



## Chapter 3

# A Review and Comparative Study of Teacher's Digital Competence Frameworks: Lessons Learned

**Li Yang**

 <https://orcid.org/0000-0002-9353-7856>  
University of Salamanca, Spain

**Alicia García-Holgado**

 <https://orcid.org/0000-0001-9663-1103>  
University of Salamanca, Spain

**Fernando Martínez-Abad**

University of Salamanca, Spain

### ABSTRACT

*The current technological revolution has reached all social classes, and its educative use by teachers has gone unnoticed. This chapter provides a comprehensive overview of the six main international frameworks published from 2010 until now. The first objective of this work is to analyze these frameworks' contributions to understanding the development of this competence. The second objective is to determine whether there are any differences between these frameworks through strengths-weaknesses-opportunities-threats (SWOT) analysis. The main aim is to make it easier to integrate an assessment digital competence framework for teachers in other regions of the world that do not have their own framework. The analysis indicates that the six frames have coincidences and nuances in understanding the development of digital competence. This study shows that DigComp is subject to create consensus at the European level about the digital competence components, which can also serve as a conceptual reference model for other countries o educational institutions.*

DOI: 10.4018/978-1-7998-4156-2.ch003

## INTRODUCTION

“Digital competence is an evolving concept related to the development of digital technology and the political aims and expectations of citizenship in a knowledge society.” (Ilomäki et al., 2016, p. 655). It is a multi-faceted developing concept that covers many areas such as media and communication, technology and literacy, and information science (European Commission, 2006):

*Digital competence involves the confident and critical use of Information Society Technology (IST) for work, leisure, and communication. It is underpinned by basic skills in ICT: the use of computers to retrieve, assess, store, produce, present, and exchange information, and to communicate and participate in collaborative networks via the Internet.*

The opportunities offered by the ICT (Information and Communication Technology) to develop knowledge, economies, and societies are also open for education. On the other hand, the social and economic goals are the focus of a country's education system, so that teachers need to be equipped with digital competence to achieve these goals (UNESCO, 2011). Therefore, “digital competence has been gradually introduced into school curricula, assessment tests, and classroom practice over the past decade” (Ottestad et al., 2014, p. 223).

According to the (European Commission, 2013), many factors influence in the definition of the competences that teachers should have at different stages of their career: the results of research and of international comparisons such as PISA (OECD, 2019) and TALIS (European Commission, 2014); international commitments such as the Bologna process of Higher Education reform or the development of Qualifications Frameworks (Keeling, 2006; Karseth, 2008; Karseth & Solbrekke, 2010); the desire to enhance the quality or effectiveness of education; other system developments, such as moves towards expressing school curricula in terms of learning outcomes or reforming the system of teacher education; demand from parents or other stakeholders for greater accountability in education systems. In fact, teacher's digital competence is complex in other occupations and among average citizens, which requires an awareness of this complexity, and how teachers carry out and experience the pedagogical use of ICT often depends on their digital competence (Krumsvik, 2014; Hernández-Ramos et. al, 2014).

Nowadays, digital competence is the fifth basic competence in all subjects at all levels, as well as in the new teacher education curriculum in a lot of countries (Krumsvik, 2014). However, “many educators in the field believe that teachers are not adequately prepared to use technology for instruction” (Elstad & Christophersen, 2017, p. 1) and “a key challenge for institutions educating young adults who seem technologically competent but at the same time might have a narrow knowledge and set of skills connected to specific platforms (e.g., social networks) and technology (e.g., mobile phones)” (Biggins et al., 2016, p. 47). Therefore, there is a need to develop theoretical foundations and models for a more in-depth understanding of digital competence in teacher education (Krumsvik, 2014). Meanwhile, various digital competence frameworks for educators give the aims to detail how digital technologies can enhance and innovate education and training.

In China, because of the widespread use of technology in education in the past five years, in 2018 the Ministry of Education launched the Action Plan for the Computerization of Education 2.0 (Ministry of Education of People's Republic of China, 2018). This plan aims to accelerate the modernization of education and the construction of educational power, as well as promote the development of the computerization of education in the new era and cultivate a new development engine driven by innovation.

19 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage:

[www.igi-global.com/chapter/a-review-and-comparative-study-of-teachers-digital-competence-frameworks/269999](http://www.igi-global.com/chapter/a-review-and-comparative-study-of-teachers-digital-competence-frameworks/269999)

## Related Content

---

### It's an M-World After All: Lessons from Global Patterns of Mobile Commerce

Nikhilesh Dholakia, Morten Raskand Ruby Roy Dholakia (2008). *Global Information Technologies: Concepts, Methodologies, Tools, and Applications* (pp. 3604-3631).

[www.irma-international.org/chapter/world-after-all/19201](http://www.irma-international.org/chapter/world-after-all/19201)

### Information System Maturity

Marek Nahotko (2024). *Handbook of Research on Innovative Approaches to Information Technology in Library and Information Science* (pp. 1-20).

[www.irma-international.org/chapter/information-system-maturity/337301](http://www.irma-international.org/chapter/information-system-maturity/337301)

### Legislation Systems Project: An Ethnographic Case Study of Computerisation and the Production of Legislation in Tasmania, Australia

Lynley Hocking (2004). *Advanced Topics in Global Information Management, Volume 3* (pp. 202-224).

[www.irma-international.org/chapter/legislation-systems-project/4534](http://www.irma-international.org/chapter/legislation-systems-project/4534)

### Impact of Industry Conditions on Innovation: Pre-Existing Standards and Regulations

J. Roland Orttand Tineke Mirjam Egyedi (2018). *Corporate and Global Standardization Initiatives in Contemporary Society* (pp. 278-303).

[www.irma-international.org/chapter/impact-of-industry-conditions-on-innovation/197470](http://www.irma-international.org/chapter/impact-of-industry-conditions-on-innovation/197470)

### Management of Household Energy Saving and Its Green Alternatives: Information of Chinese Energy Consumption Patterns

Qiao Qiaoand Boqiang Lin (2024). *Journal of Global Information Management* (pp. 1-22).

[www.irma-international.org/article/management-of-household-energy-saving-and-its-green-alternatives/338308](http://www.irma-international.org/article/management-of-household-energy-saving-and-its-green-alternatives/338308)