

Conditioning factors in the remote learning context in higher education

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*Fatores condicionantes no contexto da aprendizagem remota no ensino superior*

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*Factores condicionantes en el contexto del aprendizaje a distancia en la educación superior*

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**Resumo:** With the epidemiological setting produced by the COVID-19 pandemic, information technologies have increased in importance in education and have become even more significant, forcing unanticipated and fundamental adjustments in work organization. To guarantee that students continue to study, these developments in educational institutions have led to the growing usage of remote learning. This study investigates the factors that either support or constrain students' perceptions of their perceived efficacy and skill development in a remote learning environment during the second COVID-19 lockdown, in Portugal. Between March 1 and March 15, 2021, 258 students (higher school) who were enrolled in remote learning responded to a web-based cross-sectional survey. The results of a regression analysis revealed several conditioning factors for this learning mode that could impact on students' efficacy and soft skills development: technology issues, learning conditions (e.g., autonomy, study materials) and demotivation were all significant factors. Given the current and future generations of students, the results of this study provide clues for managers and teachers of higher education establishments to develop digital strategies to provide innovative, attractive, and motivating learning environments

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**Palavras-chave:** COVID-19 pandemic. Efficacy. Information technology. Remote learning. Soft Skills.

**Abstract:** *Com o cenário epidemiológico produzido pela pandemia COVID-19, as tecnologias da informação aumentaram a sua importância na educação e se tornaram ainda mais significativas, obrigando a ajustes imprevistos e fundamentais na organização do trabalho. Para garantir que os alunos continuem aprendendo, esses desenvolvimentos nas instituições de ensino têm levado ao uso crescente da aprendizagem remota. Este estudo investiga os fatores que facilitam ou condicionam a percepção dos alunos sobre a sua eficácia percebida e desenvolvimento de soft skills num ambiente de aprendizagem remota durante o segundo bloqueio COVID-19, em Portugal. Entre 1 e 15 de março de 2021, 258 alunos (ensino superior) que estavam matriculados em aprendizagem remota responderam a um questionário transversal baseada na web. Os resultados da análise de regressão revelaram diversos fatores condicionantes para esta modalidade de aprendizagem que podem impactar na eficácia e no desenvolvimento de competências dos alunos: questões tecnológicas, condições de aprendizagem (por exemplo, autonomia, materiais de estudo) e desmotivação foram fatores significativos. Dadas as gerações atuais e futuras de estudantes, os resultados deste estudo fornecem pistas para que gestores e professores de estabelecimentos*

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*de ensino superior desenvolvam estratégias digitais para proporcionar ambientes de aprendizagem inovadores, atraentes e motivadoras.*

**Keywords:** *Aprendizagem remota. Eficácia. Pandemia COVID-19. Soft skills. Tecnologia da Informação.*

**Resumen:** *Con el escenario epidemiológico producido por la pandemia del COVID-19, las tecnologías de la información han ganado importancia en la educación y se han vuelto aún más significativas, obligando a ajustes imprevistos y fundamentales en la organización del trabajo. Para garantizar que los estudiantes continúen estudiando, estos desarrollos en las instituciones educativas han llevado a un uso creciente del aprendizaje remoto. Este estudio investiga los factores que apoyan o limitan las percepciones de los estudiantes sobre su eficacia percibida y el desarrollo de habilidades en un entorno de aprendizaje remoto durante el segundo confinamiento por COVID-19, en Portugal. Entre el 1 y el 15 de marzo de 2021, 258 estudiantes (enseñanza superior) que estaban inscritos en aprendizaje remoto respondieron a una encuesta transversal basada en la web. Los resultados de un análisis de regresión revelaron varios factores condicionantes para este modo de aprendizaje que podrían afectar la eficacia y el desarrollo de soft skills de los estudiantes: los problemas tecnológicos, las condiciones de aprendizaje (por ejemplo, autonomía, materiales de estudio) y la desmotivación fueron factores significativos. Teniendo en cuenta las generaciones actuales y futuras de estudiantes, los resultados de este estudio brindan pistas para que los administradores y docentes de los establecimientos de educación superior desarrollen estrategias digitales para brindar entornos de aprendizaje innovadores, atractivos y motivadores.*

**Palabras-chave:** *Aprendizaje remoto. Eficacia. Pandemia de COVID-19. Soft skills. Tecnología de la información.*

## INTRODUÇÃO

With the epidemiological situation caused by the COVID-19 pandemic, remote learning has become a strategic tool used by educational institutions to ensure that students may meet their demands in the most efficient way possible (BOZKURT; SHARMA, 2020; MICROSOFT, 2020). For most educational establishments in Portugal, this situation was somewhat new because they had no experience with this modality of distance learning. So online and remote learning emerged as a necessity in Higher Education Institutes considering the COVID-19 Pandemic (ALI, 2020). As a result, educational institutions create cutting-edge virtual learning and emergency remote teaching techniques for students to study at home (ANTHONY Jnr; NOEL, 2021). Nevertheless, the virtual learning context differs from the classroom-based learning environment, mainly in the dimensions of resources, time, place, and space (BATAINEH et al., 2021; PICCOLI, AHMAD; IVES, 2001). Consequently, students, teachers, and educational institutions face new challenges to being successful.

Recent studies within remote learning have investigated students' expectations (CI-

CHA, et al., 2021), the predictors of student satisfaction, such as technological skills and access to learning devices, as well as assessment methods (HO; CHEONG; WELDON, 2021), and the students' acquisition of and development of new skills (DVOŘÁKOVÁ et al., 2021; E. LOUSĂ; M. LOUSĂ, 2022). Also, other studies investigate the effects of technological and digital learning resources on students' soft skills and the mediating role of perceived efficacy (E. LOUSĂ; M. LOUSĂ, 2022). However, as far as we are aware, the difficulties and advantages perceived by students in the remote learning context were not studied, nor is the impact it has on their perceived efficacy and their soft skills development. So, in line with those studies, the major goal of the present research is to understand the factors that either facilitate or constrain students' perceptions of their own perceived efficacy and soft skill development in a remote learning environment during the second COVID-19 lockdown.

In the following sections of the paper, a contextualization of the study is carried out, followed by the report of the adopted methodology, the presentation and discussion of the results, and ending with the conclusions.

## 2 CONTEXTUALIZATION

Remote learning is distinct from other virtual learning environments (e.g., distance learning, blended learning, mobile learning, and online learning) (BOZKURT; SHARMA, 2020; MICROSOFT, 2020), because it is implemented in times of crisis. It is a mandatory mode of education that uses all accessible resources, including offline and/or online tools (BOZKURT; SHARMA, 2020). Other virtual learning environments modalities are scheduled activities that are created over a period of months or years (HODGES et al., 2020; E. LOUSÃ; M. LOUSÃ, 2022). For remote teaching to be successful, it is necessary to use a range of devices (such as laptops and smartphones) (DHAWAN, 2020; SINGH; THURMAN, 2019), whose major goal is to guarantee that students continue to learn by giving them the materials they need (HODGES et al., 2020). Simultaneously, when teachers create synchronous and asynchronous resources and activities using digital learning tools, they allow their students to continue learning.

Several factors could influence the success of remote learning, such as the technology available to students (e.g., desktop, laptop, tablet, mobile phone, or nothing) (DVOŘÁKOVÁ et al., 2020; MICROSOFT, 2020), the students computer skills (DVOŘÁKOVÁ et al., 2020), conditions for students to develop learning and attend classes (frequently share the same space or equipment with other person) (MICROSOFT, 2020). Furthermore, the number of activities and hours spent in front of a computer and high levels of stress or anxiety have a negative impact on motivation and performance, engagement levels and academic achievement can lead to tiredness and demotivation, which lower learning efficacy (DVOŘÁKOVÁ et al., 2020; HECKEL; RINGEISEN, 2019; GILLIS; KRULL, 2020). According to Wentzel (2020) student motivation is one of the most important factors that influences academic performance, determining their choices and actions and is therefore responsible for the level of engagement in educational activities. Furthermore,

student acceptance of this mode of learning may have a significant impact on the efficacy of virtual learning environments (BATAINEH et al., 2021; PICCOLI, AHMAD; IVES, 2001). According to Hu and Hui (2012) students are more likely to consider their learning successful and good when the learning environment supports the effective interchange of knowledge, leading to satisfaction. Therefore, student successes and satisfaction in the educational setting are critical for measuring efficacy (ALAVI et al., 1995; PICCOLI, AHMAD; IVES, 2001). These positive beliefs of students about their efficacy tend to be associated with the improvement of their performance (increased productivity) and the pursuit of achieving their objectives (BANDURA; FREEMAN; LIGHTSEY, 1997). The efficacy in these learning environments could be understood as a judgment that students make about their ability to perform tasks, considering factors such as the pace of learning, confidence, motivation, and subject comprehension (BALULA et al., 2019; BATAINEH et al., 2021; HU; HUI, 2012; E. LOUSÃ; M. LOUSÃ, 2022; PUTWAIN et al., 2013) and also the satisfaction felt with the remote learning (E. LOUSÃ; M. LOUSÃ, 2022).

Every successful teaching and learning process aims to provide students with the possibility to develop their transversal soft skills (ALI, 2020; WEBB; MCQUAID; WEBSTER, 2021). The students' capability to learn new abilities was challenged by the requirement to switch to a remote learning medium. According to some research (e.g., BATAINEH et al., 2021; WEBB; MCQUAID; WEBSTER, 2021), the use of digital technologies in learning has the benefit of promoting the development of skills. Some studies suggest that, in the context of virtual learning, students can develop autonomy, self-awareness, (PADRON et al., 2017; CHIAO; CHEN; HUANG, 2018), relational skills, responsible decision-making (PATIAR et al., 2017), self-assessment, critical reflection skills (CONRAD; OPENO, 2018), and progress in their real-life problem-solving skills (SUN, 2014). In this line, Barbera et al. (2017) and Sun (2014)

report that when communicating online and collaborating virtually on projects, students are developing relational skills (PATIAR et al., 2017) and critical thinking (BALULA et al., 2019). However, there is little knowledge about the determinants that facilitate or condition the perception of students' efficacy in remote learning and the perception of improvement in students' skills. So, for the purpose of the present study, we explore the factors that either facilitate or constrain students' perceptions of their own perceived efficacy and soft skills development in

a remote learning environment during the second COVID-19 lockdown.

### 3 METHOD

#### 3.1 PARTICIPANTS

Two hundred and fifty-eight students ( $n = 258$ ) from three higher education institutions participated in the study, aged between 18 and 45 years old (Mage = 22.31 years, SD = 5.59 years; of which 64.73% were male) (cf. Table 3).

Table 1 summarizes the distribution of respondents by course, observing that 53.10% are from the course of administration and management, 36.82% from computer/information systems, 5.43% from electronics/mechatronics, and 4.65% from communication.

Table 1 - Distribution of respondents by course

Course	n=258
Administration and management	53.10%
Computer/information systems	36.82%
Electronics/mechatronics	5.43%
Communication	4.65%

Source: Prepared by the authors (2022).

#### 3.2 MEASURES

For the present study, the measures described below were considered.

Efficacy measure - assesses the effectiveness of students' experience in remote learning in terms of their ability to perform tasks (self-efficacy) and the satisfaction felt with this learning modality (e.g., "Overall, remote learning is effective for my learning"). The scale was composed by 13-items (E. LOUSÃ; M. LOUSÃ, 2022). Response options ranged from 1 (strongly disagree) to 5 (strongly agree). The Cronbach's alpha for this scale was 0.95 and the Total explained variance was 58.6%.

Soft Skills measure - assesses the extent to which the remote learning experience contributed to the improvement of students' soft skills (e.g., "Overall, remote learning contributes to the improvement of my communication skills"). The scale was composed by 9-items scale (E. LOUSÃ; M. LOUSÃ, 2022). Response

options ranged from 1 (strongly disagree) to 5 (strongly agree). The Cronbach's alpha for this scale was 0.92 and the Total variance explained 53.2%.

Difficulties in the remote learning context - participants were asked to report three difficulties in the remote learning context using an open-ended question.

Advantages in the remote learning context - participants were asked to report three advantages in the remote learning context using an open-ended question.

Sociodemographic characteristics - participants were asked to indicate their gender, age, share place and share resources.

#### 3.3 PROCEDURES

The questionnaires were made available online to students from different higher education institutions between March 1 and 15, 2021 (the second lockdown in Portugal). Re-

spondents were provided with information on the overall objectives of the study, an estimated time to complete the task, and a request for voluntary collaboration. Data were collected considering ethical issues such as participants' anonymity and confidentiality.

### 3.4 DATA ANALYSIS

For data analysis, the statistical program IBM SPSS Statistics (Windows operating system) was used. A descriptive analysis was used, and the correlations between the factors of the scales were analyzed. The magnitude of the correlation coefficients was

interpreted according to Cohen (1988). Hierarchical regressions were used to determine whether the facilitate or condition perceived by students could predict efficacy and soft skill improvement in a remote learning context.

### 4 RESULTS AND DISCUSSION

The total sample's Efficacy and Soft Skill dimensions, by socio-demographics and shared resources and place, are presented in Table 2. In the overall sample, Efficacy had the lowest score ( $M = 2.96$ ,  $SD = 0.89$ ), while the Soft Skill the highest ( $M = 3.59$ ,  $SD = 0.76$ ).

When asked if they share the place where they attend distance classes with others, 18.99% reported yes (cf. Table 2). The majority of students (60.47%) attend classes in their bedrooms, followed by the living room (27.13%) and the third office (10.85%). Regarding the equipment for attending classes, 12.06% say they share it with another person (cf. Table 2).

Table 2 - Descriptive statistics of measures of Efficacy and Soft Skills by socio-demographics and shared resources and place

		n	Efficacy		Soft Skills	
			M	SD	M	SD
Total sample		258	2.96	0.89	3.59	0.76
Gender	Male	167	3.04	0.88	3.53	0.78
	Female	91	2.85	0.88	3.68	0.71
Age	18–23	148	2.86	0.91	3.51	0.79
	≥24	110	3.12	0.93	3.36	0.91
Share the place	Yes	49	2.99	0.89	3.43	0.75
	No	209	2.93	0.91	3.49	0.84
Share of the resources	Yes	31	3.11	0.84	3.33	0.98
	No	226	2.92	0.92	3.47	0.80

Source: Prepared by the authors (2022).

Table 3 presents the types of equipment, digital media, and resources used by students globally in the context of remote learning. When asked about the equipment they used to attend synchronous classes during remote learning, 70.16% reported that they used a laptop, 22.48% a desktop, 3.49% smartphones, and 2.71% tablets. In the context of remote learning, 94.96% of respondents said

they used video conferencing systems, 51.16% e-mail, and 37.98% multi-platform instant messaging and voice/video calling apps for smartphones (e.g., WhatsApp). Concerning the resources used by students in the context of remote learning, 70.93% used digital slides, 70.16% used shared resources on the Internet, 55.04% used digital manuals, 54.26% used video lessons, and 48.45% used supporting texts.

Table 3 - Equipment, digital media, and resources used by students

	n=258
Equipment	
Desktop	22.48%
Laptop	70.16%
Tablet	2.71%
Smartphone	3.49%
Digital media	
Communication and collaboration platforms with video conferencing systems	94.96%
e-mail	51.16%
Multi-platform instant messaging and voice/video calling apps for Smartphones (e.g., WhatsApp)	37.98%
Resources	
Digital manuals	55.04%
Shared resources on the Internet	70.16%
Video lessons	54.26%
Digital slides	70.93%
Supporting texts	48.45%

Source: Prepared by the authors (2022).

Next, intercorrelations among participants' sociodemographic characteristics and Efficacy and Soft Skills dimensions were calculated (Table 4). There were no significant differences between socio-demographics characteristics and the others.

There is a low relationship between age and gender, as well as between the share of the resources and the share of the place. The relationships among Efficacy and Soft Skills dimensions were positive and statistically significant.

Table 4 - Intercorrelations

Variables	1	2	3	4	5
1. Gender	-				
2. Age	-.15**				
3. Share the place	.04	.07			
4. Share of the resources	-.05	.11	.16*		
5. Efficacy	-.04	.11	.03	.07	
6. Soft Skills	.07	-.06	-.03	.02	.65**

\* $p < .05$ , \*\* $p < .01$

Source: Prepared by the author (2022).

According to Table 5, the three difficulties in the remote learning context most frequently mentioned by the students were the

decreased interaction/socialization with peers and teachers, the distraction/deconcentrating, and the difficulty in learning.

Table 5 - Difficulties perceived by students in the remote learning context

Difficulties	n	%
Decreased interaction/socialization with peers and teachers	92	36
Distraction/ deconcentrating	91	35
Difficulty in learning	75	29
Demotivation	38	15
Technological problems in terms of internet connection and equipment	35	14
Tiredness due to the number of hours spent in front of the computer.	29	11
Isolation/loneliness/sedentary lifestyle	18	11
High number of tasks and jobs	12	4.7

Source: Prepared by the author (2022).

The three advantages in the remote learning context most mentioned by the students were the flexibility of time to organize the study, the elimination of wasted time on commuting and savings in economic terms, and the fact that it was more comfortable/less tiring (cf. Table 6).

Table 6 - Advantages perceived by students in the remote learning context

Advantages	n	%
Flexibility of time to organize the study	91	35
Eliminates wasted time on commuting and savings in economic terms	84	33
More comfortable / less tiring	60	23
More availability of teachers to clarify doubts and collaboration with colleagues.	23	9
Ease of access and greater diversity of study materials (e.g., recording lessons and watching later).	23	9
More autonomy	22	9
Improving technological skills and availability of technology	19	7
Increased productivity	12	5
Ease of learning	8	3
Greater concentration, since there are no distractions caused by colleagues	5	1.9

Source: Prepared by the author (2022).

In the regression model, all variables that were considered conditional factors or difficulties in the remote learning context were regressed onto Efficacy, conditional factors accounted for significant variance in Efficacy ( $\Delta R^2 = .13$ ,  $F_{8,248} = 4.70$ ,  $p < .001$ ; Table 7). Specifically, Distraction/deconcentrating, Technological problems in terms of internet connection and equipment, Difficulty in learning, Demotivation, and Isolation/loneliness/sedentary lifestyle were significantly and negatively associated with Efficacy.

Table 7 - Conditional factors in the remote learning context of Efficacy

Predictors	<i>R</i> <sup>2</sup>	<i>B</i>	<i>SE</i>	<i>t</i>	<i>P</i>
<b>Distraction/deconcentrating</b>		<b>-0.30</b>	<b>0.11</b>	<b>-2.65</b>	<b>0.01</b>
High number of tasks and jobs		.12	0.26	0.51	0.61
Decreased interaction/socialization with peers and teachers		-.01	0.11	-0.03	0.98
<b>Technological problems in terms of internet connection and equipment</b>		<b>-0.34</b>	<b>0.16</b>	<b>-2.14</b>	<b>0.03</b>
Tiredness due to the number of hours spent in front of the computer.		-.06	0.17	-0.32	0.75
<b>Difficulty in learning</b>		<b>-0.40</b>	<b>0.12</b>	<b>-3.37</b>	<b>0.00</b>
<b>Demotivation</b>		<b>-0.37</b>	<b>0.15</b>	<b>-2.39</b>	<b>0.02</b>
<b>Isolation/loneliness/sedentary lifestyle</b>		<b>-0.33</b>	<b>0.18</b>	<b>-1.88</b>	<b>0.06</b>

Note. Bold font indicates significant finding.

Source: Prepared by the author (2022).

Then, in the remote learning context, all variables that were considered conditional factors were regressed onto Soft Skills conditional factors, which accounted for significant vari-

ance in Soft Skills ( $\Delta R^2 = .07$ ,  $F_{8,249} = 2.30$ ,  $p < .001$ ; Table 8). Specifically, Difficulty in learning and Demotivation were significantly associated with Soft Skills.

Table 8 - Conditional factors in the remote learning context of Soft Skills

Predictors	<i>R</i> <sup>2</sup>	<i>B</i>	<i>SE</i>	<i>t</i>	<i>p</i>
Distraction/deconcentrating		-0.08	0.11	-0.73	0.47
High number of tasks and jobs		0.42	0.24	1.72	0.09
Decreased interaction/socialization with peers and teachers		0.01	0.11	0.13	0.90
Technological problems in terms of internet connection and equipment		0.15	0.15	0.97	0.33
Tiredness due to the number of hours spent in front of the computer.		0.01	0.16	0.05	0.96
<b>Difficulty in learning</b>		<b>-0.23</b>	<b>0.11</b>	<b>-2.03</b>	<b>0.04</b>
<b>Demotivation</b>		<b>-0.32</b>	<b>0.14</b>	<b>-2.25</b>	<b>0.03</b>
Isolation/loneliness/sedentary lifestyle		-0.24	0.17	-1.41	0.16

Note. Bold font indicates significant finding.

Source: Prepared by the author (2022).

A series of hierarchical regressions were also run to test if the facilitate factors in the remote learning context could predict Efficacy and Soft Skills dimensions. The results were respectively, for Efficacy ( $\Delta R^2 = .08$ ,  $F_{10,247} = 2.201$ ,  $p < .05$ ; Table 9) and for Soft Skills ( $\Delta R^2$

$= .04$ ,  $F_{10,247} = 0.94$ ,  $p > .001$ ; Table 9). Specifically, More autonomy and Ease of access and greater diversity of study materials (e.g., recording lessons and watching later) could predict Efficacy. In the case of the predictors of skills the model was not significant.

Table 9 - Facilitate factors in the remote learning context of Efficacy

Predictors	<i>R</i> <sup>2</sup>	<i>B</i>	<i>SE</i>	<i>t</i>	<i>p</i>
Flexibility of time to organize the study		0.00	0.12	0.00	1.00
<b>More comfortable / less tiring</b>		<b>0.36</b>	<b>0.13</b>	<b>2.67</b>	<b>0.01</b>
Eliminates wasted time on commuting and savings in economic terms		-0.02	0.12	-0.16	0.87
<b>More autonomy</b>		<b>0.42</b>	<b>0.21</b>	<b>2.04</b>	<b>0.04</b>
More availability of teachers to clarify doubts and collaboration with colleagues.		0.23	0.20	1.14	0.26
Improving technological skills and availability of technology		0.05	0.22	0.23	0.82
<b>Ease of access and greater diversity of study materials (e.g., recording lessons and watching later).</b>		<b>0.40</b>	<b>0.20</b>	<b>2.04</b>	<b>0.04</b>
Greater concentration, since there are no distractions caused by colleagues		-0.48	0.41	-1.15	0.25
Increased productivity		-0.49	0.27	-1.81	0.07
Ease of learning		0.13	0.32	0.41	0.68

Note. Bold font indicates significant finding.

Source: Prepared by the author (2022).

Concerning the facilitator factors, there was no significant impact on soft skills (cf. Table 10)



Table 10 - Facilitate factors in the remote learning context of Soft Skills

Predictors	<i>R</i> <sup>2</sup>	<i>B</i>	<i>SE</i>	<i>t</i>	<i>p</i>
Flexibility of time to organize the study		-0.10	0.11	-0.91	0.36
More comfortable / less tiring		-0.10	0.13	-0.79	0.43
Eliminates wasted time on commuting and savings in economic terms		-0.05	0.12	-0.41	0.68
More autonomy		0.11	0.19	0.57	0.57
More availability of teachers to clarify doubts and collaboration with colleagues.		0.31	0.18	1.66	0.10
Improving technological skills and availability of technology		-0.12	0.21	-0.57	0.57
Ease of access and greater diversity of study materials (e.g., recording lessons and watching later).		0.28	0.18	1.52	0.13
Greater concentration, since there are no distractions caused by colleagues		0.30	0.38	0.79	0.43
Increased productivity		-0.14	0.25	-0.54	0.59
Ease of learning		-0.18	0.30	-0.60	0.55

Note. Bold font indicates significant finding.

Source: Prepared by the author (2022).

The results of the study suggest that in the context of remote learning, the difficulties in learning and demotivation impact students' Soft Skills development as a conditional factor (cf. Table 11). Aspects related to technology, learning difficulties, demotivation, distraction/deconcentrating, and isolation/loneliness/

sedentary lifestyle are considered factors that condition the efficacy perceived by students in the context of distance learning. In turn, comfort/less tiredness, autonomy, and the ease of access and greater diversity of study materials are observed as factors that facilitate the efficacy of learning as perceived by students.

Table 11 - Synthesis of facilitative and conditional factors in the remote learning context, perceived by the students.

Factors in the remote learning	Efficacy	Soft skill
Facilitate factors	<ul style="list-style-type: none"> <li>– More comfortable / less tiring</li> <li>– More autonomy</li> <li>– Ease of access and greater diversity of study materials</li> </ul>	--
Conditional factors	<ul style="list-style-type: none"> <li>– Distraction/deconcentrating</li> <li>– Technological problems in terms of internet connection and equipment</li> <li>– Difficulty in learning</li> <li>– Demotivation</li> <li>– Isolation/loneliness/sedentary lifestyle</li> </ul>	<ul style="list-style-type: none"> <li>– Difficulty in learning</li> <li>– Demotivation</li> </ul>

Source: Prepared by the author (2022).

According to the results, technological problems (e.g., internet connection and equipment) and demotivation condition the efficacy of learning, which is consistent with previous literature (e.g., GILLIS; KRULL, 2020; JINDROVÁ; VYDROVÁ; DÖMEOVÁ, 2013; PARK et al., 2020;

PEÑARRUBIA-LOZANO et al., 2021). Allen et al. (2019) report that online communication is perceived as less personal, thus creating less social interaction, resulting in isolation/sedentary, affecting student satisfaction and perceived effectiveness, which is consistent with

our results. This idea is also in line with Bork and Rucks-Ahidiana (2013), who mention that in distance learning, the absence of the usual process of socialization that occurs in the traditional classroom can lead to the isolation and sedentary lifestyle of students, forcing instructors to reinforce the role of facilitators of learning and communication, while students must increase their own activity in acquiring knowledge (autonomy) and accept greater responsibility in the learning process. Dvořáková et al. (2021) and Sun et al. (2008) state that one of the main contributions to student satisfaction and, consequently, to the efficacy perceived by students are the teaching materials and the ease of access to them, which is consistent with the results obtained. The present results are in line with Dvořáková et al. (2002), the abrupt transition to a digital learning environment, in which some students may lack the necessary digital equipment and media for online learning and their responsibilities may be unclear, has led to demotivation and learning difficulties, with implications for the development of soft skills perceived by students.

## 5 CONCLUSIONS

The study shows that there are facilitating and conditioning factors that influence the perception of the efficacy and improvement of students' skills, in traditional educational institutions that made a rapid transition to online education, due to the COVID-19 pandemic. With the pandemic situation we experienced and given that we live in an era of digitalization, it became evident that society needs flexible and resilient education systems as we face unpredictable futures. In this context, the results of this study are relevant for teachers and managers of educational establishments who want to develop a process of digital transformation and think about a strategic change after COVID-19, presenting a set of conditioning and facilitators factors for the development of students' soft skills and the efficacy of the teaching and learning process, which in the future should be anticipated. In summary, we believe that this experience of remote teach-

ing in a pandemic context should be seen as a learning process from which we must learn lessons, whether as leaders, teachers, or students, and that it invites us to rethink our approach to education.

The current research has some limitations. The cross-sectional design of the study can be seen as a limitation; to better understand the reality of remote learning, it will be necessary to carry out more longitudinal investigations; the sample size and convenience of the sample also did not allow for the generalization of the results to other national contexts. Another limitation of the present research is the lack of information on participants' pre-confinement remote learning experiences and the type of learning management systems used. Future studies post COVID-19 should investigate these factors as a measure of comparison and be extended to other levels of education.

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