Chapter 5

RECLAIMING CONVERSATION: INTRODUCING A NOVEL APPROACH TO USING CONVERSATIONAL AI AT SCHOOL

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ABSTRACT

The digital era seems to have led to the atrophy of our ability to converse with ourselves and to empathize. Thus, in the school environment it is increasingly necessary to emphasize sharing the energy of students' emotions, generating a climate that is highly dynamic, rich, fluid, and creative. This chapter describes a didactic activity that sees conversational agents as a key to generating engaging learning experiences, thus reconsidering and reinterpreting the traditional class period. Technology can facilitate the return to a form of learning centered around conversation itself, not only between man and machine but above

all between humans. It can do this by stepping aside at the right time. To help achieve this goal, we hereby present a didactic tool for the study of Greek literature — the conversational agent "Sappho the Poet" (it. "La poetessa Saffo"), modeled after one of the most mysterious and iconic figures of all classicism.

INTRODUCTION

We live in a world where the good of conversation is sacrificed on the high altar of digital technology. We turn to it rather than to the self. We submit to the dictates of an "other-directed" life (Riesman 1950) while paradoxically we find ourselves engaging less and less with others. Technology holds us in its grip and progressively causes our ability to know ourselves and cultivate empathy to wither.

This situation has spurred reflections such as those of psychologist and sociologist Sherry Turkle (2015), author of *Reclaiming Conversation: The Power of Talk in a Digital Age*. Turkle argues that people now constantly live in a digital "elsewhere" that reduces the quality of life, fragmenting relationships and making us not only inattentive to our and others' needs, but also extremely susceptible to stasis. She defends the need to recover the ability to be with oneself and to converse with others, underlining how dialogue plays a fundamental role in comprehending the world around us, in understanding each other and in growing, loving and being loved. The examples she gives range from the workplace to the school environment, from family to relationships with friends and partners (Turkle 2015).

We are immersed in a media ecosystem centered on the concept of multitasking, victims of a condition of incessant distraction, vulnerability and agitation (Ophir, Nass and Wagner 2009; Leroy 2009; Wang and Tchernev 2012; Becker, Alzahabi and Hopwood 2012; Srivastava 2013; Downs et al., 2015; Leroy and Schmidt 2016; Kirschner and De Bruyckere 2017; AAgaard 2019; Zane, Smith and Walker Reczek 2020). We are increasingly willing to accept that during a conversation our interlocutor looks at their smartphone screen or answers a call (Przybylski and Weinstein 2012; Hall, Baym and Miltner 2014; Misra et al., 2014), and we

are less and less able to experience a brief moment of boredom as an opportunity to talk to ourselves (Turkle 2015).

In this era of addiction to digital stimuli, fragility and Fear Of Missing Out (FOMO)[1], we have become addicted to tools designed to keep us glued to a screen; "we need our smartphones, notification screens and web browsers to be exoskeletons for our minds and interpersonal relationships that put our values, not our impulses, first" (Harris 2016). This living at the mercy of intermittent variable rewards has lent new woes to the technostress theorized by Craig Brod (Brod 1984), producing unimaginable results. The use of social network sites is no longer only a source of stress for many users (Bucher, Fieseler and Suphan 2013; Hampton et al., 2015; van der Shuur, Baumgartner and Sumter 2018; Zhang et al., 2021), but induces dependence in the most stressed users (Tarafdar et al., 2019; Cheikh-Ammar 2020). This is an alarming vicious circle.

Particularly affected are the younger generations such as Millennials (1981–1995), who have only a fading memory of life without the internet, or those who do not remember one at all, such as Generation Z (1996–2010). Scholars believe they are the most depressed, sad, anxious, and least empathic generations in history (Konrath, O' Brien and Hsing 2011; Konrath et al., 2014; Bethune 2019; Hoffower and Akhtar 2020; Pathak 2020). Accustomed to "becoming media" (Boccia Artieri 2006), subjected to continuous digital autobiography and in need of mass recognition (Fornaseri 2017), they define a cultural period in which a certain degree of 'emotional illiteracy' (Goleman 1995) spreads uncontrollably, a mental state of indifference to their own and others' emotions and a lack of ability to manage them, with disastrous consequences for any relationship with oneself and others[2] (Galimberti 2007).

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[1] Fear Of Missing Out (FOMO) is a form of social anxiety resulting from the desire to stay continually connected with other people's activities and the consequent fear of being excluded from rewarding events, experiences or social contexts (McGinnis 2004).

[2] It deals with a behavior not only closely connected to the abovementioned multitasking (Becker, Alzahabi, and Hopwood 2013), but also to the "privacy paradox" (Barnes 2006), a discrepancy between preoccupation with one's own digital identity and the behaviors employed to manage it (Barth and de Jong 2017; Fei Wu 2018).

Thus, it is unsurprising that in educational contexts various solutions are being implemented to bring the "didactic program" closer to the "life program." Teachers and educators are increasingly focusing attention on teaching methodologies that aim to develop self-awareness, self-control and interpersonal skills (Prince 2017; Villaseñor 2017). An example of this is the growing interest in Social and Emotional Learning (SEL) (Durlak et al., 2011; van Poortvliet, Clarke and Gross 2019; Humphrey et al., 2020). SEL skills appear to be directly related to one's degree of satisfaction in personal, work and social life, in terms of conscientiousness, open-mindedness, extroversion, friendliness, emotional stability, and composite skills such as metacognition, self-efficacy and critical thinking (OECD 2020).

This phenomenon does not only manifest itself at the lower levels of the school system. Higher education institutions also work on the topic of emotions, both enriching their curricula with new courses focusing on empathy, well-being and emotional intelligence[3] (Giral-Corbì 2018; Leighton 2020), and working to transmit these skills across the board through traditional teaching (Jiang and Wang 2018; Jacob et al., 2019; Zafar Numanee et al., 2020). Furthermore, reflections on the role of emotions in the teaching-learning process within school and university communities are by no means rare (Chen and Guo 2018; Thomas and Sedell 2018; Meyers et al., 2019; Lucangeli 2019).

It often happens that man assigns technology the task of saving him from those very problems into which it has inexorably drawn him. It is not uncommon to come across new applications that aim to stimulate empathy and inner dialogue, or conversational agents designed for therapeutic purposes that offer advice on a life they have never lived (*assistive robotics*). It is as if the road to return to a fully human essence can only be "digital" (Turkle 2015).

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[3] A quick search on Coursera or Class Central using keywords such as emotion, empathy or emotional intelligence is enough to confirm the great attention focused on this issue. For instance, Yale University offers a free course on Coursera titled "The Science of Well-Being" and based on its most popular class — "Psychology and the Good Life," taught by psychology professor Laurie Santos (see https://www.coursera.org/learn/the-science-of-well-being).

Can technology teach us to be human? Probably not. But it can help us in our introspection and relationship needs, as long as it steps aside at the right time. The time has come to change the way we introduce it into our lives. The time has come to design solutions that allow it to disengage us from its use. A first step could be to use it to *reclaim conversation* in those situations where individuals' different orientations, sensibilities, and attitudes can make the relationship between human beings an extremely dynamic, fluid, creative and enriching occasion. One such situation is the classroom lesson, in its physical and/or digital version (Iannella 2021).

TOWARDS A NEW FORM OF PARTICIPATORY LESSON

Reclaiming conversation in the context of a school lesson means planning classes that have a high degree of participation, in terms of interaction with the teacher and also between students. To understand how this task can be accomplished by technology, it is first necessary to identify the tools that allow one to best work on the topic of conversation. The choice can only hinge on conversational agents, human-machine interaction systems based on Artificial Intelligence (AI) and Natural-Language Processing (NLP) algorithms capable of simulating a human conversation through the use of text and/or voice.

The Conversational Agent in the Educational Context

A conversational agent is the perfect candidate for creating an active and interactive learning experience. A conversational agent can play an author, the protagonist of a literary work, a historical figure, a philosopher or a scientist. It allows one to transform traditional disciplinary content into stories narrated in the first person by the people who had actually lived or created the content, eliciting emotions, aspects and perspectives that are lost in a traditional classroom lesson (Iannella 2020b).

Of course, it is necessary to carefully design the *agent persona*, that is, the set of intrinsic drivers — emotional and behavioral — that regulate its actions and are based as faithfully as possible on the personality of the figure it interprets (DeLong 2018; Smestad and Volden 2019; Ursu 2019). The *agent persona* establishes a relationship with the user and can provoke the desire to continue and repeat the interaction (Callejas et al., 2011). Its definition involves all aspects related to conversational flow, such as linguistic (lexicon and morphosyntax), sociolinguistic (register, style), paralinguistic (tone, intonation, pauses, speed) and extra-linguistic (the icon and graphics of the communication environment or the gestures and facial expressions of any avatar). An agent who plays Cicero cannot express himself using a vulgar lexicon, just as the one who impersonates Marie Curie cannot forget the ferocity of the sexual discrimination to which the scientist was subjected.

In addition to the *signifier*, it is essential to work on the *signified* and therefore on the content of the conversation. The knowledge possessed by the agent must be able to respond to a large number of requests and must be organized by topic and conversational contexts, so as to ensure a certain degree of in-depth analysis. Providing multiple answers for the same question can prove very useful, as it increases the variability of the interaction.

The story offered by the conversational agent is not constructed *a priori* and does not have a fixed structure. In fact, its *interplay* changes according to variations in the conversational flow, taking on a different and unrepeatable form every time, unique for each interaction. The content of the questions the student chooses to ask, the order in which he/she has them follow one another and everything that allows the student to make himself/herself known and recognized are some of the elements that contribute to enabling the personalization process of this type of cognitive activity (Iannella 2020b). In this context, the methods of fruition of the topics covered are similar to those that characterize hypertextual narration; the student "lacks the feeling — which instead is always present in reading on paper — of being able to check at any moment where the margins of the text arrive [...]" (Lughi 1993).

Interaction with a conversational agent activates an intellectual process aimed at inquiry. This is a typical phenomenon of learning by discovery, as theorized by American psychologist Jerome Seymour Bruner (Bruner 1960). In this situation, not only is the content to be learned not provided *a priori*, but there is also no form of useful support to navigate the ecosystem of information to be acquired. Learning becomes a labyrinth from which the student can exit only after having made as much content as possible their own, and assigned it a significant place in his/her cognitive structure (Ausubel 1968).

A Conversational Agent to Reclaim Conversation

A conversational agent personifying a figure who really existed or who belongs to literary fiction is not new. In 2005, a team led by Bob Heller of the Center for Psychology at Athabasca University designed FreudBot (Heller et al., 2005), a chatbot capable of providing first-hand information relating to the theories, concepts and life of the well-known Austrian psychoanalyst. Its didactic use is also well-established; there are agents that promote the process of acquiring disciplinary knowledge, both as a support to the teaching activity (Desale et al., 2019) and in the different stages of learning (Cok and Gilli 2011; Griol, Molina and Sanchís de Miguel 2014; Mikic Fonte et al., 2016; Ivanova et al., 2017; Colace et al., 2018; Clarizia et al., 2018; Lam, Chan and See 2018; Bahja, Hammad and Hassouna 2019; Ravicchio et al., 2019), and other agents that guide the student in the use of educational services or distance learning courses (De Pietro and Frontera 2008; Nenkov et al., 2016; Laeeq and Memon 2019).

Rather, it is innovative to think of using a conversational agent to understand and reinterpret the class period, abandoning traditional face-to-face teaching in favor of a strongly participatory dynamic that encourages conversation and emphasizes the sharing of students' emotional energy. The underlying philosophy is the one indicated at the end of the section Introduction — paradoxically, to use technology in order to disengage from it, and so activate a connection between human beings.

It is possible to provide for the division of the learning activity into three phases[4]:

Task Assignment

The teacher asks students to interact with the conversational agent in order to obtain information on a specific topic or area of knowledge (e.g., life, thought, works, discoveries, literary success…).

Interaction with the Conversational Agent

The student interacts individually with the agent, freely asking a series of questions in line with the required task. The conversation with the machine activates a personal and personalized cognitive process, which is affected by the aforementioned learning by discovery (Bruner 1960) and which allows each student to build their own store of knowledge (see section The Conversational Agent in the Educational Context). Duration of the activity can vary, and it can be carried out as a homework assignment. Each interaction between student and agent is logged.

Participatory Lesson

Thanks to the possibility of seeing and analyzing the data collected through the interactions[5], the teacher has sufficient information to guide the class in a fruitful exchange of knowledge. In fact, he/she knows who has obtained what information, and which content the agent has not been asked to deliver or has only delivered to a small group.

These learning analytics are a fundamental tool for orchestrating a real lesson based on conversation, abandoning the traditional vertical model of knowledge transmission. Each student is called upon to bring their own store of knowledge to the stage and, since each person's learning curve is

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[4] Depending on the didactic needs, the three phases can be repeated several times, always maintaining the same order.

[5] Teachers can view student interactions and examine metrics and statistics in relation to a given task via a dashboard. It is essential to allow the creation of "virtual classes" and to give users the possibility of identifying themselves as belonging to the latter, for example by providing a specific code to the agent.

different, sharing it allows them to complete and enrich that of others. This brings the cognitive process to completion.

The activity determines a real shared and collective construction of knowledge, concretizing the connectivism theorized by George Siemens and Stephen Downes (Siemens 2005; Downes 2010). Knowledge takes the form of a network; individual conversations with the agent, reflected in the store of knowledge brought to the classroom, constitute the nodes, while the spoken words (i.e., the contributions of each student to the conversation) are the links. It is obvious that the role of the teacher is central in this regard. He/She too is a fundamental node in the knowledge network. Not only does he/she have the task of guiding the conversation, but actively participates, completing and enriching the students' contributions and filling in any gaps, in compliance with the learning objectives set out in the didactic program.

Figure 1. Artistic Representation of the Three Phases of the Learning Activity[6].

The phases described above[7] outline a virtuous process in which students experience the joy of an individual journey of discovery, allowing them to acquire the necessary confidence to offer a personal contribution to the lesson and savor the taste of shared knowledge (Figure 1). It is an intellectual adventure that begins with curiosity (phase 1), continues with the wonder of a quest for knowledge (phase 2) and ends with presentation and comparison, in an exchange of ideas that only a passionate teacher can

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[6] Illustration by Fabio Santaniello Bruun.

[7] Although the proposed scheme recalls the typical plan of the flipped classroom (Bergmann and Sams 2012), it is worth considering the profound difference between watching a video or consulting web pages and the individual experience and analytical tools offered by conversational AI.

make dynamic and enriching, while avoiding excessive narcissism or marginalization (phase 3).

In a participatory lesson, conversation becomes a source of collaborative solidarity — a liberating practice that greatly stimulates motivation. It is a lesson in civilization and humanity.

The Conversational Agent as a Universal Educational Tool

It should not be forgotten that a conversational agent is by nature an inclusive product since it is suitable for different types of learners without the need for later adaptations. The ability to interact in written and oral form, the understanding of natural language, the variety of outputs, the logic of personalization, and continuous learning are advantages that give conversational agents a key role to play in the contemporary educational landscape. In line with the principles of Universal Design for Learning (UDL), these universal educational tools are able to vary the media offer and provide each learner with various ways to access content, involving him/her in a path of discovery that respects his motivations, his inclinations and his metacognitive strategies (CAST 2020; Iannella 2020a).

Many researchers have demonstrated the potential of virtual assistants as assistive technology, such as in cases of autism spectrum disorder (Cooper and Ireland 2018), visual impairment (Bigham et al., 2008; Torres, Franklin and Martins 2019), hearing impairment and mutism (Gebert and Bothe 2010; Pardasani et al., 2018), depressive and anxiety disorders (Fitzpatrick, Darcy and Vierhile 2017; Abd-alrazaq et al., 2019), neurodegenerative diseases (Ireland et al., 2016), attention deficit hyperactivity disorder (ADHD) and deviant social behaviors (Ireland, Farr-Wharton and Bradford 2018).

CONVERSATIONAL AGENTS IN ANCIENT GREEK CLASS: INTRODUCING "SAPPHO THE POET"

Delicate but at times biting, lucid and even neurotic in her lucidity, Sappho proved herself able to stage a complex dialectical game between the private and public spheres, composing lyrics that express collective feelings and deeply intimate emotions. She was a lover of refinement and of life, a soul with a very lively sense of self and an intense awareness of lived time (Di Benedetto 2020).

As the spiritual guide of a *thiasus*, a women's social organization closely linked to and supporting the needs of the aristocratic class of the VII century BC, Sappho guided the lives of a large number of disciples, giving them a well-defined cultural education ranging from music and poetry to dance and elegant living and manners. Almost three thousand years later, she retains her educational role. Her verses outline a universe of positive values, involving both transitory emotions, such as the joy of being amazed and the melancholy of abandonment, and eternal feelings such as the hope of extending one's experience of life beyond space and time (Gentili 1984, 118–119).

Sappho is a poet who moves us and at the same time educates our emotions. It is evident that a young reader, in the midst of his/her own *psychosocial moratorium* (Erikson 1963), can only benefit from her verses. These reasons led us to consider Sappho an ideal candidate for the design of a conversational agent that would allow students to create an internal dialogue, and at the same time prove useful for reclaiming conversation in the classroom (see *A Conversational Agent to Reclaim Conversation*).

Agent Persona and Content

"Sappho the Poet"[8] is an Italian-language conversational agent designed for high school students who are studying Greek literature[9]. It

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[8] See https://sappho.education.

impersonates Sappho and offers first-hand information about her life, poems, poetics and literary success. The conversation takes place in written form via the Telegram instant messaging application and in written or oral form via the Google Assistant application, as well as through the Google Home smart speaker and smartwatches with Wear OS operating system.

The *agent persona* was created mainly on the basis of information contained in the few preserved fragments, on biographical information handed down by the Suda and the *Marmor Parium* and on invaluable reflections from philology and literary criticism[10]. The poet's verses themselves tell us that she had brothers to whom she was particularly attached (fr. 10 Neri) and also enjoyed lively relationships with her many disciples (fr. 49, 68b, 82, 87, 90, 91, 96, 130 and 133 Voigt); they also leave us information on her most intimate emotions (fr. 42, 120, 137 and 158 Voigt), on the rituals she was called to perform (fr. 2 and 154 Voigt) and on the values she sought to instill (fr. 58d Voigt). Suda provides spatial and temporal coordinates, details regarding her family situation and the Alexandrian edition of her work[11], while the *Marmor Parium*[12] tells of her exile[13].

Starting from the fragments deemed authentic, in line with the autoschediastic trend, was a programmatic and philologically consistent decision: the agent expresses itself with the words and style of the Lesbian poet. For example, she addresses the user as "trusted soul" (fr. 88 Voigt), "sweet voice" (fr. 153 Voigt) or "rosy-fingered creature" (fr. 96 Voigt). She feels happy because she has just bought "a gaudy footwear produced in Lidia" (fr. 39 Voigt) or sad because she is "overpowered by the desire for a youth, all because of Aphrodite" (fr. 102 Voigt). She describes love as an "invincible bittersweet beast" (fr. 130 Voigt) or as a disease that

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[9] In Italy, Sappho's poetry is studied during the fourth year of Classical High School.

[10] The book *Saffo. Poesie, frammenti e testimonianze* by Camillo Neri and Federico Cinti was an essential reference for this study (Neri and Cinti 2017).

[11] See Adler 1928-1938.

[12] See Jacoby 1958.

[13] However, examples of the ancient indirect transmission of the poet's work are abundant; it is precisely the variety of these testimonies that have helped create an imaginative and legendary aura around the figure of Sappho.

makes one "greener than grass" (fr. 31 Voigt). She compares death to "invisible wandering in the abode of Hades" (fr. 130 Voigt).

The conversational agent's knowledge is organized into four main areas — *life, works, poetics*[14] and *literary success* (Figure 2). To these are added a more general area, which includes notions of *Greek history and literature* (characters, places, divinities and myths), and an area involving *circumstantial interactions*, which includes answers relating to small talk, such as pleasantries, exclamations and moods expressed by the user. A regularly updated content map is available at https://sappho.education/content.

Some content has a transversal educational scope and aims to work on issues that directly involve adolescents (the tool's target), such as diversity, psychological vulnerabilities and hate speech. An example is the answers to questions that have the poet's sexuality as their topic, such as "Nowadays you would say that my sexuality is fluid. I have been in love with men and women and I am not exclusively inclined to either preference. Aphrodite would disown me if I gave love a single form." And "I'm Lesbian because I'm from Lesbos! The term originates from me. Female homoerotic love is, however, a fundamental part of the thiasus' education. If you have something against it, I invite you to review your position!" Or the replies to any negative moods expressed by the user — if the user feels sad because he/she considers himself/herself ugly, the conversational agent responds with "Whoever is beautiful to look at is beautiful, but whoever is good will soon be beautiful too" (fr. 50 Voigt).

If the user feels alone or abandoned, the agent uses expressions such as "Sometimes the heart of doves freezes and they let their wings fall. But a new day is near. It will go better!" (fr. 42 Voigt) or "Don't worry. A great storm is always followed by a clear sky!" (fr. 10 Neri). Or again, responses to insults, for example "Before these words my heart becomes like ice" (fr. 42 Voigt), followed by an abrupt end to the conversation.

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[14] The poems are indicated both with the title by which they are best known and with the numbering adopted by the German philologist Eva-Maria Voigt (Voigt 1971).

Figure 2. A conversation on the subject of love via Google Assistant.

Conversational Flow and Functionalities

The conversational flow is partly free and partly consequential. The user can choose to ask any question of the agent, but sometimes it is the latter who guides the conversation using a series of prompts. In this way, without interfering too much with the will of its interlocutor, the agent stimulates a connection with other content (e.g., "If you want, you can ask me what Alceo, Aristophanes, Catullus or Plautus say about me" or "By the way, do you want to talk about the Graces or the Muses?"), proposes some insights (e.g., "Do you want me to tell you why it happened?" or "Do you want to know more?") or simply invites one to ask a new question

(e.g.," Do you have another question for this tired soul?"). As is clearly seen in expressions such as "My heart is too broken to talk about this. Can we change the subject?" or "I'd talk about her until the moon comes back high in the sky, but I don't want to bore you. Do you have another question?" the content of each prompt is always calibrated according to the content of the answer they accompany.

Conversational contexts are frequently used, i.e., for situations in which the user refers to previous interactions. For example, if the conversation deals with the poet's exile, the user only needs to ask "When did it happen?" or "Where?" to receive more detailed information, avoiding having to refer to the subject of the conversation again. Fallback responses are also fundamental, and arise in situations where the user's question does not match any content. In these cases, the agent uses expressions such as "By the many-colored throne of Aphrodite, could you repeat?" (fr. 1 Voigt) or offers the user a map of knowledge that can help him/her navigate the information ecosystem.
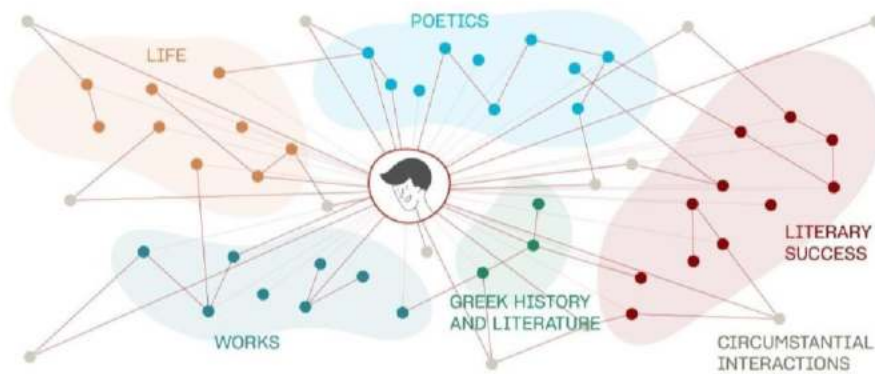

Figure 3. Artistic representation of the knowledge network of "Sappho the Poet"[15].

It follows that the agent's network of knowledge includes highly connected nodes and poorly connected or unconnected (Figure 3). The links were made on a content basis and thinking about the possible questions that an agent's answer could raise. A transversal objective was to

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[15] Illustration by Fabio Santaniello Bruun.

allow the conversation to range widely by touching on the different areas of content proposed.

Interaction is enlivened by the agent storing certain information provided by the user, for example his name. The latter, when reused by the agent, always appears accompanied by an epithet. Examples are "of burning heart" (fr. 48 Voigt), "godlike" (fr. 31 and 44 Voigt) or "protector of navigation" (fr. 5, 10 and 15 Voigt).

Figure 4. Conversation on Alcaeus of Mytilene via Telegram. Note the Multimedia Content.

The agent offers both written and oral interaction, depending on whether one chooses to use Telegram or Google Assistant. In addition to traditional textual responses, there is a range of multimedia responses:

- audio with reading in meter or in translation of the most famous lyrics. The readings are recorded by female voices with the aim of simulating the presence of girls from the thiasus where Sappho taught;
- artistic representations either of the poet or of others that lend themselves to completing the information provided (Figure 4), such as the chalice-shaped krater attributed to the Tithonos Painter (about 480 BC) or "The Three Graces" by Antonio Canova (1812–1817);
- geographic maps that allow one to contextualize the events of the poet's life.

Figure 5. Fragment 1 Voigt in the Online Knowledge Base.

An online knowledge base (see https://sappho.education/knowledge-base) collects all the poems, their translations in Italian and the passages of authors who refer to Sappho or who used her poetry as a model. The knowledge base allows users to interact with the texts in mouse-over and to read the critical-philological comments (Figure 5). Its pages are linked within the answers provided by the agent.

As of January 2021, the agent can provide a total of 722 answers, divided into 441 possible questions: 105 for *life*, 94 for *works*, 47 for *poetics*, 32 for *literary success*, 73 for *Greek history and literature* and 90 for *circumstantial interactions*. As can be deduced from the difference between the number of answers and the number of questions, for some questions there are multiple answers, delivered randomly with the aim of making the conversation even more variable (see section *Towards a New Form of Participatory Lesson*).

Adventure in Mytilene

Adventure in Mytilene is a conversational game[16] that allows the user to get to know some places and characters of Mytilene during Sappho's era (late VII century–early VI century BC). It is integrated into the agent in the form of an interactive story, taking up the logic of the hypertext fiction.

The goal of the game is to help the poet buy a Lydian mitre (headband) for her daughter Cleïs, as she hopes to do in fr. 98 Voigt. In all likelihood, the transaction was complicated by the restrictive laws of Pittacus, tyrant of Mytilene, whose austerity policy prohibited the importation of luxury goods (Ferrari 2007; Neri 2012).

During the game, the user has the task of advising Sappho on places to go (the harbor, the agora, the statue of Aphrodite, the prytaneum, etc.) and to provide answers for questions posed by the characters she encounters, thus collecting useful clues for finding a merchant who can sell her the mitre.

Adventure in Mytilene allows one to acquire new knowledge about the culture of the island of Lesbos and also lends itself to verifying knowledge acquired through conversation. For this reason, it is an educational activity best offered to those students who have already had the opportunity to converse with the agent.

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[16] Many thanks to Mattia Boscarino, who worked on the content and on the entire game design process.

The game can be started in several ways, for example by asking the agent "Did you find the mitre for Cleïs?" or, more simply, "Can we play a game?"

Development and Implementation

The conversational agent was built with the Dialogflow ES conversational AI application development suite[17]. A Google product, it uses Natural-Language Understanding and Processing (NLU and NLP) technologies and Machine Learning (ML) algorithms to interpret users' messages, choose the correct response to return and create an appropriate conversational flow. The conversational agent was subsequently integrated with the Telegram instant messaging application, and with the Google Assistant application via the Actions on Google platform, which also allows it to be used through Google Home smart speakers and smartwatches with the Wear OS operating system. The choice of dual channel is based on the desire to offer the most universal experience possible, allowing the user to write and/or speak (see section *The Conversational Agent as a Universal Educational Tool*).

In order to populate the agent's knowledge, more than 400 intents and 700 answers were inserted. By means of contexts and *follow-up intents*, it was possible to provide the chatbot with coherence capabilities through multiple rounds of conversation, as opposed to simple back-and-forth interactions. Finally, entities and variables were used in order to recognize and parameterize specific pieces of information expressly provided by the user, such as name or age.

For the training phase, the Dialogflow Training section was utilized, which made it possible to best associate user input with the related intent.

With the aim of enabling the learning proposal presented in this chapter (see section *A Conversational Agent to Reclaim Conversation*),

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[17] https://dialogflow.cloud.google.com.

"Sappho the Poet" is enriched with a feature that allows teachers to create a 'virtual class' and view interactions and metrics related to their students.

Experimentation

Due to the COVID-19 pandemic, it has not yet been possible to carry out any real experimentation in an educational context. However, a focus group consisting of 15 testers allowed testing the agent's conversational performance and collecting a corpus of 542 interactions[18].

Each tester was assigned six tasks: two related to life, two to poetics and two to the literary success of the poet. Testers were left free to perform the interaction without any other sort of additional indications.

This test phase produced a no-match[19] percentage of 2.8%, a result considered far better than satisfactory. The conversation never lapsed before the 28th interaction.

CONCLUSION

Used in a well-structured learning activity, conversational agents give rise to a true participatory lesson, determining a real shared and collective construction of knowledge (see *A Conversational Agent to Reclaim Conversation*). This is due both to the inclusive, personalized and never-fixed experience offered by the nature of the conversational agent, and to the *learning analytics* it provides. The latter allow the teacher to guide the class group in a fruitful exchange of knowledge, based on conversation, activating the nodes of the knowledge network in order to create new links.

The conversational agent "Sappho the Poet" is one of several tools for teaching classical subjects (Monella 2020) while actively involving the learner. But only its use within an educational solution that aims to

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[18] Each interaction consists of a conversational shift by the user and the consequent response from the agent.

[19] By no match we mean a situation with which the agent was unable to associate any content.

disengage us from technology can allow us to fully appreciate its ultimate goal. "Sappho the Poet" *speaks to each of us* so we can then be able to *talk to each other*. First of all, it helps us create our personal store of knowledge, stimulating an inner dialogue thanks to the love for life that Sappho's words express. But then it also makes us independent, and encourages us to share our knowledge with others, enriching it with a dynamic experience where emotions and intellectual exchange are paramount.

Technology can indeed reclaim conversation, and conversational agents offer hope for its ethical use. Perhaps this is hardly in line with the commercial needs of Silicon Valley, but it is certainly fundamental if we wish to recover what humanity does best: *being human*.

ACKNOWLEDGMENTS

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