Competence Development in an Undergraduate Physiotherapy Internship Program during the COVID-19 Pandemic: A Blended Learning Approach

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Abstract: Introduction: The COVID-19 pandemic has led to the creation of different teaching adaptations shared in health degrees, such as blended teaching methods, including face-to-face learning combined with online learning. Objectives: One objective was to compare the academic performance scores aligned to worked competencies during physiotherapy internships between two groups: one exposed to a blended learning (b-learning) educational model and another exposed to a face-to-face teaching system during internships. Another objective was to study the correlation of the marks of the following year's internship subject. Design: Analytical study of retrospective cohorts. Settings: Physiotherapy university degree program. Participants: Three hundred students working towards attaining Physiotherapy degrees. Methods: Two groups were studied: the Non-Exposed Cohort, which had 100% face-to-face attendance at the clinical center, and the Exposed Cohort, which experienced b-learning and had 50% attendance at the clinical practice center and 50% completion of asynchronous online complementary training during lockdown. Results: The results show that both in the Exposed Cohort and in the Non-Exposed Cohort, the qualifications and, therefore, the competence development achieved by the students were similar. A stronger correlation with skills activities developed in the Exposed Cohort in relation to the final mark of the following year's internship subject has been found. Discussion and Conclusions: For all the competencies developed during CS II, participants obtained the same grades in both groups, so it is concluded that the online activities implemented during confinement mixed with face-to-face teaching were useful for the achievement of these skills. Thus, b-learning is a good method for developing clinical practice competencies in physiotherapy students. Contribution of the Paper: Blended teaching (b-teaching) is useful for developing internship competencies. It is necessary to align the activities developed in internships with the evaluated skills.

Keywords: internship; physiotherapy student; university; COVID-19 pandemic; b-learning

1. Introduction

The health situation experienced in Spain during the 2020 academic year has led to the creation of different teaching adaptations for a period of 5 months (March–July 2020) as a consequence of the COVID-19 pandemic and declared lockdown. These adaptations share similar characteristics in different health degrees, such as nursing, medicine, or physiotherapy. It is necessary to carry out an in-depth study on the results derived from the different methodologies implemented and the new evaluation systems carried out in the field of internships in health education programs, especially in the field of internships,

which are traditionally carried out in a 100% face-to-face model, without finding proposals in the bibliography to change this system to a b-learning one in health sciences [1].

The fundamental pillars on which the teaching methodologies used during the internships are based are the following: problem-based learning (PBL), reflective journal writing, and the application of evaluative rubrics of the student's internship and clinical practice by the clinic center's tutor.

With regard to PBL, some studies conclude positive benefits for both students' education and clinical practice. There is evidence of the acquisition of a high level of motivation and self-direction through PBL, with proactive students' skills being developed as a holistic approach to problem-solving and effective teamwork [2]. The development of PBL within the framework of clinical practices is carried out in person, associated with the student's experience during their clinical stay with real patients [3]. However, there are few studies that analyze the educational result of the use of PBL during internships. In the study by Koh et al., a group of students who use PBL in their nursing studies in subjects taught at the university is compared to another group that uses master classes, and the possible variations in the results of the practices are analyzed. Associated with the use of this methodology in the subjects of the degree, no differences between both groups have been found [4].

As for the use of reflective diaries, it represents a pedagogical method aimed at promoting the student's reflective capacity. New teaching models reinforce the development of higher-order thinking through methodologies that evoke reflective training processes [5]. Consequently, reflective learning is now widely used in health education programs [6], especially in internship programs.

Of these three methodologies developed during internships, only the reflective diary has been used to develop skills related to self-learning, which does not require face-to-face attendance; however, both PBL and the skills in the clinical practice itself have been strongly associated with competencies developed with the student's face-to-face learning at the hospital.

On the other hand, the assessment of the development of clinical placements shares items in the different healthcare degrees. An example of these items can be taken from the Canadian Assessment of Clinical Performance scale [7], on which the creation of the rubrics for the acquisition of competencies in the clinical practice subjects of the physiotherapy degree was based and which assesses aspects such as objective assessments, effectiveness of interventions, treatment strategies, subjective evaluations, interprofessional relations, conflict management, legal/ethical requirements or communication skills [7], teamwork, proactivity, and clinical reasoning [8].

Competence is defined as an integrated set of knowledge, skills, attitudes, and capabilities that a person possesses and effectively applies in a contextualized manner to achieve successful outcomes in a specific area. It goes beyond the mere acquisition of theoretical knowledge, as it involves the ability to practically and adaptively use that knowledge in real-life situations. Competencies are characterized as transferable, meaning they can be applied in different contexts and situations, and are oriented towards achieving specific goals. Additionally, competencies can be developed and improved over time through education, training, and experience [9].

These competencies are divided into generic competencies, which are those that provide applicable skills in any degree and develop tools to face the challenges that the different job opportunities entail, and specific competencies, which are those that are specific to the particular degree/subject [9].

The replacement of face-to-face classes with online equivalents was a necessity at the time of the lockdown. It meant a detriment to collaborative experiences, which are an opportunity for the development of different adaptability skills of students [1]. B-learning utilizes both online and face-to-face learning strategies in an effort to maximize both learning environments. Online learning may be synchronous or asynchronous and may replace face-to-face time [10].

The field of distance learning has seen significant growth, with two main approaches being e-learning and b-learning. E-learning involves online education, offering advantages such as accessibility from anywhere with an Internet connection, flexibility in terms of time, and the use of multimedia resources [11]. However, it lacks physical contact, making it challenging to foster social connections, and requires access to the necessary technology. Within the e-learning model, the role of the e-professor is crucial in designing and facilitating online educational experiences, providing timely feedback, and maintaining an active presence in the virtual environment [12,13]. On the other hand, b-learning combines online and face-to-face learning. This approach allows for social interaction, flexible learning environments, and the use of digital platforms alongside attending in-person classes. Regarding the role of the e-professor and e-student in b-learning, the e-professor in b-learning is considered to act as a facilitator both in the online environment and in the physical classroom. He or she must ensure that the online content is in sync with the face-to-face sessions and encourage interaction and collaboration among students in both contexts. The e-learner in b-learning should be proactive in their participation both online and in the classroom, taking advantage of opportunities to delve deeper into topics and actively participate in discussions [14].

This new model can foster the development of other aspects such as teaching, advocacy, openness to telecare, research, creativity, and social responsibility [15], so it is necessary to study learning outcomes in order to understand the differences in different academic models, thus avoiding gaps in the system. In addition, and focusing specifically on the field of internships, there are no studies that analyze whether a b-learning system with part face-to-face learning and part remote training could have good results in the development of student competencies. While there are studies published in other areas, such as technological degrees [16], there are no studies that compare the benefits of a 100% face-to-face system with a b-learning one in health care degree internships.

The situation of confinement during COVID-19 prevented the completion of face-to-face teaching in clinical practice, something that is considered essential in health sciences education due to the need for contact with real patients for the development of competencies necessary for the approach to the patient and his or her family. The concern that the students had a lack of development in these competencies due to the situation experienced prompted the present study.

The objectives of this study were (1) to compare the marks in internship between the group that received completely face-to-face learning with the group exposed to the b-learning system and (2) to analyze the effect of exposure to b-learning learning on the marks obtained in the internship of the following academic year. As a first hypothesis, we propose that there will be no differences in academic performance between the cohorts, and secondly, that the cohort exposed to b-learning will transfer the generic and specific competencies to the internship of the following academic year.

2. Methods

Design: An analytical study of retrospective cohorts of 300 students between the academic years 2019–2020 and 2020–2021 is carried out. A description and comparison are made of the academic marks obtained in the Clinical Stay II (CSII, 3rd-year subject consisting of 200 clinical presential hours, prerequisite for practicum) and the practicum (4th-year subject, 710 clinical presential hours), dividing the sample into two cohorts:

Participants:

Non-Exposed Cohort (NEC) to b-learning, including 150 students without confinement (2020–2021 academic year) in CSII, and the activities carried out were 100% face-to-face attendance at the clinical center.

Exposed Cohort (EC) to b-learning, including 150 students affected by the confinement decreed during the pandemic caused by COVID-19 (2019–2020 academic year). The b-learning carried out in the CSII was 50% attendance at the clinical practice center, developed before the declaration of the state of alarm and, therefore, confinement, and 50% completion

of asynchronous online complementary training during confinement due to the state of alarm.

At university, after the state of emergency was declared, theoretical face-to-face teaching was directly replaced by online training strategies, adapting the contents and methodologies so that the competencies described in the different subject guides could be worked on. The activities developed in the CSII were the following:

Six asynchronous visualization videos focused on the work of clinical reasoning, communication, decision-making, conducting patient anamnesis, and integration of practical and theoretical knowledge by applying it to specific clinical cases and providing effective and comprehensive care. The tutor communicated with the students through a virtual platform explaining the activity and the evaluation mode, as well as the evaluation criteria and objectives. Interaction between the tutor and the students was also encouraged to address any questions or concerns they may have during the development of the activity. After viewing the videos, a reflective commentary on the activity was collected, and an objective summative test of 20 multi-answer questions was carried out, which represented 40% of the mark, averaging with the qualification provided by the clinical center during attendance in person.

The evaluation rubric for the Bachelor's degree in Physiotherapy internships is based on generic and specific competencies:

Clinical practice: 70% of the grade, which included decision-making, ethical commitment, interpersonal skills, interdisciplinary teamwork, adapting to new situations, developing and defending arguments, and problem-solving.

Measurable items of the rubric: 1. Skills in palpation of structures. 2. Electrotherapy and basic therapy knowledge. 3. Relationship–communication with patient, relatives, and interdisciplinary team. 4. Teamwork. 5. Interest in progressing. 6. Critical thinking.

Clinical history: Constituted 24% of the qualification. Includes ability to design the Physiotherapy intervention plan or treatment, ability to prepare and complete the Physiotherapy Clinical History, ability to evaluate the evolution of the results, and the integration of practical and theoretical knowledge by applying it to specific clinical cases.

Measurable items of the rubric: 1. Functional evaluation. 2. Objectives. 3. Assessment of results. 4. Recording of results. 5. Critical thinking.

Reflective diary: Constituted 6% of the grade. Its focus is on students' abilities to make judgments that include reflections on relevant social, scientific, or ethical issues.

Measurable items of the rubric: 1. Student progress. 2. Experiences analysis and reflection. 3. Own emotions and how to manage reflection.

The dependent variables in both subjects are the final mark, the mark of the three competencies (i.e., clinical practice, clinical history, and reflective diary), and the mark for each measurable item.

3. Data Analysis

Medians and measures of position (i.e., minimum, maximum, and percentile) were used to report the descriptive data. Prior to the inferential analysis, the Kolmogorov–Smirnov test was applied to contrast the hypothesis of normality of the population, and we assumed that data not normally distributed as p values are less than 0.05. Mann–Whitney U test was performed to find out differences in the academic achievement scores between cohorts (EC vs. NEC). Wilcoxon's rank-sum test was performed in each cohort to compare the academic achievement scores between subjects of the two study courses. Finally, Spearman's test was performed in each cohort to verify if there was a correlation between the CSII and the Practicum scores. A significant difference and correlation were accepted when $p < 0.05$. The data were analyzed with the free statistical software JAMOVI (Version 2.3.) [17].

4. Results

Table 1 presents the descriptive results for the two cohorts of students and the subjects of the two study courses. It can be seen that the medians are similar between the EC and the NEC both in the final mark of the subject and in its measurable items. However, the median was slightly higher than 8.3 points in two cohorts and competencies, except for 8.0 points from the Practicum Reflective Diary in the NEC. In other words, reflective thinking competence was slightly less developed in this cohort. As for the minimum academic score of the Practicum, both cohorts show scores equal to or greater than 5 points, while in some CSII students, this score was lower. Percentile values were also similar between cohorts. It can be highlighted that 25% of the students in both cohorts and practically in all the competencies reached an academic score higher than 9.0 points. Except for the Practicum Reflective Diary score in the NEC and the Practicum total score, where the 75th percentile was around 8.8 points in both cohorts.

Table 1. Descriptive results of the evaluations for each cohort.

		Clinical Stay II				Practicum			
	Cohort	**Total Score**	**Clinical Practice**	**Clinical History**	**Reflective Diary**	**Total Score**	**Clinical Practice**	**Clinical History**	**Reflective Diary**
N	NEC	68	68	68	68	68	68	68	68
	EC	113	113	113	113	113	113	113	113
Median	NEC	8.42	8.80	8.85	8.25	8.47	9.25	9.00	8.00
	EC	8.69 *	9.00	8.80	8.30	8.34 *	9.00	9.00	8.30
Minimum	NEC	4.50	5.70	5.30	4.00	6.19	5.20	5.60	5.00
	EC	4.00	5.80	6.00	0.00	5.97	5.20	5.00	5.00
Maximum	NEC	9.66	10.0	10.0	10.0	9.25	10.0	10.0	10.0
	EC	9.95	10.0	10.0	10.0	9.54	10.0	10.0	10.0
25 percentile	NEC	7.90	8.00	8.00	7.00	7.89	8.65	8.00	7.00
	EC	8.17	8.00	7.80	7.20	7.90	8.30	8.00	7.30
50 percentile	NEC	8.42	8.80	8.85	8.25	8.47	9.25	9.00	8.00
	EC	8.69	9.00	8.80	8.30	8.34	9.00	9.00	8.30
75 percentile	NEC	9.14	9.70	9.33	9.30	8.80	9.53	9.50	8.85
	EC	9.10	9.70	9.50	9.30	8.77	9.80	9.60	9.00

Note. * Statistically significant difference $p < 0.001$.

According to the results of the Mann–Whitney U test, there were no significant differences in the median of the evaluations between the cohorts, either in CSII or Practicum (Table 2). These results indicate that the EC achieved a score like the NEC in all the skills of the two subjects.

Table 2. Results of the Mann–Whitney U test for the comparison of evaluations between cohorts.

Evaluations	**Z Score**	**Mann–Whitney U Statistic**	**p**
CSII			
Total Score	−1.419	3358	0.156
Clinical Practice	−0.630	3628	0.529
Clinical History	−0.489	3676	0.626
Reflective Diary	−0.359	3720	0.720
Practicum			
Total Score	−0.664	3616	0.508
Clinical Practice	−0.204	3773	0.839
Clinical History	−0.418	3700	0.677
Reflective Diary	−1.214	3429	0.225

Tables 3 and 4 show the results of Wilcoxon's test for comparison within the cohort. When analyzing the NEC, no significant difference ($p > 0.05$) was found in the median of the evaluations between subjects of the two study courses, even though there was a tendency for the Clinical Practice and Clinical History scores to be higher in the Practicum in contrast to CSII (Table 1). In the EC, a significant difference was found between the median of the CSII and the Practicum total scores ($p < 0.001$). The median of the total score of the Practicum was slightly lower than the CSII total score (8.34 vs. 8.69, respectively) (Table 1 and Figure 1).

Table 3. Wilcoxon's test results for comparison of the academic achievement scores between subjects of the two study courses (NEC).

Clinical Stay	Practicum	Z Value	Wilcoxon Statistic	*p*
Final Score CSII	Final Score	−1.115	1356	0.266
Clinical Practice	Clinical Practice	−1.483	793 [a]	0.142
Clinical History	Clinical History	−0.740	840 [b]	0.450
Reflective Diary	Reflective Diary	−0.891	1284 [c]	0.368

Note. [a] 5 pair(s) of values are repeated; [b] 7 pair(s) of values are repeated; [c] 1 pair(s) of values are repeated.

Table 4. Wilcoxon's test results for comparison of the academic achievement scores between subjects of the two study courses (EC).

Clinical Stay	Practicum	Z Value	Wilcoxon Statistic	*p*
Final Score CSII	Final Score	−4.229	4699	<0.001
Clinical Practice	Clinical Practice	−0.726	2404 [a]	0.458
Clinical History	Clinical History	−0.760	2543 [b]	0.445
Reflective Diary	Reflective Diary	−0.009	3014 [c]	0.961

Note. [a] 11 pair(s) of values are repeated; [b] 8 pair(s) of values are repeated; [c] 4 pair(s) of values are repeated.
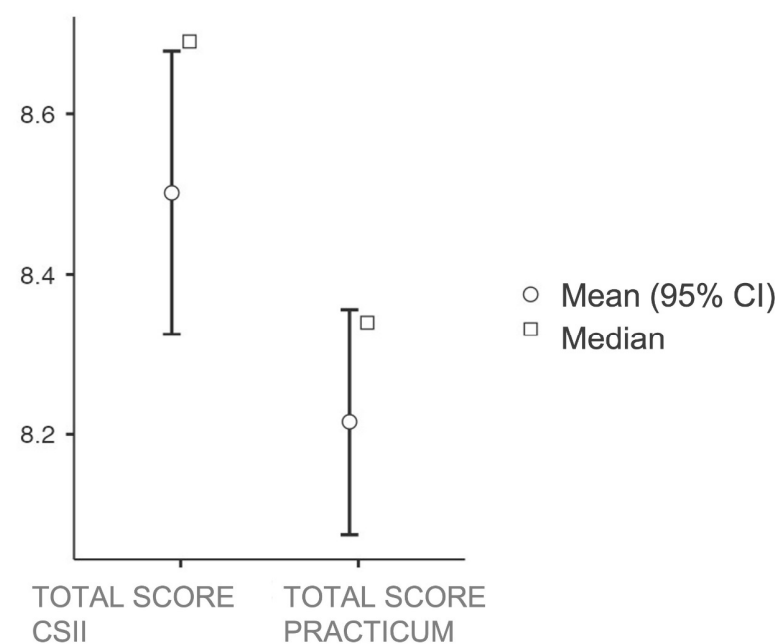
Figure 1. Median total score CSII–Practicum.

Finally, the results of the correlations between the CSII and the Practicum total scores for each cohort are shown. In both cohorts, a significant correlation was found between CSII and Practicum total scores (NEC: rho = 0.469, $p < 0.0001$; EC: rho = 0.438, $p < 0.0001$).

Figure 2 shows that these correlations were moderate and positive; that is, as the CSII scores increase, higher practicum scores are obtained.
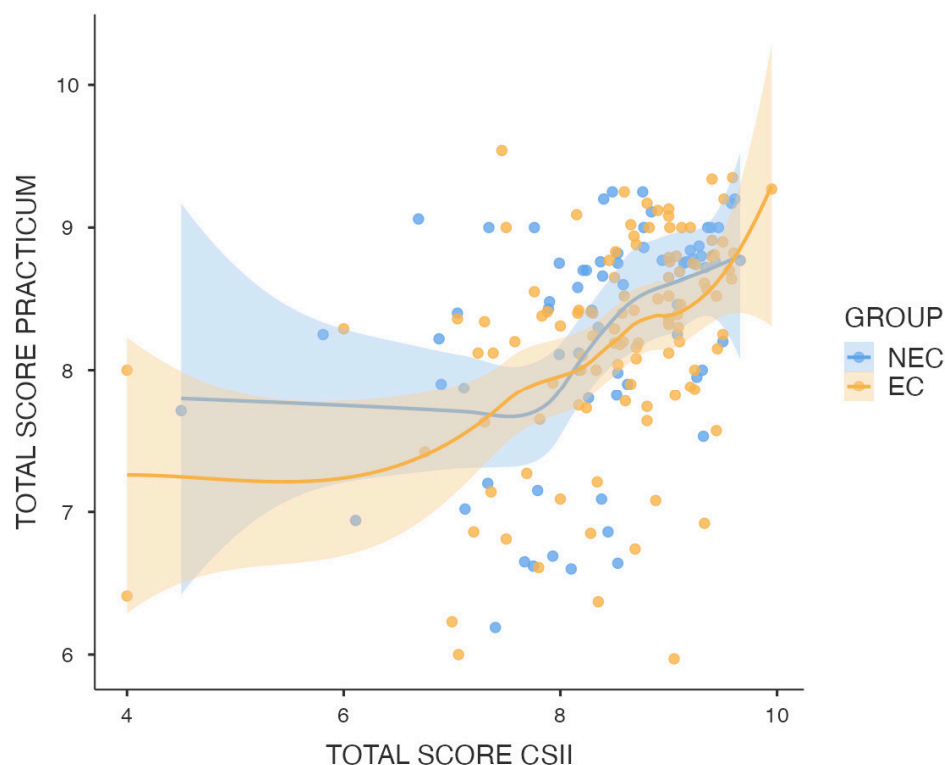
Figure 2. Correlation CSII–Practicum.

In the NEC, there was no correlation between both CSII total scores and the skills 2 to 5 of the Clinical Practice (i.e., Electrotherapy and basic therapy knowledge; Relationship–communication with patient, relatives, and interdisciplinary team; Teamwork; Interest in progressing; Critical thinking); as well as with skill 1 of the Reflective Diary in the Practicum (i.e., Student Progress). In other words, several skills achieved in CSII were not reflected in the Practicum. Other skills had positive but low correlation coefficients ($p < 0.05$). When analyzing the EC, the CSII total scores correlated significantly and positively with all the Practicum evaluations, which allows interfering that when the students received the curricular adaptations, they were able to transfer the skills achieved from the CSII to the Practicum. It should be noted that the correlation coefficient was low (Rho < 0.4).

5. Discussion

During the COVID-19 lockdown, the higher education sector experienced an unprecedented situation. Social distancing measures and the closure of educational institutions led to a rapid shift towards online and distance learning. This posed significant challenges for both professors and students. Universities had to quickly adapt their academic programs and develop online platforms to deliver classes and conduct assessments. Students had to adjust to a new learning environment, dealing with issues such as internet access, lack of face-to-face interaction, and difficulties in maintaining motivation and focus. Professors had to rethink their teaching methods and find creative ways to engage and involve students. Despite the challenges, higher education demonstrated resilience by swiftly adapting to the situation, utilizing technology and digital resources, and increasing the variety of activities developed to continue the educational process [1].

In this study, we present the results of a comparative study between two cohorts of students: one cohort was exposed to lockdown, and the other cohort was not exposed to it. The analysis focuses on the obtained grades and competencies development in the CSII and the practicum.

We also aimed to compare final marks in internships between EC and NEC. Based on the results of the study, we can establish that, both in the EC and in the NEC, the final scores and, therefore, the competence development achieved by the student were similar, both in the final marks for the practical subjects and in the marks obtained in the different measurable items, which are associated with the competencies already described. We can confirm the first hypothesis.

Another aim of this study was to analyze the effect of exposure to b-learning on the scores of academic performances in internships of the following academic year in EC and NEC groups. We found that the more CSII scores increase, the higher the practicum scores obtained in both groups; so, the second hypothesis has also been confirmed.

This agrees with the results obtained by Cañadas in 2021 [18], who compared the perceived result of the level of competence acquired by Physical Education teachers training students in face-to-face and blended formats during the COVID-19 pandemic, concluding that all competencies are developed to the same level in face-to-face and blended learning, with differences being found only in two specific competencies, with less development in the blended learning format.

Previous studies [12] show that undergraduate students prefer face-to-face classes, in traditional classrooms and face-to-face interactions, to the online method, although it is controversial, according to the authors. Although online education offers students control over the content, pace and sequence of learning, time, and even media, most participants prefer the combination of the classic classroom with e-learning [19].

In the NEC, the students obtained lower scores in the reflective diary without these differences being statistically significant, so we could not assume that the competence of reflection and reflective thinking was less developed in this group, being of a higher level in the EC. It could be that the experience of not being able to go to the center developed the student's reflective capacity more, probably associated with the experience of the pandemic and the social, economic, and personal repercussions of confinement and the health consequences of the pandemic. In any case, as this result is not statistically significant, we cannot conclude this association.

According to our results, both groups achieved the same competence development. From this, it could be deduced that the b-teaching system adaptations applied fulfilled the function of making up for attendance at the clinical centers in all the competencies worked on in the CSII subject and that, therefore, this optimal development had no consequences on the qualifications in the clinical practicum subjects in the following year, the practicum, when comparing with the NEC [20]; that is, no statistically significant differences were found when comparing the grades of the students who had the teaching adaptation, neither in the CSII subject in the EC versus the NEC nor in the practicum in the following year. Therefore, it seems clear that the b-teaching system during internships is a viable option to be applied in the future in the physiotherapy degree since the same levels of competence are achieved with it as with the 100% face-to-face system.

The students included in the NEC during the CSII maintained a similar trajectory and tended to obtain higher marks in clinical history and clinical practice. Taking into account that these activities account for the bulk of the student's final grade, especially clinical practicum, we can conclude that there is, therefore, a positive evolution, improving these competencies in the final year, without this difference being statistically significant; something that could be understood naturally due to the student's own personal growth as a person and the accumulated competence growth after the four years of study [21]. On the other hand, the practicum is the subject with the longest duration in terms of face-to-face hours in the clinic, assisting real patients. This may also influence the fact that it is during this last clinical practicum subject that the student develops their clinical practice competencies the most [15]. The longer the face-to-face time, the greater the development of competencies.

However, we found a statistically significant difference being higher than the median of the CSII final mark with respect to the median practicum final mark in the EC, reversing

this natural evolution that we argued previously. The explanation for this result may be due to the fact that the design of the activities and their combination within the b-learning system was adequate to achieve optimal competence development, exceeding the values of the NEC. Furthermore, the students were motivated to carry out online adaptive activities, improve the quality of training, and develop problem-solving skills, for example, above those of their peers who were not exposed to confinement [20]. Although a statistically significant difference was found, we consider that it could not be academically relevant since the difference in the mark is a few tenths within a range of remarkably high marks, which may not show a significant impact on the academic performance of the student. It is necessary to study this effect more in the long term to know its relevance.

In this sense, we should consider that the assessment system of the NEC was different from that of the EC, the latter including a multi-response test. Other studies show that a good result in theoretical tests is not related to nor does it predict a similar result with practical rubrics assessment [22].

On the other hand, in NEC, there was no correlation between both CSII total scores and the skills 2 to 5 of the Clinical Practice (i.e., Electrotherapy and basic therapy knowledge; Relationship–communication with patient, relatives, and interdisciplinary team; Teamwork; Interest in progressing; Critical thinking). Regarding the first item, it was developed in the Clinical Stay I (CSI) carried out in the 2nd year of the Physiotherapy degree. This item does not represent the main objective of work in the CSII, which focuses more on specific techniques such as bandages or trigger point treatment; in fact, the centers selected to carry out CSII are more specific for manual techniques and not for Electrotherapy. However, it is true that the rubrics of these two internships, CSI and CSII, are similar; they do not differ. The research team plans to eliminate this first item from the CSII rubric in the following years. Regarding the rest of the items, the results indicate that students do not develop skills such as communication or teamwork and that they probably need more practice time to reach higher levels, following this natural evolution within the clinical internship program of the degree in Physiotherapy [21]. It could be proposed to establish clearer levels of these competencies, evaluating more basic levels in the CSI and more advanced in the CSII.

These conclusions give us clarity as to the possible implementation of virtual teaching methodologies in a b-learning educational system for the good development of the competencies worked on in the clinical practices of the degree in Physiotherapy, with these methodologies being available for the future of the degree.

6. Implications of the Study

It is traditionally believed that competencies acquired in clinical practice are only developed in face-to-face learning. The results of the present study indicate that there may be controversy in this assertion and that b-learning may be useful for the development of these same competencies. The main contribution of this study is that b-teaching is useful for developing internship competencies. Moreover, it is necessary to align the activities developed in internships with the evaluated skills.

The theoretical implications of the research highlight that b-learning is a viable approach to developing the clinical competencies of undergraduate students. It also emphasizes the importance of adapting teaching methods according to the context and needs of students, suggesting that by combining online instruction with face-to-face practical activities, b-learning can be particularly beneficial for clinical learning. In terms of practical implications, it is highlighted that b-learning offers a learning experience as valuable as face-to-face learning. This finding raises b-learning, for the first time, as a viable alternative for future educational programs focusing on clinical practice development.

7. Conclusions

All the competencies developed during CS II obtained the same grades in both groups, so it is concluded that the online activities implemented during confinement were useful

for the achievement of these skills. B-learning is a good method for developing clinical practice competencies in physiotherapy students. One of the most significant aspects is the demonstration of similar outcomes between b-learning and face-to-face learning, making b-learning a viable alternative when adverse circumstances, such as the pandemic, prevent physical attendance. This provides a reassuring prospect that future challenges can be met without jeopardizing the achievement of clinical competencies. Consequently, b-learning emerges as an effective solution to maintain educational progress and clinical skills development in challenging situations. These findings open new perspectives in the educational field, encouraging educators and trainers to consider b-learning as a valuable tool to ensure the quality and continuity of university clinical education.

This study has some limitations, such as the fact that the b-learning system has been implemented without mixing both methodologies at the same time, but rather each of them at different times. We do not know the result if the b-teaching had been developed with both systems (face-to-face and online teaching) at the same time. Furthermore, the confinement situation due to the COVID-19 pandemic was an exceptional situation, which is difficult to reproduce.

As future lines of research, we plan to test the implementation of this b-learning system, developing face-to-face and online classes at the same time during a school year. In addition, an action research study will be initiated to implement different levels of competence in the rubrics of the three internships for the Physiotherapy degree.

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