



## ChatGPT in Higher Education Pedagogy: A Case Study of an Innovative Webinar for Professional Development

Verónica Vasconcelos<sup>1,2</sup>, Lúcia Simões Costa<sup>1</sup>, Sofia Sá<sup>3</sup>, Isabel Pedrosa<sup>1,4</sup>

Polytechnic University of Coimbra, Rua da Misericórdia, Lagar dos Cortiços, S. Martinho do Bispo, 3045-093 Coimbra, Portugal<sup>1</sup>

INESC TEC<sup>2</sup>

Independent Researcher, Portugal<sup>3</sup>

CEOS.PP -Coimbra, ISTAR – IUL<sup>4</sup>

### Abstract

*This study outlines the organization of a professional development webinar on the pedagogical use of ChatGPT, sparked by the interest of the Polytechnic Institute of Coimbra faculty. Webinars are pivotal in modern educational paradigms, offering location flexibility [2]. However, there is still room for research into the use of webinars in professional development [7]. Fadlelmola et al. suggest ten principles for effective webinars, including strategies to overcome the challenges of virtual settings, such as participant attention [4].*

*The webinar was organized by the Professional Development and Pedagogical Innovation Office, and all choices were strategic. The speaker, Professor António Dias Figueiredo, is a distinguished figure in technology and pedagogy in higher education. The webinar, titled "Pedagogy and ChatGPT: Point-blank Questions and Answers" was promoted via email, social media, and the institute's website, leading to 328 registrations. Upon registration, were prompted to submit two questions for the speaker and three words that they associated with the topic. This approach ensured the content was directly relevant and fostered participant involvement from the start. This process yielded a total of 548 questions and 945 words related to ChatGPT's use in Higher Education. Analysis of the questions led to the consolidation of the 12 categories suggested by ChatGPT4 into 9, of which the following stand out: Pedagogical Methods, Assessment, Critical Thinking, and Academic Integrity. The most mentioned words were Innovation, Curiosity, Challenge, Future, and Opportunity, guiding the webinar's focus.*

*During the webinar, the 23 selected questions were asked alternately by two professors from the institution to increase interaction. The speaker had no prior knowledge of the questions, adding a layer of spontaneity. The event's high engagement was evidenced by 75% of the 236 attendees staying for the entire 90 minutes. The aftermath saw the webinar's recording achieve significant traction on social media. A post-event survey, although garnering only 22 responses, revealed that 83% of participants were "Very satisfied," and 18% were "Satisfied".*

*The positive feedback and high engagement levels indicate the webinar successfully met its aims and that the methodology resonated well with the audience. It also offers insights into best practices for professional development webinars, indicating ways to enhance their appeal and effectiveness.*

**Keywords:** Professional development, Higher education pedagogy, ChatGPT, Webinars

### 1. Introduction

Webinars – “seminars that happen online over the Internet” [1] - have become an integral part of modern education paradigms, revolutionizing the traditional learning landscape and becoming a prominent mode of instruction. In a 2019 meta-analysis, Ebner and Gegenfurtner compared learning levels and satisfaction in webinars, online asynchronous learning, and face-to-face instruction. The study found that webinars offer several advantages, including flexibility in location and serving as “an appropriate supplement for traditional face-to-face learning” [2].

Differentiating delivery methods in webinars, considering factors like locational flexibility, costs, and participant interaction, is key. Smirnova et al. highlight the positive experiences of both educators and



learners in webinar settings, as the advantages of webinars extend beyond flexibility, addressing the technological profile of contemporary learners [3]. Webinars are thus seen as a means to modernize higher education, catering to the preferences of the new student demographic.

Fadlelmola et al. delineate ten rules for effective webinar organization, covering aspects such as team coordination, thematic alignment, planning checklists, and continuous assessment [4]. These insights provide valuable guidance for webinar organizers. Verma and Singh introduce the concept of webinar metrics, emphasizing the assessment of participants' engagement, duration, and other relevant data to gauge the effectiveness of webinars [5]. Additionally, Sharma et al. highlight the phenomenon of "webinar fatigue" and the associated physical and mental strain from excessive online sessions, advocating for awareness campaigns to balance quality and frequency in webinar delivery [6]. Preparing and conducting an effective webinar should be seen as a strategic process to achieve maximum benefit and learning outcomes.

Webinars can also be an effective tool in professional development and have become "one of the important training platforms for professionals nowadays" [7]. Gegenfurtner and Ebner showed that webinars can positively affect the learning of both students and professionals [1].

Webinars have proven to be a valuable digital tool in education and professional development. On the other hand, ChatGPT "in higher education is attracting attention due to its opportunities and implications for teaching and learning" [8]. Despite its advantages, there is a significant lack of knowledge among university professors [9] and several concerns regarding the impacts of this technology on the learning process [10]. Universities have the responsibility to "provide training and support" [11] to facilitate the smooth integration of ChatGPT and other AI platforms into the teaching-learning process, while also adopting a critical approach to their limitations and potentials.

This paper describes a professional development webinar initiative focused on the pedagogical aspects of using ChatGPT in higher education. The planning, dissemination, implementation and evaluation processes are described, and the resulting data is presented.

## **2. Pre Webinar**

In the age of digital communication, webinars play an important role in education and knowledge transfer in general. However, for a webinar to be effective, it must be well-planned and tailored to the intended audience.

### ***2.1 Webinar Planning and Dissemination***

CHATGPT sparked extensive debate in academic communities, raising problems and questions that Artificial Intelligence (AI) tools have never done before. So the subject of the webinar evolved naturally as a way of creating a space for clarification, open to the Polytechnic Institute of Coimbra (IPC) and to all the community. The webinar was organized by the Professional Development and Pedagogical Innovation Office (GAVIP), and all choices were strategic. Professor António Dias Figueiredo was chosen as the speaker because of his expertise in higher education pedagogy and active involvement in the use of AI tools in teaching. Instead of planning a webinar in which the speaker talks about the topic, two IPC professors, former students of the Professor, were invited to moderate the webinar. To add dynamism and spontaneity, the webinar was planned in the form of questions that the speaker didn't know beforehand. This is how the webinar "Pedagogy and ChatGPT: Point-blank Questions and Answers" came about.

In order to allow as many people as possible to participate, a time after school and before family time was chosen. The webinar took place on May 30, 2023, at 4:30 pm and lasted 1h30. In an online environment, one of the aspects to consider is how to keep participants' attention throughout the session. The strategy adopted was to ask participants two questions and three words related to the topic when they registered. Thus, participants felt engaged and expectant that "their" question would be answered during the webinar.



The event was publicized by GAVIP via email to all teachers, students and staff, the IPC website and LinkedIn. The promotion was a success receiving 328 registrations.

### 2.2 Characterization of Registrations

The analysis of the number of registrations within the Coimbra Polytechnic community showed that the six schools participate, with a significant representation of all schools in Coimbra. These data demonstrate that interest in the webinar topic spans all areas of knowledge (Table 1).

Table 1. Registrations from Coimbra Polytechnic Registration by School/Service

School /Service from IPC	Number of Registrations
Coimbra Institute of Engineering	42
Coimbra Education School	33
Coimbra Business School	33
Coimbra Health School	25
Coimbra Agriculture School	18
Oliveira do Hospital Management and Technology School	7
Central Services	6
INOPOL - Entrepreneurship Academy	3
Social Services	1
<b>Total</b>	<b>168</b>

Observing the distribution of registrations among members of the IPC community, it appears that the webinar aroused greater interest among teachers (75%), as expected (Table 2). This shows the growing importance of ChatGPT and AI tools in education, that teachers are eager to learn and incorporate into their teaching strategies and that they seek to clarify legitimate fears about their use.

Table 2. Registrations from Coimbra Polytechnic Registration by members.

School /Service from IPC	Number of Registrations
Professors	126
Students	21
Staff	19
Other	2
<b>Total</b>	<b>168</b>

Taking into account registrations from potential participants outside the IPC, there were 160 registrations from 70 different institutions. The 5 organizations with the highest number of registrations were Polytechnic Institute of Lisbon with 14, University of Lisbon with 13 registrations, Instituto Politécnico de Leiria and Universidade Aberta with 7, and University of Aveiro and Polytechnic of Viseu with 5. It is important to note that there were participants from 12 of the 18 Portuguese Polytechnic Institutes. Considering the type of institution ("Higher Education", "Secondary and Professional Education", "Government", "Associations", "Company" or "Other") 284 participants belong to Higher Education, 27 to "Secondary and Professional Education", 11 to "Other", 3 to "Government", 2 to "Associations" and 1 to "Company".

### 2.3 Question's Categories



The first step after receiving questions from the 328 participants was to validate them. Questions that didn't make sense due to gaps or improper punctuation (e.g., full stops) were excluded, as well as those from the 27 participants who didn't consent to their use in the webinar. Despite the clear purpose of the webinar, some questions were removed because they were completely out of scope.

After reading all the questions, it became clear that there was a lot of data but little information, as many of the questions addressed the same issues. On the other hand, numerous questions addressed the same subject in diverse ways. So, in a first step, the organization decided to organize the questions into categories. ChatGPT4 suggested 12 categories which the following stand out: Pedagogical Methods, Assessment, Critical Thinking, and Academic Integrity. After some consideration, the moderators decided to create a set of 23 questions that reflected the subjects raised by the participants while also including questions that had not been addressed.

During registration, participants were also asked to supply three words related to the topic. The most often stated words were innovation, curiosity, challenge, future, and opportunity as represented in Fig. 1. The concerns about the negative effects of ChatGPT in the teaching and learning process are also evident in the participants' responses, with the frequent occurrence of words such as plagiarism, fraud, insecurity, doubt, fear, and distrust.



Fig.1. Word cloud generated from the provided data by ChatGPT-4 (OpenAI).

### 3. Webinar

#### 3.1 Webinar in Numbers

One of the main challenges of a webinar is keeping attendees interested the entire time. The zoom session report indicated that 75% (177) of the 236 participants stayed for the entire webinar, indicating audience engagement (Figure 2).



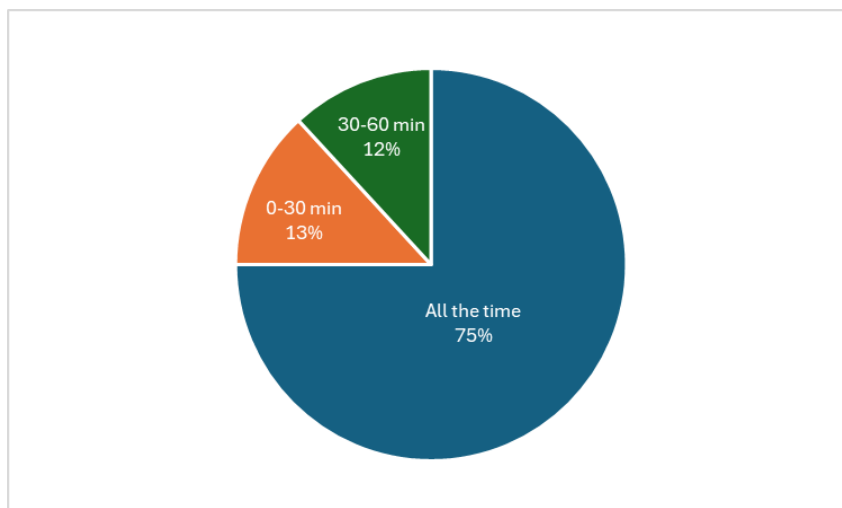


Fig.2. Webinar participation time.

Throughout the session, the moderators alternately asked a total of 23 questions. The first question, "What are we talking about when we talk about ChatGPT?" was chosen to contextualize the webinar theme and ensure that all participants had enough knowledge to feel involved. The speaker took seven minutes to answer this question. Although the questions were pre-aligned, the moderators had to adjust them almost in real-time to maintain a coherent flow. To achieve this, the moderators frequently communicated with each other via WhatsApp to realign the order of the questions.

During the webinar, participants' microphones were switched off, but they were able to participate via Zoom chat. Six questions were written in the chat, three of which were directed to the speaker. This was another approach for involving participants. At the end of the webinar, many compliments to the speaker and organization were posted in the chat, as well as messages of thanks.

#### 4. Pos Webinar

Days following the webinar, all participants received an evaluation and satisfaction questionnaire. Twenty-two answers were gathered. A Likert Scale of five points was used. The average result for the eight parameters used to evaluate the webinar was always greater than 4.5 out of 5 points. The "Interest in the topic" parameter received 5 points, indicating that the issue was of interest to the audience. The "Quality of the speaker" parameter received 4.9 points, highlighting the recognition given to Professor António Dias de Figueiredo (Table 3).

Table 3. Results of evaluation questionnaire.

Webinar Parameters	Very Displeased	Displeased	Neither satisfied nor Displeased	Satisfied	Very Satisfied	Average
Channels used for publicising the webinar	--	--	1	8	13	4,5
Correspondence to your Objectives/expectations	--	--	--	8	14	4,6
Interest in the topic	--	--	--	--	22	5
Relevance and utility of the Topic	--	--	--	5	17	4,7
Acquisition of new knowledge	--	--	1	8	13	4,5
Quality of the speaker	--	--	--	1	21	4,9
Duration	--	--	--	9	13	4,6
Schedule	--	--	1	9	12	4,5



Despite the post-event questionnaire receiving only 22 replies, 81.8% of respondents were "Very satisfied," which corresponds to a maximum classification. The remaining 18.2% responded "satisfied". On average, the answers scored 4.8 points out of 5.

Table 4. Results of satisfaction level questionnaire.

Satisfaction Level	Number of Answers
Very Displeased	--
Displeased	--
Neither satisfied nor Displeased	--
Satisfied	4
Very Satisfied	18

The webinar was recorded and the video is accessible on YouTube<sup>1</sup>. In the previous 11 months, it has received 537 views. Taking into account the number of participants, the number of views is not significant, indicating that professors prefer synchronous sessions. The video was also shared through the Facebook pages of GAVIP, speaker, moderators and several participants, which increased its visibility.

A certificate of attendance was sent to all participants. This aspect is also important for professors and staff in their performance assessment.

## 5. Conclusions

This study detailed the planning, execution, and evaluation of a professional development webinar on the pedagogical use of ChatGPT in higher education. The high levels of participation and favorable feedback demonstrate that the webinar successfully met its goals. The interest of the topic, the strategic choice of a notable speaker, an interactive format, its publicity and a well-chosen schedule contributed significantly to the success of the event.

Allowing participants to submit questions during registration significantly increased engagement and ensured that all concerns were addressed, leading to a 75% audience participation rate throughout all the time the webinar. The fact that the speaker answered questions without prior information gave spontaneity to the event. The moderators' dynamic engagement and real-time modifications to the order of questions kept the webinar cohesive and sensitive to the participants' interests.

The beneficial results of this webinar can provide valuable insights for other organizers of professional development webinars on AI tools aiming to demystify the risks, enhance the advantages of their use, and foster a critical perspective on their application in the teaching and learning process.

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