

# University Orientation through Conversational Technologies: Evaluating the User Experience of an Embodied Conversational Agent

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## Abstract

*Students making decisions during transitions between different stages of education or from education to work increasingly need effective guidance tools that can respond to their needs in a personalized and accessible way. This study investigates the potential of Embodied Conversational Agents (ECAs) in the university context, focusing on the user experience evaluation of an agent designed to guide students at the master's degree program in Communication Strategies and Techniques at the University of Siena. By administering the User Experience Questionnaire Plus (UEQ+) to 17 students, and conducting an exploratory analysis of their conversations with the ECA, the study provides insights into the role that conversational technologies can play in guidance services, helping foster more immediate and effective interactions in response to the communicative and motivational challenges that characterize academic transitions.*

## 1. Introduction

Young individuals encounter a particularly complex decision-making process when determining whether to pursue further studies or enter the workforce. While some navigate this transition with relative ease, others experience difficulties and often rely on the influence of peers, educators, parents, and other relevant adults [11]. Within a constantly evolving socio-economic landscape characterized by rapid and frequent changes in the labor market, an increasing number of individuals revise their career trajectories over the course of their lives [9]. These dynamics clearly emerge in the university context, especially during the transition from one cycle of study to the next. At this stage, decision making challenges become more intense as students must select a specific program from a wide and complex academic offering often without a clear understanding of the differences between courses, related career prospects, or the level of commitment required. Although universities provide a range of online resources and email-based information [7], the

overload of generic technical content shared through underused channels makes it hard for students to navigate the system effectively and independently.

Consequently, students increasingly seek support from reference figures such as professors, tutors, peers, and dedicated services to strengthen academic motivation and enhance performance [5]. However, limited staff availability, long response times, and students' hesitancy to request assistance, frequently restrict access to these resources potentially resulting in frustration, uncertainty, and demotivation, and in some cases leading to discontinuities in students' academic trajectories.

To respond to these challenges, higher education institutions have begun to implement innovative strategies aimed at supporting students during critical phases of academic decision-making. Among these approaches, Embodied Conversational Agents (ECAs) have emerged as advanced tools capable of simulating human communication and behavior [3], thereby facilitating continuous and interactive access to complex information.

This study investigates the user experience of an ECA specifically developed to support orientation for the master's degree program in Communication Strategies and Techniques at the University of Siena. The evaluation employs the User Experience Questionnaire Plus (UEQ+), a validated instrument designed to assess multiple dimensions. The findings, complemented by an exploratory analysis of the conversations generated during the interactions with the ECA provide empirical insights into the potential of ECAs as innovative and effective tools for university guidance services.

## 2. New Perspectives in University Orientation

Orientation encompasses the set of actions implemented by institutions to support students in transitioning from their previous educational or personal context to the university environment [16]. In recent years, alongside traditional in-person orientation activities, digital technologies, such as

conversational agents, have emerged as new support tools [1], [13]. Many interactions with these tools remain predominantly informative, focusing on answering frequently asked questions or providing essential communications related to enrollment, course registration, and campus navigation [12]. However, orientation is evolving beyond mere information delivery, aiming to support students through a broader process of reflection and awareness. This process extends across all phases of the academic journey, from entry to university, through the in progress, and finally towards graduation and transition to the workforce or postgraduate education [2].

### 2.1. Embodied Conversational Agents in the educational context

The application of Artificial Intelligence (AI) in educational contexts constitutes a relatively recent development that has introduced new modalities of interaction between students and conversational agents. Among these, ECAs represent a particularly promising category, as they integrate verbal and non-verbal communication cues including facial expressions, gestures, and vocal modulation to simulate human-like interaction and enhance user engagement [4]. Current implementations primarily employ ECAs as instructional support tools [17], integrating them into digital learning platforms [18] and immersive environments such as virtual or mixed reality settings [10]. However, their deployment in student guidance and orientation remains limited. Despite the potential of ECAs to facilitate access to complex information and support decision-making processes, empirical research in this area is still sparse and warrants further investigation.

### 3. Objectives

To ensure the effectiveness of academic guidance, institutions must adopt tools developed in response to students' needs, such as the demand for clear, reliable, and timely information [8], as well as the opportunity to express their aspirations and address doubts that may arise throughout their academic journey. These needs, however, are not homogeneous, they vary according to each student's educational background, origin, cultural and social capital, and individual expectations.

This study aims to evaluate students' experience in interacting with an ECA designed to support orientation for the master's degree program in Communication Strategies and Techniques at the University of Siena. The analysis seeks to determine how this tool can not only facilitate access to course-related information but also identify students' needs and respond to them in a personalized and effective manner.

## 4. Chiara, the Embodied Conversational Agent for master's degree program in Communication

The Master's Degree Program in Communication Strategies and Techniques at the University of Siena has introduced "Chiara" (see Figure 1), a female ECA designed as an orientation and support tool for the university student community. Integrated into the program's official website, the ECA provides practical and personalized information on the structure of the curriculum, the organization of courses, teaching staff, career opportunities, and the reasons for choosing the University of Siena for advanced studies. Accessible 24 hours a day, seven days a week, and available in both textual and voice-based interaction across multiple devices (smartphones, PCs, and tablets), Chiara represents a concrete example of how conversational technologies can serve as continuous communication tools, overcoming temporal and logistical barriers and fostering direct and immediate dialogue between the academic institution and prospective students.



Figure 1. Image of Chiara, the ECA implemented for the Master's Degree Program in Communication Strategies and Techniques at the University of Siena

## 5. Methodology

For this research, we used the UEQ+ [15], an extension of the original UEQ [14], in which 14 research-relevant dimensions were selected and investigated: attractiveness, efficiency, clarity, reliability, interest, novelty, trust, acoustic quality, usefulness, perceived value, aesthetics, user-friendliness, reliability and content quality.

The questionnaire was administered to students following the interaction with the ECA carried out in two modes: a free phase, in which they could explore the agent following their personal curiosities, and a structured phase, during which they were guided through four predefined tasks that required them to search for information about the degree course (curriculum, outlets, tutors, access requirements and university services). In order to make the interaction experience realistic and close to everyday usage

patterns, participants were asked to use their smartphones and headphones, so that they could communicate with the agent by both text and voice (see Figure 2).

In addition to administering the UEQ+, exploratory analysis was made on the interactions that students had with the ECA during both phases.



Figure 2. Photo with participants taking the test

## 6. Sample and demographic analysis

The study sample consisted of 17 students from the University of Siena, attending the three-year degree course in Communication Sciences. Being familiar with the use of digital technologies and innovative applications of communication, they could be interested in continuing their studies with the master's degree course in Communication Strategies and Techniques. From a demographic point of view, the composition of the sample was heterogeneous,

with 6 men and 11 women of whom 16 declared an age between 18 and 25, and only one over 35.

## 7. Results

Tables 1 and 2 were created using the Data Analytics Tool as the analysis tool, whose originally collected data were transformed from a 7-point Likert scale range to a range between -3 and +3.

The analysis of the data from the UEQ+ highlights an overall positive user experience (see Figure 3). Among the most appreciated dimensions, trust stands out ( $M = 2.59$ ), with a narrow score distribution ( $SD = 0.62$ ), indicating a strong perception of reliability and transparency from users. Perspicuity ( $M = 1.76$ ) trustworthiness of content ( $M = 1.75$ ) and intuitive use ( $M = 1.74$ ) also received positive evaluations, suggesting that the system interface is clear and easy to use even without prior experience.

Other well-perceived aspects include quality of content ( $M = 1.62$ ), service usefulness ( $M = 1.62$ ), novelty ( $M = 1.53$ ), stimulation ( $M = 1.35$ ) and attractiveness ( $M = 1.09$ ) indicating that the system is seen as innovative, engaging, and useful in meeting users' informational needs. However, some dimensions received lower ratings, pointing to areas for improvement. In particular, the dimensions with a score below 1 were efficiency ( $M = 0.63$ ) that was evaluated heterogeneously ( $SD = 1.58$ ) revealing divergent perceptions regarding the speed and fluidity of interaction. Perceived value ( $M = 0.96$ ), visual aesthetic appeal ( $M = 0.82$ ) and dependability ( $M = 0.72$ ), also scored lower compared to other dimensions, suggesting that, although functional, the interface may not be perceived as particularly attractive or well-enhanced. An additional critical

Table 1. Mean, variance, standard deviation and number of questionnaires administered for the dimensions of the UEQ+ considered

Scale	Mean	Variance	Std.dev.	N.
Attractiveness	1,09	1,57	1,25	17
Efficiency	0,63	2,53	1,58	17
Perspicuity	1,76	1,41	1,18	17
Dependability	0,72	2,83	1,67	17
Stimulation	1,35	1,63	1,27	17
Novelty	1,53	1,78	1,32	17
Trust	2,59	0,40	0,62	17
Acoustics	0,25	2,05	1,42	17
Usefulness	1,62	1,91	1,37	17
Value	0,96	2,01	1,41	17
Visual Aesthetics	0,82	3,10	1,75	17
Intuitive Use	1,74	1,42	1,18	17
Trustworthiness of Content	1,75	1,56	1,24	17
Quality of Content	1,62	1,05	1,02	17

Table 2. Mean, variance, standard deviation and number of questionnaires administered for the importance of the UEQ+ dimensions considered

Scale	Mean	Variance	Std.dev.	N.
Attractiveness	1,29	1,47	1,18	17
Efficiency	1,76	1,69	1,26	17
Perspiciuity	2,29	0,97	0,96	17
Dependability	1,71	1,60	1,23	17
Stimulation	1,71	1,97	1,36	17
Novelty	1,65	1,74	1,28	17
Trust	2,59	1,01	0,97	17
Acoustics	1,27	4,82	2,09	11
Usefulness	2,00	1,75	1,28	17
Value	1,82	0,90	0,92	17
Visual Aesthetics	2,35	0,62	0,76	17
Intuitive Use	2,35	1,12	1,03	17
Trustworthiness of Content	2,41	0,76	0,84	17
Quality of Content	2,53	0,76	0,85	17

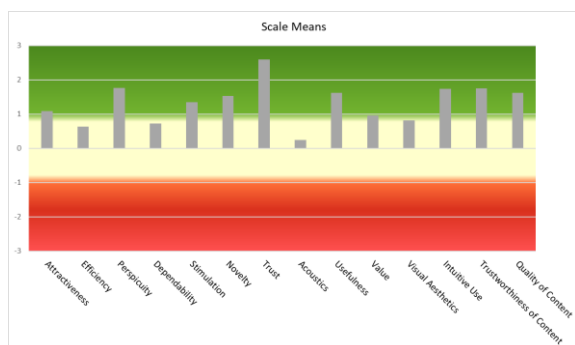


Figure 3. Visualization of the means of the evaluated dimensions in the UEQ+ data analysis Excel sheet

issue emerged in the acoustic dimension ( $M = 0.25$ ), characterized by high variability in responses ( $SD = 1.42$ ) and overall low ratings, probably influenced by the limited voice interaction experienced by some participants.

In the analysis of the perceived importance of the various dimensions of user experience (see Figure 4), dimensions related to trust and quality of content emerge as the most relevant, confirming the central role these aspects play in the interaction with the system. Specifically, trust ( $M = 2.59$ ), content quality ( $M = 2.53$ ), trustworthiness of content ( $M = 2.41$ ), intuitive use ( $M = 2.35$ ) and visual aesthetics ( $M = 2.35$ ) rank highest on the importance scale, indicating that users place primary value on the truthfulness, informational reliability, and practical functionality of the service. Perspicuity ( $M = 2.29$ ) and perceived usefulness ( $M = 2.00$ ) are regarded as also significant factors contributing to a positive user experience. In contrast, aspects such as perceived value ( $M = 1.82$ ), efficiency ( $M = 1.76$ ), stimulation ( $M = 1.71$ ),

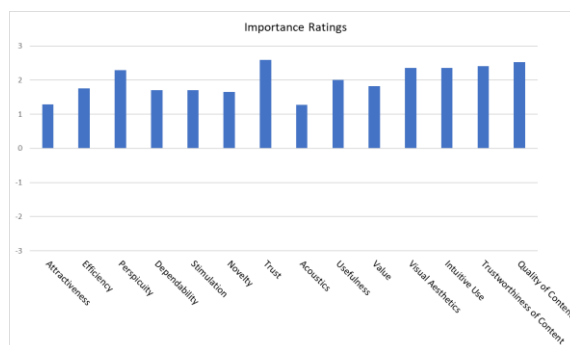


Figure 4. Visualization of the mean importance of the dimensions of the UEQ+ data analysis Excel sheet

dependability ( $M = 1.71$ ) and novelty ( $M = 1.65$ ) are perceived as desirable but not essential.

Finally, dimensions such as attractiveness ( $M = 1.29$ ) and acoustic elements ( $M = 1.27$ ) are rated as least important, suggesting that global aesthetic appeal and the auditory component of the interaction play a marginal role in users' perception of the experience.

## 8. Discussion

To discuss the outcomes of this study, we considered both the results of the UEQ+ questionnaire and the interactions carried out by students with the ECA. While the quantitative data provided structured insights into user experience, the analysis of the conversations allowed us to identify the most frequent requests and recurring themes. Taken together, these two perspectives offer a broader understanding of how students perceived the agent and what kind of

support they expected from it during the orientation process.

### 8.1. Quantitative evaluation with UEQ+

The analysis of the UEQ+ data shows in the context of ECA-mediated university orientation two dimensions that are particularly central in determining a positive user experience: trust and quality of the content provided. Trust, in particular, is confirmed as a key element for the initial acceptance of digital tools, continued adoption and informed use over time [6]. In the context under review, trust is perceived by students not only as an essential requirement for interaction, but also as one of the dimensions best met by ECA, contributing significantly to the success of the experience. Quality of content also scored well in terms of both importance and perceived quality of the experience undertaken.

Other aspects such as aesthetics, trustworthiness of content, and intuitive use are perceived as important to the experience and scored well, but are slightly lower. On the other hand, it is interesting that the acoustic component that is one of the distinctive aspects of ECAs, was perceived as marginal in the user experience, receiving the lowest ratings both in terms of perceived importance and for the quality of the experience offered by the university's ECA. This data suggests a preference for text-based interaction, which seems to be more convenient or appropriate for the type of activity performed.

Although with some areas for improvement, the overall experience with the ECA was evaluated positively by the students, observing consistency between the dimensions considered important and those actually appreciated. However, we should emphasize that the evaluation of an ECA is a complex and multifactorial task, as it involves a multiplicity of cognitive, emotional, communicative, social and aesthetic aspects that can hardly be fully captured by a single instrument. In this study, we chose to use a validated questionnaire, the UEQ+, focusing on only a few dimensions of the user experience, reflecting only part of the complexity of the interaction. Interestingly, the dimensions that obtained higher scores also showed lower variance and standard deviation, indicating a greater consistency of judgments among students in areas where the ECA performed best. Conversely, dimensions that scored lower were associated with higher variability, suggesting that perceptions were more heterogeneous where the system was less effective. These findings must be interpreted with caution, as the sample size was relatively small, and the metrics adopted as previously discussed provide only a partial view of the multifaceted nature of user experience evaluation.

Moreover, user experience is inherently a dynamic and evolving phenomenon, shaped by users' growing familiarity with the tool and changes over time. For

this reason, a critical and longitudinal approach is essential to better understand how perceptions develop and shift. In line with this perspective, a follow-up evaluation is already planned in the medium-to-long term to assess whether the ECA is capable of sustaining student engagement and attention over time, and to capture any evolving patterns in user perception as the tool becomes more embedded in academic routines.

### 8.2. Exploratory analysis from student and ECA interactions

As outlined in the methodology, the interaction with the ECA consisted of two phases: a free exploration phase and a structured phase in which students were asked to complete specific tasks and request predefined information.

The exploratory analysis of these conversations revealed that students frequently began by asking for information about the Experience Design curriculum. Although the program offers three different curricula, most questions focused on this one, which is also the curriculum within which the ECA was developed. Beyond the task-related queries, it was particularly noteworthy that students showed strong interest in the teaching staff, often asking about lecturers' biographies, as well as in colleagues' perspectives on the program. Students also requested information about internship opportunities, reflecting their concern with the connection between academic training and employability. In addition, several students asked for clarification on whether the courses were mainly theoretical or practice-oriented (see Figure 5). These observations suggest that, in addition to structured information such as curricula and admission requirements, students value more personalized and experiential knowledge particularly insights into teaching approaches, lecturers' backgrounds, colleagues' experiences, and opportunities for professional integration. These results highlight the potential of ECAs not only as repositories of information but also as mediators of relational and experiential aspects of academic life.



Figure 5. Excerpt from a conversation between a student and the ECA in Italian

## 9. Conclusions

The present study analyzed the user experience of an ECA designed to support university students in their orientation processes to the master's degree

course in Communication Strategies and Techniques. The evaluation, conducted by means of the validated UEQ+ questionnaire, made it possible to systematically explore some key dimensions of the user experience, returning an overall positive scenario. The results show that ECA is a promising tool to facilitate access to complex information in a personalized and interactive way. Among the main advantages that emerged were the ability to establish trust, the reliability of the content offered and the ease of use, elements that were particularly appreciated by the students. The aesthetic and vocal dimensions, although in need of improvement, did not compromise the overall evaluation of the experience. A complementary exploratory analysis of ECA students' conversations further highlighted recurring interests in curricula especially the Experience Design curriculum as well as in lecturers' profiles, internship opportunities, and the balance between theoretical and practical teaching.

The tested ECA did not remain an isolated prototype, but was actually integrated and made operational within the degree course website, where it is currently available and used by students. This implementation in the real-life context offers a research opportunity for future studies aimed at analyzing how spontaneous interaction takes place and assessing the long-term impact on students' access to information and autonomy in the orientation process.

In conclusion, the ECA emerges as a digital resource capable of enhancing institutional communication through conversational modes, and future studies integrating different methodological approaches may further explore the role of this tool in the university environment.

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