EduSol
Vol. 22. Núm.81
ISSN: 1729-8091
Publicada en línea: noviembre de 2022 (http://edusol.cug.co.cu)

El método IPEEC en el aprendizaje cooperativo en estudiantes en una universidad intercultural peruana
The IPEEC method in cooperative learning among students in a Peruvian intercultural university.

José Antonio Quintana Huaccho
Sarai Huamani Pumacahua
Elvita Lucia Espinoza Silva
Universidad Nacional Intercultural de la Amazonia –Perú.
ORCID: https://orcid.org/0000-0002-8723-5587
https://orcid.org/0000-0001-6959-1951
https://orcid.org/0000-0002-5237-1933
Correo electrónico:
jquintanah@unia.edu.pe
shuamani20@unia.edu.pe
eespinozas@unia.edu.pe

Recibido: 24/04/2022
Aceptado: 20/07/2022

Resumen: El objetivo fue determinar de qué manera influye la aplicación del método "IPEEC" en el aprendizaje cooperativo en los estudiantes universitarios. Se consideró la metodología de investigación de tipo aplicada, mediante un diseño cuasi experimental. Para la recolección de los datos se valió de la lista de cotejo como instrumento correspondiente a la técnica de observación. Los resultados alcanzados permiten manifestar que el uso del método IPECC influye significativamente en el aprendizaje cooperativo en los estudiantes del II ciclo de la Universidad Nacional Intercultural de la Amazonia.

Palabras clave: Método IPEEC; Aprendizaje cooperative; Consumación.

Abstract: The objective was to determine how the application of the "IPEEC" method influences cooperative learning in university students. An applied research methodology was considered, through a quasi-experimental design. For data collection, a checklist was used as an instrument corresponding to the observation technique. The results obtained show that the use of the IPECC method significantly influences cooperative learning in the students of the second cycle of the National Intercultural University of the Amazon.

Keywords: IPEECC method; Cooperative learning; Consummation.

Introduction

Teachers around the world are looking for students to achieve better results in their learning, but we can see that not all of them are favorable. The indexes that we have with the participation in evaluations reflect that not all the countries that participate in these evaluations internationally do not reach the adequate averages to determine that their country is considered within a good positioning in the academic part.

The results of the OECD's Program for International Student Assessment (PISA), carried out in 2018, show that out of 79 participating countries, Peru is in 64th position with very low indexes unlike countries such as Singapore, which has been occupying the first place.

These results achieved by the countries with good positioning are due to the fact that teachers make use of a good methodology that allows students to achieve better learning and that these are lasting in time. Therefore, at the international level, within the classrooms of the different educational levels, academic activities are programmed in the work areas and for this it is important that the teachers or professors are in charge of foreseeing the set of methodological situations to be used in order to achieve the objectives set for the acquisition of the learning required by the student.

Many teachers opt for the use of methods, while another group prefers to work with strategies, another percentage uses techniques as a methodological means and finally there is another percentage of teachers who, in a hybrid way, use methods and teaching strategies. The important thing is that all teachers seek a single interest: that the students achieve their learning and that it is sustainable over time.

Thus, teachers anywhere in the world seek to develop better cognitive abilities in students, for this it is important to use a set of methodological aspects within the teaching-learning process, sometimes they choose to use strategies for the development of their academic work, this because of its practicality with respect to its implementation of strategies, but often not achieved with the acquisition of the planned, while another set of teachers opt for the use of a method which are systematically planned through a set of procedures, the proper execution of these procedures allows him to achieve the objectives or goals proposed.

According to Descartes (1637), he literally stated about the method: that it is the instrument that allows a thorough analysis, in order to be able to determine certain truths. This is how Descartes stated from the philosophical approach on the idea of the method that has an obligatory correspondence between the theory of knowledge with the knowledge of metaphysics.

According to Gonzales et al., (2019), he subscribes that the method is a design of pedagogical character, which is systematized by basic and fundamental elements. Through it, the knowledge and its cognitive process of each student will be built. In this case, the method must have the following procedures: planning, application, evaluation and improvement. While León (2013), argued that pedagogical methods were proposed approximately in the 1990s. These methods have the purpose of seeking that the student achieves to develop his thinking from the critical and creative point of view. While the teacher plays the role of being the mediator in the performance of learning.

Every student has a particular way of being able to carry out their learning, sometimes it is better to acquire knowledge together, that is, to learn cooperatively, enabling the good participation of team members respecting their opinions or scopes that can provide each one, we know that a problem cannot be solved individually, it is important to apply certain resources and thus be able to cope with them. In this regard, Zurita (2020) stated that cooperative learning allows the potentiation of intellectual and social skills, as it is systemic and didactic.

In order to achieve good learning, it is currently important to make use of an active and participatory methodology, where all students are the protagonists of their own learning, but with the support of all, since each of them must fulfill a function according to their skills or potential, this way of working in a communitarian way is based on a methodology based on cooperative learning. In this regard, García et al. (2019) stated that cooperative learning is a superior source compared to individualistic and competitive learning. Thanks to this means, the true social integration of the members of the work team is achieved. According to Domingo (2008) subscribed that cooperative learning is known as the fundamental element to achieve an increase in the level of learning through mutual and shared participation among students. Likewise Mayordomo and Onrubia (2016), stated that cooperative learning is that organization of social character related to teaching - learning, making it possible to establish in students a positive interdependence, meaning that if everyone is motivated to work together, it is possible to achieve the objectives set.

By working cooperatively, better results are achieved. If all teachers would make use of cooperative learning as a methodological tool, the low rates in the evaluations would change considerably. As we can see, the results of the evaluations carried out by the Ministry of Education, specifically in the evaluations of the Student Census Evaluation (ECE) of 2019, show that the results are discouraging, since the percentage indexes are not very good.

The region of Ucayali ranked second to last in this last evaluation. This is due to the fact that teachers at different educational levels do not adequately and opportunely use methodologies with active and participatory characteristics and still use a traditionalist methodology.

Development

Nowadays, all teachers are expected to develop academic activities making constant use of a good methodology in all its dimensions, not only working with strategies, which is a recital of the methodological field, but also with techniques, methods, modes and forms, with the purpose of being able to concretize learning in students.

From the international point of view, we have Vallet et al., (2017), who concluded that, cooperative learning is all that action that is achieved through interactivity among peers and with the support of the teacher. Likewise, Gutiérrez (2017), stated that the selected samples of the experimental group and the control group present significant differences, where the students to whom the experimental program was applied achieved a good production of texts through cooperative learning.

While, Rodriguez (2019), argued that learning that is developed virtually contributes to the strengthening of cognitive activities, due to the wide range of spaces or contexts offered by virtual education, these activities can be worked inside or outside the classroom, giving the possibility of collaborative learning from the digital world and making use of various technological tools.

With respect to the national context it was also found to find relevant information of the study variable, thus we have, Sarmiento (2017), who concluded that the use of dynamic

cooperative learning significantly influences the competencies of problem solving, reasoning and argumentation, and others referred to the area of mathematics.

Similarly, cooperative learning is dynamic and has more advantages than individual work. Castagnola (2020) subscribed that the various basic and specific work competencies within university education are closely related in a direct and significant way to cooperative learning and that the upcoming promotions of university teaching graduates confirm this.

The author Camillo et al. (2020), argued that cooperative work and significant learning presented a low level of relationship, but with a good significance. Cooperative work is associated or linked to meaningful learning.

The IPECC method

In order to show the theoretical part of the IPEEC method (Initiate, Plan, Execute, Execute, Control and Close), the first point will be the foundation of the method itself. According to Descartes (1637), who stated that the method starts from analysis and logic, looking for the rules determined with the purpose of reaching truths and while the analysis, is recognized as a method of inventive character by discovery.

For Descartes, from the philosophical point of view, the idea of method is through the fusion with the theory of knowledge and metaphysics. In this regard, he stated that the syllogism was a fundamental aspect to respond to the truths in an expository way, rather than to find these truths.

Likewise, from the pedagogical point of view, the proposed method is theoretically based according to Gálvez (1999), who stated that the word method etymologically comes from the Greek "Methodos" which literally means: culmination, end or term and "Hodos" which means north, direction or path. The method is theoretically based on the following criteria:

Etymological; based on the achievement of what is planned by means of the short and safe way to reach the achievement of the objective.

Psychological; it is the self-interest of the person who uses or proposes the method to be used.

Scientific; it is the baggage of strategies used to learn a certain knowledge.

Logical; it is the establishment of procedures that are stated in the method, which will allow identifying the truth of a subject.

The IPEEC method is a proposal of innovation methodology in order to achieve better results in the teaching-learning process, these achievements are linked to its good application of its procedures which are closely linked and systematized. This method has five procedures that allow to obtain a real learning achievement (Quintana, 2021).

The hierarchical procedures are:

a) Ideation: it fulfills the purpose of clearly identifying the subject to be investigated.

b) Planning: in this process, the set of actions to be carried out in order to achieve the desired goal is detailed, considering certain resources.

c) Execution: this is the space where the chronologically established activities are developed.

d) Evaluation: in this stage it will be possible to make certain analysis of each executed process and it is the space where it can be evidenced, if it existed or not some inconvenient and that later immediate actions are taken to absolve them.

e) Consummation: in this stage learning should be fixed with great certainty, since it could be determined under the process of analysis in which procedure there was a problem and by solving it, it is sought to ensure that the student achieves the goal, also in this space the best methodological situations can be sought to achieve the expected learning.

Strict respect in the application of the procedures of any pedagogical method allows everything planned to be achieved. In this case, the IPEEC method is a methodological source that can be used by teachers in their academic work at any educational level, making it possible for all students to achieve significant learning and for this knowledge to be sustainable over time.

The IPEEC method, assumes its vital importance for the work that is done with each of its procedures that are systematically linked with the purpose of achieving the learning of the various theoretical and practical contents.

Through this method, it is possible to understand the truth and increase the students' cognitive and procedural capacities; those teachers who use this method will have the full conviction that the learning is adequately abstracted by the students.

As any methodological aspect, this method presents the following characteristics that allow linking the theoretical and practical learning of the topics to be worked on (Quintana, 2021).

a) is dynamic;

b) is systematic;

c) is critical and reflective;

d) is analytical and synthetic;

e) is progressive; and

f) is objective

Next, the purpose of the IPEEC method is expressed, where the adequate and timely use of the method as a proposal contributes to the student and teacher collectivity to achieve significant learning in the short term and lasting in time, since its procedures are hierarchically systematized and organized, which seek the truth of knowledge.

Cooperative learning

Cooperative learning is theoretically based according to Piaget (1995) who argued that for new learning to exist, it must be linked to a modification of the previous knowledge of the concepts and integrate them with new concepts.

According to Piaget's thesis, he stated that thinking is variant from the early stages of development, until reaching the degree of maturity, its change of thought is often radical and progressive. Thus, Piaget was able to identify certain influential factors within

thinking, but which interact with each other, such as maturation, equilibrium, one's own activity, and social experiences.

From what has been stated, it is said that by relating to each other, the person learns. Then, through social communication, people generate learning because cognitive development is cemented and there will be no need to reinvent knowledge that already exists in the sociocultural environment.

It was also theoretically based according to Vygotsky (2001) who mentioned that cognitive thinking originates through the dialogues of the cultural context, the sharing of knowledge among peers, relatives or settlers is the main factor of cognitive development, since the human being cannot abstain or set limitations, on the contrary, it opens horizons in the learning of knowledge of his reality.

By making use of thought and language, the transmission of knowledge is achieved through social interaction between people regardless of age. Thus, the best evidence of learning is rooted in the social aspect and children progressively manage to adapt to intellectual life, through their experiences with those realities where they are surrounded.

Learning is defined as the fundamental action performed by the individual through interaction with his reality. For Sáez (2018), he argued that learning is a behavioral act presented by a person of relative character based on experience and praxis.

Cooperative learning is considered as the collaborative academic action performed by a group of students with the purpose of obtaining learning achievements through joint management. In this regard, Johnson et al. (1999), argued that cooperative learning is a consequence of the interaction of its members, since they pursue common interests, this methodological strategy is composed of five procedures established in an organized manner which are:

Mutual positive interdependence: identified as the main element of cooperative learning. In this field, the commitment shown by each member is fundamental to achieve the proposed competence. It is important that each member is motivated and that this attitude has an impact on everyone, thus strengthening the act of personal identity in the work team.

Individual and group responsibility: every member is in the possibility of being able to face the challenge that may be entrusted to him/her, this because of his/her abilities, then he/she will be able to develop the activity that is assigned demonstrating responsibility and then the completed action will be evaluated by the whole work team.

Stimulating face-to-face interaction: here plays a fundamental role the self-esteem of each member is very important to demonstrate confidence in what they perform based on their cognitive abilities and that this aspect of support or collaboration will be accepted by others and accept the criticism that may arise.

Interpersonal and team technique: in this space it will be possible to identify the potential of each of the members of the work team and thus designate actions based on their knowledge, open dialogue and empathy is very important, making it possible to solve conflicts that may arise and it is important to be exclusively dedicated to each job assigned.

Group evaluation: in this last stage, an evaluation of all the work performed is made, giving the possibility to make decisions, allowing many times to make modifications in each process and later to achieve the expected results.

Next, the elements of cooperative learning are presented: according to García and Candela (2019) mentioned that the following basic elements are:

a) Cooperation: all participants or students collaborate with each other and in this way learn to work as a community, fulfilling their assigned roles, since the goals or objectives set are for everyone. The success achieved is for the whole team.

b) Responsibility: each member has a great responsibility for the tasks entrusted to him/her and must understand that the proper fulfillment of his/her responsibility will allow him/her to reach or achieve the proposed challenge.

c) Communication: it is very important to cross information among all the members and thus to be able to understand, not only information but also to exchange diverse resources which will allow the achievement of the challenge.

d) Teamwork: there will always be adversities within the work, but open dialogue will allow to solve problems as a group, which will allow to develop certain leadership skills, also developing aspects of communication, in order to make decisions and subsequently provide solutions to conflicts.

e) Self-evaluation: it is good to identify which activities have responded fully and which activities were not up to the task, this will allow immediate decision making to improve the work and thus achieve the proposed challenges.

Once again García and Candela (2019) literally expressed the advantages of using cooperative learning. They are the following:

a) Shows positive attitudes toward classmates.

b) Provides better communication with all classmates and acquires independence.

c) Avoids psychological modifications and improves self-esteem.

d) It makes the student the main protagonist of learning.

e) It contributes to intrinsic motivation in students.

f) Allows integration among team members in order to practice social behavior such as: support, share, protect, among other actions.

g) Allows to see the problem from other points of view and h) Gradually breaks the egocentrism scheme.

The experimental method was used, through the quasi-experimental design with pre- and post-test of intact groups.

The schematic structure is:

GE: O1 X O2

GC: O3 - O4

Where:

GE = Experimental working group

GC = Control working group

O1 y O3 = Pre-test measurement

O2 y O4 = Post Test Measurement

X

= Working with the independent variable

The population consisted of 499 students belonging to the Professional School of Bilingual Primary Education of the National University of Amazonia, 78 students from sections A and B of the second cycle were taken from this totality to constitute the study sample, where section "A" was designated as the experimental sample and section "B" was designated as the control sample. The sample was selected by non-probabilistic sampling.

For data collection, a checklist was used in correspondence to the observation technique; this instrument was applied in the pre- and post-test to both groups selected as the study sample. The instrument underwent a reliability process by means of Cronbach's Alpha, obtaining a weighting of .890, and was subsequently submitted to expert judgment for its validity.

After the application of the IPEEC method, the following results were obtained: a mean of 20.53846, deviation 16.49537, lower limit 15.19128, upper limit 25.88564, the Z-test reached 7.776 and a significance of 0.000.

The sample consisted of 39 students belonging to the experimental group and 39 to the control group. When the post-test was applied to both groups, the following results were obtained: 26 students in the experimental group reached a regular level, 11 students a good level and only 2 students a deficient level, and in the control group there were also 26 students at the regular level, 7 at the good level and 6 at the deficient level. By means of the results obtained, it is concluded that the IPEEC method significantly influences cooperative learning in university students.

All of the above was corroborated with the following research in the first place we have Vallet (2017) who argued that through the use of cooperative learning, interactivity among

group members is achieved, in turn receiving support from the teacher. Likewise, Gutiérrez (2017) expressed the existence of significant differences between the selected samples of the experimental group and the control group, where the students to whom the experimental program was applied, that is, the experimental group, obtained better results in the production of texts through cooperative learning compared to the results of the control group.

These results achieved are theoretically grounded, so in the independent variable we have Descartes (1637), who argued that the method is derived from analysis and logic, looking for the rules determined in order to achieve truths and while the analysis is recognized as a method of inventive character by discovery.

For Descartes from philosophy he held that the idea of method is through the fusion with the theory of knowledge and metaphysics. While in the dependent variable, we have Piaget (1995), who argued that for there to be new learning, these must be linked, reaching a modification of the previous knowledge of the concepts and integrating them with new concepts.

Conclusions

The IPEEC method presents significant influence on cooperative learning in university students, this due to the results obtained from the post test, where substantial changes are evidenced in the experimental sample and that by means of the calculation (Zc) a 7.776 numerical situation relapsed in the rejection zone was obtained; expressing the rejection of the Ho, and validating the alternative hypothesis H1. While the results of the specific problems the statistically obtained scores present significant differences between the dimension mutual positive interdependence, in the individual and group responsibility and the dimension stimulating face-to-face interaction and with more differences in the dimensions: interpersonal technique and team and also in the dimension group evaluation where a good and efficient level was reached. Ratifying the scores with better tendency in the experimental group with respect to the control group.

Bibliographic References

Castagnola, G. (2020). *Aprendizaje cooperativo y competencias laborales en una universidad privada de Trujillo.* (Tesis doctoral). Universidad Cesar Vallejo. https://bit.ly/3GxkXvh

Camillo, J. G. H., Cueva, F. E. I., & Vargas, I. M. (2020). Trabajo cooperativo y aprendizaje significativo en matemática en estudiantes universitarios de Lima. *Educação Formação*, 5(3), pp.1–13. https://bit.ly/3ETtNlt

Descartes, R. (1637). *Discurso del método*. FGS. https://bit.ly/3Hy1yKO

Domingo, J. (2008). El aprendizaje cooperativo. *Revista Cuaderno de trabajo social*. (21). Pp.231-246.

Evaluación Censal de Estudiantes (ECE). (2019). *Evaluaciones nacionales de logros de aprendizaje*. http://umc.minedu.gob.pe/wp-content/uploads/2020/06/Reporte-Nacional-2019.pdf

García, R.; Traver, J. A. & Candela, I. (2019). *Aprendizaje cooperativo.* 1–80. https://bit.ly/3HxnXIf

Gutiérrez, S. (2017). *Estrategias de aprendizaje cooperativo en la producción de textos en ingresantes a la institución educativa Emblemática José María Arguedas de Chincheros-Apurímac.* (Tesis doctoral). Universidad Nacional de Educación Enrique Guzmán y Valle. https://bit.ly/3qonRwS

Johnson, D.W., Johnson, R.T. y Holubec, E.J. (1999). *El aprendizaje cooperativo en el aula.* Paidos.

León, M.L. (2013). *Métodos pedagógicos activos para el aprendizaje significativ*o. (Tesis de post grado). Universidad Central de Ecuador. http://www.dspace.uce.edu.ec/bitstream/25000/2842/1/T-UCE-0011-28.pdf

Mayordomo, R. y Onrubia, J. (2016). *El aprendizaje cooperativo*. UOC.

Piaget, J. (1995). *La teoría de Piaget, en: Infancia y Aprendizaje*. Grata.

Programa para la Evaluación Internacional de Alumnos (PISA) (2018). *Resultados Evaluación internacional*. http://umc.minedu.gob.pe/resultadospisa2018/

Quintana, J.A. (2021). *El método IPEEC*. IACEP.

Rodríguez, Y. A. (2019). *Aprendizaje cooperativo en entornos virtuales.* (Tesis de maestría) Universidad Andina Simona Bolívar de Ecuador. https://bit.ly/3mUZswJ

Sáez, J.M. (2018). *Estilos de aprendizaje y métodos de enseñanza*. UNED.

Sarmiento, V. (2017). *Aprendizaje cooperativo dinámico en el logro de la competencia del área de matemática con alumnos del I ciclo de computación del instituto de educación superior tecnológico.* (Tesis doctoral). Universidad Nacional Enrique Guzmán y Valle. https://bit.ly/3I4ucDz

Vallet, T.; Rivera, P.; Vallet, I. y Vallet, A. (2017). Aprendizaje cooperativo, aprendizaje percibido y rendimiento académico en la enseñanza del marketing. *Educación XXI*. 20(1). 277-297. http://revistas.uned.es/index.php/educacionXX1/article/view/17512

Vygotsky, L. (2001). *Psicología Pedagógica.* AIQUE

Zurita M.S. (2020). El aprendizaje cooperativo y el desarrollo de las habilidades cognitivas. *Educare*. 24 (1). Pp.51-74. https://revistas.investigacionupelipb.com/index.php/educare/article/view/1226/1226