

EDUCATIONAL AND DIDACTIC CHALLENGES FOR THE TEACHING PROFESSION. INDICATIONS FROM A RESEARCH ON DISTANCE LEARNING EXPERIENCES IN THE ITALIAN UPPER-SECONDARY SCHOOL.

LE SFIDE FORMATIVE E DIDATTICHE PER LA PROFESSIONE DOCENTE. INDICAZIONI DA UNA RICERCA SUI VISSUTI IN DAD DI UN CAMPIONE DI STUDENTI DI SCUOLA SECONDARIA DI SECONDO GRADO.

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Abstract

More than a year after the introduction of compulsory distance learning (DL), what seemed to be an exceptional initiative is turning into an educational possibility for the next future. In this regard, documents produced by both international and national institutions and organisations and the recent scientific literature highlight the current importance of teacher training in order to promote a quality teaching-learning relationship. Starting from this premise, we present the results of a survey conducted through an exploratory questionnaire completed by about twenty thousand Italian secondary-school students. The research question aimed to explore the students' opinions on their experience of distance learning during the past school year. The results show two main profiles of students: the "critics" and the "enthusiasts" about the experience lived in DL. The discussion of such outcomes raises some theoretical and methodological issues, as well as some evidence useful to reflect on quality training for teachers, especially with the additional challenging opportunities offered by the pandemic.

A più di un anno dall'introduzione della DAD, quella che sembrava un'iniziativa eccezionale e temporanea si sta trasformando in una possibilità educativa per il prossimo futuro. A tal proposito, i documenti prodotti da istituzioni e organizzazioni internazionali e nazionali e dalla letteratura scientifica evidenziano l'importanza della formazione professionale dei docenti al fine di promuovere una relazione insegnamento-apprendimento di qualità in ragione delle sfide richieste dalla congiuntura attuale. La domanda di ricerca ha inteso esplorare le opinioni degli studenti sull'esperienza vissuta in DAD durante lo scorso anno scolastico. I principali risultati mostrano due profili principali di studenti: i "critici" e gli "entusiasti" dell'esperienza vissuta in DAD. La discussione dei risultati offre alcune riflessioni teoriche e metodologiche nonché alcune evidenze utili per riflettere su una formazione didattica di qualità per gli insegnanti anche in ragione della perdurante necessità e della sfidante opportunità offerte dalla congiuntura pandemica.

¹ All authors contributed to the to the conception of the study and to the editing of the manuscript, although the attributions are here specified: § Introduction (Salvatore Patera); § Study plan and research methodology (Sara Rizzo); § The student sample (Sara Rizzo); § Results (Sara Rizzo); § Discussion (Salvatore Patera); § Conclusion (Salvatore Patera). All authors share authorship.

Keywords

Distance learning, student opinion, teaching professionalism, teacher training

Didattica a distanza, opinioni degli studenti, professionalità docente, formazione docente

Introduction

Two years after the compulsory introduction of distance learning (DL) and integrated digital teaching (IDT) (Ministry of Education, 2020) in the Italian context, what seemed to be an exceptional and temporary initiative is now becoming a challenge for education systems in many other countries. This challenge for the various actors involved requires appropriate reflection on the impacts of such measures in the school environment, in order to identify possible indications for improvement in the near future.

In this regard, the main international and national institutions and organisations have provided valuable information over the last two years, useful to understand the impact of distance learning on the learning-teaching relationship connected to the persistence of the pandemic. However, the international and national literature in the pedagogical and didactic field has questioned the effectiveness of distance learning, also providing valuable information to be treasured as a "lesson learnt" for the near future.

In summary, what emerges is that the pandemic has exacerbated some problems already present in the school systems of some countries, including both structural factors that have limited the effectiveness of distance learning (e.g. digital divide, organisational and managerial criticalities of the school systems, overcrowding of domestic spaces, balancing of home and work life) and factors inherent in the complexity of the learning-teaching relationship, including some opportune reflections on the role of teaching professionalism. The latter is in fact grappling with the unexpected and sudden changes produced by the pandemic when it comes to using active and innovative teaching methodologies, inclusive and interdisciplinary models for digital teaching, and enhanced digital skills - DigCompEdu (Redecker & Punie, 2017).

In particular, UNESCO (Mascheroni, et al., 2021) highlighted some structural issues that have affected the quality of the learning-teaching relationship: «inequalities among internet-using families [...] Parents had to take on the role of a teacher» (p. 7-8) [...] «Therefore, if the structural conditions have increased the «children expressed anxieties about their ability to partake in class activities» (p. 22), «teacher training should be sensitive to this new reality», underlying also the need to «build teachers' capacity to use technology» (p. 23). In this regard, the impacts of the pandemic on students refer to the growing condition of emotional fragility as well as to the "learning loss" to be faced starting from the fact that «teachers need to respond to students' academic losses (and gains) and to their socio-emotional wellbeing» (UNESCO, 2021, p. 4) taking into account «resilient and transformative education systems that deliver learning and well-being» (World Bank group, UNESCO, UNICEF, 2021, p. 35).

It is important to remember that, even before the pandemic, the indications offered by these organisations underlined the need to «manage the distance of new learning settings and provide remote supervision [...] prepare teachers for pedagogical shifts and facilitate collaboration among teachers» (UNESCO, 2020, p. 3), so as to re-imagine education by accelerating change in the learning-teaching relationship (UNITED NATIONS, 2020).

In the case of Italy, ISTAT (2020) already predicted that a third of families would not have computers or tablets at home and that 4 out of 10 minors would live in overcrowded conditions, with the presence of low digital skills for 14-17 year-olds. Similarly, INDIRE (2020) highlighted the worsening of didactic quality, accounting for the point of view of secondary school teachers, also due to the digital divide as a reason for the exclusion from distance learning, since the most widely-used applications during the lockdown were the electronic register and streaming platforms (Google Meet). In view of this, studies on the impacts of the pandemic on the learning-teaching relationship have also increased on the national scene in the last two years, especially since the introduction of distance learning. If the loss of learning and motivation (Batini et al., 2021) is even more acute in all subjects

and more widespread among students of unfavourable socio-economic-cultural contexts (INVALSI, 2021), there is a feeling of tiredness, uncertainty, concern in students as a factor contributing to the increase of explicit and implicit early school leaving in upper-secondary schools (Save the children, 2021). However, this picture moves from the awareness of some critical issues inherent in didactic action that have been sharpened but not triggered by the pandemic and which have significantly impacted the learning-teaching relationship. In fact, from an educational point of view (Fondazione Agnelli, 2021), if on the one hand nine out of ten students argue that video lessons, tests and homework were the only activities proposed and that the traditional didactic system, where the textbook still plays a central role, was reproduced almost entirely online, on the other hand, the works cited converge on the need to innovate the pedagogical and didactic models and the digital skills of teachers (Batini et al., 2021; Save the children, 2021; Fondazione Agnelli, 2021; IPSOS, 2021).

As we are gradually discussing, what is reported in this paragraph still finds evidence-based support both in the main scientific researches and in the pedagogical and didactic meta-analyses (Almusharraf et al., 2021; Betthausen et al., 2021; Engzell et al., 2021; Camargo et al., 2020) produced on an international and national scale.

Distance learning related to the pandemic situation has had an impact on the loss of learning (demotivation, difficulty in concentration and attention, etc.) and on the increase in emotional fragility (students burnout, anxiety, fatigue, etc.) (Fiorenzato et al., 2021; Doucet et al., 2020; Petrie, 2020; Hasan et al., 2020), fuelling the phenomenon of educational poverty (Azevedo, et al., 2021; Pokhrel et al., 2021) also due to the decrease in opportunities for social connections (Gonzalez-Ramirez, 2021) and the difficulties of parental support (Lucisano, 2020). From this point of view, the reviewed studies still indicate the need to innovate pedagogical and didactic models and the teachers' digital skills (Antonietti et al., 2020; Murdaca et al., 2017), also because of the pedagogical implications that guide the didactic action (Perla & Vinci, 2021), by investing more in both the initial and the on-the-job training of teachers, as also highlighted in the document produced by the board of pedagogical societies (SIPED, 2019).

Study plan and research methodology

Following the points made in the introduction, the research question can be detailed as follows: What indications for the enhancement of teachers' professionalism do the opinions of upper-secondary school students offer regarding their DL experience during the past school year?

Therefore, the research explores the opinions of a sample of students in order to provide appropriate pedagogical-didactic reflections for the teaching professionalism in the light of the results that emerged and in line with what was explored in the previously analysed literature. The exploratory hypothesis is that the didactic action of teachers in the context of DL was experienced in a different way by the sample of students, having particularly hindered those who expressed fragility from both a socio-affective, relational and motivational point of view, and a school performance perspective. The research methodology is quantitative (in this preliminary analysis phase) and applies the strategy of an exploratory analysis, oriented to the context of discovery (Tashakkori & Teddlie, 2010). The timing of the research is as follows: construction of the tool and the sample; piloting on a group of students chosen on a voluntary basis (December 2020); distribution of questionnaires (from 22 February to 27 March 2021); data analysis (May 2021).

The survey was conducted through the distribution of a semi-structured questionnaire (Mantovani, 1998) to a group of 21,354 upper-secondary school students. The questionnaire was built ad hoc on six heuristic dimensions:

- Behaviour in DL
- DL experience
- Motivation to study
- Management of the emotional dimension
- Social relationships
- The use of the Internet

The validation of the questionnaire followed an initial phase of "inter-rater agreement" on dimensions and items with the research team and then a testing phase in a try-out of 20 students.

The questionnaire includes mandatory questions with multiple answers and questions with degree of agreement (scores 3 and 4) or disagreement (scores 1 and 2) on a Likert scale. The response frequencies to the questions were grouped into the two categories "somewhat disagree / disagree" (SD/D in tables) and "strongly agree / somewhat agree" (SA in tables), while the values of agreement / disagreement for some items were normalised by inverting them (maximum agreement equal to 4 was given value 1). The questionnaire was filled in anonymously online, thanks to the involvement of the participating schools.

The student sample

In relation to the methodological choices reported, a finalised (non-probabilistic) sampling was chosen, selecting the students on the basis of some inclusion criteria: availability of school Principal to involve their school institutions; involvement of teachers in supporting the distribution of the questionnaires in their classes; voluntary student applications for the presented research project. Therefore, the selection strategy responds to the convenience sampling method (Patton, 2015).

The respondents were 21,354 students of secondary school in the Italian territory, whose main background variables are not reported but analysed in a follow-up paper which is in the process of being published (SIRD International Conference "What school for the citizens of the world. One hundred years after the foundation of the Ligue Internationale de l'Éducation Nouvelle", Section 2 - Social education). Based on the responses to the items in the questionnaire and the scores assigned, the respondents were divided into 3 large groups, of which only the first two are considered for the purposes of this analysis: the DL "critics" and the DL "enthusiasts". This also takes into account the research question and the exploratory hypothesis adopted.

In detail:

- the average DL "enthusiast" scored below 1.6 (category "somewhat disagree / disagree");
- the average DL "neutral" scored greater than or equal to 1.6 and less than or equal to 3.4;
- the average DL "critic" scored over 3.4 (category "strongly agree / somewhat agree").

Compared to the overall sample, the three groups represent: "enthusiasts" (5.5%), "neutral" (89.1%) and "critics" (5.4%). Although the percentage of "enthusiasts" and "neutral" is limited, it represents a considerable number in absolute values. In summary, although the identification of these two groups is based on statistical significance, it assumes a heuristic significance in order to define some characteristics of the two groups of students in relation to the answers provided to the questionnaire.

In general, with reference to some background variables, it is reported that in the group of "critics" and "enthusiasts" the female students are respectively 54.3% and 63.2%, similarly to the distribution of the overall sample where female students are 64%. The average age of the sample is 16 years and 9 months, that of the "enthusiasts" is 17 years and 2 months and that of the "critics" is 17 years and 1 month. A statistically significant difference should also be noted with respect to the variable "type of institution attended" and "geographical area of residence". Lyceums students are 70.8% of the total, those of technical institutes are 19.8%, and those of professional institutes are 9.5%. According to the geographical area, students from the southern regions are 53.6%, those from the north are 38.4% while those from the centre represent 8% of the sample. In general, it can be seen that the DL experience was more appreciated by those who attend professional institutes (61.3%), compared to those who attend technical institutes (53.5%) and those who attend Lyceums (47.9%). With reference to the geographical area, the students from the southern regions and islands (58.3% of cases against 41.5% and 41.1% of those in Northern and Central Italy, respectively) are more appreciative of the DL experience. Finally, with respect to the variable "school year attended", "critics" and "enthusiasts" are equally distributed between the first two-year course and the following three-year period (in the three-year period we have 50.1% of "critics" and 49.9% of "enthusiasts").

Results

The results are reported in reference to the statistically significant dimensions and in relation to the two specific groups defined as "critics" and "enthusiasts".

Behaviour held in DL

This dimension explores the different attitudes of the two groups in terms of their behaviour in DL. Most of the "critical" students "strongly agree / somewhat agree" on the statement "I keep the webcam off and I do my thing". Regarding the statement "I enjoy commenting on what's happening during the lesson on WhatsApp groups with my classmates", 57.8% of the "critics" "strongly agree / somewhat agree". The "enthusiasts", on the other hand, have a very high level of disagreement, i.e. 94.3% for the first statement and 80.4% for the second statement. The declared behaviour thus varies in the two groups.

DL experience

The exploration of the distance-learning experience in the two distinct groups was based on specific responses to 4 items:

- Opinion and experience during an oral test in DL mode;
- The effect of the physical absence of classmates and teacher during the lesson;
- What aspect the students miss of their schoolmates;
- The most complex subject areas to follow in DL.

The students' points of view on these issues for the two groups identified are reported below (Table 1).

Table 1 - Exploration of the distance-learning experience in the two distinct groups of "critics" and "enthusiasts"

Dimension	The oral test in DL is:	Critics		Enthusiasts	
		SA	SD/D	SA	SD/D
DL experience	More difficult because no one can give hints	6,7%	93,3%	10,7%	89,3%
	More difficult because I cannot feel my classmates' encouragement	26,4%	73,6%	8,9%	91,1%
	More difficult because it's like talking to myself as I cannot physically see the teacher	62,0%	38,0%	6,1%	93,9%
	Easier because the others do not sense if I'm embarrassed	27,5%	72,5%	64,2%	35,8%
	Easier because I don't hear my classmates' comments	21,6%	78,4%	64,7%	35,3%
	Easier because I can glance at my notes	39,8%	60,2%	16,5%	83,5%
	The physical absence of the teacher means:	SA	SD/D	SA	SD/D
	I find it harder to get a word in	79,5%	20,5%	13,1%	86,9%
	I get distracted more easily	92,3%	7,7%	7,2%	92,8%
	I find it difficult because I'm not sure if they are looking at me in the video	46,8%	53,2%	6,1%	93,9%
	It's an issue because they don't see my reactions	57,3%	42,7%	5,4%	94,6%
	It's an issue because I don't see my classmates' reactions	50,7%	49,3%	4,2%	95,8%
	About the school time with my mates I miss:	SA	SD/D	SA	SD/D
	Revising together before a test	65,0%	35,0%	65,1%	34,9%
	Feeling the encouragement before a test	53,8%	46,2%	55,3%	44,7%

From Table 1, it can be seen that the third statement, "More difficult because it's like talking to myself as I cannot physically see the teacher", is chosen more by the "critics", while for the statements that identify the oral test in DL as easier it is the "enthusiasts" that have very high percentages, appreciating the "protective" function of distance learning from embarrassment and from hearing the comments of classmates. Only in the case of "Easier because I can glance at my notes" do we find 16.5% of the students to be "enthusiastic".

While the two groups agree on the fact that what is missing is being with classmates to revise or to feel encouraged before a test, this is not reflected in what concerns "the physical absence of the teacher". It is clear, in fact, that this physical absence generates a series of difficulties in the "critics" which, on the contrary, are not relevant for the "enthusiasts": interacting; having verbal and non-verbal feedback; and distraction. With regard to the disciplinary area or the most complex subject to follow in DL, Table 2 shows the different opinions for the two groups².

Table 2 - Distribution of the DL sample of "critics" and "enthusiasts" according to the indication of "None" or "All or various" referred to difficult subjects in DL

² The subjects mentioned by the sample have been grouped in subject areas

Subject	Critics	Enthusiasts	Total
None	5,2%	94,8%	100,0%
All or various	90,7%	9,3%	100,0%

Generally, "critics" tend to believe that the cause is attributable to the fact that "The subject is not suitable for DL explanation" (49.3% vs. 45.4% of "enthusiasts") or "There are many hours dedicated to this subject in my school and it's hard to follow in DL" (25.9% vs. 21.9% of "enthusiasts"), while the "enthusiasts" tend to believe - with almost double the percentage of the "critics" (10.2% vs. 5.4%) - that "The teacher is unable to use multimedia" or that the cause is to be found in "Other" (22.5% vs. 19.4%),

Table 3)³.

³ For both groups, Mathematics prevails among the scientific subjects, Italian among the Humanities, Latin among classical languages and literatures (data obtained disregarding the type of school), and laboratories among the technical and practical subjects (DTP & DI).

Table 3 - Distribution of the reasons for difficulties by subject areas

	Scientific subjects	Humanities	Technical and practical subjects	Classical languages and literatures	Tot.
Critics	57,7%	62,4%	50,0%	60,7%	57,8%
The subject is not suitable for DL explanation	53,7%	30,1%	46,2%	41,9%	49,3%
The teacher cannot use multimedia	5,9%	5,1%	1,7%	4,4%	5,4%
There are many hours dedicated to this subject in my school and it's hard to follow in DL	23,2%	39,8%	18,8%	35,3%	25,9%
Other	17,2%	25,0%	33,3%	18,4%	19,4%
Enthusiasts	42,3%	37,6%	50,0%	39,3%	42,2%
The subject is not suitable for DL explanation	50,6%	23,7%	47,9%	21,6%	45,4%
The teacher cannot use multimedia	11,1%	11,0%	9,4%	2,3%	10,2%
There are many hours dedicated to this subject in my school and it's hard to follow in DL	17,2%	33,1%	18,8%	55,7%	21,9%
Other	21,1%	32,2%	23,9%	20,5%	22,5%
TOTAL	100,0%	100,0%	100,0%	100,0%	100%

Motivation to learn

As regards the motivation to learn, according to students it decreased in 85.1% of cases among the "critics", while for the "enthusiasts" this aspect is found only in 4.6%. Furthermore, for the "enthusiasts" the distance-learning period was characterised by a greater motivation to study in 45% of cases. This data seems to be connected to the analysis of school performance: for the "critics" it worsened in 44% of cases and improved in 12.2%, while for the "enthusiasts" it worsened only in 2.5% of cases and improved in 46.3%. This different perception is also confirmed by the answers on a

further item: during a lesson in DL, 95.1% of the "critics" are bored compared to 7.5% of the "enthusiasts". Furthermore, the "critics" tend more easily to get distracted (97.4%). The differences between the two groups is also evident from the degree of agreement on some statements about the limitations imposed by the pandemic: "Not being able to study with peers demotivates me" in 60.6% of "critics" and 4.5% of "enthusiasts"; failing to "study the same as before the pandemic" (86.9% vs. 6.5%, respectively); and failing to "organise schedules for doing homework" (60.1% vs. 4.3%, respectively). "Not being able to cheat" is distributed as follows: 14.9% "critics" and 18.1% "enthusiasts".

Management of the emotional dimension

Another dimension explored is the students' point of view regarding the experience and emotions felt in DL (Table 4).

The students' statements confirm a clear demarcation of experience and emotional perception between "critics" and "enthusiasts". For an in-depth examination, this theme has been divided into sub-dimensions:

- Statements that detect stress and sensitivity with respect to the emergency period;
- Statements on mood swings compared to the period prior to the pandemic;
- Statements concerning tolerance towards behaviours and / or absence and / or fears experienced during the emergency period.

Table 4 - Items and values of stress and sensitivity, moods and other dimensions

Sub-dimensions	Items	Critics		Enthusiasts	
		SA	SD/D	SA	SD/D
stress and sensitivity	I lost track of time	78,6%	21,4%	20,6%	79,4%
	My mood has changed	94,9%	5,1%	24,0%	76,0%
	I'm worried about the pandemic	74,7%	25,3%	70,9%	29,1%
	Currently, I think people living with me are stressed by this emergency state	92,2%	7,8%	56,5%	43,5%
	I often happen to have unpleasant and/or negative thoughts regarding the COVID-19 pandemic	80,1%	19,9%	47,2%	52,8%
	I often happen to have unpleasant dreams or nightmares whose content or emotion have something to do with the COVID-19 pandemic	30,7%	69,3%	11,1%	88,9%
	I personally feel stressed by this emergency state	94,5%	5,5%	47,4%	52,6%
mood swings	Happiness	6,3%	93,7%	51,2%	48,8%
	Irritability	91,9%	8,1%	25,3%	74,7%
	Concern	83,9%	16,1%	45,7%	54,3%
	Calm	4,5%	95,5%	50,7%	49,3%
	Sadness	91,0%	9,0%	24,6%	75,4%
tolerance of behaviours / absence / fears	Wearing the mask	64,6%	35,4%	64,2%	35,8%
	Not being able to do sports or other extracurricular activities	28,1%	71,9%	40,8%	59,2%
	Not being able to be with friends	38,5%	61,5%	56,1%	43,9%
	Not being able to be with boy/girlfriend	37,5%	62,5%	41,5%	58,5%
	Fear of getting sick	46,2%	53,8%	52,7%	47,3%
	Fear and uncertainty about the future	43,3%	56,7%	50,7%	49,3%
	Fear of a family member getting sick	49,2%	50,8%	63,3%	36,7%
	Going out whenever I want	27,4%	72,6%	44,4%	55,6%

In the first two sub-dimensions (stress and sensitivity and mood swings), except for the agreement of both groups on the general concern for the pandemic, the "critics" show stress and strong mood swings compared to the "enthusiasts". For the third sub-dimension (tolerance of behaviours / absence / fears) there is an equal distribution between the statements of the two groups (e.g. wearing the mask, concern for the future and illness, etc.). For the statements concerning the lack of social interaction, the "critical" students consider this aspect an element of difficulty.

Social relationships

Another relevant dimension refers to the type and modalities of relationship experienced by the

two groups. In particular, the "critics" complain less about the impossibility of "going out whenever I want" (27.4%, against 44.4% of the "enthusiasts"), although they miss "laughing" more than the "enthusiasts". As we saw in Table 4, the "critics" felt "sadder" than the "enthusiasts".

Use of the Internet

Another dimension concerns the students' point of view about the ways of using the Internet in the past school year. The "enthusiasts" declare that they have found more effective strategies to interact and stay informed. They also claim to find the Internet more useful than what the "critics" think, feeling "less worried" during the pandemic (64.7%, against 43.5% of the "critics"), able to "keep up with the school program" (92.1%, against 58.2% of the "critics") and to "be informed" (90.1%, against 81.6% of the "critics").

Correlations made between the survey dimensions

A further confirmation of the dividing line between the two groups can be found in the correlations between opinions on DL and specific issues: behaviour held during the DL, instrumental resources and connectivity problems; emotional experiences; variation in motivation to study and school performance; variation in the quality of social relationships; use of the Internet; DL experience with the focus "relating to the studies".

Data analyses for statistical significance were performed using the SPSS 26.0 statistical survey software (2019). The significance was accepted at the 1% level ($\alpha < 0.01$).

The study carried out indicates that the attitude towards DL correlates with the dimensions indicated in Table 5. For most of the dimensions there is a positive correlation: as the assessment worsens and a negative attitude about DL grows, there are: an increasing number of behaviours that do not promote significant learning during DL [$r = .258$; $p < 0.01$]; greater limits in instrumental resources and increased connectivity problems [$r = .177$; $p < 0.01$]; worsened emotional states [$r = .353$; $p < 0.01$]; more difficult family and social relationships [$r = .076$; $p < 0.01$]; worse DL experiences [$r = .508$; $p < 0.01$] and DL experience relating to the studies [$r = .639$; $p < 0.01$]. Furthermore, the analysis of the data shows a negative correlation between attitude towards DL and the motivation to study and school performance: as the negative evaluation of DL increases, there is a strong decrease in the motivation to study [$r = -.989$; $p < 0.01$] and an equally strong deterioration in school performance [$r = -.978$; $p < 0.01$].

Table 5 - Correlations between different investigated dimensions

	DL Behaviour / Evaluation	
	r	p
Behaviour in DL	.258	<0.01*
Connectivity	.177	<0.01*
Emotional dimension	.353	<0.01*
Motivation to study	-.989	<0.01*
School performance	-.978	<0.01*
Family/Social relationships	.076	<0.01*
Use of the Internet	-.109	<0.01*
DL experience	.508	<0.01*
DL experience 'relating to the studies'	.639	<0.01*

*. The correlation is significant at 0,01 level (two-tailed).

Discussion

The results, interpreted in relation to the research question and the exploratory hypothesis, allow deepening the discussion on certain aspects. In particular, for the two groups of students, different opinions and modalities were found on the DL experience, confirming the exploratory hypothesis according to which the didactic action of teachers in the context of DL was perceived differently by the student sample, having it particularly penalised those who expressed fragility from a socio-affective, relational and motivational point of view as well as in terms of school performance. In fact, the construction of the two groups, based on the answers given by the student sample grouped into two categories ("strongly agree / somewhat agree" and "somewhat disagree / disagree") paints a picture of the opinions and experiences in reaction to DL.

The opinions and experiences of the two groups can be analysed on the basis of a complexity of individual, socio-economic, cultural factors not exclusively attributable to the current situation of the pandemic emergency, as also thematised by the scientific literature of the socio-psycho-pedagogical field here presented and used to comment on the results. In particular, considering the correlations made in Table 5, a growing negative attitude towards DL corresponds to behaviours that do not promote significant learning but result in conditions of stress, fatigue, poor concentration and attention (Fiorenzato et al., 2021; Doucet et al., 2020; Petrie, 2020; Hasan et al., 2020). Furthermore, the negative opinions on the DL experience are positively correlated with structural situations of disadvantage, such as the greater limitations in instrumental resources and the growing connectivity problems, attributable to the family context, as well as the extra-curricular problems, attributable to difficulties in family and social relationships (Gonzalez-Ramirez, 2021; Lucisano 2020).

The positive correlation between these elements is also understandable due to another aspect highlighted by the analysis, namely the negative correlation between attitude towards DL and motivation to study, together with academic performance. In fact, as the negative evaluation of the DL experience grows, there is a strong decrease in motivation to study and an equally strong deterioration in school performance (Batini et al., 2021). In this regard, if in the two groups there are differences on the "Behaviour held in DL", for which the "critics" are more among those who have the webcam turned off and do other things or are distracted by their peers on WhatsApp, in relation to the "DL experience" the "critics" express greater difficulty in not physically seeing the teacher and, unlike the "enthusiasts", consider the oral test in DL more difficult, although it is easier for them to glance at their notes without being noticed.

A common aspect of the two groups is the widespread perception of frustration in not being able to physically interact with peers. With reference to the disciplines (grouped into subject areas), the greatest difficulties highlighted by the groups are attributable to Mathematics, Italian and Latin (weighing the answers on the different types of schools) and to laboratories for what concerns schools other than Lyceums. With respect to these difficulties, the "critics" tend to believe that the cause is attributable to the fact that the subject is not suitable to being explained in DL, while the "enthusiasts" affirm that the teacher is unable to use multimedia. The discussion on these latter aspects is grounded in what is confirmed by the research and documents produced on an international and national scale regarding the need to innovate pedagogical and didactic models and the digital skills of teachers (Antonietti et al., 2020; Murdaca et al., 2017), also because of the pedagogical implications that guide didactic action (Perla & Vinci, 2021).

To conclude, if the opinions and experiences of the two groups of students cannot be attributed exclusively to the topicality of the pandemic emergency or to related factors (socio-economic and cultural background, digital divide, etc.), the enhancement of teachers' professional training is vital, in order to improve the learning-teaching relationship in inclusive terms also through the use of innovative teaching methodologies as aspects capable of influencing, through didactic action, both contextual (relationship with the teacher and peers, teaching approach, etc. .) and individual (intrinsic motivation to continue learning, attitudes and opinions towards school, opinions towards the teacher, peers and didactics, etc.) factors.

Conclusions

In conclusion, there are aspects that represent limits but also development opportunities for the research presented here. In particular, it is intended to encourage the sharing of the dataset with other researchers outside the present group, in order to strengthen the process of validating these results so as to give greater robustness to the data also in terms of inter-coder agreement.

Furthermore, from a mixed-methods perspective (Tashakkori & Teddlie, 2010), it is considered necessary to examine the open answers in depth, in order to understand the cultural dimension of the opinions and experiences of the two groups of students, accounting for the background contextual variables. For the latter, in fact, the aim is to carry out further analyses including the type of schools attended by the sample and the regions of origin, adding secondary data made available by further research and official national surveys.

Finally, although the big group of "neutral" is the object of further publication, we intend to explore some aspects relating to the positioning of this group in the categories of response to the items of the different questionnaire dimensions.

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