E-tutoring in Online Education: the Case of IUL Telematic University

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Abstract

In recent years, there has been a need to strengthen and rethink the role of tutors in e-learning and online education, where this figure has assumed an increasing importance, particularly following the changes brought about by the COVID-19 pandemic in distance education. The tutoring function plays an essential role in online education because the online training requires that students be adequately supported by specialised figures who can provide continuous support, guide them in their study paths, assist them in technological, methodological, and instructional aspects. Here we present the preliminary results of an ongoing research project conducted on tutoring of IUL – Università Telematica degli Studi. Specifically, the research project aims to investigate the composition of the IUL e-tutor community, identifying the actual practices carried out by e-tutors in terms of roles and relationships with their students; in terms of activated teaching and support; in terms of platform tools usage; and in terms of orientation and guidance strategies. In this paper we present the results obtained from the questionnaire that was administered to a group of IUL e-tutors (n=57). The questionnaire investigates several elements and dimensions: interests, educational and cultural background of the e-tutor; previous professional experiences, perceptions, and expectations about one's role; disciplinary, methodological, and socio-relational competencies; tutorship styles, practices, and strategies. The answer options for each question in the questionnaire are characterised by a 4-point Likert scale with the following labels: "Frequently", "Sometimes", "Rarely", "Never". In this study, we focused on how often tutors perform certain tasks. The aim of the study is to evaluate the association between the frequency of carrying out these actions and some sociodemographic and academic characteristics of the tutors via an Ordinal Logistic Regression Model. The results are analysed and discussed.

Keywords: *earning; e-tutoring; higher education; teaching; online.*

1. Introduction

In recent decades, online tutoring services have rapidly expanded due to a combination of factors such as educational research, socio-economic changes, technological advancements, and the recent global health crisis [1; 2]. The surge in digital education technologies has led to widespread adoption of blended and fully online learning formats in various educational institutions, with online tutoring emerging as the preferred method for supplemental education.

The pandemic exacerbated educational challenges, particularly in countries like Italy lacking experience in distance learning, revealing structural unpreparedness and a widespread lack of digital skills among students and teachers [3; 4]. Despite the prevalence of blended learning, many educators and institutions in Italy faced the unprecedented task of transitioning to full online delivery and grappling with the pedagogical implications of digital teaching for the first time [5]. The pandemic has imposed a massive movement onto learning online platforms and this transition required educators to adapt to new pedagogical approaches and embrace innovative strategies to foster student success in a virtual environment.

At the heart of this digital revolution lies the critical role of tutoring in online university education. During the pandemic period, the online tutor became a central figure who served to reduce the social distance between students and faculty and support a positive climate for learning at a difficult time. For example, Carlana and La Ferrara [6] implemented an online tutoring program in Italy in Spring 2020, and they find large positive effects on student achievement, and that online tutoring can be an effective tool to help students improving their academic outcomes but also their psychological well-being and development of socio-emotional skills.

In this article, we delve into the multifaceted realm of online university telematics education, with a particular focus on the pivotal role of e-tutoring [7]. This study aims to map the roles, activities, and

interactions of e-tutors, identifying best practices for supporting students, potential difficulties, and critical elements, with a view to critically reflect on the perceptions of academics about the skills and characteristics that successful online tutors should possess and to propose actions to improve the quality of online teaching.

The first section of the paper describes the research context within which the project is placed. The second part examines the methodological approach of the study. In the third and fourth section the results are presented and discussed. The paper concludes with implications and future research directions.

2. Theoretical Framework

In recent years, there's been a growing recognition of the vital role of tutors in e-learning and online education [8; 9]. They play a central role in providing continuous support to students, guiding them through their studies, and assisting with technological, methodological, and instructional aspects [10]. Online tutors directly interact with learners, supporting their learning process despite being separated by time and place. The roles, functions, styles, and competencies of e-tutors have been outlined in theoretical studies [11; 12; 13]. These professionals require cognitive, technological, and social-emotional skills, blending disciplinary knowledge with technological and managerial expertise. Depending on training goals, e-learning models, and tutoring styles, e-tutor may function as moderator, facilitator, and instructor [14; 15]. In general, e-tutors guide the learners' work but do not directly participate in solving the tasks given [16]. The role of e-tutors in this context is much more based on accompanying, observing, moderating, and stimulating activities in the self-directed acquisition of knowledge [17]. E-tutoring offers individualised teaching or supervision in settings where frequent face-to-face interaction between a teacher/supervisor and student is challenging [18]. E-tutors can assist students in understanding course material, answering questions, providing feedback, and supporting them throughout their academic journey [19].

E-tutoring enhances the accessibility, flexibility, and effectiveness of online education by offering personalised support and guidance [20]. E-tutors can personalise the learning experience by offering individualised support and guidance tailored to students' unique needs and learning styles [21]. According to Kunwar et al. [22], the role of an e-tutor is perceived as that of a supportive mentor who not only imparts knowledge but also provides personalised attention to each student, consistently encouraging academic success. Online tutoring goes beyond traditional in-person tutoring, encompassing various roles depending on the tasks at hand. The tutor may act as an e-teacher by preparing course content, an e-moderator managing communication dynamics, or a technical tutor monitoring user activity [23]. Despite the spatial and temporal separation, e-tutors bridge the gap between students and educators through communication in learning spaces like discussion groups, chats, or forums, strengthening connections between institutions, users, and teams. Effective communication skills remain pivotal [24], emphasising the importance of moderation, group management, and community animation. Often serving as the primary point of contact for students, e-tutors diminish the distance between students and teachers, while also supporting the teaching team and driving educational innovation [23; 24].

Effective e-tutoring contributes to better students' performance and educational success, creating an effective and motivating learning environment [25]. There is growing evidence that well-structured online courses which promote "active learning" and have high perceived levels of tutor leadership, achieve learning outcomes that are equivalent to or better than, those achieved via face-to-face teaching [26, 27, 28]. Andre Nickow, Philip Oreopoulos and Vincent Quan [29] conducted a systematic review and meta-analysis of preK-12 tutoring experiments and studies and found that these programs yield consistent and substantial positive impacts on learning outcomes.

Online tutors, as key figures in the teaching and learning process, need a diverse skill set beyond just subject knowledge. Online education programs require educators who possess both technological proficiency and pedagogical expertise to effectively manage online instruction [30]. The Community of Inquiry framework [31] offers valuable insights into the online learning experience. It highlights the multifaceted role of tutors in creating a supportive and engaging online learning environment. The framework comprises three main elements: cognitive presence, which involves constructing meaningful learning through activities and reflection; teaching presence, which involves designing and facilitating learning processes; and social presence, which involves fostering a sense of community through interpersonal communication [32].

One important set of influences on the success of tutoring programs are those associated with delivery mode. There are at least two variables that falling within this category: first, tutor-student ratios, and

then timing and location of the tutoring. Tutoring may be conducted one-on-one where a tutor instructs an individual student, or tutors may instruct pairs or small groups of students simultaneously. All else being equal, interventions with more students generally have lower costs. However, a larger number of students per group can reduce the impact of tutoring if it forces the tutor to divide his or her time and attention devoted to students. On the other hand, larger pairs or groups can improve tutoring programs to the extent that group learning is beneficial in the program areas or if tutoring in pairs or small groups reduces the sense of stigma [29].

Due to the spatial distance of the learners in an e-learning scenario, the learners' communication with the e-tutors mostly takes place virtually and asynchronously [33]. E-tutors must understand their role in modelling communication and teaching activities within online degree courses, including facilitating teacher-student interaction, monitoring teaching activities, and supporting students' preparation and examinations [10]. Universities should offer specific training to e-tutors, focusing not only on technological skills but also on methodological, educational, social, relational, organisational, and managerial skills. According to the tasks mentioned, e-tutors require an appropriate qualification and, consequently, special pre-coordinated training [33; 16). Unfortunately, current e-tutor training programs often emphasise virtual platform usage while neglecting other crucial areas essential for ensuring students feel supported, safe, and comfortable throughout the e-learning experience [34].

3. Methodology

The data for this research was collected through a Computer Assisted Web Interview (CAWI) questionnaire distributed among the entire University e-tutor community, with 57 respondents out of a total of 108 participants. Prior to official administration, the questionnaire underwent a pre-testing phase [35], involving evaluation by 7 experienced tutors within the University community. The survey covers a range of aspects, including the e-tutor's interests, educational and cultural background, previous professional experiences, perceptions, and expectations regarding their role. It also explores disciplinary, methodological, and socio-relational competencies, as well as the tutor's styles, practices, and strategies.

For the analysis, the section of didactic and organizational activities was considered and in particular the question:

"Thinking about your last mentoring assignment, how often did you contribute to the definition of content as a tutor?"

To answer the question, it was necessary to position oneself on a 4-point frequency Likert scale with the following labels: "Frequently", "Sometimes", "Rarely", "Never".

To assess the relationship between the frequency with which tutors contribute to content definition and various sociodemographic and academic characteristics of tutors, we implemented an ordered logit regression model using the statistical software STATA 18.

The ordered logit model operates based on the cumulative probabilities of the response variable. Specifically, it assumes that the logarithm of each cumulative probability is a linear function of the covariates, with regression coefficients remaining consistent across response categories [36].

An ordinal logit model for an ordinal response variable Y_i, which consists of C categories, is defined by a set of C-1 equations. These equations establish the relationship between the cumulative probabilities $g_{ci}=Pr(Y_i \le y_c| x_i)$ to a linear predictor $\beta'x_i = \beta_0 + \beta_1 x_{1i} + \beta_2 x_{2i} + ...$ via the logit function:

$$logit(g_{ci}) = log(g_{ci} / (1-g_{ci})) = \alpha_c - \beta'x_i, \qquad c=1,2… C-1 \qquad (1)$$

Where:

αc are parameters called thresholds increasing ordered ($\alpha_1 < \alpha_2 < … < \alpha_{C-1}$)

β' is the vector of the slops which is not indexed by the category index c, thus the effects of the covariates are constant across response categories

x is the vector of the independent variables.

The vector of independent variables is composed as follows:

X_1: age class

X_2: dummy variable for gender (male vs female)

X_3: dummy variable for University Master's degree (no vs yes)

X_4: dummy variable for Doctoral degree (no vs yes)

$X_5...X_8$: dummy variables for the type of degree (except for the baseline category "Psychology and Pedagogy").

4. Results

The descriptive statistics for the characteristics of the tutors used as independent variables in the ordered logit regression models are shown in Table 1.
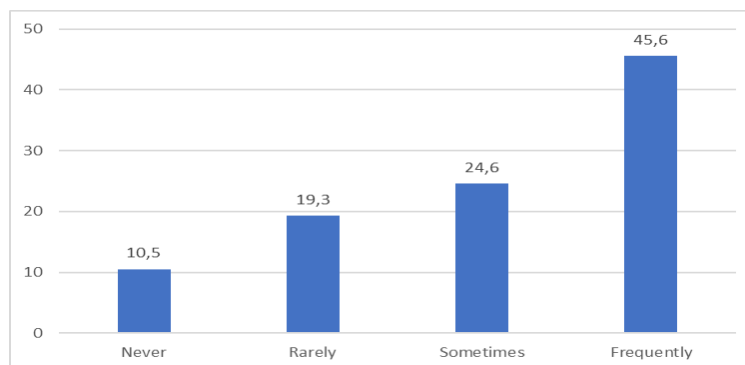
Table 1. Descriptive statistics for the sample of IUL tutors in the academic year 2022/2023

	n	%
Age class		
≤30	8	14,1
31-40	20	35,1
41-50	19	33,3
>50	10	17,5
Gender		
Male	22	38,6
Female	35	61,4
Type of degree		
Psychology and Pedagogy	21	36,8
Humanistic	14	24,6
Scientific	6	10,5
Mathematics	5	8,8
Economics and Law	11	19,3
University Master's degree		
No	37	64,9
Yes	20	35,1
Doctoral degree		
No	46	80,7
Yes	11	19,3
Total	57	100,0

As observed from Table 1, nearly two in three tutors are females and approximately half of them is between the ages of 24 and 40 (Min age = 24; Max age = 70; Median age = 41; Mean age = 41,4; SD = 10,12).
The frequency distribution for the answers to the question used as a dependent variable in the ordinal logit model is shown in the bar graph in Fig. 1.

Fig. 1. Thinking about your last mentoring assignment, how often did you contribute to the definition of content as a tutor? Percentage distribution

Tutors' responses are increasingly distributed along the scale of preferences, with almost half of tutors saying that they frequently participate in defining course contents.
The outcomes from ordered logit model for the frequency with which the tutors contributed to the definition of the course content are detailed in Table 4, displaying odds ratios instead of β coefficients to simplify interpretation. The odds ratio (OR) reflects the likelihood ratio between the probabilities of a certain category of the independent variable leading to a higher rank of the ordinal outcome category compared to the reference category of the independent variable affecting a higher rank of the ordinal

dependent variable. Essentially, an OR > 1 implies that the category is more likely to exhibit a positive attitude.

Table 2. Ordered logit regression model for the frequency with which the tutors contributed to the definition of the course content. Odds ratios estimates

		Odds Ratio	Standard error	P-value
Age class		0,807	0,241	0,473
Gender				
	Female	0,859	0,479	0,785
Type of degree				
	Humanistic	0,934	0,678	0,925
	Scientific	0,711	0,686	0,724
	Mathematics	3,433	3,515	0,228
	Economics and Law	0,908	0,655	0,893
University Master's degree				
	Yes	3,476	2,232	0,050
Doctoral degree				
	Yes	6,764	5,389	0,016
Thresholds				
	Never	-2,206	1,095	
	Rarely	-0,803	1,056	
	Sometimes	0,389	1,055	

Baseline tutor: from 24 to 30 years old, male, Pedagogy or Psychology degree, No Master's degree, No PhD

As measures of fit goodness of the model were calculated the Likelihood ratio χ^2 (8) = 10,70 (P-Value = 0,219), The Pseudo R^2 = 0,075, and the Wald test to compare this model to the null model resulting 7,65 (P-Value < 0,105).
From the table of the results of the ordinal logistic regression model, it can be seen that the effects of the variables on the possession of master's and doctoral degrees are positive and significant.
With an odds ratio of 3,476 and 6,764 respectively; The probability of participating more frequently in the definition of course content is therefore about 3,476 times higher for tutors with a master's degree than for those who do not have this degree, and 6,764 times higher for tutors with a Ph.D. than for those without a Ph.D.
It is interesting to note that the effects of qualifications are significant for the association with the frequency of carrying out an activity of responsibility such as that of defining the course contents.

5. Conclusions

It is evident from the framework of this study that tutors play a crucial role in supporting students' learning experiences in online environments, especially as traditional and telematic universities adapt to new formats. The renewed research interest in tutoring reflects the importance of student support in terms of pathway support aimed at educational success. Analyzed data regarding the relationship between training and content expertise underscore how the IUL tutor participates in structuring materials related to the discipline being taught. This involvement is directly proportional to the disciplinary competencies developed in postgraduate training as masters and PhDs; in fact, in the case of IUL tutors, qualifications significantly increase the percentage of those who state that they contribute to the definition of training materials. In addition, we can argue that possession of qualifications such as masters or PhDs facilitate taking responsibility for intervening in the structuring of content.

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