

Undergraduate students' perception of the level of development of information literacy skills

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Abstract:

Digital natives are often perceived as experts in managing digital technology, but recent studies show that they do not have a very high level of developing information literacy skills. This research aimed to investigate the relationships between students' level of development of information literacy skills and the teacher's level of expression of pedagogical skills. A correlational research design was used. The research method was questionnaire survey. The results show that there are links between how students perceive pedagogical competences in action and the level of assimilation of information and information literacy skills.

Keywords: digital natives, information literacy skills, digital competences, bachelor level students

1. Introduction

Today's students are considered digital natives, as they were born and raised in the era of internet expansion. They are often described as being surrounded by gadgets, preferring virtual activities (games, social media, etc.) and ways of communicating online. Most studies describe them as having information and communication technology skills and being multitaskers in everyday behaviors (Flynn, 2021).

This particularity influences the way they communicate, learn and socialize, with profound educational implications (Underwood, 2007). Although representatives of this generation are good at everything that can be characterized as web 1.0, i.e. the use of digital content, the same cannot be said of studies on how they engage in the specifics of web 2.0, i.e. the creation of digital content (Bennett, Maton, & Kervin, 2008). Nevertheless, we observe a substantial proportion of this generation moving towards the creation of digital content, especially in the sphere of leisure activities.

An area of intense debate in pedagogical studies is the relationship between digital native pupils and students and their teachers, who are considered digital immigrants, those born before 1980. Although some researchers believe that the level of digital literacy development of this generation is extremely high, many recent studies show that the reality is not quite so, with typical characteristics often equated with generational differences (Helsper, & Eynon, 2010).

Especially after the COVID -19 pandemic, these generational differences are intensely discussed, in the context of forced digitization, online learning and the revival of the blended learning concept. Priority areas for action during the pandemic period have been to analyze and improve the level of digitization of educational establishments and to improve the level of development of teachers' competences for online teaching (Basilotta-Gómez-Pablos, Matarranz, Casado-Aranda, & Otto, 2022).

Recent studies have shown directly and indirectly that not only these aspects were deficient but also the level of digital skills of those considered digital natives. Important factors that limit the access to education of this generation of learners have been discovered, such as: their access to digital media and devices and the corresponding opportunities to participate in digital life, and thus in social life (Janschitz, & Penker, 2022).

Digital competences are defined as: "the safe, critical and responsible use of and interaction with digital technologies for learning, at work and for participation in society. It includes information and data literacy, communication and collaboration, media literacy, digital content creation (including programming), security (including digital well-being and cybersecurity related skills), intellectual property issues, problem solving and critical thinking"(Council of the European Union, 2018, p. 9). As we see in this definition, the components of information literacy are highlighted as the primary aspects of digital competence. This broad sense of digital competence highlights the need for a critical and responsible approach to information sources. This set of knowledge, skills, attitudes, and values are necessary for the effective integration of information technologies in teaching-learning and working.

Cultivating students' information literacy skills has become an imperative requirement for teachers in the 21st century. Recent research shows that among the factors influencing how students' competences in this area are formed are: the extent of use of digital resources in teaching and learning, teachers' perceived usefulness of information literacy skills, information processing skills and information ethics (Wu, Zhou, Li, & Chen, 2022).

Although initially information literacy was a concept whose scope covered only the skills to identify, acquire, evaluate, organize, and effectively use information needed to manage certain issues (ALA, 1989), as digitization entered the educational sphere, information literacy skills became extremely important for students, taking on new meanings (Sezer, 2020).

The information explosion, the plethora of materials available online that can be used for learning-assessment activities make students opt for the resources that are easiest and fastest to use, regardless of whether they are suitable as a bibliographic source at university level. The vast majority of students seem to rely more on the ranking of search engines and less on the suitability and credibility of the information source. Although there are courses that train them from the first year of study on how to use information sources correctly and responsibly, their information literacy skills are underdeveloped. In a multi-year study it was shown that information literacy training contributes to the acquisition of minimal research skills that students need to develop (Fain, 2011).

In a research study investigating the relationship between school curricula that support the development of information literacy skills and students' actual skills, it was found that although educational policy documents emphasize skills development, many students fail to demonstrate sophisticated information-seeking and critical evaluation skills. The study found that teachers tend to focus on the content of the subject being taught, rather than on information literacy skills, and on deficits in information literacy skills among teachers themselves (Julien, & Barker, 2009).

This research attempts to answer the following question: to what extent does the level of pedagogical skills development contribute to the development of students' information literacy skills?

2. Methodology

The present study had a quantitative, correlational research design and the research method was a questionnaire survey. The research instrument was constructed to investigate how students perceive both their own information literacy skills and the pedagogical and information literacy skills of the teacher.

Procedure: the questionnaire was administered at the end of a training module on Information literacy. Prior to the application of the instrument, research participants were asked to complete an informed consent form that included information related to the purpose of the research, rights and obligations of research participants. Only those who wished to participate completed the questionnaire, which was distributed online. The questionnaire had 38 items, 3 of which focused on socio-demographic indicators, and the rest represented 2 different scales, one investigating information literacy skills (23 items), Cronbach's Alpha coefficient being 0.91 and one assessing teachers' pedagogical skills (12 items, of which 2 were subjective), Cronbach's Alpha coefficient being 0.71.

Participants: Two hundred students participated in the research, 148 of whom were female, representing 74% of the total participants. These are students from the technical (62%) and socio-human (38% of total respondents) fields.

The objectives of this research are to investigate the level of development of information literacy skills and the level of pedagogical skills of the teacher from the students' perception.

Hypotheses:

There is a significant correlation between teacher's pedagogical skills and students' level of information literacy assimilation.

There is a significant correlation between the teacher's pedagogical competences and the degree of assimilation of students' information literacy skills.

3. Results

The first hypothesis of the research is thus confirmed that there are correlations between the indicators of teachers' pedagogical competences and the level of assimilation of students' information literacy, as can be seen in Table 1 Correlation between level of pedagogical competences and information literacy knowledge. Although the correlation coefficients are not large, the correlations are highly statistically significant, with the significance threshold below 0.001 (N-.

Table 1 Correlation between level of pedagogical competences and information literacy knowledge

	MM	E	I	D	SS	BO	CS	TD	BS	CP	CL	RC	EI	CE
Interactive (I)	.677**	.689**	.514**	.310**	.331**	.317**	.277**	.355**	.287**	.333**	.414**	.382**	.333**	.258**
Modern methods (MM)	1	.696**	.587**	.310**	.344**	.303**	.302**	.339**	.312**	.374**	.420**	.447**	.331**	.315**
Sufficiently explained (E)		1	.546**	.325**	.365**	.292**	.250**	.333**	.319**	.376**	.421**	.471**	.335**	.352**
Inciting (I)			1	.268**	.313**	.236**	.314**	.309**	.243**	.257**	.353**	.361**	.227**	.274**
Databases				1	.560**	.308**	.424**	.505**	.414**	.432**	.468**	.456**	.500**	.485**
Search strategies (SS)					1	.477**	.482**	.421**	.577**	.596**	.622**	.628**	.599**	.550**
Boolean operators (BO)						1	.424**	.254**	.531**	.414**	.526**	.527**	.436**	.508**
Citation methods and styles (CS)							1	.466**	.613**	.468**	.453**	.477**	.525**	.291**
Types of documents (TD)								1	.310**	.410**	.357**	.373**	.463**	.220**
Automatic bibliography generation software (BS)									1	.575**	.570**	.600**	.554**	.484**
Copyright protection (CP)										1	.666**	.616**	.580**	.460**
Creative licensing (CL)											1	.734**	.621**	.557**
Reusable content (RC)												1	.659**	.554**
Evaluating information on the internet (EI)													1	.478**
Carbon emissions from online search (CE)														1

Regarding the correlation of students' perceived level of teachers' competencies with the level of students' information literacy skills, we can state that the hypothesis is confirmed, as can be seen in Table 2 Correlations between teachers' pedagogical competencies and students' information literacy skills.

Table 2 Correlations between teachers' pedagogical competencies and students' information literacy skills

	I	In	MM	E	ILB	ILS
Inciting (I)	1	.514**	.587**	.546**	.484**	.277**
Interactive (In)	.514**	1	.677**	.689**	.402**	.131
Modern methods (MM)	.587**	.677**	1	.696**	.412**	.252**
Sufficiently explained (E)	.546**	.689**	.696**	1	.372**	.314**
information literacy behaviour (ILB)	.484**	.402**	.412**	.372**	1	.231**
Information literacy skills (ILS)	.277**	.131	.252**	.314**	.231**	1

** Pearson Correlation is significant at the 0.01 level (2-tailed). N=200

Among the most interesting topics mentioned by students are critical evaluation of information available on the internet, reusable content, bibliography generation software and carbon emissions from online searches.

The main issues related to teaching skills that students value are: the teacher's willingness to explain the information content, the use of modern teaching-learning methods, the teacher's ability to highlight the practical value of new knowledge.

4. Discussion and conclusions

Through the present research we wanted to investigate the extent to which teachers' pedagogical skills contribute to the formation of students' information literacy skills. The answer obtained from the statistical data analysis is that pedagogical competences are essential in the formation of students' information literacy skills. The results support recent research in this area, such as the findings of the study on student skills gaps and the difficulty of effectively assessing learning improvement achieved through games, highlighting lessons learned and open problems (Encheva, Tammaro, & Kumanova, 2020). This research is also congruent with studies showing that using a variety of teaching approaches contributes to the development of information literacy skills (Derakhshan, Hassanzadeh, & Nazari, 2015).

One of the limitations of this research is that the data were collected by self-report, therefore we consider that there is a possibility that they are biased by social desirability.

We propose the inclusion in educational policy documents of explicit provisions and concerns for the development of teachers' pedagogical skills that can contribute to the development of information literacy skills so necessary for new generations of students.

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