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A Qualitative Analysis of Implementing E-Learning during the COVID-19 Lockdown

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Abstract: The existing literature evidences the potential of the e-learning methodology, although some call it into question. Our study aimed to analyse the real scope of applying this methodology type to a lockdown situation like that caused by COVID-19. It could provide the scientific and educational community with useful novel information on e-learning and its real adequacy for schools in pre-university educational stages. This qualitative study was designed using questionnaires with open-ended questions for students and semistructured interviews for teachers, management board members, and families of students of Primary and Secondary Education. The scripts of data collection tools were made ad hoc. The thematic analysis was carried out in accordance with the study dimensions by relating the access and use of technological resources in classrooms, implementing the e-learning methodology during face-to-face teaching, and finally knowing the effects of its application during remote teaching in the lockdown situation. The results clearly show a need to adapt and adjust the implementation of this methodology by considering not only its specificities, but also a combination of e-learning and traditional teaching methodologies can help to introduce information and communication technologies (ICT) into classrooms. To conclude, including such a methodology in the educational context can be argued for, provided that specific training is received to allow the potential of both online and traditional teaching to be leveraged.

Keywords: e-learning; coronavirus; primary; secondary; blended learning

Citation: Peñarrubia-Lozano, C.; Segura-Berges, M.; Lizalde-Gil, M.; Bustamante, J.C. A Qualitative Analysis of Implementing E-Learning during the COVID-19 Lockdown. *Sustainability* **2021**, *13*, 3317. https://doi.org/10.3390/su13063317

Academic Editor: Marc Alier

Received: 2 February 2021
Accepted: 13 March 2021
Published: 17 March 2021

1. Introduction

The effective integration of new technologies into training systems is becoming a basic requirement in today's globalised world [1]. Information and communication technologies (ICT) as an aid to teaching models can provide valuable learning resources and equip students with the personal and professional competencies required for their development [2–4]. Hence, these tools increase the level of significance and broaden the education conception by generating new training spaces among educational community members [5–7].

Initially, e-learning [8–11] was only linked to the use of personal computers. However, it is now supported by systems that promote the creation of learning networks, interaction, communication, and access to platforms from mobile devices, and is now being included in not only educational designs and programmes, but also in online learning activities [12].

E-learning [12–15] is outlined as a teaching and learning modality that can represent all or part of the educational model to which it is applied, and use electronic media and devices to facilitate access to, and the evolution and improvement of, the quality of education and training [16,17]. E-learning is a methodology that involves employing network technologies to create, foster, deliver, and facilitate learning anytime and everywhere [18]. At the same time, four features must also be considered in its conceptualization: physical separation of teachers and students; students' autonomous study; the interaction between

participants in the teaching-learning (T/L) process through different digital synchronous and asynchronous communication-tools; the existence of institutional support [19–22].

Its implementation in teaching implies access to technological and digital resources. Prior work on familiarisation with and understanding of the proper use of these resources is also necessary [23]. Therefore, being familiarised with this teaching methodology, which is based on using ICT in more traditional teaching, will allow for individualised learning. This may generate a wide range of materials and make access to them more flexible [24,25]. As a result, the e-learning effects on the T/L process are felt not only in the quality of learning, but also in the role played by educational agents (teachers and students), which supports the creation of a better equipped assessment and marking system [26–28].

By focusing on the different agents involved in the educational community, management board members positively view the set of transformations that have brought about structural change in methodologies to allow knowledge acquisition to have other sources from which to access information. Teachers perceive ICT-based teaching models as valuable resources thanks to their teaching and educational potential. However, they state that their use is normally irregular, sporadic, and intermittent. They also consider the continuous training aspect to be particularly relevant for the effective implementation of technologies into classrooms [3,29,30].

For students, using technology increases their motivation, which means them taking a more favourable attitude towards the academic tasks set by teaching staff, and it also increases their engagement in the learning process [14,31]. Moreover, students themselves value the significant amount of interaction involved in these types of online learning platforms by appreciating the good atmosphere that it creates and the opportunity to share ideas and resources with peers [32]. However, we also found that, due to physical absence, some students perceive virtual environments as distant, which implies isolation among peers [33]. Therefore, students perceive flexibility and improved learning outcomes as positive aspects of technology-enhanced learning, but are concerned about flexibility in self-paced learning, self-motivation problems, lack of human interaction, and teamwork encouragement [34]. As a matter of fact, it is still unclear whether students better perform academically when such a methodology is applied [35,36]. Finally, the digital divide, lack of understanding of tools that provide reliable information and training in digital skills must all be considered [37,38].

Apart from the involvement of teachers, management board members, and students, families are also interested parties, as employing ICT provides new perspectives. They can be used to keep families informed, to involve them in young children and teenagers' schooling, and to foster relationships among the family, the school and the community as a whole. It is, therefore, necessary to encourage all education community members to become e-learning producers and not merely consumers [39,40].

In relation to this aspect, it has been shown that family emotional support plays a significant role in predicting the effects of learning through e-learning [41,42]. It would, thus, seem necessary for all possible information and means of communication through technological resources to be made available to families, which would allow a social network to be created between the school and family. Accordingly, cooperation is particularly important as a key aspect of family participation in e-learning spaces, and is something that is increasingly being offered by more schools [39].

This profound change in the educational paradigm renders students the cornerstone of the process, and makes trainers and families the managers of student learning. These requirements and needs of all the agents fundamentally emerge from the information and knowledge society context, and shift the focus from teaching to learning [43].

The situation generated by COVID-19 (commonly known as coronavirus) has led educational administrations worldwide to opt overnight for a teaching methodology based on using ICT and e-learning to continue with their curricula [26]. Despite the advantages it offers, such as flexible schedules, this methodology also has certain limitations like the participants' (teachers and students) access to resources and digital literacy levels, as well

as loss of social relationships that can lead to higher stress levels than those already caused by coronavirus [2,16,26]. Hence, the first research question was to find out how e-learning has actually been adopted in different pre-university educational stages (before and during the COVID-19 lockdown), and what resources and activity types have been used. We also wondered about the real e-learning methodology scope given the lockdown situation by considering the perspective of the different agents involved in the education process (students, teachers, families, management board members).

Therefore, the purpose of this qualitative study was to analyse the usefulness and applicability of the e-learning methodology to promote remote learning during a crisis like that caused by COVID-19. Based on this situation and the presented analysis, we sought to determine what aspects should be considered at different levels to adapt the use of the e-learning methodology to the education context. This study sought not only to offer the scientific and academic community empirical evidence, but to also to provide the education community with useful psychodidactic material.

2. Materials and Methods

2.1. Participants

Students, teachers, and management board members from Primary and Secondary Education schools participated in the study, as did the families of those students learning these levels of education (see Table 1). This sampling was done following a convenience sampling process and taking into account several criteria: gender-parental role (Woman—Mother/Man—Father), level of education (Primary/Secondary/Non-compulsory Secondary), type of educational institution (State/Private), and availability and willingness to participate. There were 30 participants in the student category (average age 13.87 $\pm$ 3.29 years): 11 (36.67%) females and 19 (63.33%) males; 12 (40%) from state schools and 18 (60%) from private schools; 10 (33.33%) from Primary Education schools, 10 (33.33%) from Secondary Education schools, and 10 (33.33%) from Non-Compulsory Secondary Education centres. There were 29 participants in the teacher category (36.34 $\pm$ 8.8 years): 10 (34.48%) females and 19 (65.52%) males, 15 (51.72%) from state schools and 14 (48.28%) from private schools, and 19 (65.52%) from Primary Education schools and 10 (34.48%) from Secondary Education schools. There were six participants who were management board members (44 $\pm$ 5.77 years): 3 (50%) females and 3 (50%) males, 3 (50%) from state schools and 3 (50%) from private schools. There were 25 participants in the family category (46.6 $\pm$ 5.28 years): 13 (52%) women—mothers and 12 (48%) men—fathers, 10 (40%) from state schools and 15 (60%) from private schools, and 11 (44%) from Primary Education schools, 8 (32%) from Secondary Education schools and 6 (24%) from Non-Compulsory Secondary Education centres. It is necessary to point out that the teachers participating in the study teach at both Secondary Education schools and in Non-Compulsory Higher Secondary Education. Similarly, management board members are a reference for the three considered education stages (Primary, Secondary, and Non-Compulsory Secondary). Hence, there were no statistically significant differences in the distribution of the criteria of interest variables in any groups forming our sample ($p > 0.05$).

2.2. Ethics

This study was appraised favourably by the Clinical Research Ethics Committee of Aragón (Spain) in its Minutes N.: 14/2020. Participation in the study was voluntary based on informed consent. The student consent form was filled out by a family member.

2.3. Data Collection Procedure

The presented qualitative data were collected in April and May 2020 during the COVID-19 lockdown. The data collection process was carried out in the same way and by the same two trained interviewers (researcher 1 and researcher 2). Firstly, an e-mail with an invitation to participate in the study was sent. Then a link to Google Forms showing informed consent and the request for sample identification data was sent. The

scripts of the data collection tools were prepared ad hoc in line with previous consulted studies [17,20,23,27]. For students, research was conducted using an open-ended questionnaire (see Supplementary Material; S1: Open-ended questionnaire for students and questions for individual semistructured interviews). This open-ended questionnaire was completed using the same previously cited link. It consisted in responding in writing to eleven open questions, such as: "How do you think you are currently behaving in your role as a student during lockdown?" or "Do you think that the non-face-to-face monitoring of all the subjects by technology is helping you in your learning and academic performance? What difference do you perceive in relation to face-to-face monitoring?" It took 20 min to complete on average. Individual semistructured interviews were conducted online for teachers, management board representatives, and family members. Interviews consisted of open questions (see Supplementary Material; S1: Open-ended questionnaire for students and questions for individual semistructured interviews), such as "What advantages does this teaching model based on using technologies and the Internet offer?" or "What kind of barriers do you think you can find when carrying out this methodology based on using technologies and the Internet?" Interviews were conducted using Zoom, Skype, and Google Meet, and their average duration was 30 min.

Table 1. Information about participant selection.

Education Community Agent		**Students**		**Teachers**		**Families**		**Management Boards**	
Data Collection Technique		**Questionnaire**		**Interview**		**Interview**		**Interview**	
Gender		**M**	**F**	**M**	**F**	**M**	**F**	**M**	**F**
State School	Primary Education	1	2	3	7	4	1		
	Secondary Education	1	3	5	-	-	2	2 **	1 **
	Non-compulsory Secondary Education	4	1	*	-	1	2		
Private/ State-subsidised Private School	Primary Education	4	3	6	3	4	2		
	Secondary Education	5	1	5	-	3	3	1 **	2 **
	Non-compulsory Secondary Education	4	1	*	-	-	3		
	Total	19	11	19	10	12	13	3	3

Note: M = male; F = female; * = the teacher teaches compulsory and non-compulsory secondary education; ** = management board members are not involved in one specific educational stage.

This data collection strategy allowed mixed triangulation: triangulation of observers (management board representatives, teachers, pupils, families), triangulation of researchers (researcher 1, researcher 2), and triangulation of instruments (semistructured interviews and open-ended questionnaire).

The Consolidated Criteria for Reporting Qualitative Research (COREQ) checklist with further details of the qualitative design is included in the Supplementary Material (S2: The Consolidated Criteria for Reporting Qualitative Research (COREQ) 32-item checklist).

2.4. Analysis

A thematic analysis was conducted, which was both deductive (to study the previously raised problems and elements) and inductive (allowed new issues to emerge) [44,45]. The initial category tree was constructed following a deductive logic based on the existing literature. The operational definitions of the information units forming this tree are found in the Supplementary Material (S3: Classification tree, coding sheets). The Nvivo software (version 12 Plus, https://www.qsrinternational.com/nvivo/home (accessed on 16 March 2021)) was used to conduct the analysis. Firstly, a concordance analysis was performed of the two researchers (researcher 1, researcher 2) regarding interviews conducted with students (n = 6, 20%). The resulting kappa coefficient was k = 0.91. In this first analysis, it also appeared that four units of emerging information needed to be incorporated into the category tree (see Supplementary Material; S3: Classification tree, coding sheets). A second interpersonal reliability analysis was undertaken by focusing on the interviews

held with family members, teachers, and management board representatives (n = 12, 20%), the result of which was k = 0.86. So, the analysis was completed by only one researcher (intrapersonal coefficient of k = 0.91). All the participants remained anonymous.

3. Results

Quantitative descriptive analyses were previously performed with the obtained data (see Table 2). This information was used as an indicator to direct the thematic analysis, similarly to one of our previous studies [46]. More specific descriptive analyses are found in the Supplementary Material (S3: Classification tree, coding sheets).

Table 2. Descriptive data analysis.

Classification Tree	Code Stu		Code Fam		Code Tea		Code MMB	
	N	%	N	%	N	%	N	%
1. Accessing technological resources	17	3.02	87	11.24	128	11.58	26	9.52
1.1. Resources availability	10	1.78	49	6.33	66	5.97	17	6.23
1.1.1. At school	3	0.53	17	2.20	25	2.26	7	2.56
1.1.2. Outside school	7	1.25	32	4.13	41	3.71	10	3.66
1.2. Autonomy	7	1.25	38	4.91	62	5.61	9	3.30
1.2.1. Usage habits	7	1.25	38	4.91	62	5.61	9	3.30
2. Assessing ICT and e-learning in face-to-face teaching	72	12.81	162	20.93	241	21.81	70	25.64
2.1. Using ICT in teaching	52	9.25	37	4.78	51	4.62	13	4.76
2.1.1. Use	32	5.69	27	3.49	24	2.17	9	3.30
2.1.2. Function	20	3.56	10	1.29	27	2.44	4	1.47
2.2. Assessing ICT in context	19	3.38	38	4.91	57	5.16	18	6.59
2.2.1. Opinion on suitability for use and function	19	3.38	38	4.91	57	5.16	18	6.59
2.3. Specific training	1	0.18	87	11.24	133	12.04	39	14.29
2.3.1. Specific training in teaching tools	1	0.18	59	7.62	90	8.14	25	9.16
2.3.2. Suitability of the school	0	0.00	28	3.62	43	3.89	14	5.13
3. Effects of e-learning on remote teaching and lockdown	473	84.16	525	67.83	736	66.61	177	64.84
3.1. Adapting ICT to content and subjects	106	18.86	142	18.35	245	22.17	62	22.71
3.1.1. Platforms and applications used	34	6.05	24	3.10	33	2.99	11	4.03
3.1.2. Relevance of ICT to different areas	5	0.89	5	0.65	12	1.09	3	1.10
3.1.3. Role of ICT	9	1.60	0	0.00	22	1.99	1	0.37
3.1.4. Benefits	21	3.74	35	4.52	57	5.16	13	4.76
3.1.5. Difficulties	33	5.87	49	6.33	60	5.43	23	8.42
3.1.6. Diversity outreach	4	0.71	29	3.75	61	5.52	11	4.03
3.2. Methodology	191	33.99	163	21.06	180	16.29	44	16.12
3.2.1. Approach to tasks and materials	74	13.17	20	2.58	17	1.54	9	3.30
3.2.2. Monitoring and assessing	8	1.42	31	4.01	47	4.25	12	4.40
3.2.3. Activity types	2	0.36	28	3.62	35	3.17	9	3.30
3.2.4. Main roles: students and teachers	107	19.04	84	10.85	81	7.33	14	5.13
3.3. Facilitating elements	11	1.96	10	1.29	12	1.09	1	0.37
3.3.1. Personal aspects	11	1.96	8	1.03	2	0.18	1	0.37
3.3.2. Contextual aspects	0	0.00	1	0.13	9	0.81	0	0.00
3.3.3. Technical/technological aspects	0	0.00	1	0.13	1	0.09	0	0.00
3.4. Limiting aspects	37	6.58	35	4.52	76	6.88	18	6.59
3.4.1. Personal reasons	14	2.49	17	2.20	35	3.17	13	4.76

Table 2. *Cont.*

Classification Tree	Code Stu		Code Fam		Code Tea		Code MMB	
	N	%	N	%	N	%	N	%
3.4.2. Contextual reasons	3	0.53	8	1.03	24	2.17	4	1.47
3.4.3. Technical/technological reasons	20	3.56	10	1.29	17	1.54	1	0.37
3.5. Effects on learning and emotions	46	8.19	95	12.27	114	10.32	23	8.42
3.5.1. Assessing perceived learning	33	5.87	30	3.88	31	2.81	2	0.73
3.5.2. Psychological perception	13	2.31	65	8.40	83	7.51	21	7.69
3.6. Supporting agents	82	14.59	80	10.34	109	9.86	29	10.62
3.6.1. Teachers	4	0.71	6	0.78	34	3.08	7	2.56
3.6.2. Family members	36	6.41	49	6.33	51	4.62	17	6.23
3.6.3. Classmates and friends	42	7.47	25	3.23	24	2.17	5	1.83

Note: Stu = Students; Fam = Family members; Tea = Teachers; MMB = Members of management boards; N = number of times that the variable was encoded; % = percentage of the total encoded references; ICT= Information and Communication Technologies.

The thematic analysis results are presented below. To reinforce them, they were accompanied by textual fragments obtained directly from the conducted interviews. The coding system to identify each fragment was composed of the following elements: a number (01 to 27), and a descriptor of the educational agent ("Fam" for family members; "MAE" for Primary Education teachers; "PRO" for Secondary Education teachers; "DIR" for management board members). Finally, for students and family members, the education stage they belonged to was added ("PRI", Primary Education; "ESO", Compulsory Secondary Education; "BAC", Non-Compulsory Secondary Education).

3.1. Access to Technological Resources

3.1.1. Resources Availability

Before analysing the way in which the e-learning methodology is to be implemented, it is useful to know the starting point in terms of access to resources and the network. In this way, both families and teachers mentioned the availability of, and general access to, technological devices, especially in personal and family environments outside school: In general, everyone has access to the Internet, but they use it in different ways (07FAMBAC). Management board members stated the same. In line with 05DIR, regarding devices, maybe not everyone has a mobile phone, but 98% of families do. Moreover, teachers highlighted that this availability of technological resources is better in the family environment than at school itself: "Technological resources have been installed at some point in the past, but have not been updated since. The equipment that was installed 12 years ago drew people's interest, but it is now obsolete. Management at school has been poor" (16MAE). Albeit to a lesser extent, students also valued this better access in the family context compared to the school context.

3.1.2. Autonomy

Regarding category 1.2, Autonomy, understood as the ability and habit of using ICT, families and teachers attached the most importance to habits of using technological devices. Families highlighted that their level of understanding of possibilities, as well as their use, was very basic and leisure-oriented: "I have the feeling that there is some very good technology, but the way we use it is very basic, very simple" (08FAMESO). They also believed that students tended to be more regular users and there were differences in this respect among teachers: "Yes, students are, but I think that there is everything under the sun for teachers. Some do, but others have no idea" (12FAMESO). These perceptions coincided with the reflections made by both students and some teachers. In line with this, students displayed the highest level of autonomy in employing different technological devices: "On my own, I use my mobile phone and computer a lot to look for information I need because you can find it more quickly that way" (10BAC).

Moreover, teachers acknowledged that their usage habits were determined by personal factors, such as age or interest in using technology:

> "On a day-to-day basis, it depends on a teacher's age or profile. It even depends on their opinions of methodologies. Because you know that this is all a bit related. I mean, you include the methodology you want to use and, if you are convinced by it, then you use more or less technology" (10PRO)

3.2. Assessment of ICT and E-Learning in Face-To Face Teaching

3.2.1. Using ICT in Teaching

The results obtained in category 2.1, Use of ICT in teaching, which refers to a face-to-face teaching situation prior to the COVID-19 lockdown, showed an intermittent use of technologies in classroom teaching and them being employed as a teaching aid when presenting new content. Students and teachers coincide as 12 BAC states that they used ICT exclusively to do assignments, clarify anything they might be unsure about in exercises, and to make neat copies of their notes, but just as an additional tool for teachers' classes. Teachers also considered that these technologies were more useful for students than for teaching itself:

> "I believe teachers are gradually incorporating new technologies to prepare and teach their classes. But it is true that they do so in a very basic way. And I would say that they do this while thinking more about the benefits for students rather than for teachers." (13PRO)

> Albeit to a lesser extent, families also agreed with the teachers and students' views: "I think they (my offspring) have digital whiteboards, but they don't use them a lot. I also think that they have many tools at their disposal nowadays to make classes much more enjoyable" (11FAMPRI)

3.2.2. Assessment of ICT in Context

The opinion that educational agents had of using ICT in classrooms was analysed in the category 2.2, Assessing ICT in context. Students had a very favourable opinion of technologies being present in the educational environment. They perceived them as an opportunity to promote quality in the T/L process: "They help to improve and try to be equally as productive and efficient without being in the classroom, and they provide great learning and performance support" (08ESO). To a great extent, this vision was shared by management board members. Furthermore, they also viewed ICT implementation as a way to incorporate recommendations in education legislation. In this vein, 08DIR states that they are necessary because it is in the syllabus. It is laid out as a goal, content, and as assessment criteria. This was a common opinion among different management board members:

> "An alternative way of working with different methodologies seems very positive to me. Because it's also true that kids know how to use them properly, because they are usually very intuitive and they understand it immediately. But not only for this reason. It's just that nowadays technologies have to be in the classroom because they are already outside it. At the end of the day, they have to be there. One way or another, they have to be present" (05DIR)

In our study, families and teachers also highlighted the motivational potential of ICT. However, unlike students, they did not refer to quality of learning or the teaching process, but attached more importance to the technology type and how present it actually was in the classroom. They noted that technologies did not need to be fully adapted to every classroom activity, but could be envisaged as merely another resource or support tool: "I think it is just another resource. Of course, it's attractive, but it's just another resource. I think they should be used because I use them. But it's just something else" (02FAMESO). An overwhelming majority favourably considered using ICT in the classroom. However,

they also highlighted that their use should be limited to a specific time with suitable guidelines and as an added element to classroom teaching:

> "I believe that technology is important nowadays. But why use it? Let's see. If it is going to bring something new, I think it is important to use it. But it often feels as if technology is a must for every activity and we are basically forgetting how to write, how to strengthen our hands. So this leads to a kind of technophile trend, but it doesn't add anything because the basis isn't how to improve, but it is being implemented as a way of teaching and I think that it should complement other things" (10MAE)

3.2.3. Specific Training

Category 2.3, Specific training, refers to teachers and students' training in using technologies in the education field, and to schools being adapted in terms of networks and facilities. Regarding teacher training, teachers, families, and management board members identified lack of teacher training and noted that younger teachers tended to have benefitted from more training:

> "I believe that it depends on the teacher, of course. I mean, some teachers have grown up with this technology, so yes. But other teachers have the same issues as 90% of parents" (09FAMESO)

Moreover, they referred to varying and differing training levels in the various areas making up the education system. This meant that teachers did not tend to either be specialised or receive much specific ICT training:

> "Teachers not so much. It is true that there is a lot of training nowadays. When you don't work, you can enrol for lots of courses, but there is also so much demand for training in other fields so, as I said before, you stick to what you already know and, of course, you are specialised in other areas that have actually been very important for school" (09DIR)

Furthermore, teachers, families, and management board members also pointed out that schools are not equipped enough in terms of networks and facilities. However, there were different underlying reasons for this situation. First of all, teachers explained that this situation was due to the considerable financial investment involved in replacing and remodelling computer resources at school. In this vein, 23MAE states the following: "Well, I think that small steps can be taken forward in this matter at schools. At the same time, I believe that new technologies incur a vast investment for schools and not all of them have the same available resources." Teachers made it clear that progress was being made in this regard, with improvements in connectivity: "Years ago, the school decided to implement network access systems that have been renewed and improved in both connectivity and equipment terms" (25MAE). However, a general consensus has been reached about having to make more investments in maintenance and renewing computer equipment itself, as stated by 14PRO:

> "Most of them don't. I think that bigger investments are required. They have the resources, but don't have everything they should have. The required financial investment is significant and it seems that no money is available. Plus, the resources that they have are now out-dated and not very useful. We need to improve considerably in this regard."

Management board members agreed with teachers about the high financial and investment costs of fitting out schools with technological resources. They also, however, referred to lack of support and funds from authorities to provide schools with resources:

> "I mean, if the authorities really want these technologies to be used, they should provide more help. Equipment often works thanks to voluntary teacher efforts because there are always people who are more technology-minded and they get it up and running in the end" (05DIR)

Families understood that this limited use of technological resources was directly related to lack of teacher training, as mentioned above, rather than being a financial aspect: "I don't think so either. I believe it is down to teacher training. I don't think the financial aspect plays much in this matter" (04FAMBAC). This teacher emphasised teachers' attitude when using these resources. Indeed, teachers stated that schools had the available resources (regardless of them being newer or older) and were not often used due to a lack of teacher involvement. 07FAMPRI summarises it as follows: "It all comes down to lack of infrastructure, training resources and willingness, which is, to an extent, the result of the first two aspects."

3.3. Effects of E-Learning in Remote Teaching and Lockdown

3.3.1. Adaptation of ICT to Content and Subjects

Platforms and Applications Used

In category 3.1, Adapting ICT to content and subjects, the participants numbered and described the resources used to perform teaching during confinement. Thus, the use of the Google Classroom platform, a part of Google's Gsuite, and the school platform or its own website as the main means of communicating and presenting academic tasks in remote teaching stood out: "They are mainly from Google because, as we all already have Google accounts, so we extended this to all our students. We created a Google account for them, and then we used all those tools" (10PRO).

Students also highlighted using the Google Classroom platform as their main working tool: "We use a digital platform from Google called Classroom in which teachers include the syllabus we need to learn" (10BAC). Regarding the main devices used during lockdown, they highlighted computers and tablets, especially for accessing email. Moreover, all the educational agents stressed that these platforms were employed systematically for almost every knowledge area: "I know they use Google Classroom for every subject, and sometimes the school's own platform" (02FAMBAC).

Benefits

On the advantages of using e-learning in remote teaching, teachers and management board members highlighted the ability to access multiple resources, together with being able to present information to students in a more attractive manner and, therefore, making it more appealing to them: "The main advantages are that the model is appealing and very visually intuitive, so it can be accessed whenever and wherever, and it also offers many resources" (08PRO).

In the same way, teachers and management board members understood that it allowed for teacher-students interactivity during the teaching-learning process:

> "Interactivity, being able to access lots of resources and also motivating students. All online resources motivate. Students seem to be more attracted to this methodology type because they view it in a digital format; they have to use new tools and they like that. In general, I see interactivity and motivation as the greatest advantages" (08DIR)

About the benefits associated with e-learning, students highlighted that they acquire more autonomy for organising tasks and being able to carry them out at different times: "I think classroom learning is easier for us, but remote learning can be beneficial as we can better organise our time and we have more time to do homework" (01ESO). Families also agreed, as stated by 09FAMESO: "The fact that they can organise themselves in their own way and it not involving them to resort to a set schedule. The fact that each student can do their work whenever they want to, as long as they complete the work set for them, is a clear advantage."

Difficulties

Once the participants had pointed out the possible advantages of using e-learning, this also showed the perceived disadvantages of this methodology type. Thus, both families

and students agreed that the main ones were difficulties in monitoring tasks, longer time waiting for any solved queries, and lack of socialisation and peer-to-peer learning. The consideration of 02ESO served as an example: "Because the explanations were given by the teacher in class. If something was not understood, it was explained again, and then exercises were corrected in class". In the same way, 12FAMESO emphasised the importance of going over and correcting the tasks that students did:

> "Depending on how many classes you teach, if you have to set homework tasks and correct them, it's not the same as correcting them in class and having everyone correcting themselves at the same time to see what has been done well and what has not. Well, you see, that can be a disadvantage as correcting assignments takes up more of teachers' time than it would have in class where you can correct them all together and everyone sees this and learns from it."

However, management board members and teachers noted the following disadvantages: "It was more time-consuming to work in this way and adapting to this methodology type. In this line, both agents argued that it was more time-consuming because they needed to learn by themselves how the different applications worked: the disadvantage is that if there is nothing planned beforehand, it's not useful, so we are constantly going against the tide. This model is useless if implemented with no preparation" (04DIR). At the same time, other opinions claimed that it was impossible to really monitor students' learning process and objectively assess their attitude towards doing homework. In line with this, 13PRO expresses the following concern:

> "However, it will be difficult to know if students are paying attention, participating and not being distracted by other things that they didn't have in class, but do now. This makes remote teaching quality worse than classroom teaching."

Diversity Outreach

One of the points that defined the real effect of using an e-learning methodology was the degree of reaching out to and adaptation to all students. Moreover, bearing in mind a key methodological principle like attention to diversity, the teachers in our study believed that using e-learning allowed them to individualise the homework of each student according to his/her needs. In this way, 11MAE considers that, in fact, it has now become even more individualised. The opinion set out in 15MAE's was similar. In their class group, it was possible to adapt the contents on the platforms used to assist all their students:

> "Right now, I have two students with significant individualised curricular adaptation (ACIS in Spanish), and I give them individualised homework. Even if the boy is in P5 and the girl is in P4, if their activity relates to the first cycle, I do not set them the same homework even if they are in P4 on Google Classroom".

However, the teachers highlighted the need and importance of face-to-face teaching for both teachers and students to be able to carry out continuous work with a view to meet educational requirements and improve students' academic development. Furthermore, the most frequently repeated opinions were that students with specific educational needs were the group of students whose learning was most affected by remote teaching:

> "If I may say so, those most impacted by this situation are students with special needs, especially students with specific educational support needs. Bear in mind that at my school, there are children with autism spectrum disorders, Asperger's syndrome, hyperactivity, and attention deficit disorder. I think it' important hat families... I don't think families need to understand educational psychology or hearing and speech, which of course can help in these situations. I think they are most affected" (09MAE)

3.4. Methodology

3.4.1. Approaching Tasks and Materials

The first of the elements to determine the analysis of category 3.2 Methodology, an essential principle in the T/L process, referred to the type of created materials and the approach with which they were proposed. Students were the agents who most often reported excess workload when remote teaching is used compared to previous classroom teaching evaluations: "What we are doing now compared to the first assessments is different because, in the latter, we do lots of assignments and activities which we do not normally do with classroom teaching" (02BAC). In the same way, they stated that the work pace was faster and that homework organisation was very tight in terms of the time it took to complete the assignments set by different teachers: "I believe that it is not proportional. Teachers give us much more homework than when we were at school, and this takes a lot longer to do" (10ESO).

3.4.2. Activity Types

Teachers, families, and management board members agreed that the type of activities they set for students were mainly individual rather than collaborative: "Clearly individual. They play it safe and quick. I don't think that setting collaborative tasks in this situation makes any sense at all. Besides they would find it difficult" (06FAMBAC). For collaborative work purposes, it also seemed necessary to highlight that these agents were unsure about the effectiveness of group work in remote learning, and they showed a clear need for prior classroom work for this task type:

> "At the moment, activities are based on individual work, I believe that remote group work requires prior training that we haven't been able to do in class. I mean, collaborative work can be done if it is well thought-out, but right now it is all individual work" (24MAE)

3.4.3. Monitoring and Assessing

About monitoring and assessing assignments, teachers' general opinion was one of uncertainty towards truly unbiased assessments and marking different assignments. In line with this, 16MAE states as follows: "These elements ensure that students have done the work, but do not guarantee that learning has taken place. It proves their work. This cannot be equated to acquired knowledge. I wouldn't dare to give them a mark". However, both teachers and management board members emphasised the systematic work in the approach and monitoring assignments: "All the assignments are being monitored, as set out in the organisation and flexibility instructions for the third term" (02DIR).

Families highlighted that the activities applied by teachers to assess students varied and they were often unsure as to whether collected evidence was directly related to what was learnt:

> "A teacher holds a video conference because he/she wants to. Another teacher sends a document with a list of exercises and then returns them corrected. I don't see a joint strategy. I don't see a method being followed. The methods are very different from one another" (08FAMBAC)

3.4.4. Main Roles: Students and Teachers

Agents expressed differences in opinion for the role that both teachers and students play when applying an e-learning methodology. In general, teachers were viewed as being transmitters of academic tasks on different platforms given the impossibility of direct and face-to-face contact, as indicated by 07PRO: "I believe that the role has been maintained. But it is altered, less human. It's almost like you are just a thing that is sending kids homework to do and you lose the human factor of direct contact". Furthermore, they highlighted the adaptability and initiative to keep up to date on how this e-learning methodology type worked by positively valuing the effort made regardless of a teacher's profile or age:

> "Both my colleagues and myself. They belong to an age group that is not used to this type of work. However, they have kept up-to-date since day one with the creation of working groups, online meetings, and so on. They have caught up 100%" (11MAE)

In this vein, families maintained the teacher's role as a transmitter of tasks. However, they also referred to lack of engagement or indifference in other teacher tasks, such as communication with other agents or creating digital environments in which they explain content: "Teachers have been overwhelmed by the situation. It has come all at once and has been chaotic. They have become transmitters of many tasks, but with less contact, I don't know, it's a bit of a strange role" (06FAMBAC). However, 07FAMBAC places particular emphasis on the necessary support work, which sometimes seemed in short supply during lockdown:

> "Teachers, well, they've been caught off-guard, and you have to understand that. Of course sloppiness can't be allowed. They do not let us know, there is no communication between teachers or with families. The truth is that it's a bit of an indifferent role."

All the agents agreed that students had played a passive role. They had become recipients of tasks that should be done and sent before a given deadline: "Students receive more and more assignments, and a role of more of a task-doer than an active agent, actually. Not to mention that the student's role is being played by parents" (01FAMPRI). Moreover, families' own management and organisation problems were added to the equation: "Students are just recipients. They receive and receive, and do not know how to manage this. But well, they are doing their bit, and the truth is that it's not easy for anyone" (02FAMPRI).

Promoting student autonomy came over as another priority objective and a cross-curricular element of the educational system. Considering that it was teachers and management board members who reported that this methodology type did not allow students to create very autonomous working habits and they encountered difficulties in early school years: "I believe that the older they are, the more autonomy they have. In pre-school and primary school, autonomy is limited and it was difficult at the beginning. But I can say that students have become increasingly autonomous, even if it is only encouraged to a limited extent" (04DIR). Teachers also ensured this when it came to this point, as seen in the following opinion:

> "Not in the way we're working right now. Students limit themselves to send us the assignments we ask them for. There is no room for autonomy; it is cause and effect. Honestly, I don't think students will be more autonomous once we get out of this mess" (11PRO)

3.5. Facilitating Elements

Regarding facilitating elements for e-learning, hardly any coding was reported by family members, teachers or management board members beyond the aforementioned advantages about the speed to access information.

3.6. Limiting Aspects

The limiting elements for e-learning were defined as those aspects that could be perceived as obstacles of the good use and scope of this methodology in terms of personal, contextual, technical, or technological causes. Thus, it was students who mainly mentioned problems with aspects that depended directly on the functioning of the technological devices and applications, technical problems and lack of physical contact or direct in-person communication:

> "One of the many problems is connection. It's happened to me and I solved it by calling the teacher and telling them what was happening. The teachers extended the deadline and I was able to fix it" (04ESO)

Apart from that, teachers and management board members explained that limitations arose mainly from personal and family situations due to the availability of technological resources and devices:

> "The digital divide issue in particular. For low-income families, inequalities increase and this situation has not benefited anyone. Some families were not prepared due to lack of means or training" (04DIR)

The family structure also appeared as a key, limiting factor:

> "Then we also have families with parents teleworking from home who cannot take care of their children, who also have to do their homework on the computer. So they are a bit up to their ears from having to spend all day on the computer. Families have also had to buy new devices just to be able to break up the working day a little" (08MAE)

3.7. Effects on Learning and Emotions

As for the perceived quality of acquired learning and the feelings caused by working with this methodology type (category 3.5, Effects on learning and emotions), mainly families and students indicated that they did not perceive progress in learning or learning quality. Similarly, they also highlighted that academic performance had decreased and that progression in content learning was very gradual: "I can see a very clear difference as we are not studying the same things that we were supposed to be by now" (11BAC). Moreover, families considered there was no direct link between classroom teaching and learning. Apparently, they did not perceive that this methodology type applied during lockdown would have any benefits for learning:

> "Because it is often used as a plaster, and nowadays e-learning at school is not a solution to cover students' educational needs. They do not gain either the quality or quantity of knowledge that they would have done with classroom teaching" (06FAMPRI)

As for the obtained results on psychological aspects, teachers, families, and management board members agreed that both students and teachers had experienced moments of fatigue, stress, and uncertainty. All educational agents stated that, on the one hand, these feelings were caused to a greater extent by the social and health situation requiring remote teaching and, to a lesser extent, by the quick and premature adaptation to a methodology type on which no previous work had been done: "Sometimes we all get tired, but we feel better at other times. It depends more on the external situation than on the methodology itself" (01DIR). In fact, the general opinion was that students seemed to have better adapted to the teaching methodology than to lockdown:

> "I think that students have adapted well. They are more affected by the situation outside than by the methodology itself. They are left outside society and do not have face-to-face school hours, so they are more affected by not being able to see one another or going out" (02FAMESO)

3.8. Support Agents

Finally, category 3.6, Support agents, referred to the support processes carried out by each educational agent (teachers, families, classmates, friends) as a factor related to the successful use of the e-learning methodology. The obtained results highlighted that students noted a bigger need for social relations with their peers and other agents present in the education system: "We are supporting one another a lot and if we have a problem, we can count on one another for help" (08BAC). At the same time, they also attached importance to their closest friends' mutual support via digital media for carrying out academic tasks:

> "Relationships with classmates are quite different. Nowadays, we only come into contact with the people we get along with best in class, and we often work on

> tasks together before handing them in, or we even answer each other's queries if we can" (12BAC)

Moreover, all the educational agents agreed that families were the greatest support agent both personally and academically during remote teaching. Hence, this support was given in two ways. On the one hand, it was given through advice given to students on time management for task completion:

> "Well, I think that one of the greatest responsibilities of the family, in this case, is to do the monitoring that teachers are unable to do, which is usually done in class. They have to support students in any of these needs they might have—how to deal with a task, provide encouragement, and so on. And on the other hand, as I said before, make sure they use new technologies properly" (23MAE)

On the other hand, there was emotional support, which created ideal conditions and a pleasant atmosphere in the family so that students could continue to be motivated to perform their tasks:

> "Now he is more self-regulated, but it was very difficult at the beginning. I think that it gets easier with time. They are more comfortable now. But well, I mainly helped them by teaching them to channel their emotions and being aware of the situation and what was happening. I think that talking about the situation is the best way" (06FAMBAC)

Students also stressed the importance of receiving emotional support from their families during this period:

> "I actually haven't needed support from my parents because I don't feel bad, but they do encourage me, give me advice and look out for me. Above all, they make sure that I study because it is a very important year and the situation is not normal."

4. Discussion

The main objective of this study was to analyse the scope of the e-learning methodology to promote remote learning in Primary, Secondary, and Non-Compulsory Secondary Education. The lockdown situation caused by COVID-19 gave us an unrepeatable opportunity to understand what position this methodology type could occupy in the education context. Our study showed a scenario in which technical and technological resources, training, adequately implementing the methodology, blended approaches, and (social) support were determining factors to enhance e-learning possibilities.

4.1. Accessing Technological Resources

4.1.1. Resources Availability

All the participating groups agreed about the facility to access technological resources both inside and outside school. Optimally perceiving technological resources availability was consistent with the Survey on Equipment and Use of Information and Communication Technologies at Home results [47]. It showed that 80.9% of Spanish households had some computer type; a mobile phone for 98.5% and Internet connection for 91.4%. Regarding age to access ICT, the survey showed that 89.7% of children aged between 10 and 15 years used a computer, 92.9% employed the Internet, and 66% had a mobile phone.

Institutional reports on providing technological infrastructure and resources at schools are published on a regular basis in Spain and elsewhere in Europe [48,49]. Indeed, the last dossier on the main indicators relating to e-government and ICT in education in Spain stated that 99.9% of schools had Internet connection and that the average number of students per computer for teaching and learning tasks was 3.0. Furthermore, as this report indicated, it is noteworthy that although there were considerable resources, the number of schools with virtual learning environment services (EVA in Spanish) is still low (only 49.1%

of private schools and 37.3% of state schools). Moreover, only 31.5% of schools participate in projects and programmes related to educational technologies.

4.1.2. Autonomy

Our results reflected different knowledge levels and regular use of technologies depending on the group of participants. Families emphasised their use mostly in relation to leisure time. Students seemed to have the best command of technologies. Teachers differently perceived their mastery. Young Spaniards used ICT on average for around 3 h a day, and their usage increased at the weekends with the family home being the main place to connect more public places with free Wi-Fi access [50,51]. Clearly the majority of young people use these technologies to play and/or participate in social media. This usage time affects other activities, such as academic, sports, and/or cultural activities. It can even negatively affect family dynamics and social relationships. Furthermore, [52] showed that 10% of young Spaniards spend less time with their friends because they employ technological devices. For all these reasons, it is increasingly important for families and teachers to help young people to improve their ICT usage habits, perhaps not so much in terms of usage time, but more in terms of the possibilities that these technological resources offer when searching for information, learning, training, and improving their own personal development.

Teachers stated that their usage habit depended on different factors, such as age or interest in ICT. This perception coincided with the study of [53], which noted that older and more experienced teachers (56–66 years old) had received much less ICT training than younger ones. Furthermore, [54] stated that the presence of technological resources and Internet connection at teachers' homes had a positive impact on their willingness and preparation to use ICT in an education context.

4.2. Assessing ICT and E-Learning in Face-to Face Teaching

4.2.1. Using ICT in Teaching

As students and parents stated, the use of ICT in classroom teaching is not yet as widespread as traditional teaching resources (textbooks, conventional blackboards, etc.). Students reported that they are not used on a regular basis at school, but their use is often limited to present new contents. Some teachers have pointed out that these ICT resources could possibly be more useful for students' independent work than for regular classroom teaching. As the study of [55] showed, only four in every ten teachers use computers and the Internet every day in their teaching practices, and their use of digital whiteboards and audio-visual tools is limited. [56] also confirmed students indicating that the most frequent activities conducted in the classroom with ICT were searching for information on the Internet, working with word processors, and doing activities and exercises online. However, activities such as presentations or continuous assessment activities played second fiddle. Notwithstanding, it must be noted that other studies have identified other ICT uses during T/L processes that students and their parents do not perceive, but are pointed out by teachers [57,58]. Therefore, the first group highlighted the use associated with searching for educational resources and managing personal work, while the second group included actions associated with preparing classes and supporting in-class explanations. The third group highlighted activities related to communication and collaborative work.

4.2.2. Assessing ICT in Context

In our study, parents, teachers, and management board members highlighted the educational potential of ICT. In contrast to students' opinions, they considered them to be merely another resource, or support for explaining certain concepts or performing given activities. Several studies support students' positive evaluation of using ICT in the T/L process [58,59]. They note that these technological resources can be an important source of motivation to improve student engagement, enhance their perception of teaching quality and to also improve their learning. Along the same lines, more recent studies [59–61] have

confirmed that appropriate ICT use can improve not only student engagement, but also their performance in different subjects.

Our results showed that both families and teachers took technologies to be a resource with a very high educational potential. However, ICT was not considered a real necessity. This reluctance could come from feeling unsure about how to use ICT, lack of training, sticking to traditional ICT uses [62] or even the still very heavy weight of the underlying culture of resorting to traditional teaching resources, as shown above in the interpretative analysis of this category, 2.1. Using ICT in teaching.

4.2.3. Specific Training

Although some teachers and managers in our study reported how specific training was minimal and insufficient, [63] indicated that seven in every ten Primary and Secondary school teachers had received specific training in ICT. This was mostly done as part of ongoing training programmes organised by education authorities. In addition, 80% of teachers who had received ICT training had actually received teacher didactic training in applying ICT to their subjects. Despite this training, and according to the same study, teachers did not hold a high opinion of their ICT skills. Three in every four teachers had a basic or intermediate command of ICT and only one in four were advanced or expert users. These results are consistent with other recent studies [64–66], which have shown that teachers of Pre-School, Primary, and Secondary Education currently have an intermediate level of digital teaching skills. They are technically better at using ICT resources than they are at confidently integrating them into the T/L process. For all these reasons, it can be stated that although we live in a society of knowledge and information, teachers still do not have sound training in ICT. This fact directly affects their use and full integration into T/L processes.

In our study, both teachers and families agreed that significant financial investment was needed to provide schools with technological resources that are fit for such purposes. However, it is also true that regional authorities have made significant efforts in this area in recent decades by setting up institutional projects to introduce ICT into schools. A lot of computer equipment, laptops, tablets, digital blackboards, etc., have been provided, but often with no subsequent maintenance [67]. Since the financial crisis of 2008, the situation has worsened. Teachers openly stated, in both the opinions collected in this study and the media in the past few years that there are hundreds of obsolete computers at schools and high schools, many of which have expired or illegal licenses.

Perhaps this is the main problem at schools today as managers and families stated that they have the technological resources, but education authorities have perhaps not made enough effort to carry out suitable preventive maintenance or to provide them with updated or free software. Quite often teachers themselves have to be in charge of maintaining and updating equipment, but they do not always have the appropriate training or time to do so. Moreover, [62] stated that these factors can cause feelings of helplessness and lack of motivation towards applying ICT to teaching.

4.3. Effects of E-Learning on Remote Teaching and Lockdown

4.3.1. Adapting ICT to Content and Subjects

Platforms and Applications Used

The participants highlighted using Google Classroom and Google environment applications, as well as each school's own platforms, if they are available. These results are not supported by the existing literature, which suggests a higher prevalence of using Edmodo, followed by Google Classroom and Moodle [68]. However, the same study indicated a clear link between employing Google Classroom and student involvement/engagement. It would seem that employing this type of platform offers better collaboration and interaction opportunities for students, as well as more positive relationships with teachers. In fact the use of this collaborative tool type increases student enjoyment and is linked with more perceived self-efficacy [68,69]. However, our data do not seem to show that the intended

use by the main parties involved in the T/L process focuses on creating collaborative situations among students. Indeed, lack of more or different resources could be a factor worth bearing in mind. The culture and attitude of an institution, and the way it invests in technology, can also influence teachers' attitude towards using technology in the T/L process [70,71]. It is very important to bear in mind the possible consequences of the digital divide, and whether or not students have the chance to employ the technology that schools suggest [68,72]. This could also be the result of misjudgement (lack of training) when it comes to choosing the most appropriate platform, or even when choosing others.

Benefits

Teachers and management board members pointed out much accessing information can also be made more attractive. These ideas could be related to some of the reasons why learning with digital tools and resources can be beneficial [73]. Based on their Cognitive Theory of Multimedia Learning, they suggest that students might organise information into different cognitive structures related to visual and auditory channels when using these types of resources. This could avoid an unnecessary cognitive burden, as these learning environments would stimulate the activation of different information processing channels. Furthermore, students should become actively involved in working and dealing with content and materials to be able to understand new information [73]. In fact, the learning construction process that students must undertake involves a set of stages in which they must inductively resort to the resources offered to them to ask questions, answer them, and to compare, verify, analyse, and reach conclusions [74]. The intention is to produce a broader range of resources and learning tools to provide students with new forms of assistance and support [75,76]. However, it is not enough to have a range of resources because they must be organised and used in the most appropriate way by each student [77].

Teachers and management board members highlighted interactivity between students and teachers thanks to this methodological resource. Instructional designs in interactive virtual learning environments based on feedback and directed learning can also support student learning [78,79]. In this vein, the literature shows that well-prepared feedback is more beneficial than simple corrections [80]. In fact, [78,81] showed that feedback that explained why an answer is correct or incorrect had more positive effects on learning. Furthermore, this whole framework covering direction, aids, and information has a positive effect on learning [78,79]. Thus, using intelligent tutoring systems involving feedback, controlling students' learning pace, and directed learning can have positive effects on T/L processes [82–84].

Students and families positively valued the possibility of acquiring greater autonomy through e-learning. These opinions also evidenced the clear potential that technology can have on fostering self-efficacy, self-regulation, and engagement [85,86]. In fact, based on the call made in the literature about the need to more clearly understand how e-learning methodologies can be used to encourage greater student engagement [86,87], our study discusses some aspects that can influence this connection: autonomy in organising tasks and doing assignments at a time decided by students.

Difficulties in monitoring tasks, longer waiting times to obtain solved queries, and lack of socialisation and peer-to-peer learning are the main disadvantages reported by families and students. These perceptions valued two differentiating e-learning methodology features: on the one hand, having to create collaborative environments among students to promote suitable T/L processes. Previous studies have shown that peer interaction is essential for online learning [88–93]. Moreover, [94] found that peer interaction is not only important for student satisfaction, with a well laid-out design and interaction with teachers, but active discussion among peers was also relevant. In this way, enabling the creation of learning-communities to promote student engagement is important for creating learning opportunities for students [95–97]. On the other hand, adapting teaching to students' learning pace. There is evidence that controlling pace is beneficial for students because it allows them to control their own learning pace at the same time [82,98].

Difficulties

In our study, e-learning was understood as more time-consuming to be worked by management board members and teachers. What these ideas can show is that the unexpected situation caused by COVID-19 has not allowed teachers to prove they have, or that they should be working on, a decisive set of skills for best practices in the e-learning context. So, before starting an online course, all teachers should understand what a course like this would require of them, define participation and criteria (as well as how to mark them), and design flexible content, among others [99–101]. Teachers must also be clear as to how to effectively use the technology they select for teaching a subject [100].

Diversity Outreach

Teachers agreed that one advantage of applying this methodology type was the possibility of individualising learning, especially for students with special needs. In this case, the contexts involving the application of the e-learning methodology must have a wide range of accessible multiformat resources [102]. Thus, being able to respond to different situations that might come into play would allow the use of audio-visual materials, text transcriptions, and textual enrichment of audio-visual elements. It must also enable students to personalise contents and organise their study without relying on connectivity. For students with learning and communication difficulties, the system must be specifically adapted to their difficulties [103].

As with the existing literature, our results showed that teaching methodologies in which students with special educational needs received traditional face-to-face guidance from teachers, along with using virtual resources, appeared to reinforce learning [104]. This context enabled students with special educational needs collaboratively participate with other students through open communication, and by creating a sense of community at the physical, cognitive, but also virtual, levels [105]. However, there must be coordinated work between the generalist and specialist teacher. Therefore, training opportunities for the special needs education teachers who wish to use a blended model are necessary and decisive for such a methodology to work [106].

4.4. Methodology

4.4.1. Approaching Tasks and Materials

Students reported a heavy workload and very tight deadlines. Teachers have to be able to design, plan, and develop well-organised subjects for online teaching, and deliver content that adapts to the context [100,107]. In fact, they must be able to set assignments and exercises that allow the student to benefit from digital resources and tools [99]. It is undesirable for students to feel overwhelmed by unwieldy materials that do not facilitate his/her own personal study and learning organisation and management. Nor should they have an infinite number of tasks and assignments that contribute very little to the learning outcomes of a given subject. It is also important that the organisation and planning of the academic year make it easy for students to be clear about time frames and deadlines [108].

4.4.2. Activity Types

All the involved participants agreed that the typology of activities was mainly individual, as opposed to other alternatives. These results fall in line with the existing literature. Traditionally, courses and subjects based on e-learning have been designed on an individual basis and, therefore, learning is perceived as being solitary and individual [109]. However, the educational institution seems equipped with the necessary tools and applications (web 2.0 tools) to set up collaborative projects: Wikis, chats, forums, blogs, social media, YouTube, etc. [110]. Although learning is collaboratively approached, contents are mostly designed for individual learning [109]. The design is built without actually considering the collaborative dimension [109]. Thus, one collaborative learning principle cannot be left aside: content cannot be used for collaborative learning if it was designed for individual learning and, thus, collaboration between those involved in the T/L process is ignored [109].

Following these same authors, it has been established that using web 2.0 tools and virtual learning environments like Moodle can improve interactive communication and collaboration among students, and also between students and teachers, based on the same learning resources or sharing them with one another. To do so, it is important to foster discussion and debate among students, reciprocity in comments, collaborative writing, joint work on projects, etc. [111,112]. The use of Wikis can promote these communicative aspects [113]. In addition, it is advisable to directly involve students in producing learning content by employing, for instance, blogs or podcasts [109]. E-portfolios that allow students to create, reflect, and present their work could also be employed.

4.4.3. Monitoring and Assessing

Teachers and management board members believed that there was systematic work in approaching and monitoring assignments. However, they had some doubts about monitoring and assessing tasks. Although e-learning can offer the advantages of breaking down space and time barriers, these results support the idea that it may be limited to monitoring by teachers in traditional teaching, which could make students feel isolated and disconnected [114,115]. Thus, it is particularly important to attach value to learning-based assessments because they motivate students to direct and regulate their learning [114]. In this regard, formative assessment is related to such learning, and also to student learning achievements [114,116–119]. Moreover, this attaches even more value to the fact that in order to make an e-learning context effective, it must foster students' self-regulation and independence ability [120,121]. Previous research has demonstrated that self-regulated learning is more important in e-learning than in traditional teaching [122,123]. Thus, self-assessment systems are also clearly related to self-regulated and self-directed learning [124].

However, the key element for suitable assessment in the e-learning context is not necessarily linked with types of assessment tasks or activities, but with a combination of different assessment types. By considering the possibility of combining summative assessments with assessments that involve students, peers, and teachers could produce much more accurate and authentic evidence for student engagement and progress in learning [125,126]. In fact, considering peer assessment and co-assessment (collaborative assessment) together with self-assessment would more clearly foster a context that focuses on student learning, and the role of assessment would be considered an extra learning opportunity. It would also promote skills acquisition, such as critical and reflective thinking, which are difficult to acquire with traditional teaching [125].

4.4.4. Main Roles: Students and Teachers

The impossibility of direct and face-to-face contact teachers were understood as mere transmitters of information. This conception varied according to the teacher's profile or the teacher's own age. These ideas could be linked with teachers' need to adapt to this type of context to effectively use technology in T/L processes and to also foster students' digital competence [127–129]. In fact, statements offer evidence for the gap between teachers' digital demands in their professional career and the training they receive in this area [130]. So, training in employing technology in teaching can condition its use in class [131].

Families also highlighted lack of engagement or indifference in some cases. Communication with the other agents, especially students, was the most requested issue. What these perceptions showed, as previous research has also indicated, was that teacher training should focus more on working on digital skills [132]. As a matter of fact, teachers need technological, pedagogical, and content knowledge to integrate technology into learning contexts [133,134]. Following [134], teachers are expected to use technology to improve communication (both among students and with parents), and to share and collaborate with other educators. They are expected to consider learning objectives, context and a pedagogical model when opting to use a digital resource. They are also expected to maintain interactions with (and between) students inside and outside the classroom to encourage collaborative learning and to support student self-regulation, to interpret digital evidence from

student assignments by critically analysing it, and using technology to provide feedback and, finally, to support and encourage improvements in students' digital competences.

All the participants agreed when defining the role of students as passive subjects or recipients of information. These contributions showed that students were not prepared to work with this methodology type. These data provide more evidence to that which already existed, which suggests that students struggled to adapt their behaviour to e-learning context demands [135–138]. Students must be taught what learning in an online context involves by promoting the acquisition and use of active learning techniques, and seeking to adapt their personal style of approaching curricular content to this situation [100,107,139].

It would seem that teachers and management board members attempted to convey that the e-learning methodology did not work in the same way at all levels of education. In fact, [82,84] established that this methodology kind could be more beneficial for Secondary and Non-Compulsory Secondary Education students because they have more self-regulation skills, digital competences, further previous knowledge, and motivation for learning. In our study, all the reports from Secondary and Non-Compulsory Secondary Education students agreed with these ideas. However, some revealed that applying the e-learning methodology could have positive effects on learning at Primary Schools [140]. Notwithstanding, at this level students' prior understanding of the subject and teachers in guiding and directing students will be important for the methodology to be a success.

4.5. Facilitating Elements and Limiting Aspects

Regarding facilitating elements, results could once again be related to lack of specific teacher training in the e-learning methodology. Regarding limiting aspects, two were pointed out. On the one hand, aspects of technical and technological functioning and, on the other hand, lack of contact or direct face-to-face communication. These results fall in line with the existing literature, which discusses technical issues about accessing websites, uploading and downloading online content and materials, and so on [38]. Moreover, these results showed that the digital divide depends not only on the existence and accessibility of digital resources, but also on the very environment in which students live [141]. Results confirmed the complex interweaving levels that can condition the suitability of e-learning-based approaches [142].

4.6. Effects on Learning and Emotions

Families and students question the learning outcomes that derived from this methodology under the conditions in which it was implemented. These opinions are closely related to the same disparity found in the existing literature. In fact, [143] stated that virtual learning environments are related to better student performance. However, [144,145] showed that there was no difference in performance between classroom teaching and online teaching, although e-learning could increase high-level learning [145]. Specifically, what is observed is that when comparing classroom teaching, online teaching and blended teaching, the last learning type shows higher student performance levels [35]. Moreover, [36] demonstrated a great deal of evidence for improvement in performance and satisfaction as a result of blended teaching. That is, a mixed solution seems preferred to a purely online solution or a face-to-face one [146]. Indeed, digital tools and resources, and related methodologies, should not be considered "friends" or "enemies", rather "travel companions".

Fatigue, stress, and uncertainty were present in both students and teachers. However, the socio-health situation was identified by all the participants as the main cause of them not following the e-learning methodology. These results could be related to those of a previous study, which showed that more positive affective states were present during different e-learning activities than negative ones [147]. This study even revealed that this occurred more clearly in synchronous activities with teachers and peers. Furthermore, experiencing these types of positive states helped students to implement constructive behaviours, obtain positive results, and add value to learned contents. Such positive emotional experience could even serve to increase students' sense of control [148]. Similarly, [146] found a

positive correlation between self-efficacy and experiencing positive emotions during e-learning activities. Hence, the e-learning methodology seemed to be related to higher levels of self-efficacy [143,149] and satisfaction [143].

Curricular designs based on e-learning methodologies must consider students' emotional and affective states to be successful [150]. In these contexts, much importance has been attached to emotional states and their relation with effective and constructive learning [151].

In any case, teachers should specify the minimum standards required of students, as well as the minimum level of prior knowledge and technical skills needed. Initial student training and technical support should also be provided [152]. In short, the institution needs to recognise its own culture and possibly adapt it to the e-learning context. To do so, it must create a set of rules or a plan on which to base online school work and to facilitate students' adaptation to this online environment. It should also provide accurate predictions of how to set workload and work patterns. Finally, teachers ought to be informed and trained in how to prepare students.

Students need to understand and identify what their function is in an e-learning context, be aware of the different involved agents, adjust their preferences, and acquire adequate preparation and training. They should also consider additional factors like the pace of asynchronous work, building relationships in online environments, time organisation, possible group roles, and group collaboration and cohesion [152].

4.7. Support Agents

The need to establish social relations with peers and teachers was a very important aspect highlighted by all the participants, especially by students themselves. These results fall in line with those showing that classmates provide one another with mutual support both academically and socially [153]. In addition, peer and teacher support influences both students' perceived self-efficacy and their academic outcomes [154].

Besides, all educational agents agreed that families were the main support agent in terms of advice about how to deal with the learning process, and also at an emotional level. These results are similar to those obtained in a previous related study [38]. We observed that families offered tangible support through supportive behaviours associated with using technological resources, and emotional support seeking to offer resources that allowed students to adapt their social and emotional experience. In this regard, it would seem that access to technology that promoted tangible support could lead to cushion the possible stress and anxiety that students experienced in such a context or situation [155]. Furthermore, emotional support could become a determining factor in students' ability to perform any type of related activity [156].

5. Conclusions

Availability of technological resources and connectivity is undoubtedly a feature of today's schools. However, another feature is that these resources are employed in the classroom for short periods of time and as an aid for traditional teaching, such as teacher presentations or for exercises in class. It is also evident that using technological resources in the student learning process is not very widespread and is limited to searching for information and word processing. For this reason, we can state that, although resources are within our reach and very accessible, perhaps neither schools nor families are sufficiently prepared to deal with remote teaching. Although there are many resources and an enormous effort has been made in ICT training in schools, perhaps not enough emphasis has been placed on training teachers to deal with teaching-learning processes based on applying mostly remote teaching methodologies, such as e-learning.

The need for more specific training in using technological and digital resources has become apparent for this teaching methodology to be properly applied [64–66]. It is not enough to know about devices, programmes, and applications because it is also necessary to adapt their features to different subjects, courses, and contexts.

All the participants agreed that the main advantages include easy access to information, as well as the immediacy offered by the different employed technological and digital resources. Being able to offer students a much more motivating and individualised learning experience was also highlighted. In fact, we aimed to emphasise that students did not feel uncomfortable by methodology, but by the outcome of lockdown itself.

Moreover, issues associated with the exclusive use of this teaching methodology were found. First of all, the level and quality of learning during lockdown were questioned. This fact could be related to lack of training to adapt e-learning use [26]. Moreover, there was the digital divide itself, which is characterised by significant differences in access to both resources and the Internet. Thus, families with insufficient economic means to access technological resources and students from rural areas seemed worse off due to general connectivity issues. Loss of social contact also stood out as a significant disadvantage, and not only among students themselves, who could end up being psychologically affected by this scenario, but also between students and teachers. This brings with it a problem associated with individualised attention and dealing with queries. According to all the participants, this fact could affect students with special education needs to a greater extent because their educational process requires more input.

Finally, the collected evidence seems to lead us towards a future of blended teaching in which e-learning is combined with face-to-face teaching [23]. To this end, education authorities must be strongly committed to provide training and resources for this methodology to be carried out with safeguards in place [16,26].

6. Strengths and Limitations

This study came about from the need to conduct a systematic and rigorous study of a specific element that has been a determining factor during the COVID-19 lockdown: the e-learning methodology. As far as we know, this is the only study to include opinions expressed by different educational agents. In the same way, it considers three levels of education (Primary, Secondary, Non-Compulsory Secondary Education), which allowed us to acquire more representative data and a more acceptable overview of the education outlook before university. This research work enabled us to understand the real potential of the e-learning methodology in a situation that required this methodology type being implemented without the possibility of combining it with others. It even allowed us to establish a series of elements that could be considered when approaching future specific training plans. These plans should bear in mind the need to work with teachers so that they know from the very beginning what is required to implement this methodological approach, including defining participation and assessment criteria. Teachers and students must understand that their role in this situation is different. Teachers must be able to organise and plan the academic year in such a way that students can understand timings and create a suitable workflow. Teachers must also be trained to design flexible content and materials that promote student support. It is necessary to create easy-to-use materials that facilitate organisation and personal management of study and learning. In addition, structured tutoring and monitoring processes based on feedback to help student progress in building their own learning must be set up. The aim is to confer students' autonomy when organising and performing tasks. To do this, it is also necessary to promote the acquisition and use of active learning techniques, and to create collaborative spaces that facilitate student-to-student and student-to-teacher interactions. In the same way, it is very important to promote assessments focused on learning and to contemplate that it is worth using different assessment types. Finally, we must consider students' affective and emotional status for curricular designs to be successful, and not ignore the importance of family and peer support.

This study has certain limitations. Other contexts of interest, such as university, were not considered. Future studies that focus on the suitability, applicability, and scope of this methodology type at university would provide a broader vision of this methodological approach type in education. It would even be interesting to consider possible cross-cultural

differences. Political, economic, social, and cultural realities can condition the perception of such a methodology. It would, therefore, be interesting to include the participation of education authorities. Finally, it would also be worth proposing a multimethod approach to data to allow us to delve into the real potential of the e-learning methodology based on qualitative and quantitative methodological strategies.

Supplementary Materials: The following are available online at https://www.mdpi.com/2071-1050/13/6/3317/s1, Supplementary Materials 1 (S1): Open-ended questionnaire for students and questions for individual semistructured interviews; Supplementary Materials 2 (S2): Consolidated criteria for reporting qualitative studies (COREQ) 32-item checklist; Supplementary Materials 3 (S3): Classification Tree, coding sheets.

Author Contributions: Conceptualization, J.C.B.; Methodology, J.C.B., C.P.-L., M.S.-B. and M.L.-G.; Formal Analysis, C.P.-L. and M.S.-B.; Investigation, C.P.-L., M.S.-B. and M.L.-G.; Resources, C.P.-L. and M.L.-G.; Writing—Original Draft Preparation, C.P.-L. and M.S.-B.; Writing—Review & Editing, J.C.B. and M.L.-G.; Supervision, J.C.B.; Project Administration, C.P.-L. and J.C.B.; Funding Acquisition, C.P.-L. All authors have read and agreed to the published version of the manuscript.

Funding: This research has been supported by grants received by CPL from the Fundación Bancaria Ibercaja (JIUZ-2020-SOC-15).

Institutional Review Board Statement: The study was conducted according to the guidelines of the Declaration of Helsinki, and approved by the Clinical Research Ethics Committee of Aragón (Spain) (protocol code PI20-221, 24 June 2020).

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Acknowledgments: The authors wish to thank all the representatives of management board members, teachers, pupils and families for their involvement in this study.

Conflicts of Interest: The authors have declared that no competing interest exist.

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