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Emotions in practice: studying lectures and seminars in on-line and offline education

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Abstract. The educational experience is undergoing a transformation as studies increasingly emphasize the importance of emotions in various relationships, with individual feelings towards and about others proving crucial for the overall quality of the educational relationship and supporting students' development. The growing exploration of the role of emotions in learning and teaching, particularly in higher education, heightened the interest in the significant impact of emotions and the quality and effectiveness of student learning.
This study aims to shed light on the elicitation of emotions that promote successful learning experiences and to investigate the intricate relationships between emotions and teaching practices within an academic framework. Building upon the foundational role of the educational experience and drawing from classic socio-cognitive and pragmatic-cognitive studies, this research undertakes a comparative exploration of the connections between emotions and specific teaching practices in two distinct university settings: a traditional setting and a remote learning environment. Methodologically, the study adopts an exploratory approach, employing 160 questionnaires administered to students in two university courses – one at the Politecnico di Torino and the other at the eCampus online University. The investigation provides insights into the emotional dynamics of teaching practices in both traditional and remote learning environments, thereby enhancing our understanding of how emotions shape the learning experience in higher education.

Keywords: emotion elicitation, higher education, learning engagement, online/offline learning.

1. Introduction

The enquiry into the role of emotions in learning and teaching has recently undergone a phase of growth. Particularly in higher education, signs are visible of increased interest in emotions, mainly due to their impact on students' learning quality and effect.

The experience of teaching and learning is indeed being reconfigured through the lenses of a variety of studies that have shown how emotions are a vital aspect of many relationships. More in particular, individual feelings with and about other people appear as crucial factors for the quality of the educational relationship. Therefore, emotions are increasingly emerging as an aspect enriching social and relational experiences that can support students' development as well.

The rapid development of computer science and digital technologies has brought new issues to the forefront, revitalizing the debate in the field of education. While understanding the role of emotions appears increasingly relevant [1], it has become even more crucial to highlight the appropriate elicitation that can promote a successful learning experience and investigate the relationships between emotions and teaching practices in an academic context.

Starting from the pivotal role of the educational experience [2] and deepening the classic studies of a socio-cognitive [3,4] and pragmatic-cognitive matrix [5,6,7],

This research explores and compares the existing connections between emotions and specific teaching practices in two different university contexts: a traditional setting and a remote learning environment. The study has been constructed as an exploratory research and based on the administration of 160 questionnaires to students attending two distinct university courses (one Politecnico di Torino and one at eCampus online University). The aim is to understand which teaching practices are more likely to generate joy and engagement in students, or conversely, which practices more frequently result in indifference or low interest. Furthermore, the comparison seeks to understand how the different learning environments influence the emotions associated with various teaching practices, determining whether distance university learning generates low emotional engagement, or if the teaching practices potentially conducive to positive emotions are very similar in the two analyzed contexts.

2. Theoretical framework

With the rapid growth of information technology, the online learning model is now widely used in the field of education and has evolved with a broader range of applications. Online learning transforms traditional teaching techniques by connecting students, teachers, and educational materials online in a diverse interactive environment. Students will experience a range of learning emotions during online learning, which will have a significant impact on the learning outcome. Positive learning experiences can enhance students' enjoyment and motivation to study. When there are too many negative emotions, the effectiveness of learning is adversely affected.

The research describes the emotional implications of specific teaching practices and their influences on students' learning experiences, starting from the central role of the educational experience [1] and delving into classical studies of socio-cognitive [2,3] and pragmatic-cognitive dimensions [4,5]. These studies emphasize the crucial importance of individuals' emotions and their social and relational lives [6].

The analysis of emotions in an educational context can reveal a variety of aspects (such as specific emotional states related to the subject matter, the association between emotions and learning, involvement in projects, etc.). In this context, research has highlighted how specific emotions can contribute to the success of learning. Since they are attentional and motivational components, emotions can influence learning and memory. Perceptual processing is enhanced by attentional components, which help to select and organize relevant information [8]. At the same time, curiosity is induced by motivational components, fostering a state of psychological interest in new or surprising activities and activating the desire for further exploration, a condition that can prepare the brain for learning and memory [9]. Additionally, emotionally salient stimuli can evoke selective attention and thus enhance memory functions [10].

In line with phenomenological approaches, Vygotsky highlights the social nature of emotions. His lesson appears relevant in redefining the activism of Dewey and Piaget in a dual sense: from a neurophysiological perspective, he demonstrates the biological and physiological roots of emotions [7,8] and their impact on facilitating or hindering learning and personal development processes; while, from a sociological standpoint, he investigates the functions that relational mechanisms play in the genesis of emotions and their consequences on learning processes. Following in the footsteps of Vygotsky's studies, the research aims to investigate the relationship between emotions and learning.

In line with the evoked theoretical approaches, this research aims not only to connect emotions to learning processes but also to investigate which instructional relationships generate them. Paraphrasing Vygotsky, it could be said that the aim of the research is to understand how emotional presence is generated in an educational relationship, whether it characterizes only in-person learning experiences or is also found in virtual educational environments, and whether its analysis in the two settings reveals similar or different generative mechanisms.

Cleveland-Innes and Campbell defined emotional presence as “the outward expression of emotion, affect, and feeling by individuals and among individuals in a community of inquiry, as they relate to and interact with the learning technology, course content, students, and the instructor” [11].

While many studies on the role of emotions in online learning have revealed that the presence of specific feelings such as fear and isolation can pose a challenge in the experience [12,13], others have shown how feelings of stress in online communication could indicate the need to implement forms of socialization and improve communication skills in online learning [14]. Studies that have drawn heavily from Dewey's activism have highlighted how emotions experienced in a classroom not only influence individual processes of disciplinary learning but extend over time to characterize the entire educational experience of those involved. The concept of emotional presence is interesting not only in reference to exploring its generative mechanisms but also in relation to its social consequences, the possibilities of engaging the individuals involved in the construction of specific social identities.

The concept of emotional presence evokes that of social presence, a concept specifically developed for online learning contexts, indicating participants' ability to project

themselves socially and emotionally as real individuals through the communication medium used [15].

The concept of emotional presence is more specific and, at the same time, broader than that of social presence, as it decisively introduces the influence that emotions have on educational relationships. Emotional presence can be defined as the degree of attention directed towards another person in an interaction, the ability to experience feelings of closeness and solidarity beyond different social roles. Using Arendt's vocabulary and evoking the etymological sense of the term, it could be said to be the possibility of "cum-patire" (suffering with) experienced by social actors involved in a relationship [16]. Emotional presence, when applied to learning contexts, consequently emerges as a constitutive quality of educational relationships. As such, emotional presence is a quality that characterizes all learning contexts, not only online or face-to-face ones, and is connected to specific teaching styles and ways of experiencing the educational relationship.

Following Piaget [17], who believes that affectivity and cognition are inseparable and influence each other from the subject's birth throughout their life, it is hypothesized that emotional presence in learning contexts, both online and face-to-face, stems from specific educational objectives and how these objectives are translated into teaching practices.

Building on these theoretical assumptions and this conceptual framework, this research aims to understand the emotional effects of certain teaching practices and aims to verify whether these effects are similar in a traditional university setting and in an online university context.

3. Design and research methodology

According to the theoretical framework, emotional presence is reconstructed through the analysis of specific teaching practices aimed at creating a participative learning environment. The focus is particularly on the relationships that the teacher can foster with and among students during frontal lectures and online seminars as privileged sites for teaching practices.

The underlying hypothesis is that the teacher's willingness to interact with students, giving them not only space to express themselves but also trust in their ability to participate competently and beneficially for everyone's learning, generates an emotional action, fostering "emotional presence". To investigate those practices a focus will be on the typology of interaction and related implicit knowledge for eliciting positive emotions in students and to understand if these practices have the same "emotional effects" on students both in a traditional university setting and in a remote context, a questionnaire was constructed and administered to students in two distinct courses. One course was held traditionally at Politecnico di Torino, and the other was conducted remotely at eCampus University.

Given the heterogeneity of the audience in the classes considered and the restrictions in terms of their academic schedule, the interviewees were engaged following a convenience sampling method, in order to get a 'sense' of their opinions, habits, and values before embarking on full-scale research. In fact, the main aim of the study is, on the one hand, to reveal and make sense of the activation of some specific emotions and, on the other hand, to recognize their influence as non-dependent by the topic taught but by the relationship established in the situated practice.

The association between teaching practices and emotions was analyzed by examining the teacher-student relationship and student-student relationships in light of four distinct educational objectives (interaction, recognition of individual value, involvement and personal commitment, creativity). Four different types of emotions (anxiety, indifference, satisfaction, happiness) were associated with each objective. This research approach assumes that teaching practice is not merely the execution of teaching techniques but is itself part of a learning process in which, as hypothesized by Dewey, educational objectives are constantly realized, experimented with, and adjusted [18].

The identified educational objectives were the promotion of interaction, the discovery of student value, student involvement, and the promotion of creativity. The teaching practices associated with these educational objectives are relational practices primarily based on the teacher's ability to promote student participation at various levels.

Educational objectives and teaching practices do not belong to two distinct orders of reality: the first being mental and the second empirical; rather, both are expressions and structures of teaching action. Teaching practices are imbued, sometimes unconsciously, with educational objectives. According to Dewey, research presupposes that teaching practice is not only always guided by educational objectives but constitutes the actualization and the experimentation of educational objectives that may change throughout the practice and as a consequence of it. In this research, the selected teaching practices can be extrapolated from the questions included in the questionnaire. They do not have a taxonomic value but only serve as indicative, clarifying, in Dewey's words, the direction of educational activity.

The selected practices are all relational practices. They explore a specific didactic scheme based on the formation of attentional social relationships, in the genesis of which the teacher plays a crucial role. The research hypothesizes that from the teacher's ability to embrace the claim of the uniqueness and centrality of the student could emerge relationships rich in emotional meaning. The teacher progressively transforms social presence into emotional presence, fostering interaction, discovering the diverse abilities of students and the value that can arise from this discovery. It promotes students' participation in common activities, ensuring that their contribution is always personal and suitable for bringing forth and liberating their nature: their visions of the world and their inclinations.

To understand the emotional effects of specific teaching practices, four distinct types of emotions were associated with each practice, distributed along a range of emotional involvement from anxiety to happiness.

In the following table, educational objectives, teaching practices, and associated types of emotions are outlined.

Table 1. Educational objectives, teaching practices, and associated types of emotions.

Educational objectives	Teaching practices	Emotions
Interaction	Practices aimed at prompt feedback with the teacher and peers (email responses, messaging, office hours)	From indifference to encouragement for idea sharing
Recognition of individual value	Practices aimed at promoting student participation and appreciation by the teacher of student contributions	Anxiety, indifference, satisfaction, happiness
Involvement and social commitment Creativity	Practices aimed at personal knowledge and cooperative learning (sharing personal stories, expressing personal opinions, group work development and presentation)	Anxiety, indifference, satisfaction, happiness
	Practices aimed at stimulating imagination through narrative learning and the use of artistic texts	Anxiety, indifference, satisfaction, happiness

As observed from the schema, the teaching practices under analysis are often utilized on a daily basis, both in traditional university courses and in remote ones. Proceeding from the notion that they are not "emotionally neutral," the research aimed to comprehend their emotional effects and gather information on their instructional functioning, exploring the mechanisms through which they trigger specific emotions.

The research was based on the administration of a questionnaire developed based on the previously mentioned framework. It consisted of 16 closed-ended questions and 2 open-ended questions. The closed-ended questions aimed to capture the association between teaching practice and emotion and highlight the recurrence of this association. The open-ended questions had a dual purpose. First, by shifting the point of view from the researcher to the student, they allowed students to identify practices that, in their opinion, evoke greater and more intense emotions. Secondly, they provided information on the functioning of teaching practices, the reasons why students find a particular practice emotionally engaging.

The questionnaire was administered to 80 students at the Politecnico di Torino and 80 students at eCampus University between May and October 2023.

Table 2 lists some examples of questions administered to the students corresponding to different educational objectives.

Table 2. Examples of questions.

Educational objectives	Examples of questions	Response options
Interaction	In an online/offline learning community, what emotions does receiving a prompt response from the teacher evoke in me?	1. I am indifferent. 2. I am pleased to receive immediate feedback 3. It makes me feel part of the course 4. It motivates me to share ideas and projects
Recognition of individual value	In a lesson or seminar, what emotions does the opportunity to speak evoke in me?	1. It makes me anxious 2. I am pleased to engage in a discussion. 3. It makes me feel part of the course/class 4. It motivates me to share ideas and projects
Involvement and social commitment	During a lesson or seminar, when I perceive that the requested clarifications or expressed ideas have been useful for improving/innovating the course, what emotions do I feel?	1. Anxiety 2. Indifference 3. Satisfaction 4. Happiness
Creativity	During a lesson or seminar, when I perceive that the requested clarifications or expressed ideas have been useful for improving/innovating the course, what emotions do I feel?	1. Anxiety 2. Indifference 3. Satisfaction 4. Happiness

4. Research results and analysis track

The analysis of the results obtained from the research was conducted in two phases. Initially, the results pertaining to the two distinct academic contexts were recorded and commented upon. Subsequently, a comparative analysis was carried out.

4.1. Analysis of results detected in the online university context

At eCampus University the research involved 80 students attending courses in Urban sociology, Literary Criticism and Comparative Literature and Sociology of cultural processes. The participants in the study included 72% women and 28% men.

Participation in an online university course is perceived as an educational experience strongly influenced by the interaction capabilities that the digital learning environment and the teacher can create. Responses to questions related to the educational objective of interaction, corresponding to teaching practices allowing communication with the teacher and peers through messages, emails, and scheduled online meetings, indicate positive emotions, interest, and motivation to share projects in 57% of cases. The percentage of those perceiving interaction as generating positive emotions rises to almost 70% when students receive a quick response from the teacher to their clarification requests. These findings suggest that within teaching practices potentially generating emotional presence, the teacher, and particularly their communicative style, plays a prominent role. Responding promptly to student emails conveys attention, care, and, Heideggerianly, a "being there", indicating "presence," receptiveness to listening, configuring the digital learning environment as inhabited and inhabitable, and communicating hospitality.

Responses to the second set of questions, corresponding to the educational objective of "recognition of individual value" and linked to teaching practices promoting and valuing students' contributions, emphasize the teacher's role in establishing the learning environment as a personal space. In a digital learning environment, the teacher not only explores the possibilities offered by technology but, perhaps more than in a face-to-face setting, acts as a bridge between the student and the group, fostering social cohesion within the class and actively contributing to the identification and subjectivation processes of students. Practices that promote student contributions, followed by the teacher's appreciation, generate "happiness" in 42% of cases and "satisfaction" in 58%. However, the responses also reveal unexpected results: for 36% of interviewed students, the opportunity to speak induces anxiety. This data indicates that active participation, expressed through direct and individual student intervention, cannot be taken for granted even in a university context. The anxiety felt by a significant number of students suggests that active student participation, especially in an online context, likely requires specific care from the teacher and empowerment for students, not only in terms of digital skills but also in their ability to speak without fear of negative evaluation or perception.

The third set of responses, corresponding to the educational objective of personal involvement and commitment, linked to teaching practices of cooperative learning, also registers satisfaction in 58% of respondents and happiness in 14%. The percentage of

positive emotions increases further when students perceive that their contribution to the seminar contributes to innovating or improving the course; in such a situation, satisfaction rises to 80.6%, and happiness to 16.7%. These findings provide important insights not only into the effectiveness of communication styles but also into educational goals and the fundamental subjectivation activity of university teaching. Appreciation of personal contributions generates even more positive emotions if it is not limited to personal utility but if students can perceive the social purpose of their contributions, producing "common goods." This dynamic serves a specific subjectivation function, contributing to both the formation of the student's self through the discovery and demonstration of their personal value and the establishment of the self as a social self, inherently in relation to others and acting, as Donati writes, “for others” [19].

The last set of responses, connected to the educational goal of creativity and stemming from teaching practices that activate imagination, also through the use of artistic texts, reveals positive emotions in a very high percentage of cases, exceeding 83% of respondents. This data confirms not only the imaginative value of artistic texts but also their fundamental social dynamic, as they create connections, link distinct individual worlds, transform communicative practices into narrative practices, and promote the formation of common emotional worlds.

The overall analysis of the data collected in the online context proves interesting, especially when different data are analyzed in a diachronic sequence. This mode of analysis reveals not only the interdependence of various teaching practices, their coherence with an educational project based on the centrality of educational relationships and awareness of their emotional nature but also a sort of "learning of positive emotions" and the possibility that they connect to each other, outlining virtuous circles. Responses to open-ended questions complement the heuristic potential of the research by inducing reflection on the connection between teaching practices and emotions. Indeed, the association between teaching practices and emotions, as revealed by responses to closed-ended questions, does not capture the dynamics of the connection. The missing elements, or elements that function as triggers or detonators of emotion, are illuminated by responses to open-ended questions.

A student writes: "I am emotionally involved in the teacher's passion for his subject and his ability to convey it to students, and the interest in making it as understandable as possible for those who have never studied it. The teacher's attention and care in being present and available for doubts, advice, clarifications, or further explanations emotionally involve me, especially the teacher's sensitivity not to put the student in difficulty, who can understand various modalities (emotional, didactic...), always within the limits that the situation "imposes" (as during exams)." What the student describes is, in essence, a professional training program for teachers. In an online university context, not only does the teacher have the function of emotionally involving students, but they succeed in this task to the extent that they love their discipline, teach it in a simple and understandable way, and, finally, to the extent that they manage not to put students in difficulty but valorize the online teaching experience and the emotional potential it can generate.

4.2. Analysis of the results detected in the offline university context

At the Politecnico di Torino, the research involved 80 students attending courses in Structural Mechanics and Construction Science in person. The participants in the study comprised 66% women and 34% men.

The responses to the set of questions related to interaction and communication with the teacher and peers highlight the significant importance of a prompt response from the teacher and the fact that peers and teachers refer to a topic introduced by a student.

A detailed analysis of interactions among students and between students and teachers, however, brings some surprises. In fact, while the opportunity to share participation in a social group generates positive emotions in 55% of respondents, this percentage nearly reaches unanimity (85%) when the teacher responds promptly to a student's clarification request.

Responses to the set of questions related to the recognition of students' personal value reveal positive emotional effects when peers or the teacher pick up on a topic introduced by a student. However, there are some specificities in this regard. The reiteration of a theme introduced by a student during a seminar by peers generates positive emotions in 67% of cases, while if the reiteration comes from the teacher, and the student's contribution is appreciated by the teacher, positive emotions are generated in 93% of respondents. Receiving praise from the teacher for a personal intervention is a source of joy and happiness for almost all students.

Responses to the set of questions related to the objective of engagement and connected to cooperative learning practices reveal an unexpected result. Presenting an individual or group work to the entire class generates satisfaction for 50% of respondents but causes anxiety for 33% of respondents. Regarding practices aimed at active student involvement, it is noteworthy that the perception of the usefulness for the entire class of a personal contribution (a personal intervention or an idea or a project) generates satisfaction in 88% of cases.

For 75% of the respondents, the opportunity to freely express their personal opinion is very satisfying. The presentation of the teacher introducing themselves and their professional activities to the class is also appreciated. However, the same does not apply to student self-introductions, which still cause anxiety for 22%. The reference to art or a work of art is also highly appreciated, generating positive emotions such as joy and happiness for 83% of the respondents.

4.3. Comparison of the data arising from the two contexts

The relationship between teaching practices and emotions revealed by the comparison between the two samples highlights interesting similarities, as shown in Figure 1.

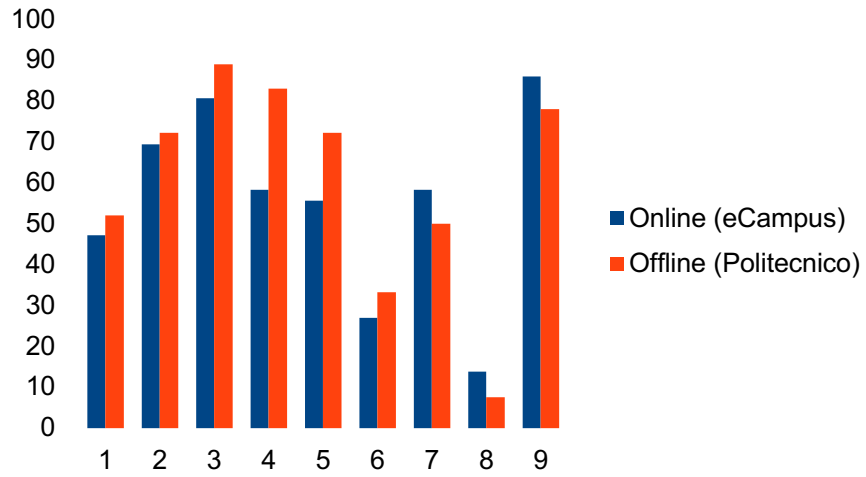


Fig. 1. Comparison of some of the answers proposed to the students. The column number is referenced in the text below.

First of all, the importance attributed by all the students to the possibility of being part of a community of practice, where opportunities to exchange ideas and projects are given to everyone and are welcomed as a possibility to share, discuss, and connect (47,2 % online and 52% offline, column 1 of Figure 1) creating a common ground.

Secondly, the need for a swift response by the instructors (69,4 % online and 72,2% offline, column 2) and the opportunity to immediately get in touch with them seem to reinforce the idea of their double role, on the one hand, as points of reference, who guide the practice of learning, and on the other hand, as "connectors/facilitators" in the relationship between student and the course/class, community and educational environment.

This is also reinforced by the high percentage of satisfaction perceived by the students (80,6% online and 88,9% offline, column 3) when having the possibility to be part of the process, acknowledging that the clarifications they requested or the ideas they expressed were useful for improving/innovating the course.

This last aspect also emerges from the feelings of satisfaction (58,3 % online and 83% offline, column 4) and even happiness (41% online) derived from the appreciation of the lecturer and by the members of the class/community (55,6% online and 72,2% offline, column 5) especially when those are perceived as engaged and collaborative, as further explained in the open-answers sections.

Anxiety appears as a relevant component of the learning experience, when students are confronted with the presentation of a work/project to the whole class (27% online

and 33,3% offline, column 6), a situation which is also considered an important occasion to get satisfaction (58,3% online and 50% offline, column 7) and even happiness (13,9% online and 7,5 % offline, column 8).

For both samples, the need for a safe and inclusive environment for discussion is also crucial: the possibility to freely express personal opinions and beliefs is perceived as a source of satisfaction (52,8 % online) and happiness (25% online) but can also elicit anxiety (22,2 % online) due to fear of rejection, censorship or mere shyness as reported in the open questions.

The possibility to share parts of one's personal life is an appreciated practice for both samples (86% online and 78% offline, column 9) but not from both sides: the lecturers' presentations of their professional activities to the class arouse interest and curiosity, while the student's presentation of their experiences or personal stories provides a mixture of attitudes ranging from satisfaction (30,6% online) to indifference (16,7% online), and where anxiety seems to prevail (41,7% online).

5. Conclusion

Considering the importance that the analysis of emotions is gaining in the socio-pedagogical field, this study presents an exploration on teaching practices that, in two different university contexts – one online and one offline – are more effective in eliciting positive emotions in students.

Within the framework of the cognitive-pragmatist tradition, and delving into the concepts of "social presence" and "emotional presence," a comparison was constructed to investigate whether certain teaching practices generate similar emotions in the online university context as well as in the face-to-face setting.

The comparative research refutes the idea that virtual university settings are emotionally cold and instead confirms that teaching practices are not neutral but generate similar emotions in both the virtual and face-to-face contexts.

The empirical research, conducted through a questionnaire consisting of 16 closed-ended questions and two open-ended questions, administered to 80 students in the Construction Sciences course at the Politecnico di Torino and 80 students in the courses of Urban Sociology, Literary Criticism and Comparative Literature, and Sociology of Cultural Processes at eCampus University, highlighted the following results:

- A very similar functioning of emotions in the face-to-face teaching environment and in the online teaching environment.
- The recurrence of associations among some emotions and some teaching practices, for example, the recurrence in the association between the appreciation that the teacher addresses to the students' interventions and a state of satisfaction and joy in the students.
- The driver role of the teacher in generating a welcoming educational environment and eliciting positive emotions in students.

- The existence in both contexts of a significant percentage of students who perceive anxiety when asked to intervene directly in seminars in front of the entire class.
- The instrumental function of some artistic texts in arousing not only feelings of participation and empathy but also involvement and didactic commitment among students.

With the inherent limitations of an exploratory study, the research nonetheless allows us to view the educational relationship as profoundly emotional and sheds light on issues related to teaching methods and practices most suitable for motivating students and eliciting their participation and commitment in both virtual and face-to-face academic contexts.

6. Author contributions

Although this article is the result of a common reflection, Introduction, paragraphs 3, 4.1 and conclusions are attributable to Fiorella Vinci; paragraph 2 is attributable to Antonella De Blasio; paragraph 4.2 is attributable to Fabrizio Barpi; paragraph 4.3 is attributable to Ambrogia Cereda.

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