University learning style model: Bibliometrics and systematic literature review

Laberiano Andrade-Arenas, María Mini Martin Bogdanovich, Domingo Hernández Celis, Katerine Romero Jaico, Gustavo Bernnet Alfaro Peña
Facultad de Ingeniería y Negocios, Universidad Privada Norbert Wiener, Lima, Perú

ABSTRACT

The university learning style worldwide was analyzed to obtain a model adapted to Peru, that was complemented in the initial part with the study of the bibliometric analysis. In the first steps that were developed, the information search was done in a general way with Scopus. Then specifically adding the Dimensions database, obtaining 59 items from the selection. The Prism statement was used, which allowed it to be developed in the methodology sequentially until the selected articles were obtained. The objective was to carry out a study of the systematic review of the literature (RSL) that allowed analysis by categories such as academic performance, teaching strategy and competencies related to the learning style. Where the data obtained was with the use of VOSviewer and Rstudio. The result obtained was an innovative model that relates the categories with the most relevant models that studied the learning style. As a conclusion, the different learning styles can be adapted to the different study programs and their different courses to plan it from the macrocurricular to the microcurricular, taking into account the strategy and the didactics of teaching, the contribution for the university sector.

This is an open access article under the CC BY-SA license.

Corresponding Author:
Laberiano Andrade-Arenas
Facultad de Ingeniería y Negocios, Universidad Privada Norbert Wiener
Av república de Chile, 432 Lima, Perú
Email: laberiano.andrade@uwiener.edu.pe

1. INTRODUCTION

Regarding learning in the context of the COVID-19 pandemic, the Economic Commission for Latin America (ECLAC) in 2020 indicates that the pandemic has impacted the world in all sectors; one of them was the education sector where more than 190 countries initially closed in order to reduce contagion and thus avoid the exponential growth of the virus. Leading to the deployment of distance learning modalities, through the use of a variety of platforms, which despite the efforts of teachers to teach and students to learn, pre-pandemic levels have not been achieved; especially in academic activities where presence is preponderant [1], [2]. Every country in the world has been affected by the COVID-19 pandemic. In the educational sector, universities migrated their classes to the virtual modality. The method and strategies of teaching-learning in the virtual modality are different from the face-to-face one. In this sense, learning in the virtual modality of university students is different, since each student has a different learning style. In Peru, the Ministry of Education modified article 47 of University Law 30,220; giving universities the option to offer classes to their students in virtual mode. Most of the Peruvian Universities carried out training for their teachers and also for their students.

Journal homepage: http://ijere.iaescore.com
Learning styles vary from one student to another and allow university students to acquire skills according to their nature and the strategies that the teacher applies in their classes [3], [4]. It is worth mentioning that there are demographic aspects such as: age, gender, type of school of origin, and place of residence; also the human part among others, that could influence the construction of learning. Likewise, the learning style could be related to the methodology, the didactic strategy and the teaching-learning techniques. The academic performance of the students will depend on many variables [3], [5]; one of them is the academic part and this is related to the teaching strategy and didactics by the teacher. The learning style of the students is different in each one of them, that is why it is important that teachers are trained in topics related to learning styles and their strategy to be carried out in a specific way.

The objective is to carry out a systematic review of the literature (RSL) on the learning style in university higher education, to investigate its characteristics, attributes and all the variables that are necessary to deepen the object of study. Thus, to be able to concretize and make appropriate decisions in the university education sector. The categories of academic performance, teaching strategy and skills were taken into account; thus in this way propose an innovative model of the relationship of learning styles with the categories mentioned.

2. RESEARCH METHOD

The research work is focused on carrying out the RSL regarding the learning style of university higher education students. It has a quantitative approach, since it is complemented by a bibliometric analysis. The scope of the research is descriptive, not experimental. Figure 1 explain the stages that were carried out in the investigation. Figure 1(a) shows the steps of carrying out all the activities in a generic way, from the beginning to the end. Instead, in Figure 1(b), the search for information is specifically emphasized.

![Figure 1. Literature review process for (a) generic process and (b) specific process](image)

2.1. Holistic analysis

In this stage, the search for information was analyzed generically and specifically through an appropriate strategy. This strategy was carried out using Boolean operators such as and and or mainly. In addition, different databases were used to obtain the information after the selection. After analyzing databases such as Scopus, Dimensions, Google Scholar, Scopus and Dimensions were chosen. Where Scopus is one of the largest in the world, as well as Dimensions is a free access database. Discarding Google Scholar as it contains some unreliable and unreliable sources. This was the reason for using these two databases that contain enough information on its magnitude and relevance.
2.2. Research questions

After being an exhaustive analysis, 3 questions were asked that respond to the objective of the investigation. For this, it was related to academic performance, teaching strategy and the skills acquired by students. Table 1 shows the questions asked, encoding each question with the letter Q.

<table>
<thead>
<tr>
<th>Code</th>
<th>Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q1</td>
<td>How is academic performance related to learning styles?</td>
</tr>
<tr>
<td>Q2</td>
<td>How are teaching strategies related to learning styles?</td>
</tr>
<tr>
<td>Q3</td>
<td>How are competencies acquired by students according to learning styles?</td>
</tr>
</tbody>
</table>

2.3. Search strategy

2.3.1. Generic search strategy

First, a generic search was made to carry out the bibliometric analysis. In this way, it allows to have a broad overview of how the main variable is found, which is the learning style at the international and national levels. Then, the search was carried out by countries that investigate the most, the most frequent keywords they use, thematic trends by author, co-occurrence, among others. In addition, the search was carried out with Scopus since it is one of the first that contains a large amount of metadata. Words such as "learning style" "higher education" and "university" were used, obtaining 3,215 paper. To do this, these papers were exported to the VOSviewer software and to the R programming language with its integrated development environment (IDE) R Studio; allowing for in-depth analysis.

2.3.2. Specific search strategy

After formulating the questions, proceed to apply an information search strategy on the subject, that is, the specific search. The search was performed using Boolean equations such as and, or. Different databases were searched such as Scopus (154 paper) by title, Dimensions (2,741 paper) by title and abstract. The following was used Boolean equation ("learning style") AND ("higher education") AND ("university").

2.4. Inclusion and exclusion criteria

Table 2 shows the criteria that were taken into account, such as articles from recent years, due to the trend and the context for updating. In addition, languages, non-free access articles such as exclusion (EC), among others. This allows the scope of the investigation to be clear and precise.

<table>
<thead>
<tr>
<th>Criterion</th>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inclusion</td>
<td>IC1</td>
<td>Articles related to learning style.</td>
</tr>
<tr>
<td></td>
<td>IC2</td>
<td>Articles published between 2018 and 2022.</td>
</tr>
<tr>
<td></td>
<td>IC3</td>
<td>Articles in the English language.</td>
</tr>
<tr>
<td></td>
<td>IC4</td>
<td>Open access articles.</td>
</tr>
<tr>
<td>Exclusion</td>
<td>EC1</td>
<td>Articles outside the scope of the investigation.</td>
</tr>
<tr>
<td></td>
<td>EC2</td>
<td>Articles outside the scope of the investigation.</td>
</tr>
<tr>
<td></td>
<td>EC3</td>
<td>Articles that do not contain Spanish language.</td>
</tr>
<tr>
<td></td>
<td>EC4</td>
<td>Articles that do not answer the selected questions.</td>
</tr>
</tbody>
</table>

3. RESULTS

3.1. About the search for information

In Figure 2, the selection of articles is shown using Scopus and Dimensions metadata, obtaining a total of 2,895 articles. In this way, a deep analysis could be carried out, to obtain the most appropriate articles that allow achieving the objective of the investigation. The number of articles was made by exporting in .bib; then it was passed to the Mendeley for analysis.

3.2. About the selection of the articles

The steps to be carried out by means of the declaration of preferred reporting items for systematic reviews and meta-analyses (PRISMA) is shown in Figure 3. PRISMA allows ordering sequentially from the number of articles in the initial part by the different metadata to the culmination with the quantity, which were 59 articles selected for study. In it, there is the inclusion (IC), EC and other characteristics of the Prism.
3.3. Generic form

In Figure 4, it was analyzed using the visualization network by co-occurrence and keywords: where the minimum number of occurrences of a keyword is 5; of 7,296 keywords, 687 meet the threshold. For every 687 keywords the total strength of the co-occurrence of links with other keywords will be calculated; the number of keywords selected are 687. On the other hand, it is formed by 8 clusters; where the most outstanding cluster is the one in red with the compound word learning style. It has 37,459 links with a total links strength of 117,104. Likewise, the human word and medical education emerge. This allows us to take this variable into account since the learning style cannot do without a study of the human and medical side. The person is a social being, and as such they must be taken into account for their analysis.

3.4. Specific form

Table 3 shows the learning style and the three categories under study. These selected categories answer the research questions. On the other hand, Table 4 shows academic performance and its relationship with learning styles. Table 5 shows the different teaching strategies for the different learning styles. In this way, their relationship between them can be analyzed in depth. Finally, Table 6 shows the skills of the students and the different learning styles. With this, it will be possible to analyze the different competences developed by the student and the different learning styles. In Figure 5, the visualization by colors is observed through the years, we can observe that recent studies stand out with the color yellow and the words higher education in the
context of COVID-19 and learning, that means that to make a study of style of learning, the international and national context must be taken into account. In addition, in Figure 6, the visualization by density is observed, where the one that emerges the most is the higher education sector and the style of teaching that are in purple and in the other sector that is green, learning and the human part. This means that the development of soft skills is a very important factor in the development of students. Figure 7 shows the documents published by country, where the United States has the largest publication by far, second only to China. This is because learning style models are most frequently studied in the United States. In addition, in Figure 8, the visualization is the scientific production by continents and countries, which is dark blue in color is of greater production and the one in lead color has almost zero or zero production. It is observed that America is the most outstanding and Asia has had little contribution.

Figure 4. Network visualization

<table>
<thead>
<tr>
<th>Categories</th>
<th>Concepts</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic performance</td>
<td>They are abilities that students develop in numerical skills, writing, reading, and writing.</td>
<td>[4]-[16]</td>
</tr>
<tr>
<td>Teaching strategy</td>
<td>They are planning processes that are carried out in the educational sector to improve their academic performance. This can be achieved by applying didactics in teaching, as well as various techniques in the class session</td>
<td>[15], [17]-[53]</td>
</tr>
<tr>
<td>Competence</td>
<td>It is the ability to develop the cognitive, procedural and attitudinal part of the student.</td>
<td>[53]-[70]</td>
</tr>
</tbody>
</table>

**Table 4. Academic performance and learning style**

<table>
<thead>
<tr>
<th>Features</th>
<th>Concepts</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number skills</td>
<td>It is the ability to solve mathematical and logical problems through creativity and reflection.</td>
<td>[4]-[9], [11], [14]-[16]</td>
</tr>
<tr>
<td>Social skills</td>
<td>It is the ability to listen, assertiveness, empathy in social settings.</td>
<td>[4], [6]</td>
</tr>
<tr>
<td>Skills in reading and writing</td>
<td>It is the ability of people in reading comprehension, as well as the analytical ability of writing development.</td>
<td>[10], [12], [13]</td>
</tr>
</tbody>
</table>
Table 5. Teaching strategy and learning style

<table>
<thead>
<tr>
<th>Strategies</th>
<th>Concepts</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>Didactics and techniques</td>
<td>They are the didactic resources and the techniques to use according to the learning style.</td>
<td>[15], [24]-[34], [49]-[53]</td>
</tr>
<tr>
<td>Technological tools</td>
<td>They are those technological tools that are used in teaching and learning.</td>
<td>[17]-[23]</td>
</tr>
<tr>
<td>Project based learning</td>
<td>It is a form of learning, where students learn by doing different roles for the development of projects in a group.</td>
<td>[35]-[47], [51]</td>
</tr>
</tbody>
</table>

Table 6. Competence and learning style

<table>
<thead>
<tr>
<th>Capabilities</th>
<th>Concepts</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conceptual</td>
<td>It is the theoretical way in which students develop their abilities.</td>
<td>[53]-[58]</td>
</tr>
<tr>
<td>Procedural</td>
<td>The development of students’ abilities is in a practical way developed with their classmates.</td>
<td>[59]-[64], [69], [70]</td>
</tr>
<tr>
<td>Attitudinal</td>
<td>Development of values, behavior to be an integral person.</td>
<td>[48], [65]-[68]</td>
</tr>
</tbody>
</table>

Figure 5. Overlay visualization

Figure 6. Density visualization

University learning style model: Bibliometrics and systematic literature review (Laberiano Andrade-Arenas)
4. DISCUSSION

4.1. Question

4.1.1. Q1: How is academic performance related to learning styles?

The problem under study has been identified in the formation of learning teams, with the aim of establishing mixed learning styles as a strategy for the formation of efficient and effective teams [6]-[8]. For which, the qualitative approach with non-experimental design was considered; having carried out a pre-test and a post-test for conceptual understanding. In addition, an improvement in said understanding was achieved, which was validated by the analysis of variance (ANOVA) with a significance level of 5%, which favored the work carried out. Therefore, it is concluded that the formation of strategic teams promotes a favorable approach to increase the learning capacity of students. In addition, the students’ academic performance is favorable when it is done as a team, since students are social beings [4], [6]. Research by Rezigalla and Ahmed [4] finds that the visual learning style is distributed in the different levels of study. In addition, adequate strategies were carried out for students to advance in their academic performance, taking into account the different learning styles. This will be reflected in the different ways that the student increases their academic performance, either with numerical and social skills [6], [7].

The study of learning styles is important since it allows determining the different learning styles of the students. The study was carried out on 132 students from two higher education institutions. The questionnaire carried out was based on the sensory part of the students carrying out the visual, auditory, read/write, and kinaesthetic (VARK) model oriented to motivation. The result obtained is that a superficial approach to learning predominates. Regarding the VARK model, visual and auditory learning styles are the least frequent [6]. This research has underlined the need to determine student preferences regarding learning styles in accounting education, which will allow further improvement in teaching. In accounting, in one way or another, it is subject to numerical skills for costs, budget, and income. In addition, in the different programs there are students whose numerical skills are quickly developed by the teacher’s tutoring. In this way, the development of these skills allows us to be more creative in solving problem [6]-[9].
The aim of this study was to analyze the different language learning styles. It was conducted on 385 freshmen in Vietnam. The adapting Reid questionnaire is for data collection to see how you respond and recover through emails using the Google form [7]. The results revealed that the first-year students were active learners, as they mostly belonged to 4 major learning styles, namely tactile, auditory, group and kinesthetic learners, and 2 minor learning styles, i.e. visual learners and individual. The research findings provide resourceful references for English language teaching and learning stakeholders’ policy formation, English teachers, and future studies. Writing and writing is very important not only in the English course but in general. Writing allows you to develop your linguistic, interpersonal and intrapersonal skills [10], [12], [13].

By surveying 150 college students from Tezpur University on the academic performance of students in the first semester. They were analyzed applying simple regression, multiple regression and one-way ANOVA. Bearing in mind that 34-36% of students have metacognitive abilities above average [11], [14]. The metacognitive ability explains only 43% of the variability of the academic performance of undergraduate students, which implies that the metacognitive abilities of undergraduate students influence and determine their academic performance to a certain extent. However, the learning style of the university student does not take into account the variation in metacognitive abilities. Therefore, it is suggested that metacognitive skills should be integrated into the curricular components and learning strategy that will help students to monitor and regulate their own learning to meet the challenges of the academic society. In this way, the development of academic performance in its different skills such as writing, numerical skills can be improved depending on the established curricular part [9], [11].

To achieve quality in adaptive education, it is important to study the instruments that are applied to avoid bias in the measurement of learning styles [15]; for which, it was proposed to determine the accuracy of the learning style instruments and with a sample of 150 students. In the first place, a new learning style instrument was developed with the use of figures, graphs and equations [6]-[9], [11], [14]; which was applied, and then the same was done with the VARK instrument. In addition, the results of both were compared, determining that in the preferred learning styles of the students, there were significant differences; therefore, the alternative hypothesis was confirmed, which indicates that using different forms of information; As it is, visual and active content to build learning style instruments have a significant impact on the measurement of learning preferences. Similarly, Lwande et al. [16], points out that research does not usually study learning styles and cognitive traits at the same time; therefore, the objective of establishing a method to estimate these two aspects through a learning management system was proposed; having designed a model to collect access information from learning management systems. The study had a sample of 200 students and was able to demonstrate that it is feasible to measure cognitive traits and learning styles in educational management. Likewise, it determined that there is a relationship between learning styles and their social interactions [4], [6], because students valued audiovisual content more, especially auditory content.

It is concluded that academic performance is directly related to learning style, not only in numerical skills and writing. Also in the social skills that is part of the integral formation of the students. Said academic performance will depend on the pedagogical guidelines of the universities. Since this will land in the training of their teachers through their coordinators.

4.1.2. Q2: How are teaching strategies related to learning styles?

The learning styles of Kolb, Honey and Munford, Felder and Silverman and the VARK model, with the aim of discussing these learning style models and obtaining better conclusions, used the qualitative approach and non-experimental design. In addition, it was carried out as part of the development of a new educational platform [17]-[23]. For this, appropriate techniques must be applied so that it is complemented with the use of the platform [24]-[26], [48]. Likewise, analyzed the non-prespeciality due to the pandemic situation that affects the world from 2020 to the present and was aimed at determining how the electronic learning system with the Moodle platform has facilitated the application of student learning styles; in such a way that they have allowed to acquire knowledge, skills and values. In addition, it applied the mixed approach and non-experimental design; allowing you to determine that the development of technology, educators and students are becoming strongly involved towards e-learning applications. In addition, it concludes that an efficient user interface for the Moodle-based e-learning system facilitates, to a statistically reasonable degree, the improvement of student learning styles [15], [48]-[50].

In the same sense, Shamsuddin and Kaur [49] state that in order to optimize the learning outcome and the cost of programs, the blended learning style is part of the educational system. In this regard, he investigated
the learning styles among students and their perception of blended learning [29], [30], [52]. For which, it involved 119 students who were taking the Diploma course in information technology at a private university; taking into account Kolb’s learning styles model and learning perceptions, this is how it was investigated combining elements of process, content and ease of use; using ANOVA to assess students’ perceptions of blended learning. Likewise, they determined that the majority of students are part of the convergent category, followed by divergent, accommodating and assimilating; these findings could benefit teachers in designing the most appropriate resources based on the students’ preferred mode of learning [27], [28], [33], [34].

In the same vein, research by Costa et al. [51] considers that distance education (ED) linked to the use of virtual learning environments (EVA), as interaction tools between the student and the teacher, has become a world-wide research space for techniques to improve the effectiveness of learning in virtual environments; that seek to identify connections between pedagogy and educational technology [31], [32]. According to what was expressed, this research sought to link the theory of learning styles with the behavior of the ED student, showing their interaction with the EVA and trying to associate them with their learning style identified by the Honey-Alonso learning styles questionnaire (CHAEA). Additionally, it was applied to a group of ED students and the correlation between the visual analogue scale (VAS) and the students’ learning styles was validated.

Kolb’s model is used to identify the learning style of engineering students; on which, there are no studies published in Portugal [50]. In addition, the research was applied to students who had just started their courses in a Portuguese Engineering School, with the aim of evaluating if there is a predominant learning style and if there are differences in the learning style between the students of the industrial administration course and of the technological engineering course. It is worth mentioning that findings were determined that will improve classroom practices to achieve efficiency in the teaching-learning process and the way in which students overcome the difficulties of understanding and comprehension of the topics covered during class sessions [40], [41]. This can be achieved when teaching is not done in the traditional way but instead applies strategies such as project-based learning that allows students to develop a team project fulfilling different roles such as the leader [35], [36], [42], [43].

In the same context, consider that providing quality education implies planning and carrying out educational activities. For this, it is necessary to understand and modify the learning styles of students. It is concluded that collaborative learning based on projects [44]-[47], it allows to have a broader vision with the intervention of all those involved when solving a problem not individually but on the contrary as a group. In addition, the techniques that can be used in class sessions by the teacher help students with their learning styles to learn quickly with the support of technological tools [37]-[39].

4.1.3. Q3: How are competencies acquired by students according to learning styles?

It is important for teachers to be able to identify the methods that work best for their students. Managing styles will help promote learning and adapt the most appropriate method for each one [60], [61], in this way they will achieve their academic goals and their personal success. At university, when learning, each student follows their own individual pace and their own strategies. The skills used to build learning are unique and personal to each one. Those different methods that each student uses to learn something, sometimes even unconsciously, are their learning styles [55], [56]. Due to this, teachers must perceive, organize and assimilate the styles of our students during the experiences of the class sessions in which learning is built [59], [62]. Knowing the learning styles opens multiple possibilities of action as teachers, with the aim of achieving significant learning, for the construction of cognitive thinking [53], [54], [57], [58] by the students. Therefore, more research is needed to provide recommendations on how to approach students with methods that avoid demotivation [48], [68] and even the desertion of subjects such as mathematics.

The society needs proactive teachers who identify the learning styles of their students with multiple intelligences [65]-[67]. It is concluded that the attitudinal part allows the development of the students’ competences to be integral. Although it is true that the cognitive part is very important for the development of the student; but it would have a comprehensive panorama of being developed in values, ethics; in development as a person, who is aware of how to be a collaborative person, who contributes to his society by developing activities that respond to social problems, social pollution and the objectives of sustainable development. Competences are acquired in students according to what has been established in the curricular plan of each university; what comes to do the north of the graduate profile [63], [64]. The skills acquired by the students will depend on the different learning styles that are applied in the class sessions of the different subjects [69], [70].
4.2. Proposed model

Figure 9 shows the proposed model after analyzing the subject in depth. The three categories analyzed are located on the right side of the mental map; and on the left the selected models of learning styles; they are the most relevant of all models. The blue curve indicates the direct relationship between the teaching strategy and the Bandeler and Grinder model, since academic performance can be analyzed taking into account the multiple intelligences of the students. Likewise, it is also related to the Kolb model for the way of ordering ideas in writing, making appropriate decisions for the development of social skills, among others. On the other hand, the teaching strategies are related to the Bandeler and Grinder model; since in the students the visual, auditory and tactile predominate one more than another. Regarding the competition, it is related to the Honey model. For example, the procedural is related to the pragmatic, the conceptual to the theoretical. This proposed model will allow contributing to university education; how learning styles with their categories are related to some models studied in different contexts. Although it is true that the relationship can occur in all of them, priority has been given to where the relationship is strongest.

Figure 9. Proposed model of university learning style

5. CONCLUSION

The study carried out allowed an in-depth analysis of the learning style and categories such as academic performance, teaching strategy and skills. Academic performance is related to learning styles, in terms of numerical skills, reading and writing. In addition, the teaching strategy and learning style, the teacher plays a very important role by applying different strategies depending on the nature of the courses and the different ways of learning of the student. Regarding the skills acquired by students, this is done in a cognitive way where the student acquires knowledge and then puts it into practice; this complemented with a comprehensive training through their attitudes through ethics and morals. On the other hand, it was obtained an innovative and creative model since the proposal is a contribution that will allow it to be used in different parts of the world, taking as criteria its educational model and its pedagogical guidelines, in order to adequately reflect it in its curricular design of the different study programs. Also, the use of bibliometrix and the VOSviewer allowed optimal analysis through maps and networks. It is suggested as future work they can continue to adapt the proposed model through continuous improvement. For this, the study must be interdisciplinary and multidisciplinary.

ACKNOWLEDGEMENT

Thanks to all the authorities who made this research project a reality, and thus contribute to the educational community with what was investigated.


is a doctor in systems engineering with studies in education.


**BIographies of Authors**

**Laberiano Andrade-Arenas** is a doctor in systems engineering with studies in education and accreditation. I am also a researcher with publications in high-impact indexed journals in Scopus and WOS. My strength is researching as a team with research hotbeds, with university professors. My line of research is software engineering, systems simulation under the systemic approach. Experience in the undergraduate and postgraduate university chair as well as a consultant in educational management. He can be contacted at email: laberiano.andrade@uwiener.edu.pe.

**María Mini Martín Bogdanovich** is Master in Business Administration and Management, University of Piura and Master in Economics and Bachelor of Administration, National University of Trujillo. Diploma in Management Skills. ESAN. Expert in collaborative and andragogical methodologies. Specialist in the case method by HEC Montreal-Canada and BORDEUXECOLE management-France. Advanced Ontological Coach Certified by Newfield Network and Accredited by ACOPP-FICOP, Colombia-Chile-USA. 24 years in university training as a teacher, director and dean. Undergraduate and postgraduate thesis advisor. Experience in developing postgraduate e-learning programs. She can be contacted at email: maria.martin@uwiener.edu.pe.
Domingo Hernández Celis is Doctor of Accounting; Doctor of Economics; Doctor of Administration; Master in Accounting and Financial Auditing; Certified Public Accountant; Independent Auditor. General manager of Microconsult-DHC and associates. Normal, remote and virtual undergraduate teacher; master’s teacher; doctoral professor; financial advisor. In research I am a teacher, advisor, reviewer, and jury. More than 30 years of professional practice and more than 20 years in teaching work. Teaching experience at: Federico Villarreal National University (undergraduate and postgraduate); University of San Martín de Porres (undergraduate and postgraduate). He can be contacted at email: domingo.hernandez@uwiener.edu.pe.

Katerine Romero Jaicos is Doctor in Psychology UNFV, Master in Journalism, Bachelor of Communication Sciences from the University of San Martín de Porres. Twenty-seven years of work experience in different entities as a Public Relations officer of the Directorate of Hydrography and Navigation of the Peruvian Navy, Head of the Public Relations specialty of the Faculty of Communication Sciences of the University of San Martín de Porres. In-house consultant and trainer in companies. Professor for more than 27 years in different Universities in Postgraduate, Diplomas, Programs for executives and Undergraduate. Currently Coordinator of the Administration Career in Tourism and Hospitality at Norbert Wiener University. She can be contacted at email: katerine.romero@uwiener.edu.pe.

Gustavo Bernnet Alfaro Peña is academic secretary of the Faculty of Engineering and Business, Norbert Wiener University, Lima, Peru. Studies in Doctorate in Education Cesar Vallejo University, Lima, Peru. Master's studies in Computer Engineering with mention in Software Engineering Universidad Ricardo Palma, Lima, Peru. Master in Educational Administration, Cesar Vallejo University, Lima, Peru. Computer Engineer from Ricardo Palma University, Lima, Peru. Project management specialist. University teacher. He can be contacted at email: gустavo.alfaro@uwiener.edu.pe.

University learning style model: Bibliometrics and systematic literature review (Laberiano Andrade-Arenas)