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Experience To Practice: Assessing The Impact Of Experiential Learning Intervention On Student Teachers

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Abstract

Experiential learning, emphasizing active engagement and reflection, is pivotal in teacher education. This study evaluates one week experiential learning workshop's impact on the knowledge, attitudes, and pedagogical readiness of 45 student teachers from St. Ann's College of Education, Secunderabad. Employing a quasi-experimental one-group pre-test/post-test design complemented by a perception survey, results show statistically significant improvement in cognitive understanding ($t = 11.71$, $p < 0.05$) and positive shifts in perceptions toward learner-centered pedagogy. Qualitative data indicate enhanced confidence in crafting experiential activities, promoting equitable participation, and adopting reflective assessment strategies. The findings reinforce experiential learning as an effective, scalable professional development model that nurtures reflective, inclusive, and active teaching practices.

Keywords:

Experiential Learning, Teacher Education, Professional Development, Reflective Practice, Pedagogy

Introduction

Experiential learning has emerged as a pivotal paradigm in contemporary educational discourse, emphasizing the principle of "learning by doing" rather than through passive reception of information. Rooted in the philosophical contributions of John Dewey (1938) and the developmental theories of Jean Piaget, experiential learning was formally conceptualized by Kolb (1984) as a cyclical process encompassing four stages: concrete experience, reflective observation, abstract conceptualization, and active experimentation. This approach not only fosters deeper cognitive engagement but also enhances critical thinking, creativity, and problem-solving skills.

In teacher education, experiential learning holds particular significance as it equips educators with strategies to design learning environments that actively engage students. Professional development programmes, especially workshops, provide a platform for teachers to reflect on their practices, acquire innovative pedagogical techniques, and build collaborative learning communities (Moon, 2004). However, the

effectiveness of such programmes must be systematically evaluated to ensure that they achieve their intended outcomes.

Against this backdrop, a one week workshop on experiential learning was organized for pre-service teachers. A pre-test and post-test were administered to participants to assess changes in knowledge, attitudes, and application of experiential learning principles. The present study aims to examine the extent to which the workshop influenced participants' understanding of experiential learning and to provide empirical evidence of its impact.

Review of Literature

Theoretical Underpinnings of Experiential Learning

Experiential Learning Theory (ELT), as proposed by Kolb (1984), provides a structured framework for understanding how individuals learn through experience. The model suggests that effective learning occurs when learners engage in a cyclical process that involves concrete experiences, reflective observation, abstract conceptualization, and active experimentation. Later refinements by Kolb and Kolb (2005) highlighted the role of learning spaces and emphasized the importance of balancing all four stages of the cycle.

Experiential Learning in Teacher Education

Dewey (1938) argued that education must be grounded in real-life experiences to remain meaningful and transformative. In line with this perspective, several studies have shown that experiential learning enhances teachers' pedagogical skills, classroom management, and ability to connect content with students' lives (Moon, 2004; Yardley et al., 2012). Research also suggests that teachers trained in experiential methods are more likely to design participatory classrooms that foster student agency and inquiry-based learning.

Effectiveness of Professional Development Programmes

The success of professional development interventions often depends on their ability to bring measurable changes in teachers' knowledge, attitudes, and practices. Guskey (2002) emphasized the need for systematic evaluation of such programmes, advocating for pre-test and post-test assessments as reliable tools to capture knowledge gain. Similarly, Desimone (2009) argued that effective professional development must include content focus, active learning, sustained duration, and evaluation. Studies indicate that even short-term workshops, if well-designed, can have significant impacts on teacher growth and instructional innovation.

Objectives

1. To compare pre-test and post-test scores to determine the effectiveness of the workshop.
2. To examine participants' perceptions of the relevance and applicability of experiential learning in classroom practice.
3. To identify areas of strength and improvement in the intervention design for future professional development initiatives.

Research Questions

1. What is the level of participants' knowledge and understanding of experiential learning prior to the workshop?
2. How do post-test scores differ from pre-test scores after attending the workshop?
3. How do participants perceive the relevance of experiential learning for their classroom practice?

Hypotheses

1. There is a significant improvement in participants' post-test scores compared to pre-test scores, indicating the effectiveness of the intervention programme
2. There are improvements in perceptions with regard to the application of experiential learning in the classroom environment.

Research Gap

While the literature affirms the value of experiential learning and professional development, relatively few studies have examined the immediate impact of short-term workshops on teachers' conceptual understanding of experiential pedagogy using empirical pre-test/post-test designs. This study addresses this gap by evaluating the effectiveness of the workshop and its role in enhancing teachers' competencies.

Methodology

Research Design

The study employed a quasi-experimental one-group pre-test/post-test design. This design was chosen to measure the immediate impact of the experiential learning intervention programme on participants' knowledge and understanding, while controlling for baseline differences.

Sample

The sample comprised of 45 pre-service teachers of St. Ann's College of Education.

Intervention:

Intervention programme on Experiential Learning

The programme was designed to introduce participants to both the theoretical foundations and practical applications of experiential learning in education. The programme content included Kolb's experiential learning cycle, emphasizing the continuous process of experiencing, reflecting, thinking, and acting. Participants explored ways to integrate experiential strategies effectively in classroom settings and engaged in reflection on their own teaching practices to enhance professional growth. The intervention programme included interactive lectures, group discussions providing comprehensive conceptual grounding. Hands-on demonstrations and microteaching sessions allowed participants to practice experiential techniques and receive constructive feedback, fostering skill development and confidence. Conducted over one week, the

intervention was divided into five focused days, each dedicated to key thematic areas paired with relevant hands-on experiments and activities designed to deepen understanding and practical skills:

Day 1: Light and Vision – Exploring refraction, reflection, persistence of vision, and color dispersion.

Day 2: Forces and Motion – Investigating center of mass, inertia, balloon-powered motion, and lateral light shift.

Day 3: Chemistry in Daily Life – Conducting acid-base neutralization, pH testing, density layering, and chromatography.

Day 4: Water, Air, and Sound – Studying surface tension, buoyancy via Archimedes' principle, atmospheric pressure, and the water cycle

Day 5: Electricity and Magnetism – Understanding magnetic fields, simple circuits, sound production with straws, and periscope construction.

This structured approach ensured ample opportunity for immersive learning, teamwork, problem-solving, and the integration of experiential strategies into future teaching practices.

Data Collection Instruments

1. Pre-test and Post-test

Each test consisted of 20 items (a combination of multiple-choice) aligned to objectives. Questions assessed knowledge of experiential learning concepts, ability to apply the principles in classroom scenarios, and attitudes towards learner-centered pedagogy.

Parallel forms were used to minimize recall bias.

2. Perception Survey: A 10-item, 5-point Likert scale survey captured participants' perceptions of intervention relevance, content quality, and applicability. 5 Open-ended questions were included to gather qualitative reflections.

Procedure

The pre-test was administered at the beginning of the workshop, prior to any instructional activities. The intervention was delivered across interactive sessions. At the end of the intervention the post-test and perception survey were administered.

Data Analysis

- Descriptive Statistics: Mean, standard deviation, and percentage gain were calculated for pre-test and post-test scores.
- Inferential Statistics: A paired-sample *t*-test was conducted to determine whether differences between pre-test and post-test scores were statistically significant.
- Qualitative Data: Responses to open-ended questions were coded thematically to provide insights into participants' reflections and experiences.

Results & Discussions

Hypothesis 1: There is a significant improvement in participants' post-test scores compared to pre-test scores, indicating the effectiveness of the workshop.

Table 1:

Mean, S.D & t-value for the assessing the effectiveness of Experiential Learning intervention programme.

Test	N	Mean	S.D	t-Value	Level of Significance
Pre Test	45	53.33	9.51	11.71	Significant at .05 Level
Post Test	45	75.69	12.02		

df = 44 Table value = 2.02

Interpretation

The pre-test mean score of **53.3 (SD = 9.51)** indicates that participants initially demonstrated only a moderate level of knowledge or skill in the area under study. After the intervention, the post-test mean score increased significantly to **75.69 (SD = 12.02)**. The calculated **t-value of 11.71** at the given degrees of freedom is statistically significant at the **0.05 level**, confirming that the improvement in scores is not due to chance. This result demonstrates that the intervention had a substantial positive effect on participants' performance.

15. Overall, the workshop significantly improved my learning experience.
45 responses

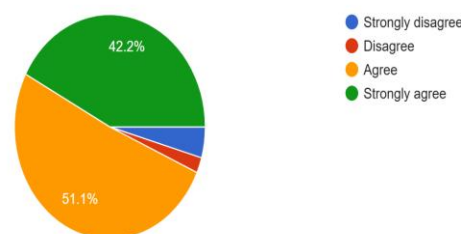


Fig 1: Percentage of student teachers' improvement related to Experiential Learning

Discussion

The findings clearly highlight the effectiveness of the intervention in enhancing participants' knowledge, skills, & attitudes. The marked increase in the mean score from pre- to post-test suggests that the strategies employed were impactful in facilitating learning. The statistical significance of the difference further strengthens the evidence for the intervention's success.

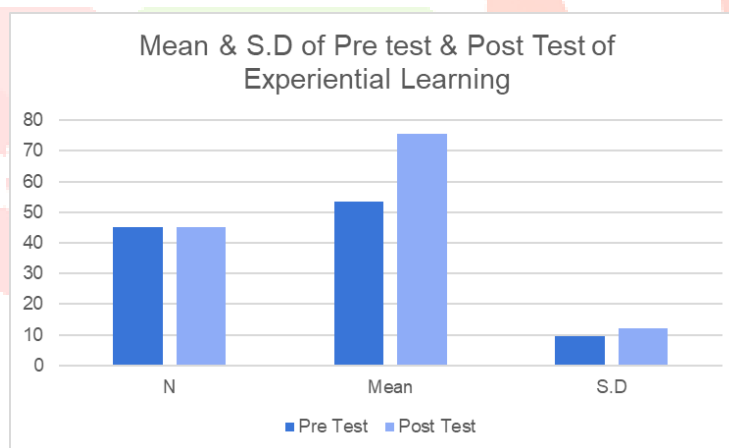


Fig 2: Graph showing improvement in mean & S.D in an Experiential Learning Intervention

The slightly higher post-test standard deviation (12.02 compared to 9.51) indicates some variability in the extent of improvement among participants. While most benefited, some participants may have gained more than others, possibly due to differences in prior knowledge, learning styles, or engagement levels.

From a pedagogical perspective, these results reinforce the importance of adopting experiential, interactive, or learner-centered approaches rather than traditional methods, as they appear to foster better understanding and retention. The significant improvement also indicates that the content, delivery, and structure of the programme were appropriate and aligned with the learners' needs.

The study establishes that the intervention was effective in significantly improving participant outcomes, validating the methods used. Future research could explore long-term retention of knowledge, factors influencing differential gains among learners, and scalability of the programme across diverse groups.

Qualitative data analysis

Hypothesis 2: There are improvements in perceptions with regard to the application of experiential learning in the classroom environment.

A. Perceptions of student teachers about “Experiential Learning”

The responses clearly highlight that experiential learning is perceived as fundamentally different from traditional classroom teaching. While traditional lecture-based teaching is described as teacher-centered, where students passively listen, take notes, and often rely on rote memorization for assessments, experiential learning emphasizes learning by doing. Participants consistently pointed out that experiential learning involves hands-on activities, direct engagement, real-life applications, and reflection, which make the learning process more interactive, enjoyable, and memorable. Unlike the monotony of lectures, experiential learning reduces passivity and increases student participation, motivation, and curiosity. Many respondents emphasized that this approach leads to deeper conceptual understanding, critical thinking, and life-long retention of knowledge. They also noted that it allows learners to connect theory with practice, making abstract concepts easier to grasp through practical demonstration, observation, and application. The responses suggest that experiential learning is not only more effective in enhancing comprehension and retention but also fosters active involvement, problem-solving, and long-lasting learning compared to the one-way transmission of knowledge in traditional teaching.

B. Enhanced confidence level to design experiential activities:

The responses show that participants feel confident in designing a wide range of classroom activities using experiential learning principles, particularly in science, mathematics, and social studies. Many highlighted hands-on experiments such as demonstrating reflection, refraction, dispersion of light, acids and bases, sound experiments with bottles and rubber bands, and floating and sinking objects to help students observe and discover concepts directly. Several participants also mentioned activities related to environmental education, like water conservation projects, creating mini gardens, or planting seeds to understand plant growth and sustainability. In mathematics, teachers felt prepared to design measurement-based tasks where students measure classroom objects to learn perimeter, area, or other properties through real-world problem solving. Role-playing and simulations were strongly emphasized as effective strategies, whether in history where students enact historical events or in social issues such as waste management, community problem-solving, or even mock business simulations that integrate teamwork, problem-solving, and critical thinking. Some also suggested creative approaches like using Rangoli patterns to teach geometry. Thus the responses clearly reflect a strong readiness to integrate experiential methods such as experiments, simulations, and hands-on activities that actively engage students in learning by doing, observing, and reflecting.

C. Developed strategies to create equitable learning environment

The responses indicate that teachers plan to use a range of strategies to ensure active and equitable participation of all students during experiential tasks. A strong emphasis was placed on small group work, role assignment, and role rotation, ensuring that every learner has a meaningful task such as recorder,

presenter, material handler, or observer, and that quieter students are encouraged to share their ideas. Many highlighted the need to create a safe and inclusive environment, where clear norms, expectations, and respectful collaboration foster equal opportunity. Teachers also suggested using constructivist approaches, real-life examples, and curiosity-driven activities to maintain engagement, along with varied participation methods to address different learning styles and needs. Monitoring each group closely, offering peer support, and using budget-friendly materials were also noted as ways to include all students fairly. Strategies such as think-pair-share, structured discussions, scaffolding, and reflection activities were seen as helpful in balancing voices and avoiding dominance by a few. Therefore the responses reflect a collective commitment to equitable, collaborative, and structured experiential learning environments where all students are actively involved, supported, and valued.

D. Assessing the learner in an experiential learning environment

The responses reveal that teachers plan to assess student learning and reflection in experiential lessons through a combination of observation, questioning, reflective writing, and group-based activities. Many suggested using reflective journals, worksheets, and short written tasks where students record what they did, observed, and learned, often connecting their experiences to classroom concepts. Oral strategies such as class discussions, group presentations, and Q&A sessions were also emphasized as ways to gauge understanding and encourage sharing of insights. Some participants proposed hands-on demonstrations or model-making (e.g., building a volcano model) to assess how well students can apply their learning creatively. Teachers highlighted the importance of checking both the process and product of learning, using formative assessments such as observation during activities, as well as summative approaches like structured reflections after tasks or field visits. Thus, the responses reflect a preference for active, process-oriented, and reflective assessment methods that move beyond rote recall, focusing instead on students' ability to connect experience with understanding, think critically, and demonstrate learning in practical and meaningful ways.

E. Changes in Teaching Practices after the Intervention programme

The responses reveal a strong commitment among teachers to transform their instructional practices by integrating experiential learning approaches that are both inclusive and impactful. A recurring theme is the increased use of hands-on activities, experiments, models, and real-world applications, allowing students to actively construct knowledge rather than passively receive information. Teachers emphasized moving away from lecture-heavy instruction towards activity-based and student-centered learning, where curiosity, creativity, and active engagement are prioritized.

Several participants stressed the importance of ensuring inclusivity by giving every student a role, encouraging equal participation, and designing tasks that address diverse learning styles and abilities. Differentiated instruction, cost-effective activities, and scaffolding were highlighted as strategies to make experiential learning accessible to all learners. Teachers also expressed intent to foster collaboration and teamwork, incorporating group work, discussions, and reflection exercises that value each student's voice and contributions.

Another notable change is the integration of reflection as a core element of learning, through journals, short notes, or group discussions, enabling students to connect their experiences with conceptual understanding. Some participants also pointed to culturally responsive and psychologically safe learning environments, ensuring that experiential learning is emotionally and intellectually engaging while being supportive.

Additionally, teachers mentioned adopting real-life examples, project-based tasks, and role-play to connect classroom learning with authentic contexts. A few also noted the role of technology and innovation in making lessons more engaging. Overall, the data reflects a shift toward creating inclusive, practical, reflective, and student-driven classrooms, where experiential learning is not only a method but a philosophy guiding active, meaningful, and equitable participation for all learners.

The qualitative feedback from participants highlights a clear and consistent recognition of the transformative potential of experiential learning compared to traditional lecture-based teaching. Teachers emphasized that while lecture methods often rely on passive listening and rote memorization, experiential learning promotes hands-on engagement, reflection, collaboration, and real-life application, making learning more meaningful and long-lasting. Across their reflections, participants expressed confidence in designing diverse activities ranging from science experiments. For assessment, teachers favored reflective journals, discussions, models, and process-based evaluations that capture both understanding and critical thinking. Finally, participants committed to bringing lasting changes to their teaching practice by prioritizing student-centered, activity-based, inclusive, and reflective approaches that create safe, supportive, and engaging learning spaces. Collectively, the responses affirm that experiential learning not only deepens conceptual understanding but also fosters lifelong skills, inclusivity, and meaningful student participation, marking it as a vital shift in contemporary pedagogy.

Recommendations

Based on the findings and reflections from this study, several key recommendations are proposed to strengthen the integration of experiential learning within teacher education and professional development programmes:

1. Institutional Integration of Experiential Pedagogy:

Teacher education institutions should systematically embed experiential learning principles across their curricula, ensuring that pre-service teachers are not only exposed to theory but are also provided with structured opportunities to design, implement, and reflect upon experiential teaching practices. Modules and practicum experiences should explicitly align with the experiential learning cycle—experience, reflection, conceptualization, and experimentation.

2. Professional Development through Continuous Practice:

Short-term intervention programme, while effective, should be supplemented with ongoing reflective practice, peer mentoring, and follow-up sessions to sustain learning gains. Continuous professional development models that include periodic refresher courses, collaborative action research, and classroom-based inquiry will help teachers internalize and refine experiential methods over time.

3. Focus on Reflective and Inclusive Pedagogies:

Teacher training programmes should emphasize reflective practice as a core professional competency. Structured reflection journals, peer feedback, and portfolio-based assessments can help teachers critically evaluate their teaching approaches. Moreover, equity and inclusion should be integral to experiential design ensuring that activities accommodate diverse learning needs, styles, and cultural contexts.

4. Resource Development and Contextual Innovation:

Institutions and policymakers should encourage the creation of repositories of low-cost, contextually relevant experiential learning materials and activity guides. Emphasizing indigenous knowledge systems, local resources, and community-based projects can enhance contextual relevance and sustainability, especially in resource-constrained settings.

5. Assessment Reform in Teacher Education:

Traditional assessment models should evolve to include process-oriented, performance-based, and reflective evaluations. Rubrics that assess creativity, collaboration, and critical thinking, in addition to content knowledge, can provide a more holistic measure of teacher readiness and professional growth.

6. Research and Policy Advocacy:

Further research is needed to examine the long-term impact of experiential learning on teaching efficacy and student outcomes. Policymakers and education boards should recognize experiential pedagogy as a central component of quality teacher preparation and provide institutional support for its large-scale adoption through policy frameworks, funding, and accreditation standards.

The outcomes of this study underscore the transformative potential of experiential learning as a driver of innovation, inclusivity, and reflective professionalism in teacher education. By institutionalizing experiential practices and fostering a culture of inquiry, collaboration, and creativity, teacher preparation programmes can prepare educators who not only teach effectively but also inspire lifelong learning and curiosity among their students.

Conclusion

The present study sought to examine the impact of a one-week experiential learning intervention programme on the knowledge, attitudes, and pedagogical readiness of pre-service teachers. The findings provide compelling evidence that structured experiential interventions can significantly enhance teacher competencies, particularly in translating theory into practice. Quantitative analysis revealed a statistically significant improvement in participants' cognitive understanding and application of experiential learning principles, demonstrating the effectiveness of the workshop design. The substantial gain in post-test scores indicates that even short-term, well-structured professional development programmes can produce measurable learning outcomes when they emphasize active participation, reflection, and contextual application.

Qualitative findings complement these results by illustrating the transformative influence of experiential learning on teacher beliefs and practices. Participants reported increased confidence in designing and facilitating experiential classroom activities, a stronger orientation toward learner-centered pedagogy, and a conscious effort to create inclusive and equitable learning environments. Their reflections also revealed an expanded understanding of assessment as a reflective and process-oriented practice rather than a product-focused evaluation. The integration of diverse hands-on activities, collaborative strategies, and reflective exercises not only fostered creativity and engagement but also strengthened teachers' professional identity as facilitators of active learning.

Collectively, these outcomes affirm that experiential learning intervention are powerful catalysts for pedagogical innovation and reflective practice in teacher education. They offer a scalable and sustainable model for developing 21st-century teaching competencies that align with constructivist and inclusive educational paradigms. Furthermore, the study underscores the need for teacher education institutions to embed experiential methodologies systematically within their curricula, ensuring that pre-service teachers acquire both conceptual clarity and practical fluency in experiential pedagogy.

Future research may build on this study by exploring the long-term retention of experiential teaching competencies, their transfer to classroom settings, and their impact on student learning outcomes. Comparative studies involving control groups or longitudinal tracking could further validate and deepen understanding of the enduring effects of experiential professional development.

The study therefore reinforces the transformative potential of experiential learning not merely as a pedagogical technique, but as an educational philosophy that cultivates reflective, inclusive, and dynamic teaching practices capable of preparing educators for the evolving demands of contemporary classrooms.

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