program in improving employee competencies and provided feedback for continuous improvement. Overall, the findings highlight that the structured application of the ADDIE model supports the achievement of the Safety Academy objectives and contributes to the realization of a Safe, Sustainable, Successful, and Self-Sufficient Plant (4SP) at PT XYZ.

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