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ORIGINAL

Analysis of the implementation of the HyFlex model

Análisis de la implementación del modelo HyFlex

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ABSTRACT

The main purpose of the research was to determine the relationship between the HyFlex model and the teaching-learning process at the INEI 34 Educational Institution, located in the district of Chancay, Peru. In terms of methodology, a quantitative approach was used, with a non-experimental, transectional and correlational design. The study had a population of 90 teachers and a participating sample of 73 teachers. Likewise, the information was compiled by means of a survey, using a questionnaire designed on a Likert scale as an instrument. The hypotheses were tested using Spearman's Rho coefficient. It was demonstrated with a positive and moderate correlation of 0,640 and an asymptotic significance (0,001) lower than the significance level (0,05), that the HyFlex model has a direct relationship with the teaching-learning process in the INEI 34 Educational Institution, Chancay. This allowed inferring that the HyFlex model contributes to the implementation of content and educational commitment, using technology, to provide flexibility in the educational experience of the students. In other words, this model contributes to improve the teaching-learning process in a hybrid environment, in which students benefit from learning and in which the teacher is an agent of support for them.

Keywords: Hyflex Model, Innovation, Teaching And Learning Process, Hybrid Education, Educational Flexibility.

RESUMEN

La investigación expuso como propósito principal determinar la relación que existe entre el modelo HyFlex y el proceso de enseñanza aprendizaje en la Institución Educativa INEI 34, ubicada en el distrito de Chancay, Perú. En materia metodológica se efectúo un enfoque cuantitativo, de diseño no experimental transeccional y de nivel correlacional. El estudio contó con una población de 90 docentes y una muestra participante de 73 docentes. Asimismo, la información fue compilada mediante la encuesta, teniendo como instrumento, un cuestionario que fue diseñado en escala Likert. La comprobación de las hipótesis se llevó a cabo mediante el coeficiente Rho de Spearman. Se demostró con una correlación positiva y moderada de 0,640 y una significancia asintótica (0,001) inferior que el nivel de significancia (0,05), que el modelo HyFlex tiene una relación directa con el proceso de enseñanza aprendizaje en la Institución Educativa INEI 34, Chancay. Esto permitió inferir que el modelo HyFlex contribuye en la implementación de contenido y compromiso educativo, utilizando la tecnología, para brindar flexibilidad en la experiencia educativa del alumnado. En otras palabras, este modelo contribuye a mejorar el proceso de enseñanza aprendizaje en un entorno híbrido, en el que los alumnos se benefician del aprendizaje y en el cual, el docente es un agente de apoyo para ellos.

Palabras clave: Modelo Hyflex, Innovación, Proceso De Enseñanza Aprendizaje, Educación Híbrida, Flexibilidad Educativa.

INTRODUCTION

The latest event on a global scale —the COVID-19 pandemic— drew a line that differentiates a life before, during, and after it. The changes were visualized in all sectors, which had to investigate new methods to continue their functions. One of the sectors that were diminished by the events of the pandemic was education, which led to the implementation of virtual teaching-learning methodologies.[1] In this way, the institutions of the educational community supported by technology sought a way for the teaching of the teachers to reach the students in an environment where physical distancing was required, the virtual model being synchronous and asynchronous for employees.[2]

With the new scenarios that a possible post-pandemic present, in which face-to-face learning is being resumed in several educational institutions, this sector is still looking for models that bring together face-to-face learning and virtual learning.[3,4] Given this, several hybrid models stand out, such as blended learning, but in recent years, especially in different universities, a model that is not only multimodal but also flexible is quite successful. This methodology is known worldwide as the HyFlex model.[5]

This flexibility-based methodology seeks students to decide to learn in person, online, or both, benefiting them to have better control and balance over their personal, academic, and professional lives. However, implementing it and bringing benefits also generates challenges or costs that teachers and the educational institution will have to respond to.[6]

For teachers, it can be beneficial to instruct through a multimodal model that allows them to obtain new knowledge and develop new skills to exploit their teaching practice; however, the content and didactic materials that will be used, as well as the participation and the type of evaluation that should allow students to perceive that they belong to a single educational community and not to different ones, due to the fact of intervening in various modalities, are resources to which you must dedicate time for its development.[7]

The institution may benefit, as long as the model is correctly implemented, through institutional marketing, but it must take into account other financial expenses, such as classroom equipment, training for teachers and students, etc.

[6] The historical events, the culture that has transformed the world, and the existence of many educational models have been the most outstanding factors in changing the teaching-learning process.[8] Within this process, the role of teachers as a simplifier of learning for students is highlighted; However, in the face of a modern pedagogy, where technology and globalization are the main actors, the teacher must take a new pedagogical approach and be a strategic intermediary, which promotes the formation of the scientific and innovative side of the students.[9]

Although it is true that, during the pandemic —in many countries (including Peru)— the insufficiency of skills and abilities on the part of teachers and students became evident to respond to distance training. The needs and challenges of continuing to educate students allowed the optimization of the new knowledge and skills demanded by this century's technologies and digital media through training and seminars.[10]

This was evidenced in the INEI 34 Educational Institution, located in the district of Chancay, province of Chancay, department of Lima, which initially identified barriers to teaching online that were later solved and improved. However, even with the return to face-to-face, there have been problems such as inflexibility in the schedules of teachers and students, the inability to adapt to the new face-to-face context, fears of returning to new confinement —because the scenarios are not yet solid -etc. Under this, this research paper proposed the HyFlex model as a multimodal methodology that can optimize both virtual and face-to-face training for students and favor those involved in this educational institution if they implement it—always considering the challenges and costs that arise from its operation. In this sense, this research aimed to determine the relationship between the HyFlex model and the teaching-learning process at the INEI 34 Educational Institution, Chancay.

On the other hand, it should be noted that the study presented a theoretical implication since the variables encompassing this study are theoretically justified by offering a diversity of information supported by different authors. In this way, the Hyflex model is supported by Dr. Brian Beatty, who, being its creator, seeks that this educational methodology, within the teaching-learning process, is both hybrid and flexible, allowing students to have better control and balance over their personal and professional schedules.

Likewise, it also presented a practical implication, since with the results of this study, another teaching option was formulated, which can facilitate student learning, being multimodal (face-to-face and virtual), but, above all, providing flexibility in the schedules for students. In this way, the HyFlex model, if implemented correctly, can be an alternative that favors the participants of an educational community, given the new post-pandemic scenarios emerging worldwide.

HyFlex model

The HyFlex model is an alternative to the flexibility requirements that provides two or more options to the student so that he can choose to carry out his learning activities in a face-to-face or virtual state. The design of this model involves technology, the time of the teaching staff to develop their teaching activities, guidelines

so that both students who learn online and in person do so in a homogeneous way and the administrative procedures for its execution.[11]

According to Beatty[6] —the creator of the HyFlex model—this teaching-learning modality is born from the words "Hybrid" and "Flexible" and, therefore, presents the purpose that students can choose to attend classes differently face-to-face or virtual (either synchronously or asynchronously). One of the most valued resources to implement this model is technology, which provides flexibility in the choice of educational experience for students and is a communication resource with teachers both inside and outside of class.

The HyFlex model seeks to provide learning experiences to students through virtuality and face-to-face in a flexible way. This flexible approach includes how the contents or activities will be presented, from which the student will choose their participation, knowing their needs or requirements.[5] In addition, this model emphasizes a training environment where the student is the core. That is, the teaching staff supports the students and the achievement of their learning objectives in the short and long term. In the same way, through this model, other attitudes and skills of face-to-face and virtual learning are strengthened for students, such as planning, organization, responsibility, autonomy, self-criticism, self-learning, and teamwork, among others.[12]

If an institution considers offering classes using the HyFlex model, it must understand the principles behind the design and implementation of this hybrid-flex approach. In this way, you can provide an efficient learning opportunity for all students, no matter where they are or what path they choose to learn.

Four principles guide this model:[6]

1) Choice of the student: it deepens the action of providing more participation options for students, where each one will choose their learning modality according to their needs, without forcing everyone to study or learn through a particular modality that does not satisfy them.

2) Equivalence: he points out that no matter which modality the student chooses, each must provide equivalent learning, which does not mean equal learning.

3) Reuse: the third principle establishes that when learning activities are carried out in the classroom, they can be captured or recorded to support online students. In the same way, those activities carried out online can be useful for students in the classroom and those who want to participate in future courses or programs.

4) Accessibility: both students and teachers need technological resources and technical skills to be able to use them correctly and appropriately. Therefore, in many situations, it will be necessary for the institution to provide additional training.

After understanding the principles of this model and bringing it to implementation, teachers experience a set of challenges, which are grouped into three groups:[6]

1) Educational content: the content presented and shared by the teaching staff serves as an information resource for each student through good planning of activities required by the course or program and teaching materials, which must be reused in each modality.

2) Educational commitment: commitment highlights the participation of each student. This is a challenge for teachers since they must ensure that students participate in a single learning community, regardless of the modality they have chosen to study.

3) Educational evaluation: the forms of assessment are usually similar in any modality. The most frequent technique is that of exams, but some teachers use presentations of tasks, essays, or presentations as evaluations.

Teaching-learning process (TLP)

The teaching-learning process (TLP) is the environment in which the student becomes the heart of education while the teacher supports it. From this environment, it is sought that the student benefits from learning and builds knowledge and skills that allow them to share their opinions with their classmates and teachers.[13]

According to the Ministry of Education[14], the TLP is carried out in a dynamic and communication environment where the essential participants are the students. For this reason, teachers will have to prepare for the training of students through pedagogical management that promotes respect and appreciation of their personal, social, and cultural attributes.

It is well known that the teacher performs the role of support and facilitator of learning for the student. Therefore, they must have domains and competencies to provide optimal instruction. According to the Ministry of Education[14], the domains that teachers must develop are the following:

1) Preparation for student learning: the competency-based approach emphasizes the planning and development of activities for student learning. For this, it is important that teachers ensure coherence between the learning difficulty, the evaluation criteria, the pedagogical methodologies and the use of materials with the students' different needs and ways of learning.[15]

2) Teaching for student learning. traditionally, the teacher has been known as a facilitator who motivates students during training. However, in the new pedagogical approach, the teacher is conceived as a strategic intermediary within education.[16]

3) Personal development and professionalism and teaching identity: an elementary principle to develop teaching professionalism is personal development. For this, the teaching practice must create respectful, empathic, and motivating relationships with students. That is, it must promote emotional intelligence to generate positive and healthy interpersonal relationships with each member of the educational community.[17]

METHODS

Regarding the applied methodology, a study was carried out with a quantitative approach, a non-experimental transectional design, and a correlational level.[18] The research had the participation of 76 teachers from the Educational Institution INEI 34. Likewise, the data was managed through a questionnaire.

RESULTS AND DISCUSSION

The data collected allowed a descriptive analysis of the variables to be carried out, as detailed in table 1 and table 2.

Table 1. HyFlex Model

Levels	N	%
Deficient	19	26
Fair	6	8
Good	48	66
Total	73	100

Note. Data found from the questionnaire applied to INEI 34 teachers

Table 1 shows that 66 % of the teachers surveyed stated that the HyFlex model is good. This means that the application of this model will contribute to improving the content and educational commitment, as well as the evaluation of learning, using technology to provide flexibility in students' educational experiences. On the contrary, 26 % indicate that this model is deficient, and 8 % indicate that it is regular.

Table 2. Teaching and learning process

Levels	N	%
Deficient	21	29
Fair	17	23
Good	35	48
Total	73	100

Note. Data found from the questionnaire applied to INEI 34 teachers

Table 2 shows that 48 % of the teachers surveyed indicated that the teaching-learning process is good in the HyFlex model. This means that preparing and teaching for student learning, personal development, professionalism, and teacher identity will improve the hybrid environment where students benefit from learning and the teacher is a support agent. On the contrary, 29 % indicated that it is deficient, and 23 % mentioned that it is regular.

Table 3. Correlation between the HyFlex model and the teaching-learning process

			HyFlex model	Teaching and learning process
Spearman's Rho	HyFlex model	Correlation coefficient	1,000	0,640**
		Sig. (bilateral)	.	0,001
		N	73	73
	Teaching and learning process	Correlation coefficient	0,640**	1,000
		Sig. (bilateral)	0,001	.
		N	73	73

After the descriptive analysis, the same data were compared using Spearman's Rho coefficient, intending to know if the HyFlex model presented any association with the teaching-learning process at the INEI 34 Educational Institution (table 3).

Table 3 shows an asymptotic significance (0,001) lower than the significance level (0,05), with a Spearman correlation of 0,640. Consequently, the HyFlex model had a direct and significant relationship with the teaching-learning process at the INEI 34 Educational Institution, Chancay.

The result found confirms the importance of valuing and applying technology in education, as Lanuza et al.[19] in their research, demonstrating the importance of incorporating ICT in the teaching-learning process.

Similarly, this result is supported by Naffi [20], who mentions that the pandemic has increased the disparity and digital divide in the educational sector and, therefore, digital transformation is inevitable in primary and higher education institutions. In this sense, the HyFlex model is a complex hybrid alternative that makes it possible to take advantage of virtual tools and technologies for the benefit of education.

It is also supported by Lohmann et al.[21], who state that for the HyFlex model to be beneficial within the teaching-learning process, management strategies must be applied in the classroom that contribute to preparing and instructing students to succeed in the hybrid environment.

CONCLUSIONS

From the research, it is concluded that the HyFlex model encompasses a hybrid and flexible way that allows students to participate in face-to-face or distance classes or attend in both modalities, that is, alternating their learning sessions, according to availability. It should be noted that the students' satisfaction and academic performance must be the same for the modality they choose.

The teaching-learning process (TLP) is an environment where teachers and students share knowledge, attitudes, and experiences. Incorporating it into the HyFlex model, the TLP focuses on new competencies teachers and students must acquire.

Finally, the application of the HyFlex model in the INEI 34 Educational Institution, supported by technology, will provide flexibility in the educational experience of the students and will create a hybrid environment in which the teaching-learning process benefits the students and the teacher is a support agent for them.

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