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REVISIONES

Audiovisual Aids in nursing education: literature review

Recursos audiovisuales en la educación en enfermería: revisión de la literatura

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This paper comes from the PAPIME 203413 project: Teaching Improvement with the use of Educational Audiovisual Material in the curricular subject health-illness process of the Nursing School at FES Zaragoza.

ABSTRACT:

Introduction: Audiovisual aids, as a teaching strategy, promote a change from the traditional educational system to an improved way of learning that integrates technological advances and resources to enhance education, this is why it is important to gather all the existent information about the topic, because we need to demonstrate and support its' usage for the students development.

Aim:Analyze the existent information about the impact that audiovisual aids have in the improvement or nursing teaching.

Methodology: Systematic research in the Medina, CINAHL, EBSCO, SciELO, PubMed, LILACS and Cochrane databases. Using de PICo method and Health Science Descriptors (DeCS) in English, Spanish and Portuguese.

Results: Seven experimental and quasi-experimental studies were selected, which showed that audiovisual aids helped in the improvement of declarative, contextual and attitudinal learning, nevertheless, they did not surpass the situated strategies such as simulations, authorized practices and interactive activities.

Conclusion: The evidence showed that the use of audiovisual aids developed empathy and helped the students' inner expression, however they are not able to outstep the constructive learning strategies by themselves.

Keywords: Audiovisual aids; health education; literature review; health students; undergraduate education.

RESUMEN:

Introducción. Los recursos audiovisuales como estrategias de enseñanza fomentan el cambio de una educación tradicional hacia una que integra los cambios tecnológicos, la cual utiliza y dispone de los recursos para mejorar el aprendizaje, por lo que es necesario contar con la mejor evidencia disponible para apoyar su utilización en la formación de los estudiantes.
Objetivo. Analizar la evidencia existente del impacto que tienen los recursos audiovisuales en el mejoramiento de la enseñanza en enfermería.
Metodología. Búsqueda sistematizada en las bases de datos Medline, CINAHL, EBSCO, SciELO, ERIC, PubMed, LILACS y Cochrane. Utilizando el método PICo y Descriptores de Ciencias de la Salud (DeSC) en inglés, español y portugués.
Resultados. Se seleccionaron 7 estudios experimentales y cuasi-experimentales dónde se observa que los recursos audiovisuales ayudan a mejorar el aprendizaje declarativo, contextual y actitudinal, sin embargo, no superan a las estrategias situadas como la simulación, práctica tutorizada y actividades interactivas.
Conclusiones. La evidencia demuestra que el uso de los recursos audiovisuales desarrolla la empatía y favorece la expresión de la interioridad del alumno, sin embargo, por sí solos no superan a estrategias de aprendizaje constructivistas.

Palabras clave: Recursos audiovisuales, Educación en salud, Revisión de la literatura, Estudiantes en salud, Educación de pregrado.

INTRODUCTION

In order for the learning process to strengthen, the educational system must include all the innovative and technological tools available into its' pedagogy practice. An important fact about this, has been the urge for the scholar program of the 21st century to incorporate the technological knowledge in the teaching process, this because nowadays the students are completely related to the mobile devices and internet services, (1) finding much more attractive to learn from these methods than the traditional ones. Besides, embracing the students to recreate environments that challenge them into its' own way of learning, helps them to perceive a better understanding of the information [2-4].

New generations of students grow up in a "telematic" environment; this leads to change their perceptive habits and mental processes, same thing happens to their preferences, attitudes and emotions [5-6]. These modifications cannot be left unnoticed, that is why we still require to assign homework.

With that being said, it is important to mention that with the arrival of Information and Communication Technologies (ICT), several educational modalities have emerged, we will discuss the "blended learning" modality. It combines the classroom-based teaching with the virtual technology system, its' main purpose is to choose the right technological resources for each educational necessity. This method is a response to several disputes that educational institutions present, mainly public. Some of these disputes are high staff costs; increase in the number of students per classroom, therefore an increase in teaching hours and poor state of school infrastructure [7-8].

Most parts of the educational applications of the ICT's, support on international standards for the distribution of audiovisual content. However, not all of the teachers and educational institutions have the required knowledge or resources to achieve a suitable use of technology on educational audiovisual material, essentially because of

the different kinds of formats that the equipment may have, the limitations on the process of broadcasting, storage, data recovery and the access that the students have or not to the materials[9].

In order for the audiovisual resources to accomplish different functions in the educational world, it is necessary for the teachers and students to be willing to actually do it. Besides, it also requires that the teacher not only considers the audiovisual resources as an extracurricular element but as a daily embedded project that eases the teaching-learning process, with new personal qualities from the educator to the resources, the methodology application and different teaching strategies, new and organized ways to face the education job at the classroom and the interaction with the students.

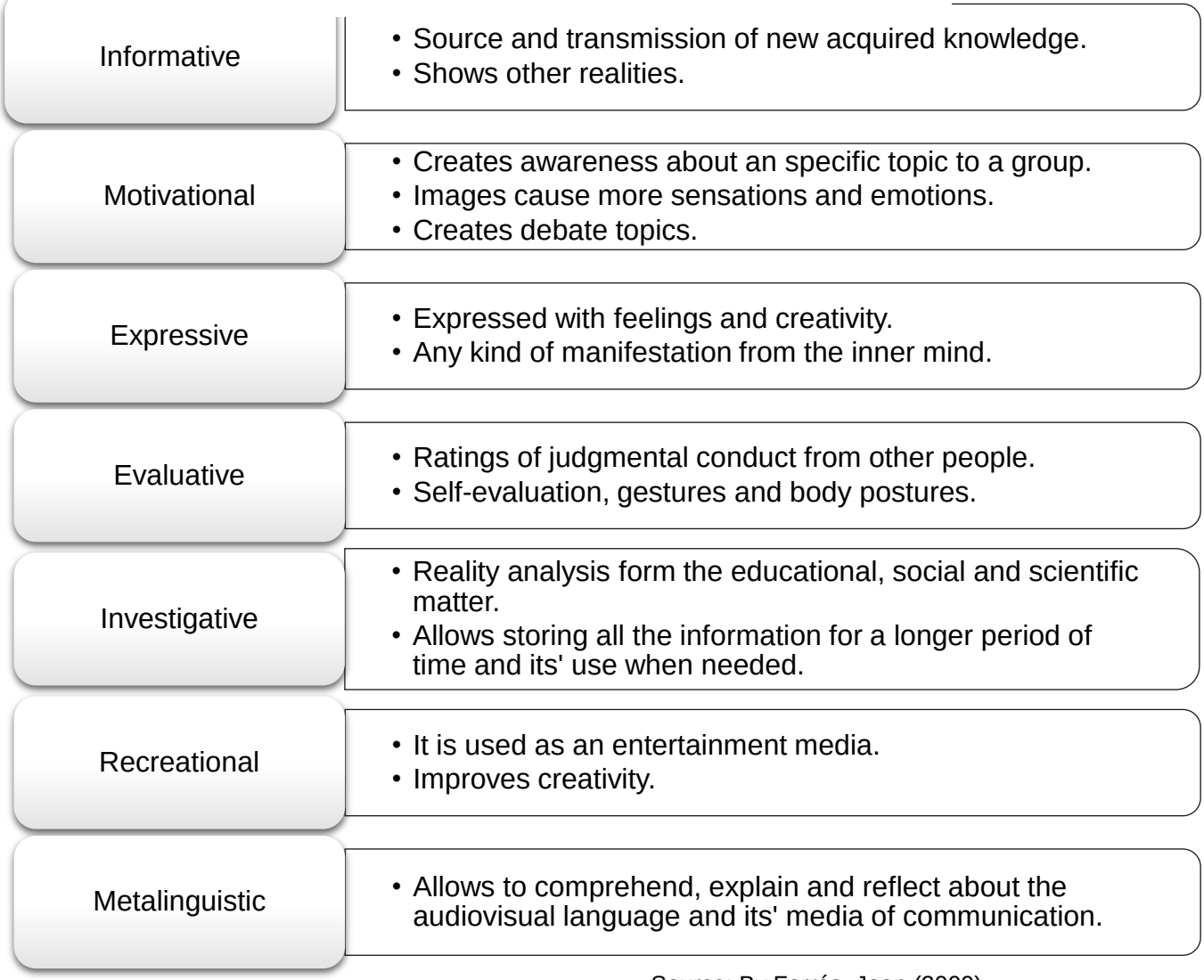
The audiovisual resources as a teaching strategy encourage changing from the traditional ways of education to an adaptation of the newest technologies into the educational system, which uses and disposes the actual resources to empower the learning process [8-11]. The use of videos can take students to a better level of understanding based on the acoustic and optic systems that act as a complement to the classical teaching methods, in addition to reducing the time dedicated to it.

Audiovisual resources have been incredibly used in areas like visual arts, media and communication skills (3), but in the last decade, the students in the health area have given an extra value for adding realism in the simulations of their practices, this provides them a close look to what they will be facing in the work environment [12-13].

The use of video surprises us continuously with even more complex innovations that allow access to new perspectives as an audiovisual expression media. From the didactic point of view, the first`s steps are seen from the classroom and later on starts to explore and experiment with the multiple possibilities of the application in the educational environment [14].

Ferrés proposes a classification based on the functions of the video in the teaching-learning process, for him, each media used in education has an action field, a series of particular features and an individual application, that is why the video tries to find an specific identity that determines its' function and relation to the educational process [15]. (Figure 1)

Figure 1. Functions of the audiovisual resources



Source: By Ferrés, Joan (2009).

As you can see after the classification that this author establishes, the use of audiovisual resources is multidimensional; it can be applied to the constructive method and at the same time, allows the students to develop their creativity and provides a close up to the real life situations, not only for the educational part but for the social environment, that acts as a communication media and lets the students reflect about their surroundings and own way of thinking.

Different authors say that the process of teaching-learning has to help the student to think about the experiences that are acquired in the classroom and take them into real life scenarios to solve problems [16]. On the other hand, one of the main issue that teachers face in health areas is that they have to achieve more than just one simple description; it must be tangible for the student, apart from providing the explanation of all processes or the basic necessary intervention in each case [17]. Aspects in which the use of videos has demonstrated to be a better help [18] since they provide a suitable environment for the students to visualize an issue of the practice situated in an specific context, besides, they can be replayed as many times as the student wants to.

An important fact is that we look for the students in the health areas to create bonds with other members from the hospitality team, people who will be in charge of their positions and in some cases, with other students that will have to receive support for the educational process in the clinic area. In some other circumstances, "the improvement of knowledge" is known as a challenge that must be practiced by students [19-20].

Besides, it is necessary the strengthening of the emotions like self-esteem, self-efficacy and even anxiety, to reduce it before the exposition of cases or situations that may or not cause an uncomfortable feeling to the students that will be later witnessing emergency conditions, in which they must avoid fear, because that can prejudice their medical performance. Once that the reaction of each situation is known, it is better to practice by creating real life simulations with high technology equipment that replicate all patients reactions [21], but that kind of equipment has an outstanding cost, that even in some public institutions it is just not affordable, this is the reason why the use of videos is much more realistic.

Without any doubt, we can say that technology, by itself, is not a solution for the challenges that the educational process has, but a suitable combination with the classical content method, will improve the teaching-learning process, it will, for example, reduce the time teachers invest in printing materials because now students are able to screenshot the information and save it in their mobile devices.
By using the right choice on the didactic and technological material, we definitely will empower the effectiveness in the educational system, that is why is extremely relevant to do a literary review and analyze all the existent information available on the impact that audiovisual resources have in the improvement of teaching in the health area.

METHODOLOGY

In order for us to do the research, we consulted the databases of Medline, CINAHL, EBSCO, SciELO, ERIC, PubMed, LILACS and COCHRANE. Also, the next Spanish, English and Portuguese Science Health Descriptors (DeCS): *Enseñanza*, teaching and *ensino; Educación,* education y *educaçao*; *Recursos audiovisuales*, audiovisual aids and *recursos audiovisuais; Medios audiovisuales*, video-audio media and *mídia audiovisual; Aprendizaje,* learning and *aprendizagem; Estudiantes del área de la salud,* health students and *estudantes de ciencias de saúde.*

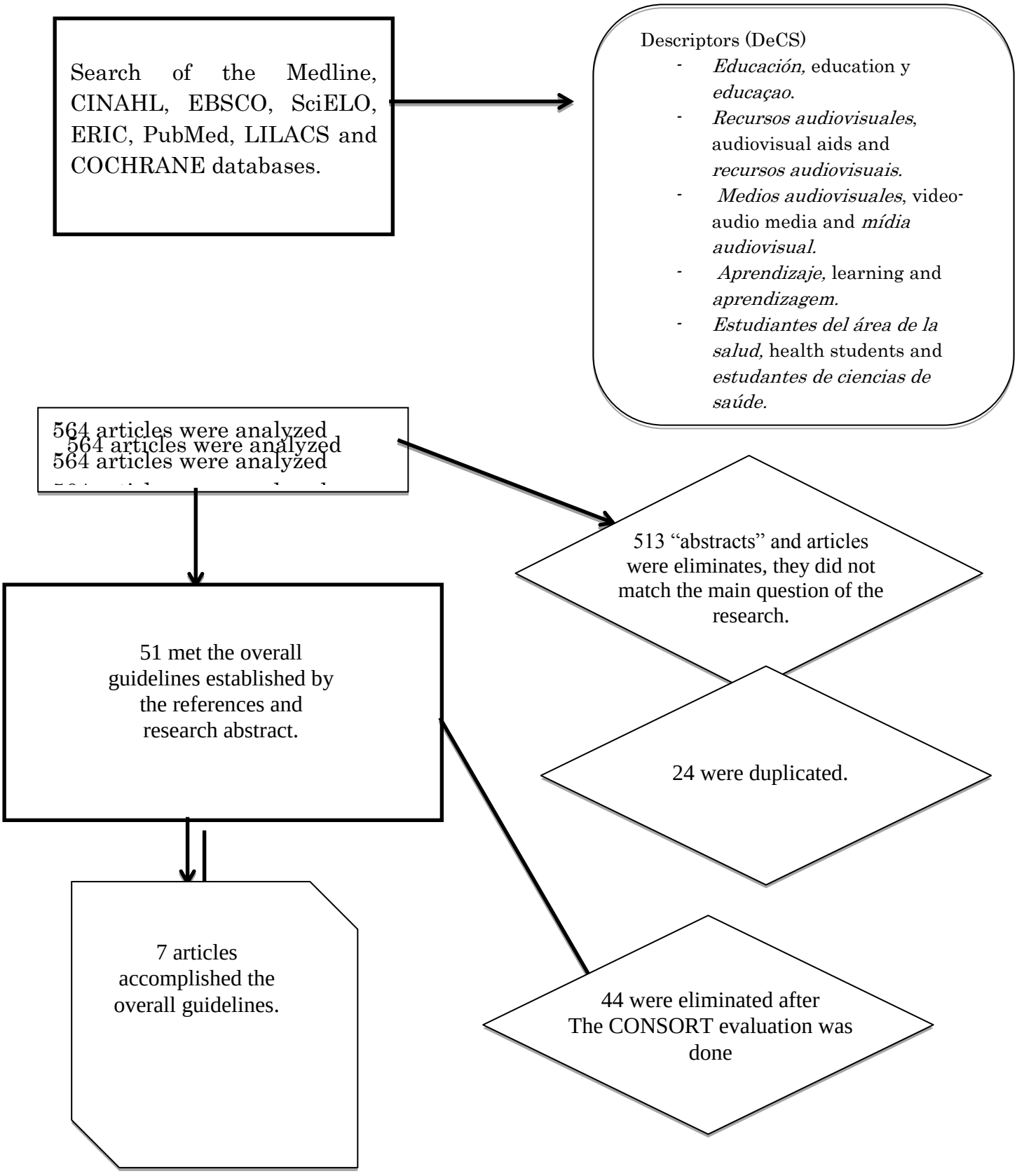
All of the descriptors were mixed during the research using the Boolean operators "and/or". Student's age, education level (college education) and seniority date (no more that ten years) were some of the research's criteria. The review of the articles was done in the abstract and other papers related to the same topic.

Experimental and quasi-experimental studies were included in English, Spanish and Portuguese version. Longitudinal and transversal studies were removed. Four researchers did the research and selection of material independently.

A total of 564 articles were obtained from the already mentioned databases, furthermore, we proceeded to the classification of data, where we used the PICo method. This method helped to choose the studies applied in the review in which 513 were eliminated, 24 duplicated, and in the remaining articles, the research, methodology and level of education was applied. We ended up using only 51. From which only seven fulfilled 75% of the established parameters based on the recommendations from the Joanna Briggs Institute, the PRISMA and CONSORT

(Consolidated Standards Of Reporting Trials) diagrams, both of them based on the EQUATOR Association for the health sciences research. (Figure 2)

Figure 2. Diagram of the collection and search of data from science publications



RESULTS

The factors that were taken into consideration were: the global and specific comprehension of contents, the practical skills development and the teaching method. We can highlight that the teaching of global contents, statistically, shows several differences in regard of the controlled groups. If we compare the knowledge that the groups that used audiovisual aids acquired against the groups that stuck to traditional methods, we definitely can say that they demonstrate an improvement on the educational process. For example, the study done by Choi and Yang [18], they took a text review control process done by the actual students. In the knowledge evaluation, the groups that used audiovisual material obtained a higher mean average than the groups that did not. ($G_{audiovisual}$ 4.67 ±1.03, $G_{controlled}$ 4.41±1.43, p=0.018) And in the Singh's [23] study, in which the classes were taught by the traditional methods, the results where: $G_{audiovisual}$ 19.63 ± 2.70, $G_{controlled}$ 11.90 ± 3.19 gaining a value of p<0.001 in a "z" test.

Another study, applied by Ford et al [24], obtained a slightly but significantly difference when a post-test was applied in a group that received videotaped intervention (12.93 ± 1.41) and another group that acquired a specific scenario simulation (12.48 ± 1.59), the results showed a value of p=0.044 in a "t" test.

On the other hand, the studies that were executed with at least three different educational strategies, showed that the groups with audiovisual resources presented better results than the controlled ones, however, with the third strategy, both of the groups stayed at the same level. That is part of the study by Baxter et al [22], in which the video use and interactive classes presented statistical differences regarding the controlled group, (p=0.007), but when comparing both of them, there was no difference at all.

Another case of these results was the study applied by Moore and Smith [25], in which they compared the audiovisual use with real time practice. In order to classify the knowledge, two evaluations were performed, one written ($G_{audiovisual}$ 5.54 ± 1.13, $G_{controlled}$ 5.67 ± 0.91, p=0.798) and the other practical ($G_{audiovisual}$ 11.08 ± 2.25, $G_{controlled}$ 13 ± 3.13, p=0.204); and both of them got the same results. Besides, the results showed that the students that used audiovisual aids took more time in the test (33.67 ± 24.83 min) than the practical group. (8.67 ± 19.13 min) (P=0.004).

Krawsczyk et al [26], while comparing the pre and post-test, found out that written and video information was better than the one that is presented in the controlled group, but against the knowledge that both of the groups acquired there was no difference at all. Also, it showed that the more emphasis in the video the better is the practical development in contextual skills, for example empathy, body language, collaborative work and communication.

About the development of practical skills, it also exists a debate regarding on effectiveness. Riccioti et al [19] identified that audiovisual aids not only empowers global content knowledge, but it also improves aspects such as body language (p=0.009) and data recovery (p=0.001) like the opening and closure of an existent situation that the student may have lived (p=0.004), but the work environment did not showed any advance. (P=0.23).

In the case of the Baxter et al [22] study, elements like collaborative work, communication, decision-making process and crisis management were evaluated. The group that used audiovisual material showed different results from the controlled group, in spite of that, no significant evidence was obtained from the interactive group. (Pot hoc analysis Neuman-Leuls p=0.35). Consequently, even though we see an improvement, it was not enough to demonstrate the opposite.

In respect of the empathy and satisfaction for the knowledge acquired, Choi and Yang (18) obtained several results in which the mean average of satisfaction on the group that used video was of 40.8 ± 5.19, this was higher than the one gained from the controlled group of 37.69 ± 5.05 and a value of p=0.023 in the video group. For the experimental group, the observed mean average of empathy was de 33.3 ± 4.24, and for the controlled one was 29.07 ± 5.32, resulting to be a value of p=0.020 based on the MANOVA test in both cases.

Another study that also evaluated the generated satisfaction from the implemented strategy was performed by Singh, in which 64% of the participants claimed to be content on a scale from 91 to 100, 10% between 81-90, 11% between 71-80 and 12% reported a ≤70 satisfaction, meanwhile the remaining 3% decided not to answer. These results were analyzed in a descriptive level only [23].

Furthermore, Moore and Smith [25] questioned the interest on knowing which applied method acquired the student's knowledge. The results showed that 87% was positive for the audiovisual resources and 84% positive for the practical method. It is important to mention that no inferential statistic was implied in order to get an answer (Figure 1).

DISCUSSION

The use of audiovisual resources, for several authors, is considered a tool that improves the content knowledge, especially when comparing them to a traditional professorship instruction [18,19,24], however, they are not better than the interactive strategies, simulated scenarios or even handpicked texts to discuss and analyze the topics [22, 25, 26].

Another relevant aspect is the improvement on attitudinal and behavioral situations, which have been encouraged to change with the use of audiovisual material, specifically when referring to empathy, communication, body language and problem solving [18, 19, 22]. All of these aspects are incredibly important in health education, because the students in this area must learn to handle ethical dilemmas, stressful situations where communication should be effective, an appropriate use of body language and collaborative working. In this type of situations, audiovisual aids tend to be a great help, thanks to its' feasibility of collection and reproduction [12].

In terms of contextual aspect of knowledge, Ferrés [15] points out the motivational function that audiovisual aids create, which matches with what Moore and Smith [25] presented: the use of video produces a higher level of interest for the discussed topic in addition to an increment of satisfaction on the student. [23]

In addition to these two elements, Ferrés [15] also emphasizes the expressive function of audiovisual material, in which, with what the author says. The message is provided in words and emotions, like a manifestation of the inner interiority; this also matches with Choi and Yang [18], whom identified a positive alteration in student's empathy,

proving that audiovisual aids could be used as well to exemplify and modify certain attitudinal aspects in the students.

We could say that the use of audiovisual resources allow a higher level of comprehension in global content from the school program, seeing this as a relevant thing, considering that the students concern about the time given, because it is not enough for the quantity of contents that must be seen throughout the career.

On the other hand, we must take into consideration the particular characteristics of the XXI century students, that find themselves immersed in a cyberspace, looking always for different situations to allow their imagination and creativity to take place [2,3]. Aspects that, without doubt, could be improved and directed with the use of these resources, but most of all, that the student's participation will then be active, and not only as a receiver, but also interacting with the knowledge environment, partners and teachers.

Table 1. Characteristics, participants, group results and study factors that were observed in the analyzed research.

Source	Participants	Comparison between study groups and factors	Critical value
Choi and Yang (2010)	Experimental Group = 30 Controlled Group= 29	**Student's satisfaction** Exp. M = 40.8 ± 5.1 Contr. M = 37.6 ± 5.0 **Student's empathy** Exp. M = 33.3 ± 4.2 Contr. M= 29.0 ± 5.3 **Student's knowledge** Exp. M= 4.67 ± 1.03 Contr. M= 4.41 ± 1.43	P=0.023 P=0.020 P=0.018
Singh (2010)	Experimental Group = 72 Controlled Group = 70	**Pre test** Exp. M= 3.64 ± 1.60 Contr. M= 3.91 ± 1.53 **Post test** Exp. M = 19.63 ± 2.70 Contr. M= 11.90 ± 3.19	Z test 16.62 (p<0.001)
			Mean (95% CL)/ critical value
Riccioti et al. (2012)	Group = 30	**Work environment**	0.3 (0.04-0.4) P= 0.23
		Body language	0.4 (0.2-0.6) p=0.009
		Data recovery	0.4 (0.2-0.6) P= 0.001
		Openings and closures	0.4 (0.2-0.7) p=0.004
		Total	0.4 (0.3-0.6) p<0.001

Krawsczyk et al. (2012)	Written material group = 61 Video group = 74 Controlled group =65	**Written material** (M pre = 10.48 ± 4.86) (M post = 17.46 ± 2.09) **Video** (M pre = 11.49 ± 4.25) (M post = 16.70 ± 2.19) **Controlled** (M pre = 10.89 ± 4.15) (M post = 12.06 ± 4.15)	In the post Hoc test (Tukey), we could see that there was no statistical difference between the video and written teaching method, however, both are significant compared to the controlled condition. (Informative flyers) (p<0.05).
Baxter et al. (2012)	Controlled = 6 Group Video Group = 10 Interactive Group = 11	**Controlled** M = 3.64 ± 1.22 **Video** M = 4.74 ± 0.88 **Interactive** M = 5.04 ± 0.48	In the Post Hoc test (Newman-Keuls) we could see the statistical difference between the video and controlled group, (p=0.007), however, between video and interactive group there was no difference at all.
Moore and Smith (2012)	Controlled Group = 15 Experimental Group = 15	**Practical test** Controlled M =13 ± 3.13 Video M = 11.08 ± 2.25 **Written test** Controlled M =5.67 ± 0.91 Video M = 5.54 ± 1.13	P=0.204 P=0.798
Ford et al. (2013)	Controlled Group = 96 Experimental Group = 96	Controlled M =12.48 ± 1.59 Video M = 12.93 ± 1.46	P = 0.044

Abbreviations: M (mean); Experimental Group (Use of videos); Controlled Group (Traditional teaching).

CONCLUSIONS

The audiovisual resources are enablers in the student's cognoscitive process, allowing a global content knowledge, a reaffirmation on practical understanding, as well as data recovery; which results into an ideal knowledge in the health area, in addition to recognize the development of certain criteria that participates in the contextualization of it, and even in the clinic practice as a use of body language, collaborative work and the process of communication.

These resources by themselves do not surpass any other knowledge strategy, but they do contrast with the traditional educational process.

The evidence shows that the use of audiovisual resources develop empathy and improve the inner expression of the students, allowing them to be closer with their own reality, in addition to also be considered as key elements for the progress in the essential competitions in the educational field. It is also important to emphasize the importance of satisfaction that it is use generates to the student, mainly because they are already part of the multimedia world already.

In the process of teaching, before choosing the didactic strategy, it is essential to considerate the main objective in a way that audiovisual resources mix with any other kind of strategies to improve the communication process between students, teachers and classmates.

In order to get a good integration of the audiovisual resources in college education, we require the information to be trustworthy, access free and to be available for students and teachers, but most importantly, we need them to be included in the school program as complementary strategy in the teaching practice.

Perspectives

It is necessary to increase the research on this topic so that the evidence can be supported to prove the effectiveness in the use of audiovisual resources that can be contextualized in education and health areas. Likewise, consider the elements that empower the learning environment with the use of them and evaluate the motivation and/or satisfaction that the teaching strategy generates.

Another activity that adds up relevance in the research is the measurement of efficacy of written material used for the teaching process and to value the combination of different sources of information, just as the participation of the student in the elaboration and implementation of audiovisual resources as teaching strategies.

REFERENCES

1. Santally MI, Rajabalee Y, Cooshna-Naik D. Learning design implementation for distance e-learning: blending rapid e-learning techniques with activity-based pedagogies to design and implement a socio-constructivist environment. European Journal of Open, Distance and E-Laerning. 2012; [Consultado en febrero de 2015]. 2. Disponible en: http://eric.ed.gov/?id=EJ982978
2. Grady J. The virtual clinical practicum: an innovative telehealth model for clinical nursing education. Teaching with Technology. 2011; 32(3):189-194.
3. Hakkarainen P. Designing and implementing a PBL course on educational digital video production: lessons learned from a desing-based research. Education Tech Research Dev. 2009; 57:211-228.
4. Costa DD, Ignácio AD, Magnani FL, Moraes GL. Ambiente virtual de aprendizagem como ferramenta para o estudo extra-classe e educação continuada. Cogitare Enferm. 2011; 16(3):565-568.
5. Blázquez F. La sociedad de la información y educación. Reflexiones desde la educación. Consejería de educación, ciencia y tecnología. Junta de Extremadura. Mérida. 2001. [Consultado en mayo del 2015]. Disponible en: http://www.ub.edu/prometheus21/articulos/obsciberprome/blanquez.pdf
6. Chircop A, Edgecombe N, Hayward K, Ducey-Gilbert C, Sheppard-LeMoine D. Evaluating the integration of Cultural Competence skills into health and physical

assessment tools: a survey of Canadian school of nursing. Journal of Transcultural Nursing. 2013; 24(2):195-203.
7. Bartolomé A. Blended Learning, conceptos básicos. Medios y Educación. 2004; 23:7-20.
8. Vieira FL, Rocha TL, Marques LT, Cunha VF, Moura BC, Bezerra PA, et al. Exame físico no pré-natal: construção y validação de hipermídia educativa para a Enfermagem. Acta Paul Enferm. 2012; 25(4):581-588.
9. Romo ZF. Audiovisual Technologies in education. Revista Digital Universitaria [internet]. 2004 [Consultado en mayo del 2015]; 5(10). Disponible en: http://www.revista.unam.mx/vol.5/num10/art71/nov_art71ing.pdf
10. Adame A. Medios audiovisuales en el aula. 2009. [Consultado en octubre de 2014]. Disponible en: http://online.aliat.edu.mx/Desarrollo/Maestria/TecEducV2/Sesion5/txt/ANTONIO_ADAME_TOMAS01.pdf
11. García MM. Uso instruccional del video didáctico. Revista de Investigación. 2014; 38(81):43-68.
12. Chan KL, Patil N, Chen J, Lam J, Lau C, Ip M. Advantages of video trigger in problem – based learning. Medical Teacher. 2010; 32:760-765.
13. Noro SS, Noro A. O uso de filmes como recurso pedagógico no ensino de neurofarmacologia. Interface Comunicação Saúde Educação. 2013; 17(46): 705-714.
14. Monti FL, Moraes LA, Falleiros MD, Iossi SM, Garcia LR, Silvan SC. Tecnologia educacional em saúde: contribuições para a enfermagem pediátrica e neonatal. Esc. Anna Nery. 2011; 15(1): 190-196.
15. Ferrés J. Propuesta metodológica para el análisis de relatos audiovisuales. Textos de didáctica de la lengua y la literatura. 2009; 52:32-41.
16. Woodworth GE, Chen ME, Horn JL, Aziz MF. Efficacy of computer-based video and simulation in ultrasound-guided regional anesthesia traning. Journal of Clinical Anesthesia. 2014; 26:212-221.
17. Lynch K, Barr N, Oprescu F. Learning Paramedic Science Skills from a first pearson point of view. The Electronic Journal of e-learning. 2012;10(4):396-406.
18. Choi HJ, Yang M. The effect of problem-based video instruction on student satisfaction, empathy, and learning achievement in the Korean teacher education context. High Educ. 2011; 62:551-561.
19. Ricciotti H, Dodge L, Head L, Atkins M, Hacker M. A novel resident-as-teacher training program to improve and evaluate obstetrics and gynecology resident teaching skills. Medical Teacher. 2012; 34:52-57.
20. Managheb SE, Zamani A, Shams B, Farajzadegan Z. The effect of communication skills training by video feedback method on clinical skills of interns of Isfahan University of medical sciences compared to didactic methods. Health Education Journal. 2012; 7(5): 546-552.
21. Aper L, Reniers J, Koole S, Valcke M, Derese A. Impact of three alternative consultation training formats on self-efficacy and consultation skills of medical students. Medical Teacher. 2012; 34:500-507.
22. Baxter P, Akhtar-Danesh N, Landeen J, Norman G. Teaching critical management skills to senior nursing students: videotaped or interactive hands-on instruction? Nurse Educ Perspect. 2012; 33(2):106-110.
23. Singh A. Student performance and their perception of a patient-oriented problem-solving approach with audiovisual aids in teaching pathology: a comparison with traditional lectures. Advances in Medical Education and Practice. 2010; 2:9-15.
24. Ford C, March A, Cheshire M, Adams M. Live versus DVD mock trial: are cognitive and affective changes different? Nursing Education Perspectives. 2013; 34(5):345-347.

25. Moore A, Smith R. Effects of video podcasting on psychomotor and cognitive performance, attitudes and study behavior of student physical therapists. Innovations in Education and Teaching International. 2012; 49(4):401-414.
26. Krawczyk A, Lau E, Perez S, Delisle V, Amsel R, Rosberger Z. How to inform: comparing written and video education interventions to increase human papillomavirus knowledge and vaccination intentions in young adults. Journal of American College Health. 2012; 60(4):316-322.

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