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## Perspectives on teaching performance after COVID-19

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### Abstract

The evaluation of a teacher's performance is conducted subjectively rather than objectively to determine the students' educational experience and the demands placed on them by the university which provides teachers with a backup plan. The objective of this research is to analyze and describe the perspectives on teaching performance after COVID-19. A conventional, anonymous and voluntary sample of 2263 university students from state and private universities was used in the quantitative approach of a descriptive correlational type. Teaching performance was assessed using a questionnaire with 20 items that were divided into five categories: explanation of criteria, illustration, supervision of practice and learning activities, feedback and evaluation. The findings of the research show that there is good virtual teaching performance. The university teacher shows that they are able to teach in a hybrid way. A Cronbach's alpha of 0.946 was obtained and several statistical tests were performed such as total mean (3.733), standard deviation (1.064), ANOVA with Turkey's non-additivity test (sum of squares 81.102,  $gl=19$ ,  $F=12.035$ ), Hotelling's t-squared test (283.464,  $F=14.800$ , Sig. 0.000), KMO and Bartlett's test (KMO=0.977), Bartlett's test of sphericity with chi-square 52808.872,  $gl=190$ , Sig. 0.000. University professors demonstrated a good teaching performance in front of students, having empathy with their students and managing to place themselves among people with digital competences and within the society of the digital world.

**Keywords:** Educational quality, Educational quality, Online learning, Post-COVID-19, Hybrid learning, Teacher performance.

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**Transparency:** The authors confirm that the manuscript is an honest, accurate, and transparent account of the study; that no vital features of the study have been omitted; and that any discrepancies from the study as planned have been explained. This study followed all ethical practices during writing.

**Institutional Review Board Statement:** The Ethical Committee of the Universidad Cesar Vallejo, Peru has granted approval for this study on 10 September 2022 (Ref. No. N°280-UCV-F-LO-EPG).

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## 1. Introduction

Good teaching performance is characterized by having positive effects on students during didactic interaction whose educational models are interposed in university education with recurrent learning, quality criteria, identification, participation, enlightenment, feedback and evaluation [1]. During COVID-19, the perspectives of both teachers and students about learning have changed [2]. The most outstanding and challenging point was the online feedback and evaluation [3]. Course and instructor evaluations are crucial for determining the effectiveness and quality of instruction in order to make improvements [4]. The evaluation of instructors and the process of providing feedback to students [5] have contributed to the factors of success in teaching and learning during online education and this has been done only for the benefit of students to improve the quality of education and achieve better and higher indicators [6]. Teachers and students during COVID-19 depend on strategies that encourage online learning as equity of access to learning resources asynchronously [7, 8]. Teachers were praised since the simulated medical training did have positive effects on students [9]. Exchanges of best teaching practices in countries such as Europe were promoted to evaluate the educational systems of European member countries [10]. Hybrid education has good impacts on Chinese students due to the importance of application to support the choices of the institutions and the country as well as assisting to battle poverty in areas where education is inadequate [11]. It has shown much efficiency in teaching as well as in learning during the confinement time because despite being in full modernity digital education was in bad shape, but still education has found many ways to address it including with the participation of students [12], remembering that teleworking was present in all economic sectors during the pandemic. University teachers no longer had social or family lives due to the change in teaching mode [13]. These changes managed to have important repercussions and effects on teaching job roles either individually or in groups [14] because the more training the teacher has, the more prepared he is and not only the preparation of the teacher is measured but also the identification he has with the institution and the self-efficacy he presents in his teaching [15].

The different platforms helped the teachers become recognised as good teachers in various universities for their effective use of resources and management of learning environments. Some institutions even developed their own educational platforms with domains and distinctive tools [16]. It was difficult for the instructor to give students a quality education during distance learning [17]. The interaction between organization, supervisor and teachers showed significant changes during COVID-19. However, it was possible to identify the negative effects of job dissatisfaction and then mitigate the effects of telework and professional isolation with the help of the institution and certain techniques [18]. Similarly, students managed to inform themselves and make decisions regarding their teachers to express satisfaction in teaching, grades, mental effort, time load and psychological stress that affect the institution and cause abandonment of the courses [19]. Teachers integrated digital and non-digital technologies to provide good teaching demonstrating that they managed to have knowledge of AI to contribute more to pedagogy [20]. This has been observed from the evaluative approach that guarantees learning but without knowing the practices, benefits and challenges that will leave this approach such as the lack of time, teachers with little training and too large classes [21].

With the arrival of the pandemic, opportunities and ways to evaluate students and teachers have positive effects on ensuring the quality of education [22] because teachers relied on ICT to perform their academic work and did not present difficulty when interacting with digital skills [23]. Learning satisfaction is important at the university level which is why algorithms have been used to analyze and identify metrics of teacher performance through specificity, sensitivity, accuracy and precision [24] in productive technical education centers. Teacher satisfaction is also measured through their own students as well as entrepreneurial skills which are measured by advisors through continuous monitoring of students [25].

Many countries aim to improve the professional training of teachers according to the educational system to which they belong but they consistently discover that education policies offer little or no help in professional development, teacher quality assurance, teacher training for special education, experiential education, sociology and training centers [26] while in other countries, universities are adapting their curricula where the teacher fulfills his main role of teaching and the student learns either face-to-face or blended where formative assessment is always present [27]. Videos were used to simulate the abilities of future teachers and the accuracy of assessments and diagnoses produced favourable learning effects that will aid the teacher in their professional performance regarding the effectiveness of their knowledge [28]. These videos also rejected students' misconceptions in order to create a motivating teacher and raise performance levels because both the student and the motivated teacher will exhibit good performance [29]. Teaching performance has a positive effect on teaching [30] because the interest that both teachers and students have in learning is essential. The greatest interest was in the tasks and in the preparation of classes [31]. Evaluations of students, instructors and curriculum experiences are used by educational institutions to provide feedback and enhance the quality of education in the three areas that make up the foundation of any institution (students, teachers and curriculum experiences). Teaching performance is also measured by professional and personal identity [32].

Evaluations of teaching performance are positive and meant to serve as guidance but some instructors interpret them negatively, feeling frustrated or even embarrassed. The pandemic forced educators to receive ICT and digital literacy training [32]. However, they experienced increased burnout and stress, similar to how university students did as a result of their confinement [33]. The evaluation interval techniques were used to make decisions about the quality of education and analyze the results of some proposed approaches [34] and creative practices in university teaching and learning. The change in teaching had to face innovations for the academic development of the student and the professional development of the teacher where the teacher evaluation model has a better perspective [35] and even ICT had to develop and adapt to both teaching and learning together with evaluations and activities [36, 37].

### *1.1. Justification and Objectives of the Research*

The instructors' concern is how they will be judged when returning to face-to-face or blended learning. In online teaching, it was possible to check syllabic progress but on the other hand, in face-to-face classes, there was not enough time to consult the teacher or supervise which subject was progressing. The instructor is worried about how the delivery of the curriculum, learning resources, guides and instructional techniques will be assessed. The teaching qualification in each university aims to improve the teaching strategies and notice the deficiencies of the teachers. Therefore, the research objective is to analyze and describe the perspectives of virtual teaching performance after COVID-19 and from the same objective we propose the following as specific objectives:

- To analyze and describe the sociodemographic data of post- COVID-19 virtual teaching performance.
- To analyze the central tendencies of the post -COVID-19 virtual teaching performance perspective.
- To analyze the existence of a correlation between the elements of post-COVID -19 virtual teaching performance.

## **2. Methodology**

### *2.1. Sample*

The population selected for the research is the university students in the country of Peru who were in direct contact with university teachers in their classrooms after the return to face-to-face and sometimes virtual classes. 2,263 respondents were obtained of which 55.2% were female whose sample far exceeds the male which is 44.8%. Both modalities were practiced due to the provisions of national and local authorities to prevent some natural and social disasters.

The sample of university students is collected from two types of institutions, students from private universities representing 48.1% and students from state universities representing 51.9% of whom 56.2% are between 15 and 20 years old, 31.8% between 20 and 25 years old, 7.7% between 25 and 30 years old and 4.3% of the remaining ages. The participating students belong to areas of study such as professional careers in sciences (9.1%), professional careers in engineering (50%), professional careers in humanities and literature (15.3%), professional careers in social sciences (10.2%) and professional careers in health sciences (15.4%).

### *2.2. Instrument*

The instrument used for this research is the one used by [Bazán-Ramírez, et al. \[5\]](#) in their article already adapted to the Peruvian version. This instrument is made up of 20 questions divided into five dimensions which are: explanation of criteria (EC) which has 4 items and measures whether the teacher informs about the achievements reached during the classes, whether the teacher informs about the activities to be performed, whether the teacher informs about the requirements and criteria to solve some practice and whether the teacher explains the classes clearly. The second dimension is illustration (IL) which has four items and measures the clarity of the teacher, if they developed the task as feedback or exemplifies, if the teacher becomes knowledgeable about what they are teaching and if they develop daily problems in class. The third dimension deals with the supervision of the practice and learning activities (SP) which has four items and measures whether or not the teacher guides their students in the learning process, the orientation and accompaniment during the course, the conditions and monitoring and finally the activities of the students. The fourth dimension deals with feedback (RT) which has four items that measure whether the teacher corrects the students' performance, whether the teacher gives personal feedback on the assignments, whether the teacher teaches different ways of solving problems and whether the teacher reviews the assignments. The fifth and last dimension is evaluation (EV) which has four items and measures whether the teacher performed periodic evaluation tests, whether the teacher performed evaluations applied to daily problems, whether the teacher evaluated the knowledge capabilities of other courses and whether the teacher evaluated according to the objectives set. This is how this instrument is used to measure teaching performance after COVID-19. The scale used in this research is the five-point Likert scale where participants are marked according to their perception: 1=strongly disagree, 2=disagree, 3= neither agree nor disagree, 4=agree and 5=strongly agree. In the sociodemographic data, different scales were used according to the questions. In order to measure the perspectives of teaching performance after COVID-19, it was divided into four intervals: the average score between [1, 2] has very poor teaching performance, the average score between [2, 3] has poor teaching performance, the average score between [3, 4] has good teaching performance and the average score between [4, 5] has very good teaching performance.

The confirmatory factor analysis used in the Peruvian version of the measurement instrument has a slight difference with respect to the original version. The Cronbach's alpha of the Peruvian version (0.978) is higher than the original version. Several statistical tests were performed such as total mean (3.733), standard deviation (1.064), ANOVA (analysis of variance) with test for non-additivity of Turkey (sum of squares 81.102,  $gl=19$ ,  $F=12.035$ ), Hotelling's t-squared test (283.464;  $F=14.800$ , Sig. 0.000), KMO and Bartlett's test,  $KMO=0.977$  and Bartlett's test for sphericity with chi-squared 52808.872,  $gl=190$ , Sig. 0.000. These tests guarantee the validity and reliability of the research from a COVID-19 virtual teaching performance perspective, guaranteeing face-to-face and online (hybrid) education with students at the university level.

### *2.3. Procedure and Data Analysis*

The universities evaluate teachers through the students in order to know their weaknesses and be able to strengthen them. This is done every academic semester.

The basis for encouraging instructors to perform better in university courses is teacher evaluations. The student will be able to distinguish the teaching performance in these two modalities and have an accurate perspective on the teaching

performance. Therefore, four articles containing evaluations of teaching performance were selected because they were better adapted to Peruvian reality. Among these articles, the appropriate article is [Bazán-Ramírez, et al. \[5\]](#).

In the selection of the sample of university students, different regions of Peru were taken into consideration such as Ayacucho, Piura, Apurímac, Cusco, Madre de Dios, Lima, La Libertad, Junín and Tumbes due to the fact that we have access to the students through the colleagues of the respective universities. In these regions, students were selected from state universities and private universities that are enrolled in the respective semester. A Google form was used during the survey. This survey has indications of being anonymous and completely voluntary; it was configured so that they can fill out the survey with a Google account either personal or institutional. The first part of the survey is made up of sociodemographic data such as age, gender, type of university and area of study. The second part is made up of the dimensions of virtual teaching performance. The online survey was selected as a conventional sample because of the ease of reaching the students who received the link through messages or social networks always informing them about the objective of the research and requesting the respective authorization to disseminate the answers at the end of the research.

After receiving the teaching performance results approximately in the July 2022 semester 1, it was decided that universities would need to return to offering face-to-face classes or hybrid classes (online and face-to-face) depending on the circumstances of each region. The question is what will the teaching performance of the 2022-2 semester be like? As the classes would be hybrid after obtaining the selected instrument and conducting the survey with university students, we proceeded to download the survey from Google Forms. Once downloaded, after reviewing and not finding any errors, we proceeded to adapt it to SPSS (Statistical Package for Social Sciences) version 25 to analyze the value of reliability and statistical tests.

### 3. Results

First, the Cronbach's alpha values of each dimension of study were verified, where the highest value was the dimension of supervision of practice and learning activities (0.946) and the lowest value (does not affect the research) was the dimension of illustration (0.932). Both values are accepted by the scientific community because they are within the range of excellent, thus achieving a total Cronbach's alpha of 0.978 for all dimensions.

**Table 1** shows the results of the descriptive statistics of the dimensions to be investigated where the dimension with the lowest mean is the criterion explanation dimension (3.720), i.e. the university student has the perspective that the teacher does not adequately explain the course criteria to achieve the teaching objective and the students do not manage to understand the criteria or the indications to be able to perform the tasks adequately or to solve an exercise in class. The perspective of the students is not low since 3.720 is a high average value and very acceptable within the range of good teaching performance. The dimension with the highest average is evaluation (3.746). The university student has the perspective that the teacher evaluates permanently with theoretical and practical knowledge gives solutions and integrates the applications into the course with the purpose of achieving the objective set out in the syllabus. This value indicates that the virtual teaching performance is acceptable within the range of good teaching performance in the evaluation dimension.

**Table 1.**  
Descriptive statistics of the research dimensions.

Dimension	Mean for each dimension	Mean	Standard error of the mean	Standard deviation	Variance	Asymmetric	Kurtosis
EC1	3.720	3.749	0.0235	11.161	1.246	-0.822	0.075
EC2		3.743	0.0228	10.827	1.172	-0.807	0.135
EC3		3.717	0.0227	10.814	1.170	-0.803	0.148
EC4		3.669	0.0233	11.076	1.227	-0.719	-0.056
IL1	3.727	3.759	0.0222	10.575	1.118	-0.864	0.400
IL2		3.728	0.0221	10.504	1.103	-0.771	0.188
IL3		3.666	0.0220	10.470	1.096	-0.654	0.046
IL4		3.755	0.0218	10.370	1.075	-0.800	0.285
SA1	3.725	3.645	0.0234	11.110	1.234	-0.663	-0.115
SA2		3.709	0.0223	10.606	1.125	-0.704	0.010
SA3		3.753	0.0220	10.486	1.100	-0.776	0.199
SA4		3.791	0.0223	10.627	1.129	-0.849	0.273
R1	3.745	3.772	0.0222	10.539	1.111	-0.871	0.408
R2		3.684	0.0223	10.586	1.121	-0.694	0.034
R3		3.719	0.0219	10.435	1.089	-0.758	0.218
R4		3.806	0.0221	10.537	1.110	-0.849	0.324
EV1	3.746	3.726	0.0225	10.701	1.145	-0.766	0.131
EV2		3.746	0.0218	10.384	1.078	-0.728	0.112
EV3		3.720	0.0223	10.613	1.126	-0.750	0.133
EV4		3.793	0.0219	10.435	1.089	-0.839	0.319

In **Figure 1**, we find that within the criteria explanation dimension, the highest value is 3.749. At the beginning of a unit, the teacher explained the expected achievement in that unit while the lowest value is 3.669. The teacher clearly explained the achievement criteria for students to learn in class. This dimension of explanation of criteria has a score of

3.720 which corresponds to the interval that Al Hashimi, et al. [3] and Constantinou and Wijnen-Meijer [4] qualified as good teaching performance.

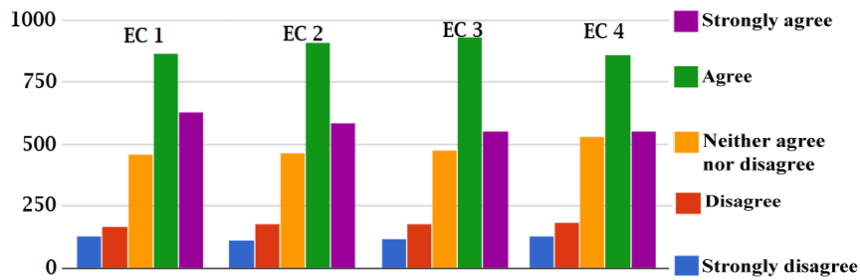


Figure 1. Histogram of the criteria explanation dimension.

In Figure 2, we find that within the illustration dimension, the highest value is 3.759. The teacher clearly explained the subject while the lowest value is 3.666 corresponding to the item: the teacher described how an expert with a postgraduate degree in education would solve a specialized and relevant problem in the educational area. This dimension of illustration has a score of 3.727 which corresponds to the interval that Al Hashimi, et al. [3] and Constantinou and Wijnen-Meijer [4] qualified as good teaching performance.

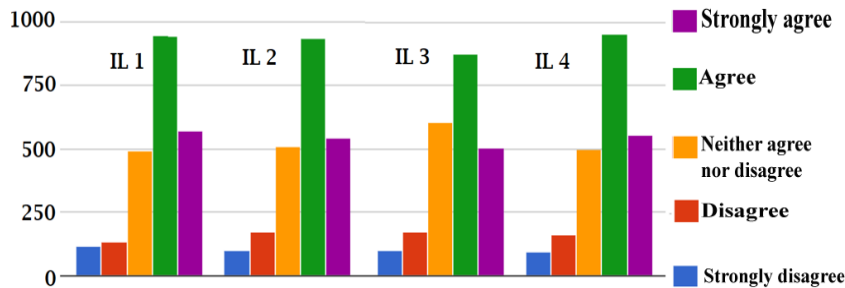


Figure 2. Histogram of the dimension illustration.

In Figure 3, we find that within the dimension of supervision of practice and learning activities, the highest value is 3.791 in the practical activities of the course; the teacher supervises our activities and corrects the student's performance while the low value is 3.645 during the practices of the course where the teacher guides the learning and supervises the performance. This dimension of supervision of practice and learning activities has a score of 3.725 which corresponds to the interval that Al Hashimi, et al. [3] and Constantinou and Wijnen-Meijer [4] qualified as good teaching performance.

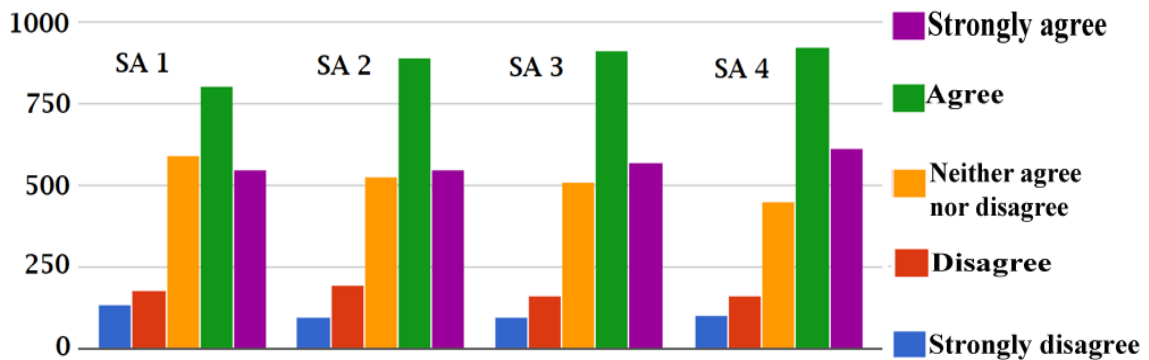


Figure 3. Histogram of the supervision of practice and learning activities dimension.

In Figure 4, we find that within the feedback dimension the highest value is 3.806. The teacher reviews the work left to improve it while the low value is 3.684 which corresponds to the item: the teacher shows the error and gives guidelines to solve it. This dimension of feedback has a score of 3.745 which corresponds to the interval that Al Hashimi, et al. [3] and Constantinou and Wijnen-Meijer [4] qualified as good teaching performance.

**Table 2.**  
Correlation matrix between elements.

Item	EC1	EC2	EC3	EC4	IL1	IL2	IL3	IL4	SA1	SA2	SA3	SA4	R1	R2	R3	R4	EV1	EV2	EV3	EV4
EC1	1	0.835	0.810	0.751	0.687	0.660	0.627	0.654	0.607	0.610	0.623	0.601	0.604	0.558	0.581	0.586	0.590	0.579	0.574	0.607
EC2		1	0.827	0.814	0.698	0.698	0.660	0.697	0.632	0.656	0.648	0.640	0.622	0.581	0.605	0.623	0.605	0.610	0.591	0.645
EC3			1	0.805	0.704	0.698	0.671	0.697	0.634	0.638	0.649	0.624	0.609	0.588	0.599	0.633	0.596	0.593	0.587	0.621
EC4				1	0.717	0.725	0.678	0.694	0.645	0.659	0.647	0.655	0.617	0.607	0.618	0.633	0.605	0.618	0.595	0.641
IL1					1	0.793	0.758	0.772	0.698	0.699	0.694	0.677	0.706	0.646	0.667	0.668	0.675	0.667	0.654	0.670
IL2						1	0.766	0.789	0.684	0.715	0.702	0.697	0.690	0.673	0.668	0.675	0.648	0.663	0.653	0.688
IL3							1	0.773	0.683	0.669	0.689	0.673	0.661	0.629	0.653	0.639	0.642	0.645	0.657	0.650
IL4								1	0.682	0.712	0.719	0.701	0.692	0.661	0.669	0.678	0.666	0.672	0.649	0.686
SA1									1	0.823	0.808	0.773	0.707	0.688	0.708	0.684	0.710	0.699	0.688	0.682
SA2										1	0.822	0.823	0.707	0.709	0.711	0.717	0.685	0.709	0.684	0.716
SA3											1	0.838	0.722	0.710	0.719	0.702	0.709	0.716	0.717	0.724
SA4												1	0.716	0.712	0.721	0.717	0.681	0.697	0.689	0.724
R1													1	,803	,783	,763	,733	,715	,712	,720
R2														1	,786	,790	,683	,703	,690	,700
R3															1	,786	,698	,709	,720	,726
R4																1	,703	,713	,698	,741
EV1																	1	,827	,802	,782
EV2																		1	,805	,823
EV3																			1	,818
EV4																				1



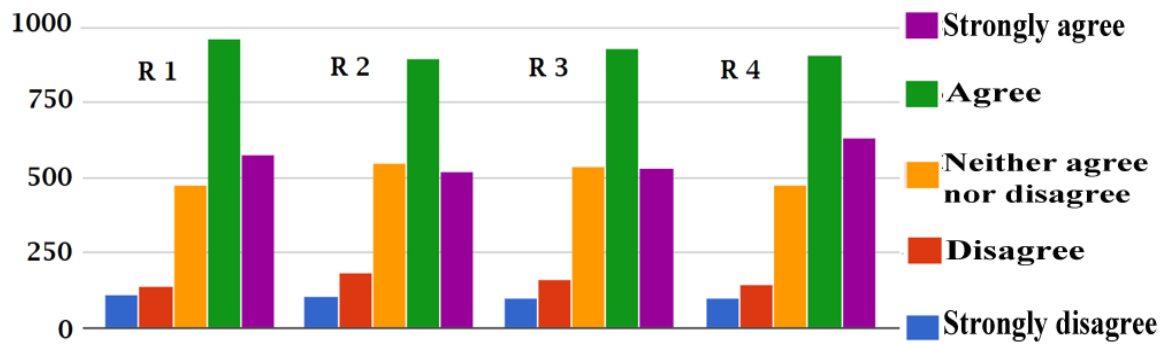


Figure 4. Histogram of the feedback dimension.

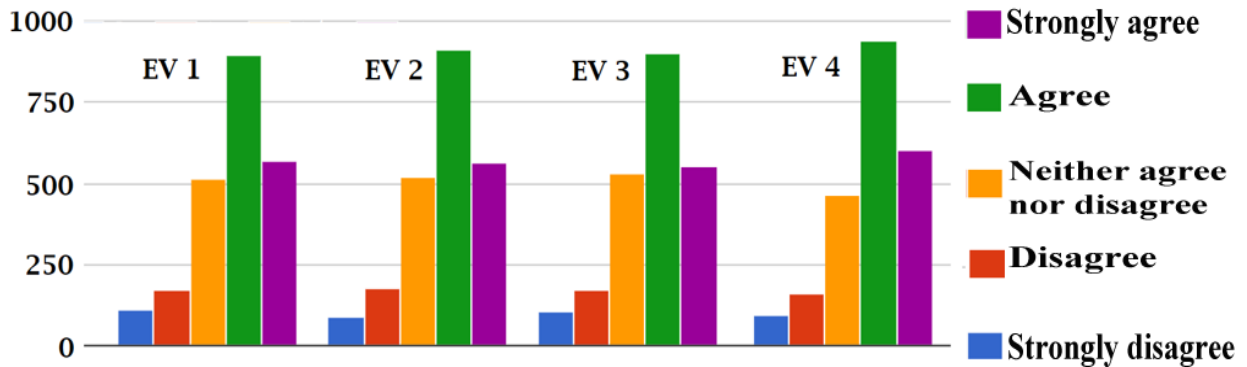


Figure 5. Histogram of the evaluation dimension.

In Figure 5, we find that within the evaluation dimension, the highest value is 3.793. The teacher evaluates the students according to the learning objectives shown at the beginning of the course and found in the syllabus while the low value is 3.780 corresponding to the item: the teacher evaluates the ability to integrate knowledge from other subjects with the course subject. This dimension of evaluation has a score of 3.746 which corresponds to the interval that Al Hashimi, et al. [3] and Constantinou and Wijnen-Meijer [4] qualified as good teaching performance.

Table 2 shows significant relationships between elements of the research. The results of the research will serve as a reference for other research work and compare the correlations of virtual teaching performance, remembering that virtual classes in the first comment were rejected by both parties for different reasons such as connectivity, lack of knowledge of digital skills and interaction with information and communication technologies.

#### 4. Discussion

The students have positive perspectives on the teacher's performance due to the criteria used during their learning and highlight more the identification of criteria and feedback [1] to improve the quality of teaching concluding that ICT improved academic performance in online learning due to the effort and independent learning of students [2] despite some difficulties that they overcame during the learning process and the adaptation to the new provisions of teachers.

There are factors that measure the non-objectivity of the quality and efficiency of teaching [4]. According to the profiles, it is necessary to follow the provisions and internal regulations of the universities. The replication or feedback in classes allows students to integrate knowledge and achieve participation in the development of learning but only for those who maintained a stable network connection. For those who did not maintain a good signal, their learning was inefficient [7] and that is why students requested that face-to-face classes be conducted.

It is obvious that the majority of changes to the European educational system's practices [10] and teachers' training are made in accordance with their areas of study. Therefore, when teachers present their work plans, all students are attentive and thus make some decisions that were influenced by the teaching performance because the students' perspectives were to continue with the combined education [11] despite having some difficulties that were overcome by the many strategies and methodologies that supported society [13].

There are research where the preparation and experience of teachers are part of the level of indicators because both inexperienced teachers (new) and experienced teachers always need trainings according to the advancement of modernity [15]. Teachers doubled efforts to expand the contents and educational materials of all courses with an interactive and appropriate level for students with the sole purpose of improving educational quality [16] and being part of the change; to achieve good teaching performance, mixed methods have been used such as developing cognitive skills and assessing the impacts of student development with the inclusion of students in society [17].

Research demonstrates that the combination of artificial intelligence with pedagogical and technological knowledge has highly significant effects [20] on educational quality and the digital vision of students to achieve good learning and replicate it in teaching performance. Many institutions are using alternative assessments that guide the feedback that the

teacher must provide to students and the teacher also discovered that there is interaction, commitment and collaboration among students which motivates them to rate good teaching performance [21].

The students with the change of curricula demonstrated the ability to relate theory and practice with significant teaching performance both in face-to-face and blended education because the teachers used multiple approaches to carry out a good teaching [27].

The teaching performance will actually measure the teacher's performance during the academic semester because the teaching evaluations in universities are performed almost at the end of the semester. Students are simply obliged to respond to the teacher's performance in order to support and improve the quality of education.

## 5. Conclusion

The perspectives of the post-COVID-19 teaching performance exceeded all expectations in the research because it was not expected to reach almost four points because there were sufficient reasons and motives for not reaching such a high score due to the saturation of work. The teachers at the beginning did not have the digital competences to make such progress in teaching virtually and in post-COVID-19, the situation changed completely.

It was possible to analyze and describe the sociodemographic data of the post-COVID-19 virtual teaching performance showing good student participation and support for the research in spite of having selected students with a certain number of enrolled courses.

The analysis of the central tendencies from the perspective of the post-COVID-19 virtual teaching performance showed that the teaching performance is good with a high average.

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