



# Development and Validation of an Audiovisual Ergorobics Exercise Intervention for Enhancing Workplace Health and Wellness

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## ABSTRACT

The Audiovisual Ergorobics Exercise (AEE) intervention was developed to promote physical activity and wellness among working personnel during office hours. Combining “Ergo” (work) and “robics” (aerobics), the intervention offers dance-based audiovisual materials that can be performed while sitting or standing. This study aimed to develop and validate the quality and effectiveness of AEE. A descriptive design was used with 20 expert validators to assess components such as style, organization, content, and instructional quality. Additionally, a pre- and post-experimental design involving 25 working personnel measured the intervention's impact on physical performance. Results showed a high overall rating, described as outstanding, and a statistically significant improvement in post-test performance. These findings indicate that AEE is both acceptable and effective for promoting physical health in the workplace. The study highlights the potential of incorporating audiovisual exercise routines into employee wellness programs to enhance performance and support occupational health goals.

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## 1. INTRODUCTION

Exercise is a series of movements or actions. According to the Schema Theory of Schmidt in 1975, producing an exercise pattern includes retrieving a generalized motor program from memory and then adapting it to a specific context. It emphasizes that humans need to move energetically to remain fit and healthy. Hence, observing and practicing dance exercises is important (Budiman *et al.*, 2022). This means the body maintains strength, health, and good condition through dance exercises. It also rejuvenates the mind, preventing feelings of despair and fatigue (Wright, 2004; Bush, 2009; Himle *et al.*, 1999). This highlights the importance of maintaining good physical health and wellness among working personnel through specific audiovisual dance exercises. These audiovisual materials help promote dance coordination, endurance, strength, flexibility, and power (Howlin *et al.*, 2020). Previous reports (Cruse, 2006) explored theories on how videos enhance learning through emotional stimulation, motivation, and interest. Arousal Theory focuses on emotional arousal, Short-Term Gratification Theory emphasizes passion and determination, and Interest Stimulation Theory suggests that entertainment improves learning and innovation. Therefore, this study addresses the need to develop a quality Audiovisual Ergorobics Exercise (AEE) to bridge wellness gaps among working personnel. The name "Ergorobics" combines the Greek word ergo meaning "work" and "robics," a shortened form of dance aerobics. The device is used for work-related activities and delivers audiovisual content to guide on-duty or break-time exercise, suitable for both seated and standing positions. This regimen can improve health, enhance endurance, and delay the effects of aging. The benefits of AEE include not only physical improvement but also better mental well-being, as regular exercise has proven health advantages (Herbert *et al.*, 2020). This signifies that AEE is valuable for maintaining and enhancing physical health, offering easy-to-learn routines suitable for all ages.

This study was conducted to develop and validate a practical, accessible, and effective audiovisual exercise tool designed specifically for working personnel. Its novelty lies in integrating audiovisual content with ergonomically appropriate dance routines that fit within work environments. The impact of this intervention is its potential to support health, enhance productivity, and reduce physical strain among employees through regular use in workplace settings.

## 2. LITERATURE REVIEW

The application of theoretical frameworks and research methodologies is necessary for developing and validating the AEE for working personnel's health and wellness to guarantee efficacy and favorable results. These theories and methods aim to provide content that supports health benefits, encourages physical activity among employees, and aligns with the objectives of workplace wellness programs. Thus, this study is anchored in the following theories.

The Health Belief Model (HBM) suggests that individuals are more likely to engage in health-promoting behaviors if they perceive themselves as vulnerable, recognize the severity of health issues, and believe that taking action can reduce risk (Rosenstock *et al.*, 1988). Therefore, AEE can emphasize the benefits of physical activity, address perceived barriers like time and motivation, and tailor content to improve employees' perceptions and reduce resistance to exercise.

The Transtheoretical Model outlines behavior change as a gradual process involving the stages of pre-contemplation, contemplation, preparation, action, and maintenance (Prochaska & DiClemente, 1983). This model highlights the need for personalized

interventions. AEE can be adapted to employees' readiness levels, offering beginner videos for those in the pre-contemplation stage and advanced routines for those in the action or maintenance stages.

Self-determination theory (SDT) emphasizes intrinsic motivation and the satisfaction of basic psychological needs such as autonomy, competence, and relatedness (Deci and Ryan, 2000). AEE can support autonomy by allowing users to choose routines, promote competence through achievable activities, and foster relatedness by encouraging group participation or social connection.

Social Cognitive Theory asserts that behavior is influenced by observational learning, self-efficacy, and social interactions (Bandura, 1986). Through relatable instructors, group exercises, or online communities, AEE can strengthen self-efficacy and promote sustained participation through modeled behavior and social reinforcement.

The Theory of Planned Behavior proposes that intentions to perform behaviors are influenced by attitudes, subjective norms, and perceived behavioral control (Ajzen, 1991). AEE can shape positive attitudes toward exercise by demonstrating its benefits, increasing accessibility at the workplace, and offering modifications to suit different fitness levels.

These theoretical foundations guide the creation of motivational, supportive, and engaging AEE content aimed at enhancing physical and mental well-being among employees in organizational settings.

### 3. METHODS

This study used a descriptive research design and a pre- and post-experimental design. The descriptive design was applied to determine the quality of the development and validation of the AEE intervention for working personnel. It involved systematically describing and analyzing various aspects related to the intervention's style, organization, music selection, cultural sensitivity, content relevance, creativity, and instructional quality. This approach allowed the researcher to gather detailed information about how these elements influence the overall effectiveness and acceptability of the AEE intervention among the target population. A survey questionnaire was used to collect data to validate the developed AEE.

Twenty respondents of the study were Physical Education instructors, IT experts, fitness gym instructors, and professional dancers and choreographers in the City of Tacurong, Sultan Kudarat, Philippines. These individuals were selected based on their diverse expertise and backgrounds, which provided a comprehensive perspective on the development and evaluation of the AEE intervention. Their insights and experiences helped shape the research findings and recommendations, ensuring that the study's conclusions were grounded in practical knowledge and varied professional viewpoints.

In addition, simple random sampling was utilized to gather responses from the validators. The second part of the study also employed a pre- and post-experimental design. This method involved measuring participants before and after the intervention to evaluate changes in their performance. Specifically, the AEE intervention was administered to assess its effects on the physical capabilities of working personnel. The comparison between pre-test and post-test scores enabled the researcher to determine the effectiveness of the intervention.

A permit to conduct the study was secured from the appropriate authorities. The responses of the participants were tallied and analyzed using a weighted mean, standard deviation, and an independent sample t-test. These statistical tools helped quantify variability, evaluate effectiveness, and provide meaningful insights into the impact of the AEE intervention on health and wellness among working personnel.

The development of the AEE intervention also considered several ethical aspects. These included informed consent, respect for privacy and confidentiality, prioritizing safety and risk management, promoting diversity and inclusivity, ensuring accuracy and evidence-based practices, and maintaining transparency and accountability. Respondents were fully informed about the use of their images and participation in the study. All sensitive personal data was handled confidentially. Exercises were tailored to different fitness levels to reduce the risk of injury. Feedback was actively sought to improve the intervention and address any ethical concerns raised during the study.

#### 4. RESULTS AND DISCUSSION

**Table 1** evaluates the quality of the developed AEE intervention. In the 6 components of AEE, the style and organization got the highest weighted mean of 4.70 with a description of outstanding. Thus, the lowest weighted mean of 4.58 was obtained by the music and instructional quality described as outstanding. On the other hand, the grand weighted mean of 4.63 with the outstanding description implies that the developed AEE was highly acceptable by the validators. Physical activities can improve health by being functional, continuous, and standard (Arabnarmi, 2021). This indicates that using this exercise in daily activities will help the working personnel maintain their health and wellness and guarantee that it will teach the basic steps through easy movements.

**Table 1.** Quality of the developed AEE.

Components	Weighted Mean	SD	Description
1. Style and Organization	4.70	0.15	Outstanding
2. Content	4.64	0.26	Outstanding
3. Music	4.58	0.21	Outstanding
4. Cultural Sensitivity	4.64	0.23	Outstanding
5. Creativity	4.64	0.23	Outstanding
6. Instructional Quality	4.58	0.21	Outstanding
<b>Mean</b>	<b>4.63</b>	<b>0.21</b>	<b>Outstanding</b>

**Table 2.** Significant difference of pre-test and post-test of the working personnel.

	N	Mean	SD	t	p	Interpretation
Pretest	25	85.76	2.88	-8.117	0.000	Not Significant
Post-test	25	93	3.32			

The study reveals a significant difference in the performance of working personnel after an AEE. This suggests that AEE may be an effective method for improving physical capabilities. The results indicate potential benefits for workplace health and productivity, such as reduced physical discomfort, improved focus, and enhanced physical capabilities (Yao & Tseng, 2019). The findings support using AEE in ergonomic programs aimed at improving employee well-being. Organizations could integrate AEE into training and development programs to enhance employee performance (See **Table 2**).

The findings of the study confirm that the Audiovisual Ergorobics Exercise (AEE) intervention was evaluated as outstanding in all assessed components, including style, organization, content, music, cultural sensitivity, creativity, and instructional quality. The

grand weighted mean of 4.63 indicates a high level of acceptance from the validators, showing that the design and delivery of the AEE intervention effectively address the health and wellness needs of working personnel. These results are consistent with previous studies (Arabnarmi, 2021), which emphasized that physical activity should be functional, continuous, and standardized to support daily well-being.

The pre- and post-test results revealed a significant difference in performance levels after the implementation of the AEE intervention. The increase in post-test scores suggests that participants experienced notable improvements in physical capability, supporting the effectiveness of AEE. This aligns with previous findings (Yao & Tseng, 2019), who highlighted the benefits of structured workplace exercise programs in improving physical function, reducing discomfort, and enhancing mental alertness.

The significance of these findings lies in the potential application of AEE as a wellness strategy within organizational settings. By integrating audiovisual routines that employees can perform while seated or standing during work hours, the intervention addresses common barriers to physical activity in the workplace, such as time constraints and lack of space. The use of audiovisual media also enhances motivation and engagement, consistent with theories on emotional stimulation and interest-based learning (Marshall, 2002; Bigliassi *et al.*, 2019).

Furthermore, the study supports existing behavioral frameworks such as the Health Belief Model, Social Cognitive Theory, and the Transtheoretical Model, all of which emphasize the importance of personalized, motivating, and accessible health interventions. The inclusion of group dynamics and feedback mechanisms also promotes social connection and self-efficacy, critical elements for sustaining wellness behaviors among employees (Bandura, 1986; Prochaska & DiClemente, 1983).

Overall, the AEE intervention demonstrates promise as an innovative and practical tool for improving workplace health and wellness. Its adaptability, simplicity, and positive reception from validators and participants underscore its value in promoting both physical and mental well-being among working individuals.

## 5. CONCLUSION

The developed AEE intervention was highly acceptable in terms of quality, based on validator feedback across multiple components such as style, content, and instructional delivery. Its easy-to-follow dance movements and engaging audiovisual presentation were found to be suitable and effective for working personnel. The pre- and post-test results revealed a significant improvement in participants' physical performance, indicating that the AEE intervention positively impacted health and wellness outcomes. These findings demonstrate that AEE is a practical, innovative, and engaging tool that can be integrated into workplace wellness programs to enhance employee well-being, productivity, and motivation. Furthermore, the accessibility and flexibility of the AEE routine make it suitable for use during office hours, whether sitting or standing, addressing common barriers to physical activity in the workplace. Future research is recommended to explore long-term effects and to support policy implementation for employee health promotion.

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## 7. AUTHOR'S NOTE

The authors hereby declare that there is no conflict of interest concerning the publication of this article. Additionally, the authors affirm that the paper is original and free from any instances of plagiarism.

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