Vol. 2 / Issue 1 / 2025

FEZ MULTIDISCIPLINARY JOURNALS

Journal of Nursing, Education Sciences, and Medical Practice

ISSN: 3009-5867

Journal homepage: https://fmjpublishing.com/index.php/JNESMP

*Research article*

# Use of ICTE in nursing and health technology: Attitudes and practices of ISPITS teachers in Morocco

Insaf Mabchour[1*], Kaoutar Mabchour[2], Samira Reguragui[3], Youness El abdali[4], Merzouki Abdelouahid[5], Aimad Allali[6]

*1 Higher Institute of Nursing and Health Technology, Tangier, Morocco.*
*2 Laboratory of organic chemistry, catalysis and environment, Faculty of Sciences, University Ibn Tofail, kenitra, Morocco.*
*3 Higher Institute of Nursing and Health Technology, Tetouan, Morocco.*
*4 Laboratory of Biotechnology, Environment, Agrifood and Health, Faculty of Sciences Dhar El Mahraz, University of Sidi Mohamed Ben Abdellah, Fez 30050, Morocco.*
*5 Fez-Meknes Regional Academy of Education and Training (AREF)*
*6 Higher Institute of Nursing and Health Technology, Fez, Morocco.*
*Corresponding author: Insaf Mabchour ( miss.insaf88@gmail.com)

## Abstract

Information and Communication Technologies in Education (ICTE) are indispensable pedagogical tools in any quality education system. Their integration significantly changes our relationship with knowledge and its transmission and acquisition methods. This study aims to present the current state of professional and pedagogical use of Information and Communication Technologies by teachers at Morocco's Higher Institutes for Nursing and Health Technology (ISPITS). A quantitative methodological approach was adopted, based mainly on a questionnaire survey of teachers' practices regarding implementing ICTE. The results revealed that most teachers surveyed showed great interest in using ICTE in their teaching practices. However, the integration of these digital tools remains limited for some. This shows that facilitating and reinforcing the integration of ICTE into nursing and health technology training has become an essential requirement.

**Keywords:** ICT, Pedagogical use, Professional use, Teaching practice, Nursing and health technology.

**Citation:** Mabchour I., Mabchour K., Reguragui S., El Abdali Y., Allali A. Use of ICTE in nursing and health technology: Attitudes and practices of ISPITS teachers in Morocco. Journal of Nursing, Education Sciences, and Medical Practice. 2025, 1, 37-42. https://doi.org/10.69998/jnesmp.v2i1.38

**Edited by:** ALLALI Mustapha

## 1. Introduction

The massive and rapid development of Information and Communication Technologies (ICT) in the education sector has fundamentally altered the relationship between teachers and learners, especially from the point of view of how knowledge is taught and acquired (Lacroix, 2005; Karsenti, 2009 and Attenoukon, 2011). Indeed, ICTs have become an indispensable and typical element of everyday life, encouraging their integration into the healthcare sector [4]. In the classroom, ICT can exert a significant influence on the learning process (Hübner, 2018; O'Connor, 2017) while deploying autonomy in the knowledge-seeking process, facilitating content apprehension (Tubaishat, 2016; Mantas, 2017), maintaining clinical decision-making (Rouleau et al., 2017) and improving the quality of nursing care delivery. Given the role of technology in advancing society in general and the education sector in particular, the effective integration of ICT in nursing and health technology training institutes has become a priority. With this in mind, the present work identifies teachers' attitudes towards adopting ICTE in nursing and health technical training. Our study, which took place at ISPITS in Morocco, aims to describe teachers' practices about using ICTE for student learning in the classroom and identify the difficulties that hinder their implementation.

## 2. Materials and Methods

### 2.1. *Design*

This was a cross-sectional study using a quantitative methodological approach, based mainly on a questionnaire survey of teachers' practices in adopting information and communication technologies in education (ICTE).

**Received:** December 26, 2024; **Revised:** January 19, 2025; **Accepted:** January 24, 2025; **Published:** February 17, 2025

Copyright: © 2024 by the authors. Submitted for possible open access publication under the terms and conditions of the Creative Commons Attribution (CC BY) license (https://creativecommons.org/licenses/by-nc-nd/4.0/).

2.2. *Setting*

The study was conducted at Higher Institutes for Nursing and Health Technology (ISPITS) in Morocco between May and July 2022.

2.3. *Study population*

Permanent teachers at ISPITS in Morocco, a representative and varied sample of 54 teachers.

2.4. *Variables*

We used Raby's synthesis model (Raby, 2004) inspired by three models proposed by Moersch (Moersch, 1995; Moersch, 2001) Sandholtz et al. (Sandholtz et al., 1997) and Morais (Morais, 2001), to describe the use of ICT by ISPITS teachers in Morocco. This model shows how teachers integrate ICT into their teaching and how the process moves from non-use to exemplary use (Raby, 2004).

Raby's model comprises four stages: awareness, personal use, professional use, and pedagogical use. Depending on what motivates each teacher to pursue his or her ICT integration process, the awareness stage may be followed by the personal, professional, or pedagogical use stage [10]. Consequently, these different stages do not necessarily take place one after the other; they can overlap and develop throughout the same period (Raby, 2004).

The first stage, "Awareness", consists of a single step: "Indirect contact", in which the teacher interacts indirectly with ICT in his or her personal and/or professional environment.

The "Personal Use" stage is made up of three phases: "Motivation", "Familiarization" and "Exploration - Appropriation". In the first stage, "Motivation", the teacher is motivated to use ICT out of curiosity or need. In the second stage, "Familiarization", the teacher learns to master the technical basics. Teachers who have already passed through another stage (professional or pedagogical use) may pass through this stage more quickly or even avoid it altogether.

In the "Exploration - Appropriation" stage, ICT is used by the teacher to search for information on topics of personal interest, communicate with family and friends, and create individual documents.

During the "professional use" stage, depending on the "motivation" stage (curiosity, need, or obligation) and previous experience with ICT, the teacher goes through a more or less long and intense "familiarization" stage, masters the technical basics, has fears and insecurities, and thinks there isn't enough time and access to ICT. In this way, the teacher moves straight on to the next stage, where he or she gradually explores and appropriates the use of technological tools to search for information on subjects of professional interest, communicate and exchange resources and teaching tools with colleagues and other professionals, communicate with parents by e-mail and create documents related to his or her professional needs.

The most complex stage is that of "pedagogical use". It is divided into five stages, the first of which begins when the teacher experiences a curiosity, a need, or a pedagogical obligation. Teachers move more or less quickly to the "familiarization" stage, depending on their source of motivation (curiosity, need, or obligation) and previous experience with ICT ("personal" or "professional" use).

In the "exploration" stage, ICT is used by the teacher to enrich his or her teaching. He involves his students in activities designed to reinforce or enhance a concept taught in class or to search for factual information. These activities aim to develop transversal skills linked to ICT and acquire, understand, and use knowledge.

At the "infusion" stage, teachers involve their students in isolated, one-off use of ICT during knowledge transmission and construction activities. These activities help to develop disciplinary and cross-disciplinary ICT skills.

In the final "appropriation" stage, students use ICT frequently and regularly in a meaningful, active learning environment. To enable the development of disciplinary and cross-disciplinary skills, a combination of goal-oriented knowledge transmission and construction activities characterizes this type of pedagogical use.

The variables studied included socio-demographic and professional characteristics, personal computer skills and equipment, teachers' attitudes towards ICTE, and their actual utilization of ICTE in practice.

2.5. *Data collection procedures*

In our study, quantitative data collection was conducted through a semi-directive questionnaire survey encompassing a range of socio-demographic and professional information.

2.6. *Data management and statistical analysis*

Statistical processing of the data was carried out using SPSS version 21 and Microsoft Excel 2010. Descriptive frequency statistics were used to represent the different variables.

## 3. Results

3.1. *Socio-demographic and professional characteristics*

The results in Table 1 show a female predominance of 65%, compared to a male minority, representing only 35% of the total number of participating teachers in the study. As for the age category, those between 30 and 40 and 40 to 50 are the most represented with 78%. However, the category of teachers aged 50 and over represents only 22% of the total population surveyed (Table 1).

About the profile of the teachers who responded to our questionnaire, 39% were teachers who had completed the ISPITS Master's cycle, 33% were teachers who had completed the 2nd cycle, 17% were research teachers, and only 11% were teachers who had completed the 1st cycle of qualification in ISPITS. These results show that three profiles predominate in the new ISPITS system: teachers

who have completed the 2nd cycle, Master teachers, and research teachers.

Most teachers (88%) belong to the nursing and midwifery streams. Rehabilitation and Health Techniques are less well represented (6%). This explains why the context of full employment is conducive to the growth of both the nursing and midwifery streams.

**Table 1:** Socio-demographic and professional characteristics of the teachers surveyed.

| Variables | Type of variable | Percentage % |
|---|---|---|
| **Gender** | Female | 65 |
| | Male | 35 |
| **Age** | 30 years and under | 00 |
| | 30 to 40 years | 39 |
| | 40 to 50 years | 39 |
| | 50 years et plus | 22 |
| **Field of study** | Nursing | 44.4 |
| | Midwifery | 44.4 |
| | Health techniques | 5.6 |
| | Rehabilitation | 5.6 |
| **Professional profile** | Teacher with 1st Cycle qualification | 11.1 |
| | Teacher with 2nd cycle qualification | 33.3 |
| | Graduate of the Master cycle in PSITS | 38.9 |
| | Research teacher | 16.7 |

3.2. *Personal computer knowledge and equipment*

According to the statistical results shown in Figure 1, the teachers surveyed are well equipped with ICT: 83% have laptops at home, 61% are connected to the Internet, over 50% have a telephone with Internet access, 22% have tablets, and 28% have fixed computers. This is justified by personal ICT equipment's role in their professional and educational use.

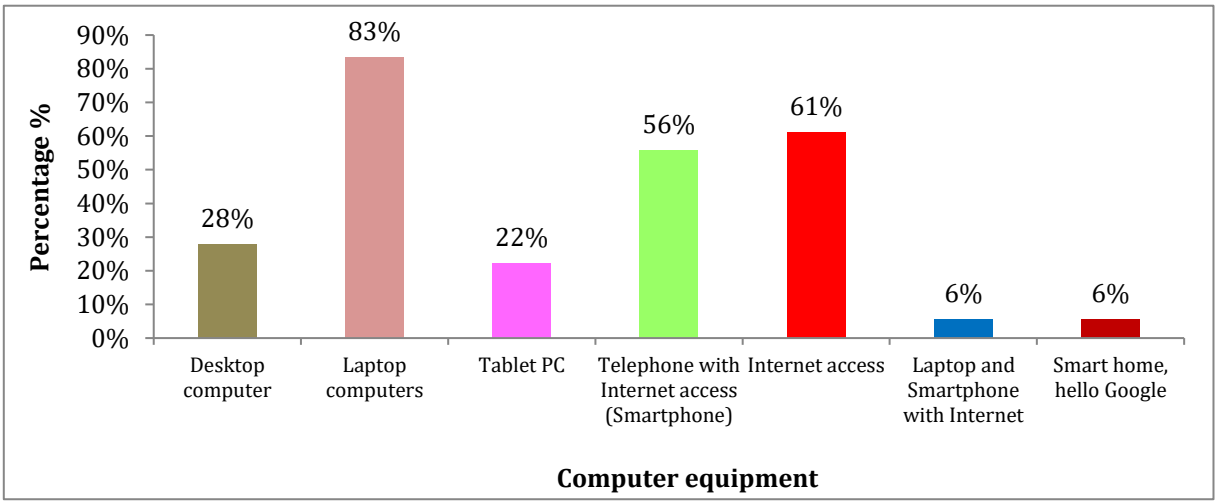


**Figure 1:** Distribution of personal computer equipment

3.3. *Computer skills:*

According to the results in Figure 2, half (50%) of the teachers surveyed have a generally good level of computer literacy, with 28% declaring their level to be very good. However, only 22% claimed to have an average level. This positive result represents a major asset in favor of using ICT and even encourages using technological tools.

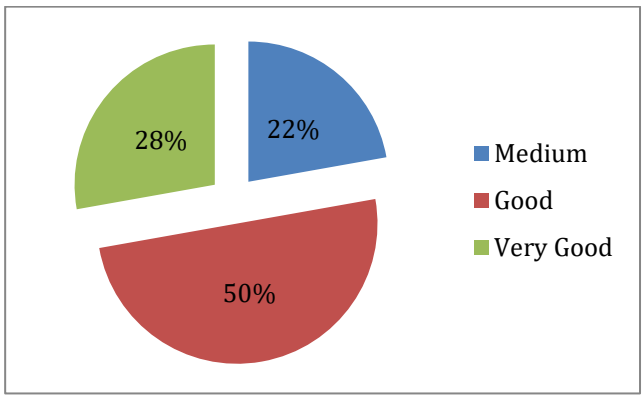


**Figure 2:** Distribution of teachers by computer skill level

3.4. *ICT teacher training*

Most teachers have acquired computer skills through initial or in-service training (78%). In comparison, only 28% of respondents declared that they had never received training in using ICT in teaching. Data from Table 2 also show that the number of teachers benefiting from in-service training is still limited (around 39%) despite the efforts made by those in charge.

**Table 2:** Breakdown of teachers who received training in ICT tools

| Items | Participant Answers | Relative Frequency of Answers (%) |
|---|---|---|
| Initial or continuing training in computer tools | Yes | 78 |
| | No | 22 |
| Initial training in ICTE | Yes | 72 |
| | No | 28 |
| Continuing training on the use of ICTE | Yes | 39 |
| | No | 61 |

3.5. *Teachers' attitudes to ICT use*

The results of Figure 4 clearly show that teachers frequently use ICT to search for information on the Net (83.33%), with the same number of respondents using these technologies to prepare lessons (PowerPoint, Word, etc.), thus maintaining regular communication with learners. However, other jobs linked to the use of e-learning platforms, such as entering grades/absences and using simulation

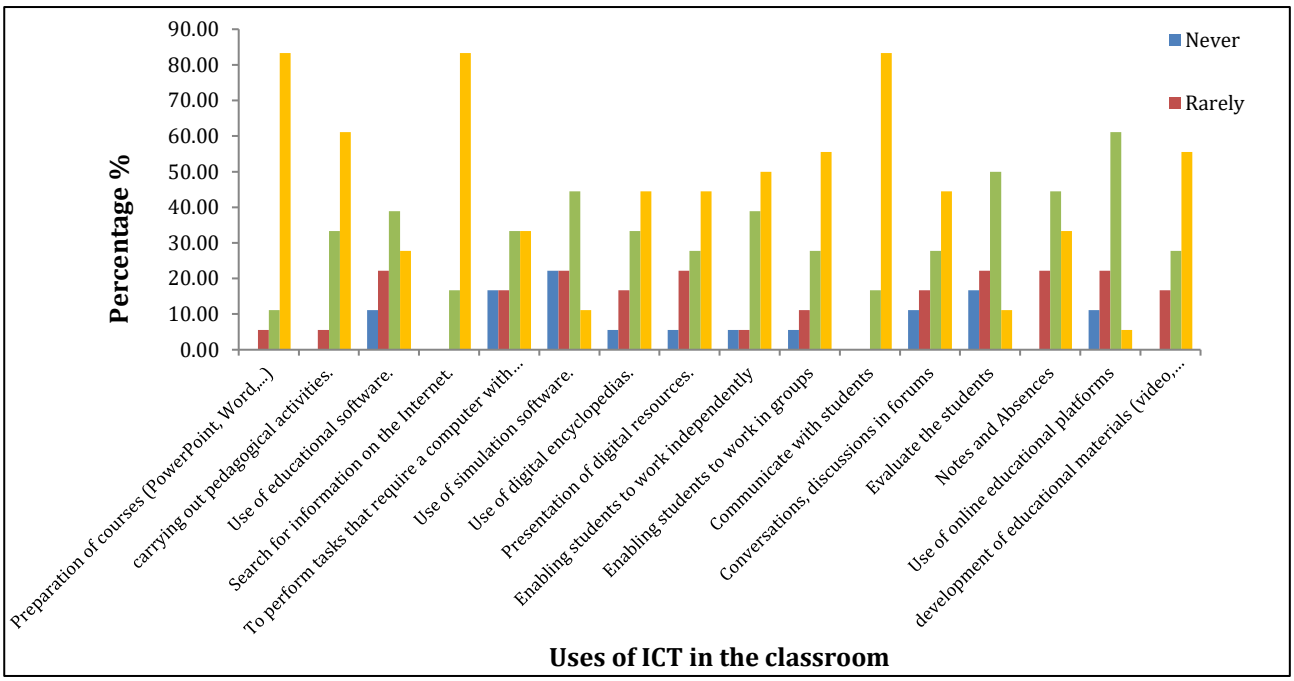


**Figure 4**: Distribution of teachers by frequency of different uses of ICT in the classroom

## 4. Discussion

The results obtained through this study point to a remarkable interest in ICTE on the part of the majority of ISPITS teachers, with positive attitudes to the benefits derived from the pedagogical integration of ICT in nursing education. Other authors have made the same observation (Player-Koro, 2007). This positive representation by teachers of the introduction of ICT into the educational environment is certainly influenced by the gradual integration of technology into everyday life (Biaz et al., 2009). So, according to the questionnaire and the preliminary studies (Fraillon et al., 2014), teachers have a higher level of technological skills than pedagogical skills in ICT.

Regarding pedagogical use, teachers use ICT only as a teaching enhancement tool or as a support for lecturing, using only videos and digital resources in the classroom. These results are similar to those reported in other research (, in which the use of ICT for administrative tasks and lesson

planning is more frequent than for communicative, collaborative, or creative use. This means that the use of ICT by teachers with students is relatively low since they use ICT mainly to seek information (Fraillon et al., 2014; Sipila, 2014; Ibieta et al., 2017; Wozney et al., 2006). This is consistent with the perceived level of competence in technological resources since not all teachers have mastered all resources.

In short, this study highlights that the use of ICT by ISPITS teachers in Morocco is only developed at the stage of professional use, without going beyond the exploration stage as a level of pedagogical use. The same observation was made by Regragui et al., who showed that the phenomenon of ICT integration is still in its infancy. That pedagogical use remains limited to the exploration stage (Reguragui et al., 2017).

## 5. Conclusion

This study was based on the idea that ICT could and should have a place in nursing education to meet multiple demands. We aimed to identify teachers' attitudes towards adopting ICTE in training. More specifically, it aims to describe the practices of their use during student learning in the classroom.

The results showed that ISPITS teachers in Morocco use ICTE at an embryonic stage and that their pedagogical use remains pedagogical scenarios and planning. This was also pointed out in Raby's model (Raby, 2004)

Finally, the strategy for the widespread use of ICTE in Moroccan education, in general, must not be based solely on "infrastructure" and "content development" but also on "training teachers as needed."

## Data availability statement

The original contributions presented in the study are included in the article/Supplementary Material; further inquiries can be directed to the corresponding authors.

## Funding

The author(s) declare that no financial support was received for this article's research, authorship, and/or publication.

## Conflict of interest

The authors declare that the research was conducted without any commercial or financial relationships that could be construed as a potential conflict of interest.

## References

Lacroix E. ICT in higher education in Burkina Faso.2005. http://www.tic.ird.fr/spipb8ee.html?article108. Accessed July 28 2023.

Karsenti T. Pedagogical integration of ICT: Strategies for action and food for thought. 2009. Ottawa. CRDI.

Attenoukon SA. Information and communication technologies (ICT) and academic performance in Beninese university context: case of law students from the University of Abomey Calavi. (T. d. doctorate, Ed.) University of Montreal. 2011.

Rouleau G, Gagnon MP, Côté J, Payne-Gagnon J, Hudson E, Dubois CA. Impact of information and communication technologies on nursing care: results of an overview of systematic reviews. J Med Internet Res. 2017; 19(4):e122

Hübner U, Shaw T, Thye J, Egbert N, Marin HF, Chang P, O'Connor S, Day K, Honey M, Blacke R, Hovenga E, Skiba D, Ball MJ. Technology Informatics Guiding Education Reform - TIGER. Methods Inf Med. 2018; 57(S 01):e30- e42

O'Connor S, Andrews T. Smartphones and mobile applications (apps) in clinical nursing education: A student perspective. Nurse Educ Today. 2018; 69(1):172-178

Tubaishat A, Aljezawi M, Al-Rawajfah OM, Habiballah L, Akhu-Zaheya LM. Exploring changes in nursing students' attitudes towards the use of technology: A four-wave longitudinal panel study. Nurse Educ Today. 2016; 38(5):101-106

Mantas J, Hasman A. IMIA Educational Recommendations and Nursing Informatics. Stud Health Technol Inform. 2017; 232(1):20-30

Rouleau G, Gagnon MP, Côté J, Payne-Gagnon J, Hudson E, Dubois CA. Impact of information and communication technologies on nursing care: results of an overview of systematic reviews. J Med Internet Res. 2017; 19(4):e122

Raby C. Analysis of the path that led elementary school teachers to develop an exemplary use of information and communication technologies (ICT) in the classroom. (Doctoral dissertation) University of Quebec in Montreal, Canada. 2004.

Moersch C. Levels of technology implementation (LoTi): A framework for measuring classroom technology use. Learning & Leading with Technology. 1995; 23(3):40-42

Moersch C. (2001). Next steps: Using LoTi as a research tool. Learning & Leading with Technology. 2001; 29(3): 22

Sandholtz JH, Ringstaff C, Dwyer DC. The Connected Classroom Teaching in the Age of Technology. 1997. Montreal. Chenelière/McGraw-Hill

Morais MA. The 5 levels of appropriation of information and communication technologies by teachers. 2001. Shediac, NB. School District, no. 1

Player-Koro C. Why teachers make use of ICT in education. In Arbetspaper presenterat vid 10th Pre-Conference of Junior Researchers of Earli, Budapest, Ungern. 2007.

Biaz A, Bennamara A, Khyati A, Talbi M. Integrating information and communication technologies into teaching: current situation and outlook. 2009. EpiNet. revue électronique de l'EPI

Fraillon J, Ainley J, Schulz W, Friedman T, Gebhardt E. Preparing for Life in a Digital Age: the IEA International Computer and Information Literacy Study 2013

International Report. Springer Open. 2014. https://research.acer.edu.au/ict_literacy/8.

Sipila¨ K. Educational use of information and communications technology: Teachers' perspective. Technol Pedagogy Educ. 2014; 23(2):225-241.

Ibieta A, Hinostroza JE, Labbe' C, Claro M. The role of the Internet in teachers' professional practice: Activities and factors associated with teacher use of ICT inside and outside the classroom. Technol Pedagogy Educ. 2017; 26(4):425-438.

Wozney L, Venkatesh V, Abrami PC. Implementing computer technologies: Teachers' perceptions and practices. J Technol Tech Educ. 2006; 14(1):173-207.

Reguragui S, Raghay K, El Ouali EAI, Laafou M, Madrane M, Janati-Idrissi R. Integrating ICT into teachers' professional and pedagogical practices: Case of the Higher Institute of Nursing Professions and Health Techniques of Tetouan. Int J Innov appl sci. 2017; 21(2):344-351.