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Vicious positions during virtuality in higher education: A review of the scientific literature

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Abstract---This article presents the experiences that in vicious positions have been developing during virtuality in higher education. The objective of this study was to know the experiences in vicious postures that have been developing during virtuality in higher education from a review of the scientific literature in the last ten years. This theoretical review with sources from scientific journals and academic Google was carried out under the methodology of systematic review based on the Prisma strategy. The results show that there are

significant experiences of vicious postures developed during virtuality that more and more must be studied in the field of higher education.

Keywords---vicious postures, virtuality, higher education, virtual education.

Introduction

The accelerated and unstoppable development of the information society represents great challenges for education and learning, making information and communication technologies (ICT) the main lever of unprecedented transformations in today's world (Carneiro et al., 2021). Thus, according to García (2021), the impact of the pandemic and the simultaneous economic crisis have generated a change in how, when and where student learning occurs. It is worth mentioning that little has been explored in the sense of knowing what their actors think, referring to students and teachers, about the real obstacles and challenges they face and which competencies being developed or need to be developed to face the context of the pandemic by Covid-19 (Miguel, 2020).

Canales and Silva (2020) have pointed out that, in times of crisis, social isolation and confinement, moving from face-to-face education to virtuality has meant a new challenge for most higher education institutions. This emergency remote education allowed many students to continue their studies in the midst of the pandemic, however, with its inaccuracies, it cannot be considered a valid long-term solution. Going forward, institutions must develop sustainable educational plans that can withstand the challenges and unknowns of this or similar scenarios that may occur (Johnson et al., 2020).

In this sense, virtual learning environments are appreciated as the highest expressions of individuals, in their role as self-managers of knowledge and their implicit need to exchange and socialize what they learn and create, from their interaction from a technological platform in a teaching-learning context (La Madrid, 2016). In addition, virtual education as a learning modality is gaining more acceptance as a learning option at an initial, continuity and specialization level and considering that the university is called to fulfill its social role, therefore, virtual education is an articulation axis that provides access to students who for various circumstances do not have the possibility of entering face-to-face education (Varas et al., 2020).

Taking this into account, Moreira and Delgadillo (2015) have referred that virtuality transcends the traditional time references, since it does not confine the educational activity to a single moment or space, and the participant can access the course whenever he/she wishes and carry out his/her activities without the need to coincide in time or space with the other participants. Thus, virtuality can become a highly productive and rewarding educational experience, both for the student and for the tutor, if it is carried out in an adequate way, if a proactive and very receptive position is assumed and if it is understood that the tutor is just another element of this virtual gear and not the main actor.

Referring to higher education, Terranova et al. (2019) refers that "higher education presupposes the mastery of knowledge, methods and scientific techniques that must be transmitted critically, and therefore considers that it should be aimed at students acquiring autonomy in their training". In this sense, Briones et al. (2020) point out that HEIs should encourage the practice of assertive communication in virtual classrooms, which will allow members of the university community to interact effectively in the learning process and in the construction of new knowledge.

However, an aspect that is not often taken into account in the virtual teaching scenario, where teachers and students are continuously immersed, is posture, defined in Ruiz's study (2021) as the relative position adopted by the different parts of the body. Posture is not only a static and rigid structure, it can also be a balance, in the sense of optimizing the relationship between the individual and his environment. Man modifies his posture to adapt it to the requirements of the environment and activity. Everyday life and routines exert an aggressive force on the individual, which influences the body and its states with respect to posture. Therefore, being aware of the correct posture during the performance of any activity in daily life helps to avoid injuries.

Amado (2020) states that there are two basic anatomical postures: bipedestation (standing) and sedestation (sitting). Maintained standing produces static overload of the lower limbs and back muscles, circulatory stagnation in the lower limbs, When seated, the energy expenditure, the circulatory demand and the static muscular work will be less than when standing. In this posture, the weight of the trunk is transferred to the ischial tuberosity and through it to the feet. From the educational point of view and during virtual higher education, the correct body posture is that which does not overload the spine or any other element of the locomotor apparatus. Within the prevention of back pain, postural hygiene and ergonomics play a very important role, since these disciplines teach how to perform all kinds of activities in the safest and lightest way for the back.

In view of the above, the present research was conducted with the purpose of answering the following question: How are experiences on vicious postures during virtuality in higher education in the last 10 years? Therefore, the objective of the present theoretical research is to know the experiences on vicious postures during virtuality in higher education in the last 10 years. The present review is then justified by the importance of finding valuable information on vicious postures during virtuality in higher education in the last 10 years.

Materials and Methods

In order to respond to the proposed objectives, a bibliographic review was carried out in order to learn about the experiences in vicious postures during virtuality in higher education.

Kind of Research

In this systematic review, scientific research is developed. In this sense, Corona (2016) points out that scientific research as a generator of knowledge constitutes

the link between science and society, since from the scientific, technological, social, educational and humanistic point of view it is possible to have a multidisciplinary vision of problems of any nature.

Searching strategy

Firstly, the question was formulated in order to delimit the information needs as much as possible and facilitate the search strategy: Is it important to know experiences of vicious postures during virtuality in higher education? Secondly, this question was broken down into the three differentiated parts of the acronym PICO:

P (Person): Higher education teachers and students.

I (Main intervention): Knowledge of vicious postures.

C (Comparison): No comparison with other interventions.

O (Outcome-Objective): Adoption of correct postures due to knowledge of consequences of vicious postures.

The databases used were: Dialnet, Google Scholar, Redalyc and Scielo. The following keywords were used: vicious postures, postural hygiene, virtuality and higher education, relating them using the Boolean operator AND.

Table 1. Search strategy

Dialnet	Virtuality
Google académico	Higher Education
Redalyc	Posturas viciosas Educación superior
Scielo	Postural hygiene Higher education

Source: Own elaboration

Respect for intellectual property was considered, in terms of obtaining data from the sources consulted, as well as the non-adulteration of the information, in relation to the information collected. The search was carried out during the month of September 2021, introducing alerts in order to obtain the latest publications.

Inclusion and exclusion criteria

The following inclusion criteria were considered in the search for papers:

- Studies developed related to vicious postures.
- Research conducted in virtual higher education
- Works carried out in the last ten years, from 2012 onwards.
- Research in Spanish and English

As exclusion criteria:

- Research not found in full text
- Studies conducted in children under 15 years of age
- Studies conducted on students at the initial level

Selection of papers

When the search terms were included in different databases, a total of 920 articles were found whose titles corresponded to these terms. After reading the abstracts, repeated articles and those that did not meet the established inclusion criteria were discarded. The articles were reduced to 40, of which, after a critical review, a total of 20 were selected.

The selection process is described in the following diagram.

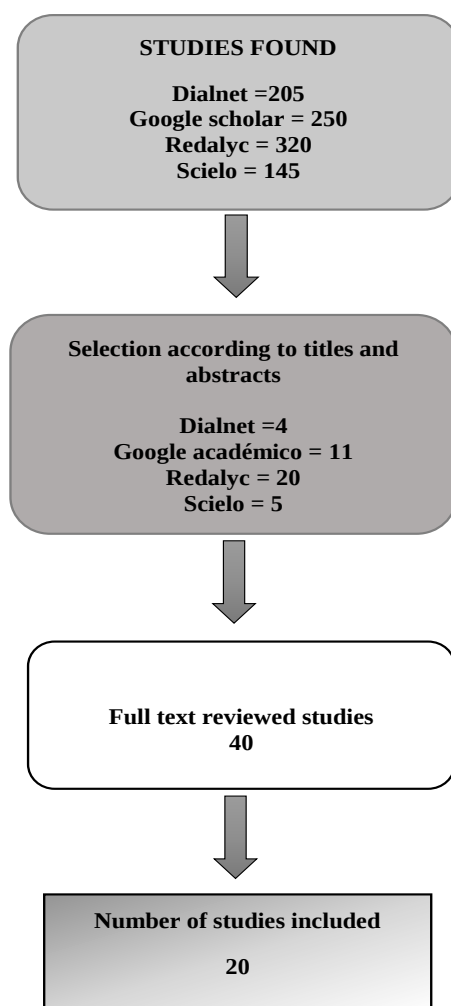


Figure 1. Flowchart of the search for results.

This theoretical review was carried out under the systematic review methodology based on the Prisma strategy.

Table 2. Statement of articles found

Source	Number of papers	Number of items discarding those that match in the database	Number of items remaining after discarding.
Dialnet	205	4	0
Google scholar	250	11	2
Redalyc	320	20	14
Scielo	145	5	4

Source: Own elaboration

Paper registration

Table 3. Paper Registration Matrix

N°	Data Base	Author/s	Year	Title of the paper
1	Redalyc	Africano, B. and Anzola, M.	2018	The virtual educational act. A vision from the point of view of trust.
2	NPunto	Amado, A.	2020	Postural hygiene and prevention of back pain in school children.
3	Redalyc	Apaza, C., Seminario, R. and Santa-Cruz, J.	2019	Psychosocial factors during the confinement by Covid-19 - Peru.
4	Redalyc		2020	Communicational assertiveness in academic processes in times of pandemic in Higher Education Institutions.
5	Scielo	Briones, W., Urquiza, L., Navia, J. and Guevara, G.	2020	From face-to-face to virtual, a model for the use of online training in times of Covid-19.
6	Metas Educativas	Canales, R. and Silva, J.	2021	The challenges of ICT for educational change.
7	Redalyc	Carneiro, R., Toscano, J. and Díaz, T.	2013	
		umbá, C.; Aguilar, J.; Pérez, D.;		Ergonomic recommendations for classrooms and computer labs in educational institutions.

8	Redalyc	Acosta, L.; Mezquía, A. and López, J.	2021	
9	Redalyc		2014	COVID-19 and digital distance education: preconfinement, confinement and postconfinement.
10	Redalyc	García, L.	2017	
11	Redalyc	García, E., García, A. and Reyes, J.	2016	Teacher-student relationship and its implications in learning.
12	Redalyc	García, L.	2020	Distance and virtual education: quality, disruption, adaptive and mobile learning.
13	Scielo	La Madriz, J.	2021	Factors that promote attrition from the virtual classroom.
14	Scielo	Miguel, R.	2015	Higher education in times of pandemic: a view from inside the formative process.
15	Redalyc	Moreno, D., Bravo, E., Burgos, C. and Grijalva, A.	2012	Higher education and pandemic: pilot study of the educational experience questionnaire during pandemic.
16	Redalyc		2015	
17	Scielo	Moreira, C. and Delgadillo, B.	2018	Virtuality in educational processes: theoretical reflections on its implementation.
		Nieto, R.		
18	Redalyc	Ramírez, L.	2021	Virtual education or virtuality of education.
19	Redalyc	Reguera, R., Socorro, M., Jordán, M., García, G., and Saavedra, L.	2020	Organic and functional alterations caused by the excessive use of data visualization screens.
20	Redalyc		2017	Back pain and bad posture, a health problem?
		Ruiz, G.		
		Varas, H., Suárez, W., López, C. and Valdés, M.		Daily life and body posture.
				Virtual education: factors influencing its expansion in Latin America.
		Yong, E., Nagles, N., Mejía, C. and		Evolution of distance higher education:

Chaparro, C.

challenges and opportunities for its management.

Source: Own elaboration

Results and Discussion

Results

According to the analysis of the selected articles, the following results were obtained considering the type of report, the scientific journal and the year of publication

- Type of report

Table 4. Type of report

	Frequency	Percentage (%)
Paper	20	100
Total	20	100

Interpretation

100% of the research corresponds to scientific articles.

- Scientific journal

Table 5. Scientific journal

	Frequency	Percentage
Educational goals	1	5
N Point	1	5
Redalyc	14	70
Scielo	4	20
Total	20	100

Interpretation

70% of the papers belong to Redalyc scientific journal.

- Year of publication

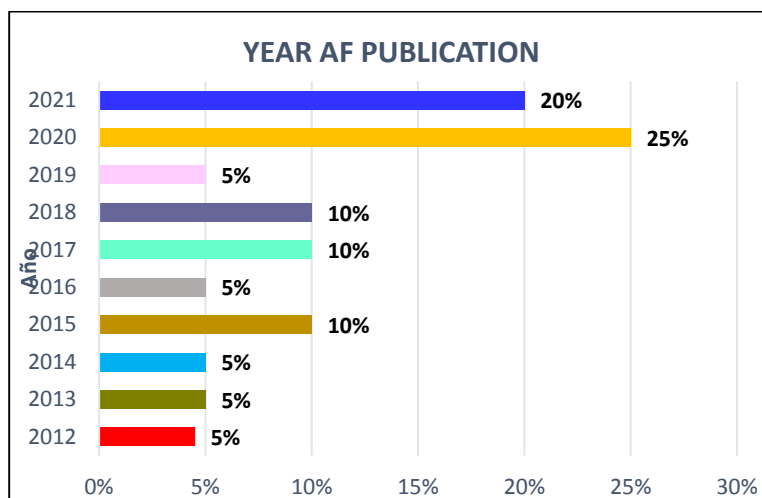


Figure 2. Year of publication

Interpretation

25% of the selected papers were published in 2020. In the analysis of the selected papers, the results of the reviews carried out in previous years were considered. Thus, regarding vicious postures. Amado (2020) defines posture as the position of the whole body or of a body segment in relation to gravity and anatomically, distinguishing standing and sitting as vicious or incorrect postures. For Apaza et al. (2019), there are activities that exceed people's capacities, causing exhaustion, depression or work stress, which represent important psychosocial risks that affect health. Cumbá et al. (2013) stated that maintaining a fixed posture for a long time produces contractures and fatigue and points out that the correct sitting position is the one that tends to distribute the total weight of the body between the feet, the seat and the lumbar region.

Ramírez (2015) refers to those operators and user of Data Visualization Displays (DDS), who perform repetitive tasks or need to keep the body in a fixed posture, frequently describe musculoskeletal disorders (MSDs) in the neck, shoulders and upper limbs. Reguera et al. (2018) pointed out the importance of developing postural hygiene in the prevention of back pain, as well as the alterations and social repercussions they bring with them, when the necessary knowledge on the subject is lacking. Ruiz (2021) argues that it is important to recognize that the damage occurs because the vertebral body is affected by certain repetitive movements and postural habits that cause deviations in the spine and this in turn projects them to other areas of the body, generating muscular, vascular, nervous discomfort, among many others, associated with such adaptations of the spinal column.

In relation to Virtuality in higher education, Africano and Anzola (2018) point out that the incorporation of technology to the virtual educational act is contributing significantly to the formation of human beings, which implies the transformation in their way of thinking, feeling, reflecting, communicating and acting in society. Briones et al. (2020) assert that higher education should be directed to the

construction of meaningful learning where psychosocial emotional factors are managed in virtual classrooms through criticism and assertive dialogue oriented to the search for truth for the generation of new contributions to science.

For Canales and Silva (2020), it is relevant that the online training experience is a contribution to the students' training process, that they perceive innovation and integration to teaching in the digital world in which they work outside the classroom. Carneiro et al. (2021) refer, regarding the challenges of ICT for educational change, that these processes of educational and social change require knowledge of the reality of the countries in order to act effectively, knowing the diagnosis and the starting point from which to start working.

García (2021) points out that COVID-19 has been presented as an accelerator for the transformation of higher education in which it is assumed that online and flexible learning are here to stay. García et al. (2014) say that in the relationships between teacher and student the educational act is seen as a vicious circle, in which the actors in the process focus on looking for responsible or guilty parties for the failure of the process, without realizing that everyone has a certain degree of responsibility. García (2017) refers that in distance and virtual education the student is more active subject of his learning; so this self-learning requires more activity, personal effort, processing and a high degree of discipline and involvement in the work.

La Madriz (2016), when referring to the factors that promote virtual classroom desertion, points out that one of the challenges that virtual education must face and overcome is the feeling of frustration that the student can conceive with the inconveniences he/she faces in the use of the virtual environment. Moreno et al. (2021), referring to the educational experience of higher education students during the pandemic, point out that this could be defined on the basis of three aspects: the quality and access to ICT by students; the perception and assessment of teaching practice and its adjustment to the new educational modality; and finally, the aptitudinal and emotional aspects of the students mobilized during the pandemic.

Moreira and Delgadillo (2015), referring to virtuality in educational processes, point out that the virtual space is available 24 hours a day and can be accessed from any place where there is a network connection. Nieto (2012) asserts that only man is capable of accomplishing the feat of converting what we now call Virtual Education into virtuality of education for the achievement of literacy and the universal right to education. Varas et al. (2020), referring to virtual education, point out that it is perceived as an open possibility for the training of people through a teaching model based on flexibility, effectiveness, appropriateness and rigor.

Discussion

For Amado (2020), posture is the position of the whole body or a segment of the body in relation to gravity, within the posture the author distinguishes the existence of vicious postures, which agrees with the statement by Cumbá et al. (2013) when stating that maintaining a fixed posture for a long time produces

contractures and fatigue and also Ruiz (2021) refer that the vertebral body is affected by certain repetitive movements and postural habits that cause deviations in the spine and this in turn projects them to other areas of the body, generating muscular, vascular, nervous discomfort, among many others, associated with such adaptations of the spine. For their part, Apaza et al. (2019) report that there are activities that exceed people's capabilities, causing exhaustion, depression or work stress, and Ramírez (2015) states that those who perform repetitive tasks or need to keep the body in a fixed posture frequently describe musculoskeletal disorders (MSDs) in the neck, shoulders and upper limbs.

For Africano and Anzola (2018), the incorporation of technology to the virtual educational act is contributing significantly to the formation of the human being, which implies the transformation in the way of thinking, feeling, reflecting, communicating and acting in society, which contradicts what is pointed out by La Madriz (2016) when referring that one of the challenges that virtual education must face and overcome is the feeling of frustration that the student can conceive with the inconveniences he/she faces in the use of the virtual environment.

On the other hand, studies by Briones et al. (2020), Canales and Silva (2020), García (2017) Varas et al. (2020) agree in pointing out that virtual education is aimed at the construction of meaningful learning, constituting a great contribution to the formative process of students, who perceive innovation and integration of teaching to the digital world in which they perform and where the student is more active subject of their learning. This self-learning requires more activity, personal effort, the processing of information obtained and a high degree of discipline and involvement in the work and is perceived as an open possibility for the formation of people through a teaching model based on flexibility, efficiency, appropriateness and rigor.

García (2021) points out in his study that COVID-19 has been presented as an accelerator of the transformation of higher education in which it is assumed that online learning is here to stay, which is related to what is pointed out by Moreno et al. (2021) when referring that in the educational experience of higher education students during the pandemic, one cannot fail to consider the quality and access to ICT by students; the perception and assessment of teaching practice and its adjustment to the new educational modality; and finally, the aptitudinal and emotional aspects of the students mobilized during the pandemic.

Conclusions

1. There are researches that reflect significant experiences of vicious postures during virtuality in higher education in the last two years.
2. In the selection of studies, the PICO methodology and the Prisma strategy were used and 20 research papers were considered and analyzed.
3. The study conducted shows that there is no concern for preventing the adoption of vicious postures during virtuality in higher education.

References

- Africano, B. y Anzola, M. (2018) El acto educativo virtual. Una visión desde la confianza. Recuperado de <https://www.redalyc.org/journal/356/35656676003/html/>
- Amado, A. (2020) Higiene postural y prevención del dolor de espalda en escolares. Recuperado de <https://www.npunto.es/content/src/pdfarticulo/5ee22d3e553d3NPvolumen27-4-22.pdf>
- Apaza, C., Seminario, R. y Santa-Cruz, J. (2019) Factores psicosociales durante el confinamiento por el Covid-19 – Perú. Recuperado de <https://www.redalyc.org/journal/290/29063559022/29063559022.pdf>
- Arcos, N., Carrillo, J., Reyes, E., y Morales, G. (2015). Articulación de las funciones sustantivas en la Universidad Intercultural del Estado de Tabasco. *Revista de Sistemas y Gestión Educativa*, 2(4), 920-935. Obtenido de https://www.researchgate.net/profile/Morales_Valenzuela_Guadalupe/publication/283461003_Articulacion_de_las_funciones_sustantivas_en_la_Universidad_Intercultural_del_Estado_de_Tabasco/links/5638df6c08ae7f7eb185e14f/Articulacion-de-las-funciones-sustantiva
- Blanco, A. y Anta, P. (2016) La perspectiva de estudiantes sobre los entornos virtuales de aprendizaje en la educación superior. *Innoeduca. international journal of technology and educational innovation* Vol. 2 Núm. 2 Pág. 109-116.
- Briones, W., Urquiza, L., Navia, J. y Guevara, G. (2020) Asertividad comunicacional en los procesos académicos en época de pandemia en las Instituciones de Educación Superior. Recuperado de <https://doi.org/10.5281/zenodo.4441180>
- Cabero, J. (2017). La educación a distancia como estrategia de inclusión social y educativa. *Revista Mexicana de Bachillerato a distancia*. N°15. México
- Canales, R. y Silva, J. (2020) De lo presencial a lo virtual, un modelo para el uso de la formación en línea en tiempos de Covid-19. Recuperado de <https://www.scielo.br/j/er/a/8rn8nrWGhKtpWcBzZnJLXNG/?lang=es>
- Carneiro, R., Toscano, J. y Díaz, T. (2021) Los desafíos de las TIC para el cambio educativo. Organización de Estados Iberoamericanos para la Educación, la Ciencia y la Cultura (OEI). Recuperado de <https://www.oei.es/uploads/files/microsites/28/140/lastic2.pdf>
- CEPAL (2020) América Latina y el Caribe ante la pandemia del Covid-19. Efectos económicos y sociales. Informe especial Covid-19. Santiago de Chile: CEPAL. Recuperado de https://repositorio.cepal.org/bitstream/handle/11362/45337/4/S2000264_es.pdf
- Cequea, M., y Núñez, M. (2011). Factores humanos y su influencia. *Revista Venezolana de Gerencia*, 16(53), 116–137. Recuperado de <https://doi.org/10.31876/revista.v16i53.10605>
- Chu, Y., Lin, W., Lin, J., y Wen, C. (2018) Psychosocial issues discovered through reflective group dialogue between medical students. *BMC Medical Education*, 18(1), 1–9. Recuperado de <https://doi.org/10.1186/s12909-017-1114-x>
- Corona, J. (2016) Investigación científica. A manera de reflexión. Recuperado de <https://www.redalyc.org/pdf/1800/180045822002.pdf>
- Cumbá, C.; Aguilar, J.; Pérez, D.; Acosta, L.; Mezquía, A. y López, J. (2013) Recomendaciones ergonómicas para las aulas y laboratorios de computación

- de las instituciones educativas. Recuperado de <https://www.redalyc.org/pdf/2232/223230955012.pdf>
- Escribano, A. y Martínez, A. (2013). *Inclusión educativa y profesorado inclusivo*. Madrid: Narcea
- Fernández, N. (2011) Promoción del cambio de estilos de aprendizaje y motivaciones en estudiantes de Educación Superior mediante actividades de trabajo colaborativo en Blended Learning. *Universidad Autónoma de México. RIED* v. 14: 2, 2011, Pp 189-208. México.
- Fox, K., Bryant, G., Lin, N., y Srinivasa, N. (2020). *Time for Class – COVID-19 Edition Part 1: A National Survey of Faculty during COVID-19*. Tyton Partners and Every Learner Everywhere, July 8, 32 pp. Recuperado <https://www.everylearnereverywhere.org/resources/time-for-class-covid-19-edition/>
- García, E., García, A. y Reyes, J. (2014) Relación maestro alumno y sus implicaciones en el aprendizaje. Disponible en: <https://www.redalyc.org/articulo.oa?id=46132134019>
- García, L. (2017) Educación a distancia y virtual: calidad, disrupción, aprendizajes adaptativo y móvil. Disponible en <https://www.redalyc.org/pdf/3314/331453132001.pdf>
- García, L. (2021) COVID-19 y educación a distancia digital: preconfinamiento, confinamiento y posconfinamiento. *RIED. Revista Iberoamericana de Educación a Distancia*, 24(1), pp. 09-32. doi: Recuperado de <http://dx.doi.org/10.5944/ried.24.1.28080>
- Johnson, N., Veletsianos, G., y Seaman, J. (2020) U.S. Faculty and Administrators' Experiences and Approaches in the Early Weeks of the COVID-19 Pandemic. Recuperado de <https://doi.org/10.24059/olj.v24i2.2285>
- La Madriz, J. (2016) Factores que promueven la deserción del aula virtual. Recuperado de <https://www.redalyc.org/pdf/709/70948484003.pdf>
- Miguel, R. (2020) La educación superior en tiempos de pandemia: una visión desde dentro del proceso formativo. Recuperado de <https://www.redalyc.org/jatsRepo/270/27063237017/html/index.html>
- Moreira, C. y Delgadillo, B. (2015) La virtualidad en los procesos educativos: reflexiones teóricas sobre su implementación. Recuperado de <https://www.scielo.sa.cr/pdf/tem/v28n1/0379-3982-tem-28-01-00121.pdf>
- Moreno, D., Bravo, E., Burgos, C. y Grijalva, A. (2021) Educación superior y pandemia: estudio piloto del cuestionario de experiencia educativa durante pandemia. Recuperado de http://www.scielo.org.pe/scielo.php?pid=S2223-25162021000100003&script=sci_arttext
- Naffi, N. (2020) Disruption in and by Centres for Teaching and Learning During the COVID-19 Pandemic: Leading the Future of Higher: L'Observatoire Internationale sur les Impacts Sociétaux de l'IA et du Numerique and the Government of Québec. Recuperado de <https://cutt.ly/6fQZibh>
- Nieto, R. (2012) Educación virtual o virtualidad de la educación. *Revista Historia de la Educación Latinoamericana*, vol. 14, núm. 19. Recuperado de <https://www.redalyc.org/pdf/869/86926976007.pdf>
- Orozco, S., Saldaña, B., & Martínez, B. (2019) Liderazgo y riesgo psicosocial en instituciones de educación superior en México. *Revista Venezolana de Gerencia*, 24(88), 1239–1248. Recuperado de <https://doi.org/10.31876/revista.v24i88.30176>

- Ramírez, L. (2015) Alteraciones orgánicas y funcionales ocasionadas por el uso excesivo de pantallas de visualización de datos. Recuperado de <https://www.redalyc.org/pdf/2738/273843539016.pdf>
- Real Academia Española. Diccionario de la lengua española. Disponible en <https://dle.rae.es/diccionario>
- Reguera, R., Socorro, M., Jordán, M., García, G., y Saavedra, L. (2018) Dolor de espalda y malas posturas, ¿un problema para la salud?. Revista Médica Electrónica. Recuperado de http://scielo.sld.cu/scielo.php?script=sci_arttext&pid=S1684-18242018000300026
- Rivera, D. (2011) Factores que Inciden en la retención o deserción del estudiante a distancia.. Nova Southeastern University. Disponible: <http://ponce.inter.edu/cai/tesis/derivera/index.pdf>
- Ruiz, G. (2021) Cotidianidad y postura corporal. Recuperado de <https://www.redalyc.org/journal/557/55768425003/>
- Terranova, J., Villafuerte, J., y Shettini, T. (2019). Sistema de prácticas pre profesionales e integración de las funciones sustantivas en las carreras de educación. Opuntia bravo, 2(11), 312-322. Obtenido de <http://opuntiabrava.ult.edu.cu/index.php/opuntiabrava/article/view/764/764>
- Torres-Ortiz J. y Duarte J. (2016) Los procesos pedagógicos administrativos y los aspectos socio- culturales de inclusión y tecno-pedagogía a través de las tendencias pedagógicas en educación a distancia y virtual. Revista de Investigación, desarrollo e Innovación. Vol. 6 N°2. Colombia. Pp. 179-190.
- Varas, H., Suárez, W., López, C. y Valdés, M. (2020) Educación virtual: factores que influyen en su expansión en América Latina. Recuperado de <https://www.redalyc.org/journal/279/27965287003/html/>
- Vargas, P. (2015) Una educación desde la Otredad. Revista Científica General José María Córdova. Vol. 14, Núm. 17, pp. 205-228.
- Vidal, A. (2016) La postura corporal y el dolor de espalda en alumnos de educación primaria. Una revisión bibliográfica. Revista Digital de Educación Física 7 (38): 60-72.
- Yong, E. y Bedoya, D. (2016) De la educación tradicional a la educación mediada por TIC: Los procesos de enseñanza aprendizaje en el siglo XXI. Virtual Educa, Puerto Rico. Recuperado de <http://acceso.virtualeduca.red/documentos/ponencias/puertorico/1061-184b.pdf>