



# Students' perception of distanced learning: a retrospective analysis

## La percezione degli studenti in didattica a distanza: un'analisi retrospettiva

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### ABSTRACT

**Introduction.** In March 2020, the Italian Ministry of Health prohibited individuals' movement in the whole national territory. Schools closed, and teachers, educators, and students had to adapt to distanced learning ever since. However, the Italian National Institute of Statistics reported that only one student out of four could follow distanced learning, especially in the country's poorest regions.

**Aim.** To explore the evolution of distanced learning and produce evidence upon students' perception of the past year's educational experiences.

**Methods.** The research team analysed two questionnaires conducted at a different time during the lockdown, in April and December 2020. The analysis was conducted using a quantitative approach and Cohen's *h* effect size.

**Results.** Data showed no improvements to the learning experience, leaving students with a poor, disadvantaged didactic experience. However, the data also showed an increment in students' relationship abilities.

**Conclusion.** It is then possible to conceive new intervention paradigms to foster the educational experience and prevent further students' dropouts. Considering the embodied theories that have been neglected during the lockdown, the upcoming years of education are a call for responsibility to all adults (not only teachers and educators) since the health and education of the children, nationally and internationally, is at stake.

**Introduzione.** Nel marzo 2020 il Ministero della Salute italiano ha vietato la circolazione delle persone su tutto il territorio nazionale. Le Scuole hanno chiuso e da allora insegnanti, educatori e studenti hanno dovuto adattarsi alla didattica a distanza. Tuttavia, l'Istituto Nazionale di Statistica ha riferito che solo uno studente su quattro ha avuto la possibilità di seguire in modalità di didattica a distanza, soprattutto nelle regioni più povere del paese.

**Scopo.** Esplorare l'evoluzione dell'apprendimento a distanza e produrre prove sulla percezione degli studenti sulle esperienze educative dell'ultimo anno.

**Metodi.** Il team di ricerca ha analizzato due questionari condotti in momenti diversi durante il lockdown, ad aprile e a dicembre 2020. L'analisi è stata condotta utilizzando un approccio quantitativo e la *h* di Cohen.

**Risultati.** I dati non hanno mostrato miglioramenti sull'esperienza di apprendimento, lasciando gli studenti con didattica povera di contenuti e svantaggiata. Tuttavia, i dati hanno mostrato anche un incremento delle capacità relazionali degli studenti.

**Conclusione.** È quindi possibile ipotizzare nuovi paradigmi di intervento per favorire l'esperienza educativa e prevenire ulteriori abbandoni scolastici. Considerando le teorie embodied centred che sono state trascurate durante il lockdown, nei prossimi anni bisogna fare un appello alla responsabilità degli adulti (non solo insegnanti ed educatori) poiché è in gioco la salute e l'istruzione dei giovani, a livello nazionale e internazionale.

#### **KEYWORDS**

Social Pedagogy, Education, Teaching, Covid, Distanced Learning.  
Pedagogia Sociale, Educazione, Insegnamento, Covid, Didattica a Distanza.

## **1. Introduction<sup>1</sup>**

On the 10<sup>th</sup> of March, at midnight, the Italian Ministry of Health prohibited individuals' movements in the whole Italian national territory unless strictly motivated (in written form). Only essentials retailers, such as supermarkets or pharmacies, could stay open but needed to ensure a distance of at least two meters between customers. The enforcements were supposed to last until the 3<sup>rd</sup> of April 2020 (Lazzerini & Putoto, 2020). It was the beginning of the lockdown, the start of the COVID Era.

The School in Italy then closed, and ever since, with very few exceptions, teachers, educators, and students had to adapt to distanced learning. Asynchronous learning was imposed to allow students to progress with their education via online platforms (such as Zoom, Microsoft Teams, Skype and others) (Chen et al., 2020). However, distanced learning required that the students are extremely self-motivated to learn with a high level of self-discipline to complete courses (Cook & Dupras, 2004). Not to mention that both teachers and students needed to have adequate Information and Communication Technologies (ICT) equipment and knowledge (Tropea & De Rango, 2020).

Indeed, the Italian National Institute of Statistic (ISTAT) reported that only one student out of four was able to follow distanced learning in secondary school. These values increased in the country's poorest regions, where the lack of access to ICT has been an obstacle to the e-maturity and robustness of the Italian school system (Giovannella et al., 2020).

Therefore, in the past year, we assisted to an extensive usage of digital devices that produced an impenetrable digital division (Iavarone, 2019), rather than a positive connection between students and teachers. This division lays its foundation and merges with social exclusion, economic hardship and cultural marginalization fostering the necessity to introduce and embraces novel transdisciplinary social inclusion strategies (Iavarone, 2009, 2019; Iavarone & Iavarone, 2004).

Additionally, the no-gradual transaction between synchronous to asyn-

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chronous learning caused by COVID-19 underscored the importance of adopting novel and innovative student-centred approaches (Zibers & Estes, 2020). Approaches that should consider the lack of motion-cognition activities that the students are experiencing. When the COVID Era will be over the schools will re-open with synchronous, in-class education and the teachers will need to pay additional attention to the embodied theories to restore the link between cognitive learning and body (e)motion. Link that has been neglected during distanced learning (Aruta & Ambra, 2020; Iavarone et al., 2010; Wilson, 2002) with consequent increment in sedentary behaviours and health risk (Tortella et al., 2020).

To explore the evolution of distanced learning and to produce evidence upon students' perception of the learning experiences in the past year, the research team studied two questionnaires conducted at different times during the lockdown, (in April and in December 2020). Following the hypothesis that a prolonged usage of distanced learning might produce direct boredom and fatigue effects upon the learning experience that will effect students' perception of distance learning and their relationship with peers.

## 2. Methods

### 2.1 General Design

The study explores the evolution of distanced learning perception in young students. The research team investigated the data collected at the beginning of schools' closure, between April and May 2020 (questionnaire A), and matched with a similar analysis completed by an independent group of researchers in December 2020, after 9 months of distanced learning (questionnaire B), Table 1.

	MAR 2020	APR 2020	MAY 2020	JUN 2020	JUL 2020	AUG 2020	SEP 2020	OCT 2020	NOV 2020	DEC 2020	JAN 2021
	DISTANCED LEARNING										
Q <sup>A</sup>		DC									
Q <sup>B</sup>										DC	
Q <sup>A</sup> and Q <sup>B</sup> = questionnaire A and questionnaire B; DC = Data Collection											

**Table 1. Gantt Chart that summarises data collection periods of the two questionnaires in relation to distanced learning in Italy.**

The analysis was possible due to the high similarity between the two questionnaires reported in their original languages (Italian) in Table 2.

Questionnaire A (Q <sup>A</sup> )	Questionnaire B (Q <sup>B</sup> )
RELATIONSHIPS WITH PEER AND OTHERS	
<p>1. Con la didattica a distanza il mio rapporto con i compagni di classe è:</p> <ul style="list-style-type: none"> <li>• <i>Migliorato</i></li> <li>• <i>La didattica a distanza non ha influito sul mio rapporto con i compagni di classe</i></li> <li>• <i>Peggiorato</i></li> </ul>	<p>1. Ritieni che il periodo a casa da scuola abbia avuto/stia avendo ripercussioni positive o negative sulle tue amicizie?</p> <ul style="list-style-type: none"> <li>• <i>Ripercussioni positive</i></li> <li>• <i>Nessun impatto</i></li> <li>• <i>Ripercussioni negative</i></li> </ul>
<p>2. Con la didattica a distanza il mio rapporto con gli insegnanti (e adulti) è:</p> <ul style="list-style-type: none"> <li>• <i>Migliorato</i></li> <li>• <i>La didattica a distanza non ha influito sul mio rapporto con gli insegnanti</i></li> <li>• <i>Peggiorato</i></li> </ul>	<p>2. Ritieni che il periodo a casa da scuola abbia avuto/stia avendo ripercussioni positive o negative sui rapporti coi i tuoi familiari?</p> <ul style="list-style-type: none"> <li>• <i>Ripercussioni positive</i></li> <li>• <i>Nessun impatto</i></li> <li>• <i>Ripercussioni negative</i></li> </ul>
<p>3. Mentre seguo le lezioni utilizzo altri media per interagire coi compagni (ad esempio: Whatsapp, Facebook ecc.)</p> <ul style="list-style-type: none"> <li>• <i>Sì</i></li> <li>• <i>Qualche Volta</i></li> <li>• <i>Mai</i></li> </ul>	<p>3. Rispetto al passato quando in Italia non esisteva il COVID, senti e/o vedi i tuoi amici più spesso, meno spesso o allo stesso modo? Inserisci una risposta per ogni modalità presente nella tabella sottostante</p> <ul style="list-style-type: none"> <li>• <i>Più spesso</i></li> <li>• <i>Uguale</i></li> <li>• <i>Meno spesso</i></li> </ul>
LEARNING EXPERIENCE	
<p>4. Con la DAD la mia l'attenzione durante la lezione è</p> <ul style="list-style-type: none"> <li>• <i>Migliorata</i></li> <li>• <i>La DAD non ha influito sulla mia attenzione</i></li> <li>• <i>Peggiorata</i></li> </ul>	<p>4. Ritieni che con la DAD sia più facile o più difficile rispetto alla didattica in presenza</p> <ul style="list-style-type: none"> <li>• <i>Più facile con la DAD rispetto alle lezioni in aula</i></li> <li>• <i>Uguale</i></li> <li>• <i>Più difficile con la DAD rispetto alle lezioni in aula</i></li> </ul>
<p>5. Con la didattica a distanza al termine dell'ora di lezione mi sento:</p> <ul style="list-style-type: none"> <li>• <i>Meno stanco</i></li> <li>• <i>La didattica a distanza non ha influito su come mi sento dopo la lezione</i></li> <li>• <i>Più stanco</i></li> </ul>	<p>5. Ritieni che il periodo a casa da scuola abbia avuto/stia avendo ripercussioni positive o negative sulla tua capacità di studiare?</p> <ul style="list-style-type: none"> <li>• <i>Ripercussioni positive</i></li> <li>• <i>Nessun impatto</i></li> <li>• <i>Ripercussioni negative</i></li> </ul>

<p>6. Con la didattica a distanza durante la lezione mi sento:</p> <ul style="list-style-type: none"> <li>• <i>Più coinvolto</i></li> <li>• <i>La didattica a distanza non ha influito su quanto mi sento coinvolto durante la lezione</i></li> <li>• <i>Meno coinvolto</i></li> </ul>	<p>6. Nella fruizione delle lezioni hai sperimentato/ stai sperimentando una/alcune delle seguenti difficoltà?</p> <ul style="list-style-type: none"> <li>• <i>Fatica a concentrarmi/seguire le lezioni online</i></li> <li>• <i>Noia</i></li> <li>• <i>Problemi tecnici</i></li> </ul>
<p>7. Con la didattica a distanza, quando devo intervenire durante una lezione mi sento:</p> <ul style="list-style-type: none"> <li>• <i>Meno imbarazzato</i></li> <li>• <i>La didattica a distanza non ha influito su quanto mi sento imbarazzato</i></li> <li>• <i>Più imbarazzato</i></li> </ul>	<p>7. Ritieni che il periodo a casa da scuola abbia avuto/stia avendo ripercussioni positive o negative sulla preparazione scolastica?</p> <ul style="list-style-type: none"> <li>• <i>Ripercussioni positive</i></li> <li>• <i>Nessun impatto</i></li> <li>• <i>Ripercussioni negative</i></li> </ul>
<p>8. Con la didattica a distanza studio in maniera:</p> <ul style="list-style-type: none"> <li>• <i>Più serena</i></li> <li>• <i>La didattica a distanza non ha influito su quanto mi sento sereno</i></li> <li>• <i>Meno serena</i></li> </ul>	<p>8. Ritieni che il periodo a casa da scuola abbia avuto/stia avendo ripercussioni positive o negative sul tuo umore?</p> <ul style="list-style-type: none"> <li>• <i>Ripercussioni positive</i></li> <li>• <i>Nessun impatto</i></li> <li>• <i>Ripercussioni negative</i></li> </ul>
<p>9. Con la didattica a distanza l'ansia per i compiti a casa mi sembra:</p> <ul style="list-style-type: none"> <li>• <i>Di meno</i></li> <li>• <i>La didattica a distanza non ha influito sull'ansia per i compiti a casa</i></li> <li>• <i>Di più</i></li> </ul>	<p>9. Nella fruizione delle lezioni hai sperimentato fatica a concentrarmi/seguire le lezioni online?</p> <ul style="list-style-type: none"> <li>• <i>Uguale agli altri anni</i></li> <li>• <i>Meglio degli altri anni</i></li> <li>• <i>Peggio degli altri anni</i></li> </ul>
<p>10. Con la didattica a distanza sento che sto apprendendo:</p> <ul style="list-style-type: none"> <li>• <i>Di più</i></li> <li>• <i>La didattica a distanza non ha influito su quanto sto apprendendo</i></li> <li>• <i>Di meno</i></li> </ul>	<p>10. Come ti sembra che stia andando la tua preparazione scolastica?</p> <ul style="list-style-type: none"> <li>• <i>Uguale agli altri anni</i></li> <li>• <i>Meglio degli altri anni</i></li> <li>• <i>Peggio degli altri anni</i></li> </ul>
<p>11. In generale con la didattica a distanza il mio modo di studiare è:</p> <ul style="list-style-type: none"> <li>• <i>Migliorato</i></li> <li>• <i>La didattica a distanza non ha influito sul mio modo di studiare</i></li> <li>• <i>Peggiorato</i></li> </ul>	<p>11. Come valuti in generale l'esperienza con la didattica a distanza?</p> <ul style="list-style-type: none"> <li>• <i>Molto positiva</i></li> <li>• <i>Negativa</i></li> <li>• <i>Molto negativa</i></li> </ul>

DISTANCED LEARNING DETAILS	
Hai un tuo computer personale?	Per seguire le lezioni a distanza, il dispositivo che utilizzi prevalentemente è a tuo uso esclusivo o in condivisione con altri?
Da quale device hai seguito la DAD? Hai fratelli o sorelle che seguono la DAD? Se sì quanti anni hanno? Ognuno di voi ha un PC per seguire la DAD?	Quando segui le lezioni online, sei prevalentemente In una stanza, da solo In una stanza, con altre persone Altro
Approssimativamente quante ore di lezione a distanza sono previste a settimana, per quante materie?	Approssimativamente quante ore di lezione a distanza sono previste a settimana?
DAD = Didattica a Distanza (trs Distanced Learning).	

**Table 2. Summary of the two questionnaires**

Due to the lockdown restrictions, the questionnaire A was delivered through an online platform (i.e. [www.surveymonkey.com](http://www.surveymonkey.com)) (Symonds, 2011) via email and social media (i.e., Twitter, Facebook and WhatsApp) to a sample of 83 adolescent (age range: 14 -19 years old), from secondary schools in the city of Naples (Italy). Whilst the questionnaire B was conducted by Global Market Research and Public Opinion Specialist (IPSOS) on 2621 798 participants from which a sample size of 1000 Italian students was nationally selected (Save The Children, 2020).

## 2.2 Data analysis

The research team aims to explore students' perception and report any effects of distanced learning on students' learning experience. It has been hypothesised that the prolonged use of distanced learning produces direct boredom and fatigue effects upon the learning experience that will be shown in their perception of distance learning at two months (questionnaire A = Q<sup>A</sup>) and 10 months (questionnaire B = Q<sup>B</sup>) into the experience. The results will then support teachers, educators and other professional figures involved in distanced learning to develop novel and effective strategies that will be adopted now (in the COVID emergency) and in the future (in the post-COVID didactic). The analysis was conducted using a quantitative approach, and both questionnaire results were analysed using the Cohen's *h* effect size, where an  $h < 0.2$  means a small effect size,  $0.2 < h < 0.5$  a medium effect size and  $h > 0.8$  a large effect size (Cohen, 2013; Rosenthal et al., 1994). Based on the questionnaire described in the paragraph above the research team divided the results into different domains i) Relationships with peer and others (questions 1-3), ii) Learning Experience (questions 4-11), following a similar approach already published (Ambra et al., 2019; Ferraro, Ambra, & Iavarone, 2020). The analysis was completed with IBM SPSS 26 software.

### 3. Results

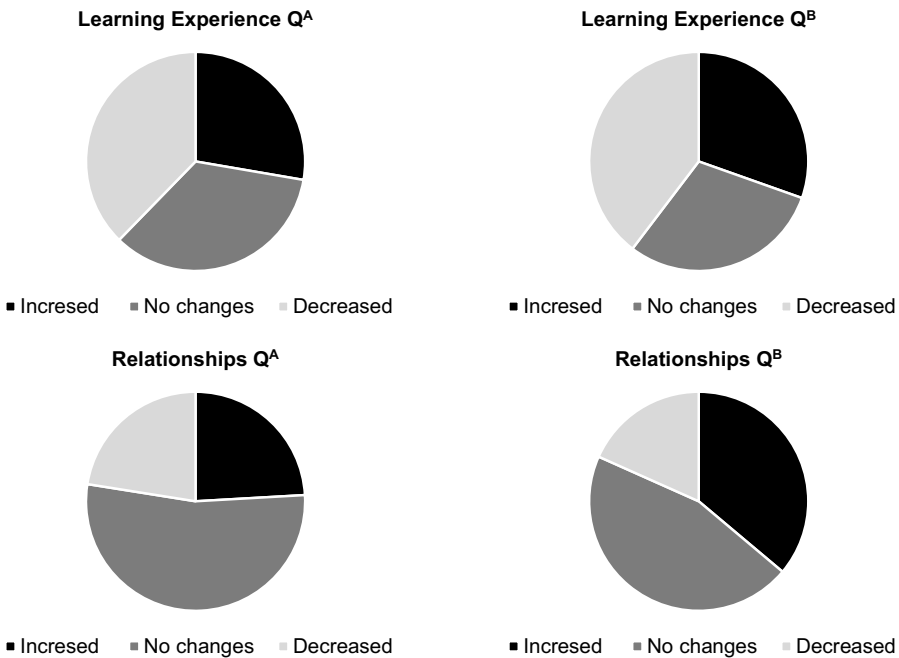
A group of 83 adolescents age range 14-18 years old completed the online questionnaire A between April and May 2020, whilst 1000 adolescents age range 14-15 years old ( $n = 412$ ) and 16-18 years old ( $n = 588$ ) the questionnaire B. Data have been grouped by domains and percentages have been adjusted based on the number of responses.

Data shows no significant variance over the time between  $Q^A$  and  $Q^B$ , with small effect size in the Learning Experience ( $h \leq 0.2$ ) and medium effect size in Relationship ( $0.2 < h \leq 0.5$ ), Table 3 and Figure 1.

	Increased $Q^A$ vs $Q^B$	$h$	No changes $Q^A$ vs $Q^B$	$h$	Decreased $Q^A$ vs $Q^B$	$h$
Relationships	24.1% vs 34.5%	0.4	53.4% vs 43.5%	0.2	22.5% vs 17.5%	0.2
Learning Experience	27.0% vs 29.4%	0.1	33.4% vs 28.9%	0.1	36.4% vs 38.3%	0.1

Data are reported in percentage with Cohen's  $h$ . Where  $h \leq 0.2$  indicates a small effect size,  $0.2 < h \leq 0.5$  a medium effect size and  $h \geq 0.8$  a large effect size

**Table 3. Comparison between  $Q^A$  and  $Q^B$  in the two main domains Relationships and Learning Experience**



**Figure 1. Pie charts of the two domains Learning Experience and Relationships explored in questionnaire A and questionnaire B. As anticipated by the analysis it is possible to see and increment in Relationships with peers and other between  $Q^A$  and  $Q^B$ .**



Additional analysis upon the devices used showed that 43.4% of student had a personal device (e.g., computer) in April-May ( $Q^A$ ) and that in December ( $Q^B$ ) the number increased up to 82.0%. Similarly, in  $Q^A$  we noticed that distanced learning was followed by students on their own (68.7%) and that later, in  $Q^B$  the number increased up to 92.0%. Whilst the total amount of teaching hours weekly was consistent with 20.7 hours reported in  $Q^A$  and 29.1 hours in  $Q^B$ .

#### 4. Discussion

We have previously demonstrated that with distanced learning, students experienced a decrement in the educational experience compared to in-class sessions. We reported a decrement in attention skills, a higher level of tiredness and an overall less engagement with teachers (Ambra F. I, 2020; Ambra F. I., 2020; Ferraro, Ambra, Aruta, et al., 2020). Similar results have been reported in the analysis completed by Save the Children in December 2020, where the research team reported a decrement in motivation, school performance with increments in tiredness and boredom effects caused by distanced learning (Save The Children, 2020).

With the current study, we aimed to compare the progression of distanced learning between the beginning of the pandemic (May-April,  $Q^A$ ) and the most recent questionnaire (December,  $Q^B$ ). The research team hypothesised that the prolonged use of distanced learning produces direct boredom and fatigue effects upon the learning experience that will be shown in their perception of distance learning at two months ( $Q^A$ ) and 10 months ( $Q^B$ ) into the pandemic. However, the data showed no variation between the perception of the learning experience between  $Q^A$  and  $Q^B$ , indicating that the difficulties mentioned earlier and the issues related to distanced learning have not yet been solved (Lassoued et al., 2020).

The results show that in the past 11 months that distanced learning has been introduced, no improvements to the learning experience have been made, leaving students with poor, disadvantage didactic experience. Indeed, the results link perfectly with the report completed by Società Italiana di Ricerca Didattica (SIRD) that reported the teachers' difficulties in dealing with the novel didactic situation. Difficulties related with lack of experience and equipment (Lucisano, 2020).

Contrarily to what was expected, our comparison also shows a significant increment ( $h = 0.4$ ) in students' inter-personal relationship. These results can be explained by the fact that the novel generation, the Digital Natives, (Prensky, 2009) defined as hyper-cognitive generation (Hernandez-de-Menendez et al., 2020) is extremely able to maintain relationship via social media (such as TikTok, Facebook, Twitter, and Snapchat) (PrakashYadav & Rai, 2017; Strauss & Howe, 1991). These inter-personal interactions are not novel to the research scenario. Indeed previous research reported an increase of social media interactions with peers in contrast with less in-person interaction, even before the pandemic (Thomas et al., 2020; Twenge et al., 2019). However, if these inter-relations might be beneficial for students to communicate with peers, there is minimal or non-supervision from responsible adults (e.g., teachers and parents) which in the majority of the situation are not able to use the same App(s) of their pupil, leaving an empty pedagogic frame. Frame that more and more often has been used as an instrument for bullying, body-shaming and violence among the younger generation (Anouna, 2020; La Rocca, 2017; Rajamohan et al., 2019) as showed by recent episodes of group violence and organised fight via social media (Albonetti et al., 2020).

However, students' increment in relationship abilities can also indicate a high risk of Chomsky's adaptation to the situation (Chomsky & Foucault, 2015) . The



lack of interactions with peers and others for longer than a year might have produces a routine of sensory, cognitional and educational deprivation that the younger generation cannot longer express. Therefore, it is crucial to investigate these aspects of body (e)motion cognition to improve the learning, educational experience with the COVID-19 generation. As the risk of producing a desensitised generation is extremely high.

## 5. Conclusion

The risk of school dropout is high, especially in the poorer Italian regions, where many students might not have direct access to distanced learning. The situation is getting critical as the Italian National Institute of Statistic (ISTAT) reported an increment in school dropouts. In the current study, we have demonstrated that between the beginning of the pandemic and the most recent data collection, the students' perception of distanced learning has not evolved, leaving many in discomfort and stress.

Therefore, it is necessary to work on different aspects of students experience to improve their ability to communicate with teachers and educators. It is recommended to introduce additional staff members with knowledge and experience in distanced learning and ICT technologies that can foster and enhance the learning experience improving students' engagement and curiosity, using a student-centred approach (Gibbs, 1981; Zibers & Estes, 2020).

At the same time, it is crucial to continue to monitor the situation and to produce a live database that produce information upon the perception of distanced learning from both students and teachers' perspectives. This is necessary to monitor the progress of the learning experience and predict further students' dropouts. In parallel, it is crucial to consider the aspect of education that will be necessary to introduce in the post-COVID Education, with particular attention at the embodied theories, since the cognitive learning that is linked to the body movements have been neglected during distanced learning (Aruta & Ambra, 2020; Iavarone et al., 2010; Wilson, 2002) with consequent increment in sedentary behaviours and risk for health (Tortella et al., 2020). Therefore, the upcoming years of education are a call for responsibility to all adults (not only teachers and educators) since the health and education of the children and their future is at stake (Iavarone & Trocchia, 2020).

## 6. Limitations

The study presents several limitations. The two questionnaires were similar but not identical. Hence, the analysis could only explore two main domains rather than a question per question analysis, which might have shown a higher level of students' dissatisfaction with distanced learning and additional difficulties in students' relationship. Further research should explore the effect(s) of distanced learning on student's perception after one year of asynchronous education. Additionally, the study does not discuss the students who do not have access to distanced learning and ICT that should be considered in further analysis.

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