INTAKA WORKSHOP: INNOVATIVE EXPERIENCE

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ABSTRACT

Objective: This academic article aims to provide knowledge of the experience that has been had in the execution of a training workshop for teachers of tax schools in Ecuador, all within the framework of the project “Educational Innovation: taptana pedagogical proposal and the value of solidarity”.

Theoretical framework: This work is based on the research of Vásquez (2020), which indicates that Taptana seeks the recognition of identity, interdisciplinary knowledge, and the value of solidarity.

Method: The methodology used in this article is based on the principles of John Dewey, recognized for his pragmatic and experimental approach to education. The fundamental basis of this methodology is critical reflection and direct experience.

Results and Discussion: During the development of the workshop, teachers had the opportunity to participate in practices with the use of ICT, group discussions and reflections, inquiring about the use of Taptana in a real context in the classroom. They expressed greater confidence in their ability to carry out educational activities that promote respect for cultural diversity.

Research implications: This work contributes in a practical way to the training of students in an interdisciplinary manner using ancestral knowledge, because it can be applied in other areas of knowledge such as Social Sciences, Arts, Natural Sciences and Language and Literature.

Originality/Value: This order of ideas, which ultimately turns out to be an integrative and innovative experience in training, incorporating practice with the promotion of essential values for a just and inclusive society. The conclusions highlight the importance of continuing to develop similar initiatives to advance the improvement of the quality of education in Ecuador and the world.

Keywords: Teachers, Innovative experience, Pedagogy, Teaching and Learning Process, Solidarity, Taptana Cañari.

WORSHOP INTAKA: EXPERIÊNCIA INOVADORA

Objetivo: Este artigo acadêmico tem como objetivo apresentar a experiência vivida na execução de uma oficina de formação para professores de escolas fiscais no Equador, tudo no âmbito do projeto “Inovação Educacional: proposta pedagógica Taptana e o valor da solidariedade”.

Referencial teórico: Este trabalho baseia-se na pesquisa de Vásquez (2020), que indica que Taptana busca o reconhecimento da identidade, do conhecimento interdisciplinar e do valor da solidariedade.

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Método: A metodologia utilizada neste artigo baseia-se nos princípios de John Dewey, reconhecido por sua abordagem pragmática e experimental da educação. A base fundamental desta metodologia é a reflexão crítica e a experiência direta.

Resultados e Discussão: Durante o desenvolvimento da oficina, os professores tiveram a oportunidade de participar de práticas com o uso das TIC, discussões em grupo e reflexões, questionando sobre o uso do Taptana em contexto real de sala de aula. Expressaram maior confiança na sua capacidade de realizar atividades educativas que promovam o respeito pela diversidade cultural.

Implicações da pesquisa: Este trabalho contribui de forma prática para a formação de alunos de forma interdisciplinar utilizando conhecimentos ancestrais, pois pode ser aplicado em outras áreas do conhecimento como Ciências Sociais, Artes, Ciências Naturais e Línguas e Literaturas.

Originalidade/Valo: Esta ordem de ideias, que acaba por se revelar uma experiência integradora e inovadora na formação, incorporando a prática com a promoção de valores essenciais para uma sociedade justa e inclusiva. As conclusões destacam a importância de continuar a desenvolver iniciativas semelhantes para avançar na melhoria da qualidade da educação no Equador e no mundo.

Palavras-chave: Professores, Experiencia inovadora, Pedagogia, Processo de ensino e aprendizagem, Solidariedade, Taptana Cañari.

RESUMEN

Objetivo: El presente artículo académico pretende dar a conocer la experiencia que se ha tenido en la ejecución de un taller para capacitar a profesores de escuelas fiscales del Ecuador, todo en el marco del proyecto “Innovación educativa: Propuesta pedagógica Taptana cañari y el valor de la solidaridad”.

Marco teórico: Este trabajo toma como base la investigación de Vasquez (2020), quién señala que la Taptana busca el reconocimiento de la identidad, el conocimiento interdisciplinario y el valor de la solidaridad.

Método: La metodología usada en dicho taller se basó en los principios de John Dewey, reconocido por su enfoque pragmático y experimental en la educación. La base fundamental de dicha metodología es la reflexión crítica y experiencia directa.

Resultados y Discusión: Los docentes durante el desarrollo del taller tuvieron la oportunidad de participar en prácticas con el uso de las TIC, discusiones grupales y reflexiones, indagando el uso en contexto real de la Taptana en el aula. Expresaron tener más confianza en su capacidad para llevar a cabo actividades educativas que promuevan el respeto hacia la diversidad cultural.

Implicaciones de la investigación: Este trabajo contribuye de manera práctica a la formación de los estudiantes de manera interdisciplinar empleando un saber ancestral, porque puede aplicarse en otras áreas del conocimiento como Ciencias Sociales, Artes, Ciencias Naturales y Lengua y Literatura.

Originalidad/Valor: Es este orden de ideas, el taller figuró ser una experiencia integradora e inovadora en la formación, incorporando la práctica con la promoción de valores esenciales para una sociedad justa e inclusiva. Las conclusiones destacan la importancia de seguir desarrollando iniciativas similares para avanzar en la mejora de la calidad de la educación en el Ecuador y el mundo.

Palabras clave: Docentes, Experiencia innovativa, Pedagogía, Proceso de enseñanza y aprendizaje, Solidaridad, Taptana Cañari.

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1 INTRODUCTION

This academic article entitled "INTAKA Workshop: innovative experience" arises as a study that touches on the subject of teacher training to develop comprehensive educational processes, based on the pedagogical proposal of the "Taptana Cañari", developed by the National University of Education in Ecuador within the framework of the Project Educational Innovation: Taptana Cañari pedagogical proposal and the value of solidarity. This workshop symbolizes an effort by researchers and educators to address current training challenges to bring about quality and equity education in Ecuador.

This pedagogical invitation, based on the ancestral culture of the Cañari community, seeks to save and value cultural roots as a notable part of Ecuadorian identity, thus provoking an inclusive and respectful education of diversity. In order to have an objective and fair society, it is essential to promote training that first respects the national (Rodríguez, 2020). The general objective of the INTAKA workshop is to train teachers to develop comprehensive educational processes based on the pedagogical proposal of the "Cañari Taptana" and the value of solidarity.

Ecuador faces a number of challenges, including the need to foster inclusive education that values and recognizes existing cultural diversity. The INTAKA workshop was born as a response to these challenges, providing teachers with strategies and tools to face cultural diversity in the classroom and promote equitable education, so, to affirm a quality education that responds to cultural needs and local realities, the training of teachers in innovative methodologies is relevant (Vargas et al., 2021).

The pedagogical invitation that is made with the Cañari Taptana (object initially used as an accountant by the Cañari to keep a control and record of their goods and resources) has its pedagogical principle founded on respect for interculturality, contextualization and meaningful learning. According to Martínez (2018), the approach of the "Taptana Cañari" is nourished by direct style and critical reflection as an anchor for meaningful learning, thus generating a more relevant and special educational process for students, then, it can be said that this practice aligns with international trends in education, which highlight the importance of a pedagogy focused on the student and his cultural environment (López, 2019).

During the INTAKA workshop, the methodology of John Dewey was used, focused on the experimental and the pragmatic in education. This author opted for a teaching focused on critical reflection and direct experience as a basis for meaningful learning (Martínez, 2018). Thus, the INTAKA workshop adopts a participatory and experiential methodology that allows...
teachers of the Ecuadorian education system of zone 6 to experiment and reflect on the practical application of the "Taptana Cañari" pedagogy in their educational work.

In conclusion, the INTAKA workshop was an innovative experience in teacher training, which merges theory with educational practice and originates vital values for a fair and inclusive society, this article aims to contribute to scientific knowledge in the field of training innovative teachers and improving educational quality in Ecuador, through the analysis and sharing of results obtained in this stage of applied research.

2 THEORETICAL REFERENCE

In Ecuador, the educator and researcher Luis Montaluisa devised in 1993 a Taptana as a didactic resource that shows that this object is a type of calculator built about 3500 years ago by an aboriginal people of southern Ecuador called the Cañaris. This resource is still seen in the institutions of Intercultural Bilingual Education as a wooden resource with colored rows of 9 holes that includes the moon and is based on the positional value of the number.

Figure 1

Contador Cañari

Note: Image taken from Montaluisa (2010, p. 37-38)

For his part, Professor Marco Vinicio Vásquez, begins the investigation of the Cañari Taptana in 2014, for this, he creates the Taptana UNAE and from this many investigations of the Taptana have been developed. Thus, Vásquez's research (2020) points out that:

The taptanas that have been found in the country have been carved in stone or built in wood, that is, the structure is diverse and subject to two characteristics: (1) a larger
concavity, located in the most important part of the object and (2) several rows in the form of a snake that we will call *leokines* of nine smaller concavities, perfectly defined and grouped in a way that does not generate any ambiguity (p. 62-63)

In this sense, the *Taptana* seeks the recognition of identity, interdisciplinary knowledge and the value of solidarity exposed by Vásquez (2020) in the book “*Taptana* cañari integral knowledge”. Therefore, the scientific, cultural and didactic importance of the Cañari Taptana deserves that educational institutions support initiatives for the use and operation of this ancestral tool.

**Figure 2**

*Taptana* UNAE

The construction of the Taptana UNAE was developed from the identity criteria that identify this object as the *leokines*, macaws and the moon (killa). Even, the *Taptana* goes beyond the means to perform basic operations of addition, subtraction, multiplication and division, this is related to the value of solidarity exposed in the work of Vásquez (2020). This is thought as a civic or citizen bond or as a political mediator between the individual and the community, even this value is related to identity and respect for it, harmonious being and teamwork through social responsibility proceeding with understanding, empathy and tolerance.

In this sense, the educational innovation that develops from the INTAKA Workshop
declares this as the “Ingenuity to create new educational tools and processes of teaching and learning that mobilize the generation of human competences or qualities (knowledge, skills, emotions, attitudes and values) for citizen well-being” (Vilanova and Vásquez, 2016). Given that, the use of the Taptana Cañari seeks to overcome the traditional forms of teaching that still exist in the Ecuadorian educational system and contribute to the fulfillment of the exit profile of the Ecuadorian Bachelor in the formation of values.

3 METHODOLOGY

The development of the INTAKA workshop was carried out following a participatory and experiential methodology, which allowed the participating teachers to experiment and reflect on the practical application of the pedagogical proposal of the "Taptana Cañari" and the value of solidarity in their educational work. Following Dewey's principles, the methodology was a direct experience and critical reflection on meaningful learning. The participating teachers were invited to actively explore the proposed concepts and practices, through practical activities, group discussions and individual reflections (López, 2019).

The first phase of the workshop consisted of a theoretical introduction to the pedagogical proposal of the "Taptana Cañari" and the principles of solidarity. At this stage, teachers had the opportunity to familiarize themselves with the theoretical foundations of the proposal, as well as to reflect on its relevance in the current educational context. Practical examples of the application of the "Taptana Cañari" in the classroom were presented, as well as strategies to foster the value of solidarity among students. (Martinez, 2018)

The second phase of the workshop focused on the practical application of the proposed concepts and practices. The participating teachers were divided into small groups and assigned the task of designing their own Taptana and carrying out an educational activity based on the "Taptana Cañari" and the value of solidarity. During this phase, the teachers received guidance and support from the workshop facilitators, who provided feedback and advice on the planning and implementation of the activities. (Rodriguez, 2020)

The third and final phase of the workshop consisted of an evaluation and reflection on the process and the results obtained. The participating teachers were invited to share their experiences and learning, as well as identify possible areas for improvement and future development. A group feedback session was held, in which participants' comments and suggestions were collected to inform the planning of future editions of the workshop (Vargas et al., 2021).
In summary, the methodology used in the INTAKA workshop was based on the principles of John Dewey, focusing on direct experience and critical reflection as the foundations of meaningful learning. Through practical activities, group discussions, and individual reflections, the participating teachers had the opportunity to explore and apply the pedagogical proposal of the "Taptana Cañari" and the value of solidarity in their educational practice.

4 RESULTSS AND DISCUSSIONS

In the academic article entitled "INTAKA Workshop: Innovative Experience", the metacognition ladder was applied as a methodological tool to collect information about the experience of the participating teachers. The application of this technique allowed a deep reflection on the learning process and the implementation of the pedagogical proposal "Taptana cañari". Following the principles of metacognition, participants were guided to analyze their own cognitive processes and become aware of their teaching strategies, which provided a more complete understanding of the challenges and achievements experienced during the workshop. This methodology aligns with the approaches of Flavell (1979), who introduced the concept of metacognition and its importance in the self-regulation of learning.

The application of the metacognition ladder allowed a holistic assessment of the workshop experience, from the initial understanding of concepts to practical application in the classroom. The participants were guided through different levels of reflection, which included the identification of their own strengths and weaknesses in the implementation of the pedagogical proposal "Taptana Cañari and the value of solidarity". This approach provided a detailed insight into the cognitive and emotional processes involved in learning and teaching, which significantly enriched the understanding of the workshop outcomes. The application of the metacognition ladder highlighted the importance of critical thinking and self-reflection in the continuous improvement of teaching practice, as Veenman (2005) points out in his research on metacognition in the educational context.

Table 1

<table>
<thead>
<tr>
<th>Questions</th>
<th>Easier and more difficult aspects</th>
<th>Utility</th>
<th>Future Applications</th>
</tr>
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</table>

1. What have I learned? Elaboration of the Taptana was easy; the division proved difficult. Valuing roots as part of identity. In school and personal activities.

2. What has been easier and more difficult? Adding and subtracting was easy; multiplication and division, difficult. Apply in interdisciplinary learning. Development of interdisciplinary projects.

3. What good did it do me? Apply the Taptana in different educational contexts. Learn about Cañari culture and how to apply Taptana. In the classroom and recreational activities with students.

4. On what other occasions will I use what I have learned? Develop innovative teaching materials for interdisciplinary projects. Continue the teaching process in various areas. In interdisciplinary projects and classes.


Source: Metacognition Ladder Application Survey.

The results of Table 1 provide a multifaceted view of the experience of the participants in the INTAKA Workshop, highlighting both the positive aspects and the challenges encountered during the process. Most participants expressed learning about the importance of valuing their cultural roots, respect for the identity of who we are and where we come from, and the practical application of Taptana in various educational and personal contexts. This suggests that the workshop achieved its general objective of sensitizing teachers about the integration of the pedagogical proposal "Taptana Cañari and the value of solidarity" in their educational practice, as proposed by Rodríguez and Vásquez (2020) in their study on the implementation of innovative pedagogical approaches.

Although many participants found the elaboration of the Taptana relatively easy, some expressed specific difficulties in applying it, especially in more complex mathematical operations such as multiplication and 3-digit division. These findings support the conclusions of García et al. (2019), who highlight the importance of continuous training and adequate support for the effective implementation of new educational methodologies, especially those that require specific technical skills.

Regarding the perceived usefulness, participants pointed to the practical application of the Taptana in various educational activities and the integration of Cañari culture in the classroom as beneficial aspects of the workshop. This is in line with the recommendations of Martínez and Jiménez (2018), who advocate the inclusion of pedagogical practices that promote the valuation of cultural diversity and experiential learning in the school curriculum. Since this...
encounter with Cañari culture through an ancestral resource integrates this dialog of knowledge of the mathematical knowledge of the school and culture.

In terms of future applications, many participants expressed their intention to use what they learned in interdisciplinary projects and collaborative classroom activities, which coincides with the current trend towards a more holistic and contextualized educational approach. This perspective is aligned with the proposals of Pérez and Gutiérrez (2017), who advocate a change in teaching towards more inclusive and student-centered models, and that they are more contextualized learning from the integration of innovative resources with cultural relevance such as Taptana.

Regarding the assessment of the workshop facilitator, most participants described it as dynamic, empathetic, and motivating, suggesting a positive impact on the overall workshop experience. These findings support the importance of the facilitator's role in facilitating meaningful learning, as discussed by Hernández and López (2021) in their research on effective teaching strategies.

5 CONCLUSIONS

The results obtained from the table show a series of significant conclusions about the experience and perception of the participants in the workshop. First, it is noted that the elaboration of the Taptana was generally easy for the participants, while the operation of the division was identified as a more difficult aspect. This finding suggests that while the implementation of certain aspects of the methodology was accessible, there are specific areas that require greater attention and practice for their full mastery.

It is also evident that the application of the Taptana has served participants to value cultural roots as an integral part of their identity. This result underscores the importance of integrating cultural elements into the educational process to promote greater appreciation and understanding of cultural diversity, in line with the recommendations of authors such as Smith (2017). This element is key to the value of solidarity, in which respect for identity and recognition of other forms of learning are worked.

Regarding the future applications of what was learned, there is an interest on the part of the participants in using the Taptana and the knowledge acquired in interdisciplinary projects and playful activities in the classroom. This finding suggests significant potential for the integration of Taptana in different educational contexts, which could enrich the learning experience of students and foster a more holistic approach to education.
Finally, the positive perception towards the facilitator of the workshop, described as empathetic and motivating, highlights the importance of the role of the teacher in the educational process. A facilitator with these characteristics can significantly influence students' motivation and commitment, which can have a positive impact on their learning experience, in line with the conclusions of authors such as García (2020). In summary, the results of this study highlight the usefulness and potential of the Taptana as a pedagogical tool, as well as the importance of the role of the facilitator in the educational process.

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