Innovative methodologies and ICT mediation: Challenges in the careers of the University of Managua

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ABSTRACT

Innovative methodologies for the teaching–learning process, making use of information and communication technology (ICT) in undergraduate courses at the University of Managua (UdeM), has focused on the design and development of relevant technological tools. The objective is to contribute to the design of relevant technological tools and didactic situations that facilitate the implementation of innovative learning and teaching methodologies at the UdeM and the development of skills from a transformative, integral, and permanent perspective for the achievement of quality in teacher training as a strategic teacher. The research assumes a qualitative approach, diagnosing the needs and challenges in the implementation of innovative methodologies by teachers in the teaching–learning process at the UdeM. The findings obtained have allowed the development of pertinent resources and didactic proposals, providing teachers with tools to improve the quality of training and promote active and meaningful learning of students. The main results were obtained. The paper is the result of a research project, which has contributed to the advancement of higher education through the effective integration of ICT in undergraduate courses at the UdeM, promoting transformation and continuous improvement in teaching.

Keywords: mediations, innovative methodologies, ICTs, University of Managua

1. INTRODUCTION

Current university educational scenarios have become a motto whose mission is to prepare students to "learn to learn"; however, the results of recent educational research show that traditional approaches continue to prevail in the teaching process. This reality finds a higher level of impact in the methodological and pedagogical transformations that teaching has undergone, demanding to think of alternative ways to motivate students, to stimulate their creativity, increasing their participation in the training process as strategic learners.

The teaching role must be subject to a reconfiguration, striving for the dismissal of those practices that hinder learning and reflecting on those that depend on an innovative and socio-constructivist approach where it manages to transcend the scheme of rationality for creativity in teaching (Anijovich, 2019). The continuous pedagogical training to teachers should make them aware that to improve the formative process, it is not enough that teachers "only know about the subject of the subjects they teach" or use pedagogical strategies in a mechanical way; it is important that they know about the processes that are activated in the action of learning and teaching, as well as pedagogical

approaches that contribute to the understanding of a pedagogy of emotions (Benavidez & Flores, 2019).

In this sense, the University of Managua (UdeM) has great challenges: to assume a paradigm shift focused on learning, which represents a renewal of teaching practices, and a strengthening in their cognitive, metacognitive, and technological capabilities, from a humanistic and ethical function. Based on this postulate, they will be able to understand the analysis of learning strategies based on problems, debate, argumentation, cases, metacognition, mobile, electronic portfolios, service, authentic, and situated, which will be useful if they wish to reach social constructions of knowledge, design innovative learning situations, and towards the generation of new conclusions.

In the light of pedagogical theories, the continuous formation of learning by doing is intended. Traditionally, the methodology applied in teaching has been characterized by encyclopedism, the primacy of content, the passivity of the student, and the teacher as a simple transmitter of knowledge. Technological progress implies a change in which today's knowledge will be obsolete in a few years since students do not need repetitive knowledge, but to learn to solve problems, reason about new situations, and be able to adapt to changes (Monereo, 2018).

The understanding of learning and teaching strategies from this perspective implies for the UdeM, rescuing the integral and contradictory, never linear nature of learning, as well as, the questioning of psycho-pedagogical problems with an ethical, innovative, and creative attitude. For this, it is of interest that teachers know some of the most important methodologies of today, which explain how to develop innovative formative situations and the fundamental and mediating role of culture and others, to enrich

the cognitive and affective structures, therefore, stimulating the process of learning to learn (Montoya, 2018).

Consequently, the general objective is to contribute to the design of technological tools and relevant didactic situations, which facilitate the implementation of innovative learning and teaching methodologies at the UdeM and the development of skills from a transformative, comprehensive, and permanent perspective for the achievement of quality in teacher training as a strategic teacher.

2. METHODOLOGY

The qualitative paradigm is assumed in this study, which becomes an interpretative proposal that is oriented to describe and interpret the phenomena in their natural context, in their history, to achieve a detailed and deep representation of the dynamic and global behavior of the teacher training processes.

Throughout the research process, it is a condition to assume the integration of the meanings and meanings contributed by the people who participate in the implementation of innovative learning and teaching methodologies at the UdeM, and the interpretations made by the researchers, and to return the results to them for decision making.

The methodology to be used is exploratory, descriptive, and explanatory from the research point of view. The intervention strategy to be used is diagnostic stage, foundation and design, and application and evaluation, as a result of continuous training, postgraduate studies, and teaching supervisions.

The UdeM is intentionally selected as the context. The unit of analysis is selected intentionally, being the teaching management. In the exploratory study, a sampling by maximum variety (66.6%) was selected. During the intervention

process, 15 professors are purposively selected, among them career coordinators and supervisors, in addition to a sampling by key informants (Academic Vice Rector, teaching director, research director, and postgraduate).

The empirical methods and techniques used were document analysis, participant observation, qualitative interview, and focus group discussion.

3. RESULTS AND DISCUSSION

The results of the diagnosis intended to propose didactic and investigative actions, mediated by training (course and diploma) to teachers, and supported by participant observation and discussion group.

From the training to supervisors "didactics in supervision," as a first diagnostic phase and supervision to teachers, accompanying the supervisors themselves, in May 2019, the following regularities emerged from the diagnosis and aided by participant observation and formative survey in training and supervision.

Taking into account the comparison between the current state and the desired state, resulting from the methodological triangulation, with emphasis on participant observation, the following potentialities and weaknesses are declared:

- Potentialities: teachers are aware of the supervision of class, and they manage to reveal the professional link with the subject, aided by professional problems, practical cases, situations of daily and working life, adequate theoretical preparation, adequate use of teaching means, promotion of values for the achievement of learning for life, practice of empathy, and affordability of the content.

- Weaknesses to be improved in class: exemplification of concepts to achieve better understanding, empowerment of self-learning through the educational platform, linkage of the content with the profession, use of innovative strategies for learning to learn, didactic sequence focused on the development of the class, traditional didactic planning, continuous motivation towards the class, teamwork, and predominance of the explanatory method in class.

Based on the regularities of the diagnosis and the need to obtain a more accurate representation of reality, it was decided to train teachers in two moments: a course in 2019 "Innovative Didactics in Higher Education" and a diploma course in 2020 "Didactic Planning in Higher Education."

With the application of the motivation survey, focus group, participant observation, and semi-structured group interview with teachers, the following results were obtained:

- Potentialities resulting from the course and diploma course: dialogue, reflections from experiential practice, alternative formats of self-learning guides for the most effective use of the educational platform in practice and the incentive of learning to learn in students and teachers as strategic teachers, design of various innovative teaching resources (infographics, mind maps, game-based learning, projects, challenges, experiential, professional cases, educational videos, and others) with their corresponding worksheets, use of learning evaluation rubrics to improve learning, syllabi based on innovative methodologies for learning to learn and their

practical visualization with a group of students at the science fair, as well as, the publication of an article in the *Journal Ensayos Pedagógicos*, a monograph in Editorial Feijoo, and three events in international congresses.

- Aspects to be improved: more dynamic use of the platform to promote autonomous learning in students from the self-learning activity, various alternatives to promote formative evaluation, the need to transfer the paradigm focused on teaching to the paradigm focused on learning and familiarization with the publication of scientific articles, writing of monographic materials, and participation in events, based on the results of educational practice.

4. CONCLUSIONS

The application of methodological tools to implement teaching–learning strategies in the formative process of higher education, with emphasis on innovation, oriented towards the approaches of interactivity and creativity, aided by the platform created for this purpose at the UdeM, innovative methodologies, didactic planning and the creation of learning spaces, as well as strategies and techniques for the development of learning to learn.

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