Chapter

Students and COVID-19 Pandemic: Learning Engagement and Social Dialectic of Space – Research on Students at the University of Ioannina in Greece

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Abstract

The COVID-19 pandemic in March 2020 also caused the closure of all educational institutions in Greece. Higher education implemented the distance education system for the first time. In the new educational environment, all the active interactions of students' learning engagement were put to the test. Learning engagement is directly linked to the suitability and functionality of the study space. Space is the result of a series and set of functions, and sometimes it allows new actions to happen, sometimes it suggests others, and sometimes it forbids them. During the pandemic, it was an important criterion for the learning process, for quality and demanding student learning. A quantitative survey conducted in April 2023 on a sample of 537 students from 21 Departments of the University of Ioannina showed that the family environment, the number of bedrooms, the functionality of the space and the economic level of the family are factors that played an important role in the learning engagement and involvement of the students. The research findings showed the positive correlation of student study space functionality with financial capital and learning engagement, issues analysed in this paper.

Keywords: COVID-19 pandemic, learning engagement, social dialectic of space, financial capital, quantitative research

1. Introduction

The compound term "*pandemic*" ("all" and "municipality"), which is equivalent to the infection of the entire population [1], corresponds to an ever-expanding *epidemic*" (i.e., an infectious disease of a local character) that starts from a specific geographic location, at a specific time, spreads with intensity and speed, transmits the viral load and with an unknown duration and course at some point in time ends up being limited, thus bringing the end to transmission of the infection [2]. The recent COVID-19 pandemic (coronavirus disease 2019, COVID-19) started in Wuhan, China, with its

main characteristic being an acute respiratory infection [3, 4]. The mode of transmission of the virus was droplets, and due to the continuous and easy movement of the earth's population, COVID-19 was a global threat. The World Health Organisation [5], declared the beginning of the global pandemic and put the planet on alert. Prevention and treatment measures included physical distancing all people, enforcing the use of a mask, thorough hand washing, or alcohol-based disinfection.

Throughout this particular health-social crisis, *social systems* were strongly disrupted by the heterogeneous pressures they faced and the challenges of responding to unique needs. Social sustainability was shaken as each pandemic has a breadth and depth. It stresses people on a psychosomatic level because of the stress caused not only by deaths and contagious diseases but also by the lack of social contact and social interaction [6–8]. Extreme social phenomena as a consequence of this pressure were the increase in rates of domestic violence and femicides [9] but also the fear of losing one's job due to the more general economic insecurity caused [10, 11].

The reversal of social "normality" significantly affected not only Health but also Education, Work, Economy, Family and people's lifestyles as the most basic measure imposed was the "lockdown", the social isolation and confinement of people in the family environment.

In the context of education, the most suitable option for continuing learning after the forced closure of all educational institutions was judged worldwide to be *distance education.* In *higher education,* digital platforms supported the new form of learning (e-learning) in order to continue academic courses [2], while on a social level, through networks of friends, students tried to maintain student connection and socialisation in the context of psychological empowerment, marginalising the adverse effects of the imposition of quarantine [12]. However, despite the efforts, the interruption of live teaching had negative consequences for the students.

Surveys conducted among the student population showed that the *lock down* and the forced confinement in the family environment, caused serious symptoms of anxiety and depressive episodes in the psyche of the young people [8, 12–16] affecting their learning mood and engagement as well as performance [17–22].

2. Learning engagement

The learning process requires the presence and participation of those being taught. It is a multidimensional process with the main characteristics being the activity and the interaction between the learner and the teacher or even between the computer and the learner or between the learner and a parent (father-mother) [23, 24]. In online learning, participation is limited to the use of digital tools with the absence of the "speaking" and "writing" element [25]. In a digital learning environment with e-learning being the ultimate mediator of knowledge transmission, pupils and students were forced to adapt, respond and synchronise with the new digital learning requirements of this unprecedented demanding framework throughout the pandemic period [2, 26]. The European Commission Report [27] on the consequences of distance learning for pupils/students, teachers and families was important:

- strong psychological pressures due to the restrictions and communicative and cooperative changes in learning
- strong feelings of anxiety, depression and isolation mainly due to their social distancing

- difficulties of some families to meet the new demands of their members
- inequalities in the labour market

In this new situation that was created and with reference to education, difficulties were found in terms of the degree of learning commitment and involvement of the students.

The term *"learning engagement,"* according to Fredericks et al. [28], identifies a *three-dimensional learning condition* with *behavioural, affective and cognitive* components. It is a complex and interactive transmitter-receiver relationship with behavioural, emotional and cognitive dimensions [29–31]. Defining this complex condition of student engagement in the learning process in more detail, Kuh [32] describes it as "*the time and energy that students devote to educational activities in and out of the classroom as well as policies and practices that institutions use to motivate the students to participate in these activities".* In 2009, Kuh connected the term "*engagement"* with the *"academic attitude"* of students trying to diagnose their future academic course [33].

Much later, and after the conditions created by the recent pandemic, some researchers connected *learning engagement* with the way students respond to their obligations, which, due to the circumstances, was mainly based on individual efforts of self-improvement and development without at the same time distancing themselves from the learning process [34, 35].

However, other researchers, both before and during the specific period that we are examining, connected learning commitment with the extroverted attitude, the effort, the degree of success, the time available for study, the self-efficacy and learning adaptability of each student [33, 36–40].

In the scientific field, the most well-known theories developed for engagement and online engagement are the theory of Kearsley & Shneiderman [41], the theory of Astin [42] and the Community of Inquiry (CoI) of Garrison et al. [43] and Garrison & Arbaugh [44]. The Community of Inquiry (CoI) emphasises the importance of interactions between teaching, social and cognitive presence in order for a collaborative learning community to function positively. It is based on the application of "constructivist ideas" in the digital learning environment by approaching learning in the light of the interaction of the didactic, cognitive and social factors. With the various *Measurement Scales of engagement and online engagement* [45, 46], the given research tools can highlight specific factors that contribute to this particular learning situation. From the elementary to the high school level, the creation of 21 Measurement Scales of learning participation and involvement is a powerful research tool [45], while the OSE-19 Scale (Online Student Engagement Scale-19) is a scale for calculating online engagement in higher education [46].

Most research has shown that the learning commitment, at the core of which is *Learning, is influenced by the* family and the family environment. *Family support* is a factor in strengthening the efforts of the student member, thus contributing indirectly or directly to a constructive learning process [47–49]. Gaxiola et al. [50] found that the family relationships of the members during the pandemic period were strengthened by positive emotions and that time was a positive component of the general negative scenario caused by the health crisis. In contrast to the above study, the highly stressful and pressured period of the new coronavirus with the imposition of the *lockdown* and social distancing in combination with long hours of coexistence of all family members [51–53] multiple tensions and created conflictual conditions which had *a negative impact* on learning engagement. This is also corroborated by

the study of Stan et al. [40], which in examining the learning commitment in this particular period, concluded that the existence of negative influences from the family conflicts of the members constituted a strong deregulating factor in the learning action and contributed to the removal of the students from their academic course.

3. Social dialectic of space

According to *Henry Wallon* [54] in his book *"De l' acte a la pensée"* (1970:184) *space is not determined by the "order" of things but through a qualitative approach to the human feeling of the subject, the feeling of belonging, the feeling that people are approaching or moving away from something*. The technocratic approach to space defines the space based on specific geometric characteristics while the anthropocentric approach studies the connection of space with the cultural, social and psychological characteristics of the individual and the various interactions that are created [55]. The environment in general is considered one of the most important factors that contribute to learning [56]. Students, especially those who live far from the family environment that once provided them with emotional security and fulfilment [57, 58], while studying away from family contexts face challenges and difficulties, they engage in learning in a different "spatio-temporality" and define their academic identity through daily frictions and habits in university buildings and libraries. Academic libraries constitute a quality and functional study space, according to Card & Thomas [59].

Brooks [60] in his book *Space Matters: The Impact of Formal Learning Environments on Student Learning* particularly emphasised the importance of *"space" – "environment"* in learning. In research he conducted with a teacher who delivered courses in two phases while keeping all learning factors constant *outside of the "learning spaces"* he concluded that learners who attended courses in high-tech environments developed better learning and course performance skills than their peers who attended in traditional settings.

According to Card & Thomas [59] in a qualitative study they conducted on Geography and Planning students about the *"spatiality of study"* and the role of "student housing" in learning, they concluded that "*space*" and "the *materiality of accommodation'* exert various effects on learning as a deeper internal process and not only as a cognitive condition and situation. The "materiality of housing" refers to the configuration of "learning and space", cleanliness, size and layout of rooms affecting "physical comfort" which has an effect on the learning process. At the same time, the very important role of "coexistence" is highlighted for students who lived in shared student accommodation faced with the challenges of "spatio-temporality". According to Oliveras-Ortiz et al. [61] a qualitative study conducted in Texas elementary schools showed environments and their characteristics influence student engagement, attitude and participation.

Many years earlier, the sociologist Isambert Jamati [62], studying the French school reality and referring to educational inequalities, found the effect of social inequalities on the learning situation and school performance by focusing on the role of the inappropriateness of the study space and living conditions on the performance of students from low social strata.

The difficulties and challenges of learning in the family environment concern the absence of both family support and quiet time for study and technical difficulties with internet connectivity [63, 64]. The home space is an important parameter shaping well-being and psychosomatic balance as the relationship between non-spacious

homes with unpleasant-negative emotions has been proven [65]. In some cases, the way the household space is distributed reveals the "housing inequalities" and the limitations experienced by family members [66]. The COVID-19 pandemic and especially the lockdowns changed spatial well-being, merged time with space, and altered the family atmosphere, habits and daily interactions of individuals by spatially and relationally modifying their sustainability. The family atmosphere is the result of "human and immaterialities between subject/object distinctions" with a tendency to potentiality and reconfiguration that create emotions and modify them according to circumstances or crises [67].

The symbiosis with the rest of the family members in the *family environment* for those who are in the learning process is a special situation, as home environments are spaces for the expression of identities *with "social and material"* dimensions in which the individual element is united with the collective, the conflict situations, the members' attitudes and behaviours, the presence of noise and "hygiene." The "hierarchy" in the family environment gives order, system, and balance despite the fact that it is difficult to "set up the study space" at home and properly manage family tensions in order to avoid any negative consequences in studying [58].

In the period of the COVID-19 pandemic, learning in the family environment with distance education and e-learning playing a primary role, the concept of "spatiality" and all the aspects related to the involvement of the household in the learning process is emerging. Learning is distributed materially-socially-interactively through the resources present in home environments. The home environment and its functional or non-functional parts become the "receiver" of new knowledge and learning [68]. Unstable internet connections, insufficient resources and learning spaces, frequent power outages, overactivity of all family members at a given time and place combined with their conflicting relationships and behaviours, financial difficulties and unsuitable learning environments were a strong set of challenges and negativity that made learning difficult in the family environment [69].

The "expected" individual space for each student cannot be *"individual" for everyone* due to the particular circumstances of each family, and the *"relational networks" such* as habits, people, and "objects" are also closely intertwined in function with the social relationship of the university institution. These are new "socio-material-technical" learning models in the new spaces that are formed through the friction and interaction of subjects who coexist in the same context and exchange ideological and value ideals. The unprecedented emotional experiences of the students in the new reality of learning spaces in the home environment, reproduce new pupil/student identities that are analysed according to the new socio-spatial-technical "places", forming new experiential situations from the home context of living and coexistence of the members and it is very likely that the impact is related to either positive or negative elements that are diffused in friendship networks or in sociocultural actions [68]. In the new learning environments of home spaces, not only the interaction that made learning more active but also the "sense of movement" of active learning spaces has been lost and replaced with stasis and distraction [35].

According to a large mixed survey (quantitative and qualitative) [68] carried out by questionnaire with 2.742 students of the University of Innsbruck, Austria, and 98 students of the same University with interviews, conclusions were reached according to which during the period of the COVID-19 pandemic the learning situation in the context of distance education was not only affected by *digital resources* but by *the way people live*. More specifically, it was influenced by the way each household was built and the sociotechnical living mechanisms reproduced in the domestic spaces. The *lack*

of individual spaces for study and self-concentration, which gave feelings of reduced satisfaction and which in the pre-COVID-19 era took place in *libraries,* was particularly emphasised. The same research points out, in addition to the above, that the psychological effects of the pandemic on students were intense, making them vulnerable and prone to depressive episodes, alienating them socially, and affecting their motivation and their *financial capital.* Highlighting the widening of *inequalities* made the quality work of the educational process difficult for some students who did not have either financial family support or suitable learning spaces in their family environment [68]. It is worth pointing out that the research in the same period generally demonstrates the increase of inequalities through the different socioeconomic-cultural capital of the children's families [70, 71].

Another study by Greek scientists [72] collecting data for Europe from the European Commission [73] and Eurostat [74] in an effort to highlight the relationships between learning conditions in the family environment, digitalisation and inequalities concluded that "the availability and "functionality" of the study space in the home environment differs significantly for each family, revealing inequalities in combination with socioeconomic capital through highlighting the overcrowded houses-households. In particular, living conditions can work to either support or deter learning by increasing or reducing inequalities, especially in times of crisis such as the COVID-19 pandemic.

4. Economic capital

Financial capital is part of the socioeconomic and cultural capital directly linked to educational inequalities and the family environment of each learner that significantly determines their learning development [75]. The study of Bourdieu-Passeron [76] entitled "*The Inheritors*" comes to confirm the reproduction of inequalities through education and the "opportunities" of access to Universities for the privileged and non-privileged social strata, thus making the connection between student success and performance and the socioeconomic capital of each student [77]. The degree of quality of the socioeconomic level that determines the individual and the family environment in which he lives or from which he comes concerns the relationship between the quality of education, health and work with interacting factors that determine the social position of the individual and at the same time its socioeconomic level [78].

Reference to the measurement and calculation of socioeconomic level began with Lundberg's [79] article entitled "The measurement of socioeconomic level", based on the division of classes into upper, middle and lower class. Socioeconomic level was defined through the question "how comfortably do people live in their homes and community" [80]. Therefore, in addition to the three powerful factors measuring the socioeconomic level, which are occupation, income and level of education [81], a set of qualitative elements of the standard of living, such as the area where someone lives, the characteristics of the residence, free time and social networks, constitute a complete and more global determination of the concept of economic level or capital [82]. An environment that lacks financial comforts and facilities has been shown to contribute to lower academic performance or even dropping out of studies or, in the future, contributing to lower-prestige and lower-paying jobs, which in a way contribute to low economic status in adulthood [83–85].

Family conditions and family income affect learning achievements, as appropriate study spaces in the family environment and appropriate digital equipment are among the necessary financial resources for successful and efficient learning [86]. During the pandemic, financial capital was linked to educational inequalities [70, 72, 87] and "economic mobility" [84]. According to research [70, 72, 85, 88, 89], the low economic capital of the family of pupils and students, highlighted both the inequalities, the difference in digital resources and the different engagement and involvement of all learners.

5. The research

5.1 Methodology

The present research focuses on the multiple effects their learning situation had on male and female students and investigates how their learning commitment was affected by distance learning (e-learning) in the new learning environment during the period of the COVID-19 pandemic and mandatory home confinement. In this particular study, the functionality of the students' study space in the family environment during the pandemic is also investigated in relation to their financial capital.

The research questions of this specific research study were formulated as follows:

1. Did the social dialectic of space affect students' learning engagement during the COVID-19 pandemic?

2. Did financial capital affect the social dialect of space and students' learning engagement during the COVID-19 pandemic?

The specific research was carried out in March 2023 at the University of Ioannina in Greece with the approval of the University regarding the protection of personal data and compliance with all the rules of morals and ethics. As a research tool, the individually completed questionnaire was used in order to collect numerical data, which were standardised, so that the resulting variables were given a numerical value, a statistical analysis was performed as well as a check of their correlations [90]. The questionnaire was distributed to all faculties and Departments of the University of Ioannina to a random sample of 537 students via Google Forms. A part of the results of this research is presented in this paper.

The specific research tool (questionnaire) was formed with demographic questions and weighted scales of previous research through a bibliographic search, which was translated and adapted into Greek.

The scales of three questionnaires were used: The SCCQ-42 Scale, the FAPAE-19 Scale and the OSE Scale-19.

5.2 The sample

In total, the examined sample consists of 537 people (100%), namely 405 (75.4%) women and 132 (24.6%) men.

The sample of the researched student population came from 21 different Departments of the University of Ioannina and was formed as follows (**Table 1**):

Department of History and Archeology 56 students 10.4%
Department of Primary Education 47 students 8.8%
Department of Nursing 41 students 7.6%
Department of Physics 35 students 6.5%
Department of Physics 35 students 6.5%
Department of Computer Science 34 students 6.3%
Department of Speech and Language Therapy 34 students 6.3%
Department of Kindergarten 33 students 6.1%
Department of Chemistry 32 students 6%
Department of Mathematics 31 students 5.9%
Department of Biological Applications 28 students 5, 3%,
Department of Materials Science 24 students 4.5%
Department of Medicine 21 students 3.9%
Department of Psychology 20 students 3.7%
Department of Economics 18 students 3.4%
Department of Philosophy 17 students 3.2%
Department of Philology 18 students 3.1%
Department of Architecture 11 students, 2%,
Department of Agriculture 11 students 2%,
Department of Music Studies 10 students 1.9%
Department of Fine Arts 9 students 1.7%
Department of Logistics 7 students 1.3%

Table 1.
The sample of the researched student population.

The students who took part in the research were in various years, from 1st year to 9th year, with most of them being in 3rd year (N = 191). It was found from the survey that a large number of students do not work (N = 390) so they do not have an individual income (72.6%), while the majority study in a different location from their permanent residence (77.1%).

According to the survey, many students live in medium-sized cities (from 50.000 to 250.000 inhabitants) (32.4%), while the rest come from smaller cities, villages and big cities (about 11–17%). During the pandemic and distance education, most students (71.5%) were not at their place of study but had moved to their home, using their own computer (80.6%).

The students participating in the survey were 17 years old and older, with most people being 20–22 years old (58.5%). Most (53.4%) belonged to families with two children. Almost half of the families of the respondents (52%) were found to have at least three bedrooms. According to the responses of the sampled students, during distance education, very few did not have a functional study space (14%), with most having a fairly to very functional study space (**Table 2**).

Table 3 shows the results of the check of independent samples to investigate possible differences between the distance education study site on the (SCCQ-42)

Count		Column N%	
Number of bedrooms in the house	1	15	2.8%
	2	173	32.2%
	3	279	52.0%
	4	51	9.5%
	5	19	3.5%
During the period of compulsory distance education your place of study was:	Individual	405	75.4%
	Communal	132	24.6%
During the distance education period how functional was your study space?	Not at all	29	5.4%
	A little bit	75	14.0%
	Enough	179	33.3%
	Very	157	29.2%
	Very much	97	18.1%

Table 2.
Student study space.

During the period of compulsory distance education your place of study was		N	Mean	Std. Deviation	t	df	Sig. (2-tailed)
Literacy (SCCQ-42)	Individual	405	19.8	5.4	−2.135	535	0.033
	Communal	132	20.9	5.3			
Financial (FAPAE-19)	Individual	405	11.2	3.1	4.75	535	0.000
	Communal	132	9.7	3.3			

Table 3.
Student study space during distance education.

literacy and (FAPAE-19) financial capital subscales. A difference was found in the mean value of SCCQ-42 ($t = -2.135$, $p = 0.033$), so that if the study area was shared, the sample showed better literacy ($M = 20.9$, St. $D = 5.3$) than if it was individual ($M = 19.4$, St. $D = 5.4$). In addition, there is a difference in the mean value of FAPAE-19 ($t = 4.750$, $p = 0.000$), where it was found that if the study site was individual, the sample presented a better economic level ($M = 11.2$, St. $D = 3.1$) than the to be shared ($M = 9.7$, St. $D = 3.3$).

Table 4 shows the results of the *extraversion correlation*. It was found that *extraversion* shows a positive correlation with the number of family members ($r = 0.113$, $p = 0.009$), the number of bedrooms ($r = 0.133$, $p = 0.002$), the *Social dialectic of space* ($r = 0.146$, $p = 0.001$). Thus, based on the above, increased extraversion is positively related and depends on the number of members that make up a family, the number of bedrooms and whether the daily distance education took place in a functional study area of the student.

Table 5 lists the results of the correlation of the economic level with the number of rooms and, ultimately, the functionality of the study area. Thus, it was found

		How many members does your family consist of including your parents?	Number of bedrooms in the house	During the distance education period, how functional was your study area?
Extraversion (SCCQ-42)	Correlation Coefficient	.113**	.133**	.146**
	Sig. (2-tailed)	0.009	0.002	0.001
	N	537	537	537

Table 4.
Results of the extraversion correlation.

		Number of bedrooms in the house	During the distance education period, how functional was your study area?
Financial (FAPAE-19)	Correlation Coefficient	118**	271**
	Sig. (2-tailed)	0.006	0.000
	N	537	537

Table 5.
Results of the correlation of the economic level with the functionality of the space of study.

During the period of compulsory distance education, your place of study was:		N	Mean	Std. Deviation	t	df	Sig. (2-tailed)
Financial (FAPAE-19)	Individual	405	11.2	3.1	4750	535	0.000
	Communal	132	9.7	3.3			

Table 6.
Economic level and place of study.

that economic well-being shows a positive correlation with the number of bedrooms ($r = 0.118$, $p = 0.006$) and the *Social dialectic of space* ($r = 0.271$, $p = 0.000$), which means that the more rooms, the house has but also the more functional the study area, the greater the financial capital.

The results of testing the average values of the independent samples to investigate possible differences between the study site during distance education in terms of family economic level ($t = 4.750$, $p = 0.000$) demonstrate that when the study site was individual, participants showed greater value in the subscale (FAPAE-19) ($M = 11.2$, St. $D = 3.1$), in contrast to those who during the period of forced distance education studied in a common area ($M = 9.7$, St.$D = 3.3$) (**Table 6**).

6. Discussion of the results – Conclusions

The results of the research are important, and our findings are confirmed by the findings of other research conducted during the same period of the COVID-19 pandemic and are an important indicator of the consequences for learning when we experience major crises [68, 72, 86, 87, 91].

The first research question regarding the *social dialectic of the students' study space* demonstrated in our sample of students that the social dialectic of space affects both learning and the students' learning commitment and involvement in the active learning process. [economic well-being shows a positive correlation with the number of bedrooms ($r = 0.118$, $p = 0.006$) and the *Social dialectic of space* ($r = 0.271$, $p = 0.000$)]. A suitable learning space, isolated, quiet, functional and with sufficient means and tools, as well as a family support framework, balanced and adequate, not only materially but also psycho-emotionally, with positive interactions, positively influenced our students in maintaining and continuing their student status and commitment towards knowledge in the new learning environment formed in their home by distance education [58]. What is particularly important is that students should experience the learning process in an environment where they can construct, confirm the meaning of knowledge and produce new knowledge through their reasoning and continuous reflection.

The results of the research regarding the second question about financial capital, the social dialectic of the participants' study space and learning engagement, demonstrated a positive significant difference in learning engagement and financial capital between those who had an individual study space and those who had a shared study space. Students who had an individual study space had better values in financial capital [(M = 11.2, St.D = 3.1)] than those who had a shared study space [(M = 9.7, St.D = 3.3)]. This conclusion was also reached by other researchers in the same time period such as Aucejo et al. [91] and Dimopoulos et al. [72] who examined the difference in financial capital and how it affects learning, finding that the "availability and suitability of study space" differs from family to family, meaning that a high financial capital creates comfortable and orderly materialistic family contexts supporting learning. Appropriate digital equipment, family income and an appropriate learning environment are important triads for successful learning engagement [86]. Therefore, the difference in economic capital is a factor in differentiating the living conditions, and, thus the study area, which gradates the learning commitment accordingly. Financial resources, financial capital as defined by Bourdieu [75], Lundberg [80], Mylonas & Xanthopoulou [82], when it is high, as confirmed by research, also contributes to a high standard of living with specific characteristics of housing and living conditions, with a privileged family background that enhances the learning process and is a support factor [91].

Finally, it is demonstrated once again that in any circumstances, economic capital facilitates and directs social and cognitive processes so that meaningful and educationally valuable learning outcomes are achieved.

6.1 Limitations of the research

This research concerns a part of a research study that is being conducted at the University of Ioannina and has not been fully completed. Therefore, upon completion of the study, some elements of the research will be enriched and finalised. A basic limitation of the research concerns the time it was conducted, as a period of time has passed since the last stay-confinement of the students at home without in-person teaching. This probably differentiates the empirical situation, the feeling and the objectivity of their judgement. The awareness of the situation experienced by the students during confinement and e-learning in the pandemic family environment cannot be compared with the conditions of normality in the present (at the time of conducting the research); therefore, it cannot accurately and objectively be reflected

in the answers which were given. The research is based on random sampling, and the sample is not representative of all students of the University of Ioannina. However, despite the limitations mentioned above, this study allows capturing the learning situation during the COVID-19 pandemic and formulating hypotheses regarding the social dialectic of space, the financial capital and the learning commitment.

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References

[1] Mpampiniotis G. Dictionary of the New Greek Language. 2nd ed. Athens, Lexicology Center E.P.E.; 2002 (In Greek)

[2] Diamanti K, Nikolaou SM. Distance learning in the shadow of the Covid-19 pandemic in Greece. In: Academic Conference Proceedings. Virtual Conference. Education and Social Sciences – Business and Economics. Tasev HR, editor. Vol. 28. Skopje, Republic of N, Macedonia: Cyril and Methodius University; 2021. pp. 54-60

[3] Onyema EM, Eucheria NC, Obafemi FA, Sen S, Atonye FG, Sharma A, et al. Impact of the Coronavirus pandemic on education. Journal of Education and Practice. 2020;**11**(13):108-121

[4] World Health Organisation. Novel Coronavirus (2019-nCoV): Situation Report 10. Geneva, Switzerland: WHO; 2019

[5] World Health Organisation. Coronavirus Disease 2019 (Coivd-19): Situation Report 73. Geneva, Switzerland: WHO; 2020

[6] Li S, Wang Y, Yang Y, Lei X, Yang Y. Analysis of influencing factors of anxiety and emotional disorders in children and adolescents during home isolation during the epidemic of novelcoronavirus pneumonia. Chinese Journal of Child Health Care. 2020;**2020**:1-9

[7] Ozili P. Covid-19 in Africa: Socio-economic impact, policy response and opportunities. International Journal of Sociology and Social Policy. 2020;**42**(3/4):177-200

[8] Diamanti K, Nikolaou SM. Researching the social impact of the Covid-19 pandemic on students in Greece. European Journal of Development Studies. 2021;**1**(3):26-32

[9] Diamanti K, Barbarousis C, Nikolaou SM. Gender-based violence and femicide during the Covid -19 pandemic. Issues and research data. In: Proceedings of the P.T.D.E Ioannina International Scientific Conference "Education in the 21st Contemporary Challenges and Concerns". Vol. I. Ioannina: University Press; 2022. pp. 1079-1084. Available from: https://conf2022.ptde.uoi.gr/ (In Greek)

[10] Elmer T, Mepham K, Stadtfeld C. Students under lockdown: Comparisons of students' social networks and mental health before and during the Covid-19 crisis in Switzerland. PLoS One. 2020;**15**(7):e0236337

[11] Potamianos G, Anagnostakis G, Grammatikaki D, Simoudi X. The Experience of the Covid - 19 Pandemic. Psychological Implications. Athens: Papazisi; 2021 (In Greek)

[12] Diamanti K, Barbarousis C, Nikolaou SM. Friendship and socialization in the days of the Covid-19 pandemic crisis research analysis and suggestions. Journal of Social Science Studies. 2021;**8**(2):177-177

[13] Nikolaou SM. The effects on the socio-emotional state of students in the national exams in Greece from the Covid-19 pandemic-pilot research. European Journal of Education. 2020;**3**(1):61-69

[14] Saladino V, Algeri D, Auriemma V. The psychological and social impact of Covid-19: New perspectives of well-being. Frontiers in Psychology. 2020;**11**: 1-6. DOI: 10.3389/fpsyg.2020.577684

[15] Lorreta GY, Marango T, Chitongo L. The impact of social distancing as a response to Covid-19 among foreign students in Wuhan, China. The Mankind Quarterly. 2020;**61**(2):190-206

[16] Karasmanaki E, Tsantopoulos G. Impacts of social distancing during the Covid-19 pandemic on the daily life of forestry students. Children and Youth Services Review. 2021;**120**:1-7. DOI: 10.1016/j.childyouth.2020.105781

[17] Betthäuser BA, Bach-Mortensen AM, Engzell P. A systematic review and meta - Analysis of the evidence on learning during the Covid-19 pandemic. Nature Human Behaviour. 2023;**7**(3):375-385

[18] Cao W, Fang Z, Hou G, Han M, Xu X, Dong J, et al. The psychological impact of the Covid-19 epidemic on college students in China. Psychiatry Research. 2020;**287**:112934. DOI: 10.1016/j.psychres.2020.112934

[19] Kim SH, Park S. Influence of learning flow and distance e-learning satisfaction on learning outcomes and the moderated mediation effect of social-evaluative anxiety in nursing college students during the Covid-19 pandemic: A cross-sectional study. Nurse Education in Practice. 2021;**56**. DOI: 10.1016/j.nepr.2021.103197103197

[20] Liakopoulou E, Stavropoulou E. Distance education in the Greek school during the covid -19 period: Concerns, difficulties and actions taken to deal with them. In: 1st International Online Education Conference From the 20th to the 21st Century in 15 Days. Electronic version: Hellenic Documentation Center; 2021. pp. 331-341

[21] Martin AJ, Ginns P, Collie RJ. University students in Covid-19 lockdown: The role of adaptability and fluid reasoning in supporting their academic motivation and engagement. Learning and Instruction. 2023;**83**:1-10. DOI: 10.1016/j.learninstruc.2022.101712

[22] Zhao H, Xiong J, Zhang Z, Qi C. Growth mindset and college students' learning engagement during the COVID-19 pandemic: A serial mediation model. Frontiers in Psychology. 2021;**12**:1-10. DOI: 10.3389/fpsyg.2021.621094

[23] Elliott SN. In: Leontari A, Sygglitou E, editors. Educational Psychology: Effective Teaching, Effective Learning. Translated M. Solman, F. Kaliva. Athens: Gutenberg; 2008

[24] Shulman LS. Signature pedagogies in the professions. Daedalus. 2005;**134**(3):52-59

[25] Hrastinski S. What is online learner participation? A literature review. Computers & Education. 2008;**51**(4):1755-1765

[26] UNESCO. Distance Learning Strategies in Response to Covid-19 School Closures. UNESCO COVID-19 Education Response, Education Sector Issue Notes, No 2.1. 2020. Available from: https://unesdoc.unesco.org/ark:/48223/pf0000373305 [Retrieved: June 15, 2020]

[27] European Commission. Annual Activity Report 2021: Directorate-General for Education. Youth, Sport and Culture; 2022. Available from: https://commission.europa.eu/system/files/2022-05/annual-activity-report-2021-education-youth-sport-and-culture_en.pdf

[28] Fredricks JA, Blumenfeld PC, Paris AH. School engagement: Potential of the concept, state of the evidence. Review of Educational Research. 2004;**74**(1):59-109

[29] Skinner EA, Belmont MJ. Motivation in the classroom: Reciprocal effects of teacher behavior and student engagement across the school year. Journal of Educational Psychology. 1993;**85**(4):571

[30] Ying W, Mingxuan L, Qian Z, Shuxian Z, Yufang G, Kefang W. The mediating role of professional commitment between the clinical learning environment and learning engagement of nursing students in clinical practice: A cross-sectional study. Nurse Education Today. 2023;**121**:1-7. DOI: 10.1016/j.nedt.2022.105677

[31] Schaufeli WB, Martinez IM, Pinto AM, Salanova M, Bakker AB. Burnout and engagement in university students: A cross-national study. Journal of Cross-cultural Psychology. 2002;**33**(5):464-481

[32] Kuh GD. What we're learning about student engagement from NSSE: Benchmarks for effective educational practices. Change: The Magazine of Higher Learning. 2003;**35**(2):24-32

[33] Kuh GD. The national survey of student engagement: Conceptual and empirical foundations. New Directions for Institutional Research. 2009;**141**:5-20

[34] Tualaulelei E, Burke K, Fanshawe M, Cameron C. Mapping pedagogical touchpoints: Exploring online student engagement and course design. Active Learning in Higher Education. 2022;**23**(3):189-203

[35] Schaefer MB, Abrams SS, Kurpis M, Abrams M, Abrams C. Making the unusual usual: Students perspectives and experiences of learning at home during the Covid-19 pandemic. Middle Grades Review. 2020;**6**(2):n2

[36] Axelson RD, Flick A. Defining student engagement. Change: The Magazine of Higher Learning. 2010;**43**(1):38-43

[37] Coates H. Student Engagement in Campus-Based and Online Education: University Connections. New York: Routledge; 2006

[38] Kahu ER, Nelson K. Higher Education Research & Development. 2018;**37**(1):58-71

[39] Penrod D, Shaw T, Nash J, Dierkes M, Collins S. Community college students' perspectives on online learning during COVID-19 and factors related to success. Teaching and Learning in Nursing. 2022;**17**(3):267-271

[40] Stan MM, Topală IR, Necşoi DV, Cazan AM. Predictors of learning engagement in the context of online learning during the COVID-19 pandemic. Frontiers in Psychology. 2022;**13**:1-13. DOI: 10.3389/fpsyg.2022.867122

[41] Kearsley G, Shneiderman B. Engagement theory: A framework for technology-based teaching and learning. Educational Technology. 1998;**38**(5):20-23

[42] Astin AW. Student involvement: A developmental theory for higher education. Journal of College Student Development. 1999;**40**(5):518-529

[43] Garrison DR, Anderson T, Archer W. Critical inquiry in a text-based environment: Computer conferencing in higher education. The Internet and Higher Education. 1999;**2**(2-3):87-105

[44] Garrison DR, Arbaugh JB. Researching the community of inquiry framework: Review, issues, and future directions. The Internet and Higher Education. 2007;**10**(3):157-172

[45] Fredricks J, McColskey W, Meli J, Mordica J, Montrosse B, Mooney K. Measuring student engagement in upper elementary through high school: A description of 21 instruments. Issues & answers. REL 2011-No. 098. Regional Educational Laboratory Southeast. 2011. Available from: https://files.eric.ed.gov/fulltext/ED514996.pdf

[46] Dixson MD. Measuring student engagement in the online course: The Online Student Engagement scale (OSE). Journal of Asynchronous Learning Networks. 2015;**19**. n.pag. DOI:10.24059/OLJ.V19I4.561

[47] Brossard M, Cardoso M, Kamei A, Mishra S, Mizunoya S, Reuge N. Parental Engagement in Children's Learning: Insights for remote learning response during Covid-19, Innocenti Research Briefs, no. 2020-09. Florence: UNICEF Office of Research - Innocenti; 2020

[48] Ceka A, Murati R. The Role of Parents in the Education of Children. Journal of Education and Practice. 2016;**7**(5):61-64

[49] Sprague CM, Kia-Keating M, Felix E, Afifi T, Reyes G, Afifi W. Youth psychosocial adjustment following wildfire: The role of family resilience, emotional support, and concrete support. In: Child & Youth Care Forum. Vol. 44. US: Springer; 2015. pp. 433-450

[50] Gaxiola Romero JC, Pineda Domínguez A, Gaxiola Villa E, González Lugo S. Positive family environment, general distress, subjective well-being, and academic engagement among high school students before and during the Covid-19 outbreak. School Psychology International. 2022;**43**(2):111-134

[51] Brown P, Armitage R, Monchuk L, Newton D, Robson B. The COVID-19 lockdown and the impact of poor-quality housing on occupants in the UK. In: Housing and Home. Vol. 2. Bristol University Press; 2021. pp. 109-119

[52] Fisher J, Languilaire JC, Lawthom R, Nieuwenhuis R, Petts RJ, Runswick-Cole K, et al. Community, work, and family in times of Covid-19. Community, Work & Family. 2020;**23**(3):247-252

[53] Van den Eynde A, Claessens E, Mortelmans D. The consequences of work-family conflict in families on the behavior of the child. Journal of Family Research. 2020;**32**(1):123-144

[54] Wallon H. De l' Acte a la pensée. Paris: Flammarion; 1970

[55] Germanos D. The Walls of Knowledge. School Space and Education. Athens: Gutenberg; 2006. (In Greek)

[56] Schunk DH. Learning Theories. An Educational View. Athens: Metaichmio; 2010 (In Greek)

[57] Andersson J, Sadgrove J, Valentine G. Consuming campus: Geographies of encounter at a British university. Social and Cultural Geography. 2012;**13**:501-515

[58] Holton M. Living together in student accommodation: Performances, boundaries and homemaking. Area. 2016;**48**(1):57-63

[59] Card P, Thomas H. Student housing as a learning space. Journal of Geography in Higher Education. 2018;**42**(4):573-587

[60] Brooks DC. Space matters: The impact of formal learning environments on student learning. British Journal of Educational Technology. 2011;**42**(5):719-726

[61] Oliveras-Ortiz Y, Bouillion DE, Asbury L. Learning spaces matter:

Student engagement in new learning environments. Journal of Education. 2021;**201**(3):174-182

[62] Isambert-Jamati V, Maucorps JG. La sociologie de l'éducation. Current Sociology. 1972;**20**(1):5-49

[63] Rao K, Giuli C. Reaching remote learners: Successes and challenges for students in an online graduate degree program in the Pacific Islands. The International Review of Research in Open and Distributed Learning. 2010;**11**(1):141-160

[64] Venter K. Coping with isolation: The role of culture in adult distance learners' use of surrogates. Open Learning: The Journal of Open, Distance and e-Learning. 2003;**18**(3):271-287

[65] Brown SM, Doom JR, Lechuga-Peña S, Watamura SE, Koppels T. Stress and parenting during the global Covid-19 pandemic. Child Abuse & Neglect. 2020;**110**:1-14. DOI: 10.1016/j.chiabu.2020.104699

[66] Blackall M. There are now two classes, people with gardens and the rest of us. Lockdown UK: The Guardian; 23 Apr 2020. Available from: https://www.theguardian.com/world/2020/apr/23/trapped-in-coronavirus-lockdown-uk-no-garden-outside-space [Accessed: October 19, 2020]

[67] Preece J, McKee K, Robinson D, Flint J. Urban rhythms in a small home: COVID-19 as a mechanism of exception. Urban Studies. 2023;**60**(9):1650-1667. DOI: 10.1177/00420980211018136

[68] Bork-Hüffer T, Kulcar V, Brielmair F, Markl A, Immer DM, Juen B, et al. University students' perception, evaluation, and spaces of distance learning during the Covid-19 pandemic in Austria: What can we learn for post-pandemic educational futures? Sustainability. 2021;**13**(14):1-25. DOI: 10.3390/su13147595

[69] Örgev C, Kınalı G. Physical, psychological and social secondary consequences of the Covid-19 pandemic in Turkish University students. Global Challenges. 2022;**6**(7):2100098

[70] Sari E, Bittmann F, Homuth C. Explaining inequalities of homeschooling in Germany during the first Covid-19 lockdown. In: Frontiers in Education. Vol. 8. University of Cincinnati, United States: Frontiers; 2021. p. 1154389

[71] Van Lancker W, Parolin Z. COVID-19, school closures, and child poverty: A social crisis in the making. The Lancet Public Health. 2020;**5**(5):e243-e244. DOI: 10.1016/S2468-2667(20)30084-0

[72] Dimopoulos K, Koutsampelas C, Tsatsaroni A. Home schooling through online teaching in the era of Covid-19: Exploring the role of home-related factors that deepen educational inequalities across European societies. European Educational Research Journal. 2021;**20**(4):479-497. DOI: 10.1177/14749041211023

[73] European Commission. 2nd Survey of Schools: ICT in Education. Brussels: European Commission; 2019. Available from: https://ec.europa.eu/digital-single-market/en/news/2nd-survey-schools-ict-education

[74] Eurostat. Eurostat online database. Statistical Codes: ilc_lvho06; ilc_lvho04. 2019. Available from: https://ec.europa.eu/eurostat/data/database

[75] Bourdieu P. The Forms of Capital. In: Richardson JG, editor. Handbook of Theory and Research for the Sociology of

Education. New York: Greenwood; 1986. pp. 241-258

[76] Bourdieu P, Passeron CL. Heirs. The students and the culture. Import Panagiotopoulos N., Trans. In: Panagiotopoulos N, Vidali M, editors. Athens 2019 Pierre Bourdieu and Jean-Claude Passeron, les Heritieres: Les Etudiants et la Culture. Third ed. Paris: Les Editions de Minuit; 1985. p. 1985

[77] Giavrimis P. Sociology & Education: Theory & Research. Athens: Benou; 2022. (In Greek)

[78] Nikolaou SM. Theoretical Issues in the Sociology of Education. 2nd ed. Athens: Gutenberg; 2009. (In Greek)

[79] Lundberg GA. The measurement of socioeconomic status. American Sociological Review. 1940;**5**(1):29-39

[80] Lundberg E. Gunnar Myrdal's contribution to economic theory. The Swedish Journal of Economics. 1974;**76**(4):472-478

[81] Wani RT. Socioeconomic status scales-modified Kuppuswamy and Udai Pareekh's scale updated for 2019. Journal of Family Medicine and Primary Care. 2019;**8**(6):1846-1849

[82] Mylonas K, Xanthopoulou X. The measurement of socio -economic level: An alternative methodological and statistical approach. Psychology. 2007;**14**(1):76-95

[83] Brooks-Gunn J, Duncan GJ. The effects of poverty on children. The Future of Children. 1997;**7**(2):55-71

[84] Chetty R, Jackson MO, Kuchler T, Stroebel J, Hendren N, Fluegge RB, et al. Social capital I: Measurement and associations with economic mobility. Nature. 2022;**608**(7921):108-121

[85] Doyle O. Covid-19: Exacerbating educational inequalities. Public Policy. 2020;**9**:1-10

[86] Egalite AJ. How family background influences student achievement. Education Next. 2016;**16**(2):70-78

[87] Andrew A, Cattan S, Costa Dias M, Farquharson C, Kraftman L, Krutikova S, et al. Inequalities in children's experiences of home learning during the Covid - 19 lockdown in England. Fiscal Studies. 2020;**41**(3):653-683

[88] Sison LP Jr, Abuda KNB, Abad MA, Abarca AND, Abayon DRO, Abeleda HEP, et al. The Filipino family in a pandemic: A crosssectional study on the state of the household environment of Covid-19 patients in the. Health Sciences Journal. 2022;**11**(1):1-1

[89] Devkota KR. Inequalities reinforced through online and distance education in the age of Covid-19: The case of higher education in Nepal. International Review of Education. 2021;**67**(1):145-165

[90] Bryman A. In: Aidanidis A, Sakellariou P, editors. Social Research Methods. Athens: Gutenberg; 2017

[91] Aucejo EM, French J, Araya MPU, Zafar B. The impact of Covid-19 on student experiences and expectations: Evidence from a survey. Journal of Public Economics. 2020;**191**:1-15. DOI: 10.1016/j.jpubeco.2020.104271