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The Myth of Teacher Performance Improvement with the Use of ICT

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ABSTRACT : This chapter presents the main findings of a research study focused on the teaching of History, Social Sciences, and Humanities within the High School system of the Universidad Autonoma de Sinaloa. The primary question addressed is: What is the performance of teachers in the use of ICT as a didactic resource in their educational practice? "This research uncovers situations and contexts which confirms the initial and empirical ideas applied to the high school systems in this university, such as the challenging conditions for integrating information technology into teaching processes and the limited technological infrastructure in many high schools. We argue that there is a notable lack of enthusiasm for effectively utilizing technological resources in teaching practices.

Keywords - teacher performance, professional development, ICT-based teaching.

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1. INTRODUCTION

This paper presents a research study conducted at the high school level of the Universidad Autonoma de Sinaloa (UAS), aimed at understanding the performance of teachers in utilizing ICT (information and Communications Technology or Technologies) in the teaching of Social Sciences, Humanities, and History. It should be noted that this research is not presented as a final study but rather as a formalized and academically oriented exploration. The problematization of the study's object focuses on a group of teachers selected based on the distribution of their roles within the educational centers comprising this educational subsystem. The first section addresses materials and research methodology, encompassing the approach and instruments utilized for data collection, the planning of data processing, and the execution of the treatment and analysis of the obtained information.
In the second section, results are presented, and the discussion of the research findings related to the performance of high school teachers in the use of ICT is provided. This section addresses the analysis and reflection of the research.
Teaching in the areas of History, Social Sciences, and Humanities at the high school level of our institution (UAS) is considered of paramount importance. These disciplines play a crucial role in shaping civic and ethical awareness in the new generations of professionals demanded by society from Higher Education Institutions.
In this case, the research aims to delineate the use of ICT in teaching the mentioned subjects, considering that these technologies transcend mere physical supports and play a pivotal role in information processing within teaching and learning processes. The integration of these technologies constitutes a significant component in contemporary standards of teacher training and professional development, particularly when applied in the high school curriculum and institutions, given their extensive reach and social commitment. Therefore, it is

imperative for teachers to acquire the necessary competencies to effectively implement these technologies in their daily classroom practices. Recognizing that the quality of education hinges on the academic proficiency of the teaching staff, educational institutions strive to incorporate electronic and communicative tools into teaching and learning dynamics.

From this perspective, the central research question is formulated as follows: What is the performance of teachers when utilizing ICT as a didactic resource in teaching Social Sciences, Humanities, and History at the university-level high school?
Similarly, the overarching objective of the research is to comprehend and elucidate the transformations experienced by teachers through the utilization of ICT as a didactic resource in these domains within the university-level high school system.

2. MATERIALS AND METHODS

Currently, the UAS is guided by an educational reform aimed at positioning the institution as one of the premier public universities in Mexico, garnering both national and international recognition. This objective is grounded in the acknowledgment that significant global changes in the economic, political, and technological domains exert a decisive influence on the operational landscape of Higher Education Institutions (UAS, 2009: 29).
The UAS high school system boasted 45,000 students across 19 municipalities of the state, providing various modalities at this level. This serves as a fundamental factor in the foundational training and preparation for the job market for young individuals. Simultaneously, it furnishes them with comprehensive knowledge in readiness for further tertiary education pursuits. Presently, this subsystem stands as the preferred avenue for accessing upper secondary education, owing to its educational quality and the modest investment costs it entails for families with limited to moderate financial resources. Additionally, it offers extensive coverage and a myriad of opportunities (UAS, 2010: 9).
The General Directorate of Preparatory Schools (DGEP) functions as the primary entity overseeing the planning, coordination, and supervision of operations at the upper secondary level within UAS. In fulfilling its duties, the DGEP is tasked with overseeing curriculum implementation and ensuring the continuous training and professional development of teaching staff. Consequently, such entities are expected to uphold and enhance an educational and training system that serves as a crucial cornerstone for societal advancement, as well as for the Higher Education Institutions (HEIs) it serves.
This high school system adopts a learner-centered educational model. Since 2009, it has implemented a curriculum grounded in a competency-based educational approach, emphasizing the integration of ICT in teaching, and learning processes. In the realm of teacher training and professional development, the DGEP has identified eight strategic lines of focus, one of which is dedicated to training and updating in new technologies. This strategic line aims to provide training in ICT utilization with a focus on learning. Additionally, noteworthy lines of focus include those pertaining to pedagogical-didactic and disciplinary updates (DGEP, 2010: 218-219).
In this context, the inquiry was guided by two concepts that delineate the description of teacher performance and the use of ICT for didactic purposes. Teacher performance is understood as the amalgamation of activities that a teacher undertakes in their daily responsibilities, including class preparation, delivery, and explanation, student guidance, assignment grading, evaluation of learning outcomes, communication with colleagues and institution authorities, as well as engagement in training programs. Teacher performance is the culmination of daily actions undertaken by educators, both within the classroom and in interactions with colleagues, administrators, and institutional authorities (Fernández, 2008: 390-391).
On the other hand, the reference to the uses and educational applications of ICT is conceptualized as novel avenues for accessing, generating, and sharing information and knowledge. Julio Cabero (2007) explores the possibilities available to teachers within an environment where ICT is readily accessible and utilized in their teaching practice. This exploration is based on elements such as the integration of computer resources in education, the development of diverse methodologies, the restructuring of organizational frameworks, and the fostering of motivational dynamics. Furthermore, it involves the adoption of a critical, didactic, and pedagogical

approach to the use of technologies in academic contexts, thereby engendering new educational scenarios that engage both educators and all stakeholders in these educational processes (pp. 2-8).

In this study, the teacher's role is regarded as fundamental, as they are not viewed solely as mechanical executors of the curriculum, but rather as actors who make decisions based on their own knowledge, beliefs, and experiences. This research is situated within the qualitative method and adopts an ethnographic approach focused on the analysis of verbal data and teaching practices, which illuminate teachers' experiences in their daily classroom interactions.

Ethnography offers a method for exploring educational issues that may be challenging to address using other research methods. It involves the description of observations, actions, and behaviors of individuals within a specific context, viewing them as a unified whole rather than mere isolated elements (Rockwell, 2009: 18). Ethnography captures implicit aspects of social interactions that may not be explicitly expressed in formal discourse, revealing insights that may otherwise remain hidden. Through this approach, it generates nuanced knowledge that extends beyond surface-level observations, providing descriptions and interpretations of reality from a particular perspective, such as classrooms and schools, within a broader context. As María Bertely (2002) suggests, the educational ethnographer "explores the profound meaning of what is said and done in schools" (31).

Through this heuristic process, several tools derived from ethnographic techniques were utilized, including field notes, observation records, questionnaires, and interviews. These methods were complemented by a recording team to facilitate the development of a comprehensive description of all observations. Additionally, expanded observation records were created, and the most reliable data were obtained through processing using specialized software (QSR Nvivo 8).

From the subset of 12 schools examined, 4 were chosen from the UAS high school system, situated in Culiacán, the capital of Sinaloa state. The study sample comprised the following subject selection: 3 teachers from the Academy of Social Sciences, Humanities, and History; 1 teacher responsible for the audiovisual room; 2 members of the management team, and 60 students from the first, second, and third grades, with 20 students in each. This selection was implemented in 4 out of the 12 schools located in the same area, resulting in a total sample of 12 teachers from the teaching areas, 4 in charge of the audiovisual room, 8 managers, and 240 students from the three academic grades. The teacher sample was chosen through a diagnostic assessment applied in the 4 high schools, considering them as key informants for the study. Characteristics considered included the academic workload of active teachers, membership in the Academy of Social Sciences and Humanities (Acsh) and in the Academy of History (Ah), and basic knowledge of the meaning and importance of Information and Communication Technologies (ICT).

Once the criteria for sample selection were defined, the instruments were applied in the following order: a survey of 240 students, with 60 students from each school; semi-structured interviews with 12 teachers from the Academy of Social Sciences, comprising 3 teachers per school; interviews with 4 supervisors of audiovisual rooms, one from each school; interviews with 8 managers, including 2 from each school; non-participatory observation of classes taught by 8 teachers, with 8 classes per teacher; a survey of 40 teachers, with 10 teachers from each school.

The data documentation process involved three stages: data recording through printed surveys, interview recordings, and video footage; transcription through the capture of printed data and voice and image recordings using software QSR Nvivo 8, which serves to analyze qualitative research in order to manage, profile, and make sense of the information.

The information was meticulously organized by date, high school, instrument applied, and subjects, beginning with semi-structured interviews and direct non-participatory observations of teachers, followed by interviews with students, principals, coordinators, and audiovisual room supervisors. Surveys of teachers and field notes were also conducted. Once the data were organized by date, they were digitized using the text editor of the program QSR Nvivo 8 for management through "memos," which are records of the transcription of semi-structured interviews, in-depth interviews, observations, and field notes.

Multiple interviews were conducted as follows: one principal per school, five students from two groups per school, and one audiovisual room supervisor per school. Subsequently, the interviews were transcribed using the software QSR Nvivo 8, and the recordings were repeatedly reviewed until the data addressing the specific objectives of the research were obtained. These objectives aimed to identify the level of knowledge in the application of ICT as a didactic resource by teachers in the areas of social sciences, humanities, and history, as well as the educational level of the UAS. The survey records were organized into a database designed in the software (Dyane 2.0), which stores the data for discretionary management. This software allows for the design and analysis of data in social and market research.

After obtaining the survey results, field notes were processed by capturing them in the editor. Upon inputting the data into the editor, they were recorded, and electronic files were created. These files were incorporated into the program QSR Nvivo 8 to become part of the primary resources, i.e., internal elements as designated by the program. Similarly, the data from observations and in-depth interviews were treated, also becoming part of the primary resources in the program. These internal elements were organized by concept or "node," which represents the concept or category representing the unit of registration. The criteria used to divide the information into units were of three types: thematic criteria, temporal criteria, and social criteria.

Thematic criteria involve the use of physical criteria that consider units based on the topic addressed. It encompasses conversations, events, and activities occurring in the studied situation, where segments discussing the same theme can be identified. The temporal criterion, when analyzing interview transcripts, could define segments or units by establishing a duration in minutes; observation records can also be segmented by temporal periods of minutes, hours, or even days. For this type of segmentation, it's essential to annotate temporal references alongside the data records. Social criteria entail each differentiated segment in the text corresponding to information regarding subjects fulfilling the same social status or role. Upon gathering all available information and lacking further references, the researchers proceeded with the following categorization: Faithfully transcribing the contents of procedural information; dividing the contents into thematic unit portions (paragraphs or groups of paragraphs expressing a relevant idea or concept). After separating units in the text editor of the software QSR NVivo 8, categories and subcategories are created using the "create nodes" option, i.e., the text is coded into the node. Categorizing means creating a descriptive category; categories were grouped or associated according to their nature and content.

Categorizing or classifying parts in relation to the whole, describing meaningful categories or classes, designing and redesigning, integrating and reintegrating the whole and its parts, as the material was reviewed, the meaning of each part, event, fact, or data emerged until the findings that answered the central research question were obtained. The next step was to introduce theorization applied in a formal and structural method to triangulate with the data obtained and the methods applied in this research (Martínez, 2000: 71-79).

Within the framework of qualitative research, triangulation involves the use of multiple strategies to study the same phenomenon, employing various qualitative methods such as interviews, observation, and surveys. This triangulation aimed to verify and compare the information obtained at different data collection moments through different means, to enhance the reliability of the results, reduce biases, and increase understanding of high school teachers' performance in using ICT in the areas of social sciences, humanities, and history. This work is part of a line of knowledge generation and application that allows for acquiring new insights with the purpose of making them available for further research related to the same theme.

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3. RESULTS AND DISCUSSION

From the semi-structured interviews conducted with 12 teachers, whose tenure ranges from 3 to 20 years, the following findings are highlighted for each of the related schools:

In Preparatory School One, the results yielded by the applied instruments are as follows: a significant portion of teachers hold adjunct appointments; their professional backgrounds vary, including degrees in social work, law, and education; some teachers have received training in ICT through computer courses taken during their academic studies.

Furthermore, it was found that teachers use ICT as support for their classes despite having limited training in the use of technological resources. Through practice, teachers have endeavored to incorporate them in the evaluation and reinforcement of certain themes through projections in the classroom, serving as an audiovisual room, with the idea that by using them as support in both teaching and assessment, they aim to generate meaningful learning in students.

Teachers believe that the ideal scenario for constant use of computer resources is to have classrooms equipped with a personal computer for the teacher, a video projector, and internet access. They also expressed that for teachers to receive training in the use of ICT, it is necessary to have a training program offered by the governing bodies. They consider it a priority to obtain resources to ensure that classrooms are optimally equipped with appropriate technologies to make learning more efficient.

In Preparatory School Two, the results yielded by the applied instruments are as follows: a minority of teachers hold full-time appointments; their professional backgrounds are not in history; some teachers have Master's degrees and others have Doctorates; some teachers have taken refresher courses according to the Academy of the knowledge area they belong to, provided by the DGEP. This enables them to use technology in the classroom and in the "audiovisual room." They affirm that the use of technological resources can enhance interaction and student attention in class by using video materials and presentations with software such as PowerPoint.

The interviewed teachers believe that by using computer resources in history teaching, students can immerse themselves in a specific period or era and engage in debates with media outlets. In some classes, teachers assign documentaries as homework and require students to research via the internet and compare findings using presentation slides created with software. Additionally, students are instructed to utilize links or hyperlinks provided by the teacher when the audiovisual room cannot be used. At the end of the semester, students engage in activities in the audiovisual room through presentations as part of their subject evaluation.

Despite limited electronic equipment infrastructure in the "room," the teacher includes it in planning even with obstacles such as class schedules not aligning with the semester's academic calendar for activities in the designated space. Despite no classrooms being equipped with projectors or computers, making it difficult to carry out planned ICT activities in class, teachers and students make efforts to include them. To further develop their ICT application skills, teachers believe continuous courses on updated programs and educational platform creation, as well as software management for everyday teaching practice, are necessary.

Findings from Preparatory School Three revealed that most teachers hold adjunct appointments; their professional backgrounds are in history. Some teachers hold master’s degrees or Doctorates, with some having taken computer courses during their undergraduate studies. Therefore, teachers expressed a lack of ICT training as didactic resources, emphasizing the need for further training and increased electronic infrastructure in the school. They also suggest a change in student attitude and institutional political, economic, and social structure.

Teachers face limited ICT application in classes due to the absence of technological resources in classrooms. Additionally, the audiovisual room is often occupied by other teachers or activities in physical-mathematical and chemical-biological areas, and it is not always disponible. Students use the audiovisual room for end-of-semester presentations, but the teacher's concern lies in verifying if students have assimilated knowledge through the didactic use of electronic resources.

Regarding professional development, teachers receive updates through courses offered by the DGEP and in the Social Sciences and Humanities Academies, where they gather to plan subjects and review textbook content. They find the textbook provided by the DGEP inadequate due to content, spelling, and design errors, thus utilizing alternative resources such as electronic information and other books they deem suitable for the class. Although conventional exams remain predominant in evaluation methods, studentpresentations in the audiovisual room at the end of the semester are also common.

In Preparatory School Four, the following findings were obtained: the professional profile of some teachers does not align with the subject they teach. Some obtained degrees in history, while others studied law or economics. Additionally, they express little comprehension and knowledge of ICT, although most claimed to understand them. It is deduced that they lack knowledge of computer resources because few have taken computer courses during their academic careers. They rely on courses offered by the DGEP, primarily using textbooks provided by

the same institution. Some teachers are self-taught and believe they can understand and manage computer resources.

For these educators, ICT is integrated as a didactic strategy in their respective subjects, complementing their semester planning. They utilize the audiovisual room at the conclusion of each thematic unit, projecting video material once a month or at the end of each block, as stipulated by the textbook, to prompt students to reflect on the topic in writing after each unit. Additionally, they assign homework tasks that require students to conduct research on the internet, in newspapers, on television programs, and through consultation of other books. In lower grades, the absence of video material limits audiovisual projections, whereas second and third grades have access to movie materials for such projections.

Teachers identify two critical factors impeding the integration of ICT in teaching: firstly, the insufficiency of infrastructure, electronic equipment, and computer resources; secondly, the lack of a technology-oriented culture among students, who predominantly utilize ICT for personal purposes such as entertainment and social media. Students engage with these computer resources in a unidirectional manner, primarily resorting to tasks like copying and pasting, which results in mechanical completion without genuine reflection or contribution to content.

From the findings, two thematic axes emerge prominently: Firstly, the availability of computer resources in schools, which reveals that most institutions lack the necessary technology-equipped classrooms for social studies teachers to regularly incorporate ICT into their teaching activities. Secondly, in terms of academic background and ICT training, among the 12 educators surveyed, 5 hold degrees in law, 5 in history, 1 in social work, and 1 in education sciences. Notably, 8 out of the 12 teachers have received ICT training, as illustrated in Table 1.

In terms of instructional resources, the research findings indicate a prevalent reliance on textbooks published by the DGEP. Additionally, educators frequently utilize synoptic charts, mind maps, and predominantly employ questionnaires that are aligned with the textbook content. Students are also encouraged to conduct internet searches for supplementary information. However, there is a lack of observed diversification in teaching techniques and resources across their instructional practices.

A pivotal aspect of this field research involved analyzing teaching practices through classroom observations of three teachers selected from the sample. The subsequent findings and reflections offer an initial insight into a challenging and multifaceted endeavor, given the myriad situations inherent in the classroom environment and the varying levels of interaction and engagement exhibited by students (refer to Table 2).

Professor "AL" cultivated an engaging and interactive classroom atmosphere that fostered student participation, feedback, and open discussion. Demonstrating adeptness in the subject matter, he employed a diverse range of teaching strategies to facilitate learning. Despite a lack of formal ICT training, his instructional approach positively impacted student learning outcomes. Evidence of this was seen in the students' active engagement in the audiovisual room, where dynamic interactions between teacher, content, and students occurred alongside assessment activities. Professor "AL" consistently encouraged student participation both verbally and in written form. Pedagogically, he contextualized class topics with real-world examples and drew parallels from social contexts to elucidate complex concepts.

Professor "P" utilized ICT tools in a conventional manner, displaying proficiency in the subject matter. While students were able to deliver presentations using projectors and computers in the audiovisual room, there was minimal peer or professor feedback. Students' focus tended to be on the aesthetics of slides rather than on the substantive content. Reflection on the topics remained predominantly the purview of the teacher, with limited student involvement. Consequently, Professor "P's" instructional approach reflected a traditional paradigm with limited room for innovation.

4. FIGURES AND TABLES

Table 1. Teacher Profile with ICT

Teacher	Professional background	Training in ICT
Co	Bachelor's degree in law, master's degree in law, Doctorate in Educational Technology	Doctorate in Educational Technology
A	Bachelor's degree in law; Diploma in Educational Psychology; Diploma in Teaching Competence; Courses and Diplomas in History	Online platform Usage Courses
Ul	Bachelor's degree in law; Oratory Course and Legal Course.	Computer Course in High School
Ra	Bachelor's degree in history; master's degree in history; Doctorate in Social Sciences (in progress); Diploma in Teaching Competence (accredited).	"Computer course" "Virtual course"
Pe	Bachelor's degree in history; master's degree in history; Doctorate in History (in progress).	Computer course
Pa	Bachelor's degree in history	Computer Course in the bachelor's degree Program
Xo	Bachelor's degree in social work	Computer Course in the bachelor's degree Program
P	Bachelor's degree in education sciences; Diploma in Teaching Competence	Computer Course in the bachelor's degree Program

Table 2. Observations to Teachers

Schedule	Classroom	Teacher	Subject	Semester	Days	No. Observations
10:20 to 11:10 8:30 to 9:20 6:50 to 7:46	201	AL	Historical Analysis of Mexico II	Third	Tue., Thu. And Fri	5
8:30 to 9:20	201		Current National and Regional Reality	Fourth	Mon., Tue. And Fri.	5
7:50 to 7:50	301	A	Contemporary Universal History	Fifth	Mon., Tue., And Thu	3
7:00 to 7:50	301		Philosophy	Sexth	Mon., Tue., And Thu	4
15:20 to 16:10	107	P	Introduction to Social Sciences and Humanities	First	Tue.	4
16:10 to 17:00 13:20 to 14:10	107		Historical Analysis of Mexico I	Second	Mon., Tue., Wed., And Thu.	5

15:20 to 16:10	305		Thought and Culture I	Fifth	Tue.	4

5. CONCLUSION

This research underscores several factors that constrain the integration of ICT in teaching social sciences, humanities, and history. These factors encompass the scarcity of technological resources in classrooms, the limited utilization of ICT by teachers, and the inadequate time available for teacher training in the knowledge and application of these technologies within the teaching-learning process, primarily attributed to the precarious employment conditions of adjunct faculty. Collectively, these elements contribute to a rudimentary performance in educational practice, failing to cultivate the teaching competencies necessary to enhance the quality of education.

Formal teacher training in technology utilization remains deficient, with a lack of specialized courses focusing on the didactic use of ICT. This underscores the shortcomings in teacher preparation for the effective utilization and integration of computer resources into classroom teaching practices. This situation hampers most educational institutions' ability to achieve meaningful ICT integration, as the critical domains of access, participation, social interaction, and personal expression have not been adequately interconnected and articulated. Within this context, the internet and human communication form part of a multifaceted network of communication and social interactions that extend beyond mere information retrieval and dissemination activities.

While information and communication technologies alone do not offer a panacea for enhancing social sciences knowledge, we contend that their incorporation as a didactic resource in social sciences, humanities, and history at the high school level can help transcend instrumental approaches and transition towards pedagogical models that more effectively integrate these technologies into contemporary teaching and learning contexts. The overarching goal is to foster the acquisition of essential competencies that contribute to the holistic education of future university students.

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