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An Experience of Elaborating Didactic Infographics on Sexual Diversity

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Abstract
The objective of this research is to identify topics raised by 21 medical students in their discourse on their experience of elaborating didactic infographics on sexual diversity. Coding technique was used after 2 judges had read the students' report on their experience of elaboration in order to identify the emergent topics. This resulted in three relevant topics: learning (51%), characteristics of infographics (38%) and proposals (11%). Learning is divided into three topics: behavioral, declarative and procedural. In characteristics, students stress adjectives such as didactic, interesting, complex, and informative. Finally, some of the students made suggestions on their use. Elaborating didactic infographics is a strategy to encourage students' ability to research in order to answer their own questions about sexual diversity while they try to inform others on this topic, promoting respect for sexual diversity and contributing towards the education of the population and health professionals.

Keywords
Didactic infographic; infographic; sexual diversity.

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1. Introduction
1.1 Infographic definition and characteristics

The term infographic, also infograph or infogram, refers to an informational genre developed in journalism, most frequent today in various digital media platforms (Zumeta & Herriko, 2013).

Minervini (2005) defines infographic as a combination of visual elements contributing a graphic display which summarizes a reading. Valero (2008) conceptualizes it as a new product in digital journalism, resulting from the need for new on-screen, and online readers. Hence it possesses characteristics of its own in that context. Two years later, Valero (2010) proposed it as a diagrammatic form of presentation and visualization for scientific content with a potential to allow any reader to acquire this kind of knowledge.

Krauss (2012) mentions infographics as a visual display of information which conveys data and information as a unified presentation.

Cabrera (2013) points to the concept 'infographic' as a technique for the elaboration of images by a computer, whereas etymologically the term refers to the union of the words "graphic information". An infographic is a medium which allows for complex and meaningful presentation by the combination of visual elements.

Calvo (2014) sees infographics as visual illustrations whose aim it is to communicate information through icons, signs, maps, graphics, and diagrams. It is created after analyzing and summarizing information for interesting, simple, and clear presentation in graphic form (Krauss 2012). Likewise, Zumeta & Herriko (2013) define it as a group of enunciating structures −textual and iconographic− on an object, thus becoming common knowledge.

Without a doubt, by presenting messages which facilitate understanding of complex topics with as much efficiency as, or perhaps more than, other textual means of dissemination, infographics are a form of communication with high levels of visual support or concrete data. In short, the term infographic refers to the images, or graphic products, which are useful in simplifying access to complex or difficult information provided in text only (Leturia 1998). In this respect, infographics are understood both as source document and a method for information analysis, which may be adapted to any audience and may thus easily become a learning method and a teaching tool for generating knowledge (Guzmán-Cedillo, Lima & Castilla, 2013):

Fundamentally, infographics consist of three essential elements: visuals (this includes color, graphics, iconic referents), content (framework, statistics, and references), and knowledge, or information (facts or deductions) (Ru & Ming, 2014). In the literature reviewed, infographics share

certain characteristics which ought to be taken into account when determining the quality and achievement of the message, or objective of the information (Valero, 2002; González-Panacanowski & Medina, 2009).

Given the fact that infographics simplify understanding of adaptable topics by the target audience of a given message, coherence between text and image must be cared for, as are proportion of data and images, diagrams involving visual reading, typography, objective of information, simplicity of message, quality of images used, as well as content structure.

Due to the above, since they are the most alluring part for the reader, images are central elements to any infographic, and must be balanced and connected to the text whose typography becomes the threshold to the information message.

To sum up, among the benefits of infographics is the simplification of understanding of a topic, which is why scientific promotion has been one of its most sought-after objectives. Given the improvement of understanding of tendencies, processes, or realities, it represents an objective visual explanation as far as listing characteristics of places, people, things, or procedures, is concerned.

1.2. Uses of infographics in education

In their study, Matrix and Hodson (2014) report on the educational use of infographics as a shared creation. Also, it is mentioned as a method for assessing work by students, with an aim to potentiate an activity which regains different learning styles, mostly the visual one, due to its characteristics for providing knowledge, communicating and recording information, given that retention of material increases when accompanied by images, graphics or diagrams, which support processing material. Lapolli (2013) exploits such characteristic for the contents of Descriptive Geometry as part of an inclusive education, thus contributing to contextualized and motivating learning of deaf students through technologies which take into account possibilities of communication and social exchange.

Using infographics as teaching material aims at the visual transmission of news information, happenings, or data, helping towards an understanding of complex or unfamiliar information by stimulating the reader's interest. Therefore, infographics are an educational resource (Brigas, Gonçalvez & Milheiro, 2013).

By using infographics as an educational resource, students access a wide range of content which may be analyzed in various ways from a reading of it, encouraging them to start a debate, or re-creating that object by reworking it altogether within the classroom context, be it virtual or on-site. It must be made clear that by doing so, replacing academic articles is not our objective, but rather a complement is provided for the student to acquire meanings which encourages, and allows, them to delve into the content presented in an infographic (Brigas *et al*, 2013).

Reinhardt (2007, 2010), a scholar in the phenomenon of infographics as a classroom elements, conceives of didactic infographics as objects, produced by design, which result from interdisciplinary work since they adopt several theories, projects, ideas or concepts, from different disciplines for their creation.

There are findings which claim that infographics improve the perception of teaching strategy and conceptualize it as a tool for knowledge acquisition (Garcia, 2014; Valero, 2010; Minervini, 2005; Brigas et al, 2013). A study conducted among high school students in Cordoba, Argentina, reported that the perception of students is positive when their interest in the subject is awaken as is the use of infographics by other students (Minervini, 2005). During a study (Sudakov, 2014) carried out among Mathematics undergraduates, they mentioned, as part of a survey, how important it was having an infographic available at the start of the course in Experimental Science, although they did not see it the same way in the case of the Social Sciences.

For this reason, García (2014) claims the use of infographic is only recent, highlighting two identifiable strands: it is the object of students' attraction toward a certain subject matter and its implementation fosters research as well as digital abilities in its authors, a potential reported in several studies (Aguirre, Menjívar & Morales, 2015; Rueda, 2015; Mendenhall & Summers, 2015; Martix & Hodson, 2014).

It is as object, or production (elaboration), that the use of infographic for education is referred to in both strands. The first emphasizes both explanatory and appealing characteristics which can be given to a topic by the principles of design and visual communication. In the second, the elaboration as opportunity to promote both research skills and digital competences is stressed as both analysis and synthesis of information are required from the author of infographics in order to make a clear, attractive, and descriptive, representation which also expresses an understanding of the topic, developing a graphic organizer of that which is studied.

1.3. Didactic Infographics

Given the quality of its design, a journalistic infograph, be it digital o multimedia, involves a team of professionals who enrich the work with their knowledge, adding a touch of animation or adaptation to the medium (Centeno & Cabrera, 2005). In contrast, didactic infographics respond to a kind of learning that is based on the development of an educational project related to the contents addressed in the process of formation, which results in the preparation of infographics done by students as a result of their own learning. When developing an infographic students generate a reflection both on their knowledge and their learning, expressing themselves visually as well as developing analysis, synthesis, and organization of information, as well as teamwork, skills (Shrock, 2014).

Students from areas other than communication, design, or art-related professions, have a rough knowledge of the creation and edition of visual objects, and can therefore benefit from infographics software, or platforms, hosted on the Internet. Nowadays, in addition to organizing the layout, this software offers the arrangement of data and graphics, as well as sharing online: Visual.ly, Infogram, Easelly and Piktochart (http://visual.ly/, https://infogr.am, http://www.easel.ly/, http://piktochart.com/).

In the literature, there is a varied number of proposals showing the potential of infographics as an educational resource; some are coming up which explain the process of development as a strategy of systematized teaching (Davidson, 2014; Lamb, Polman, Newman, & Smith, 2014; Shrock, 2014; Matrix & Hudson, 2014; Nuhoğlu & Akkoyunlu, 2015). Even more innovative are those studies

which focus on the impact this process has on learning from a student's perspective, or which stress progress in learning and students' skills development. Additionally, the vast majority of these works keep themselves as presentations or 'proceedings' at congresses, failing to join a corpus of research articles that should contribute to the knowledge of didactic infographics (Ru & Ming, 2014).

Matrix and Hodson (2004) point out that the process of development, or creation of images, helps learners understand a digital culture, i.e. allows for the social construction of the visual day-to-day in a "techy-world". Also, they highlight the fact that as much as rhetorical argumentation or academic writing, the creation of graphic representations requires students to commit to an involvement in critically thinking when it comes to analyzing the material they are learning. Hence the designing activity, the layout, or the visual representation of an idea, helps learners develop their rhetorical skills.

This research resumes the issue of didactic infographics development by medicine students. For this reason, didactic infographic is understood as an educational strategy which promotes the construction of a learning product whose development is based on research and creative design by the participants into a formative process; this development manifests itself in an integrated visual object involving the graphic organization of information in order to communicate a message to a particular audience. Therefore, didactic infographic is a graphical representation of the thought of the learner. The background to this research, with an emphasis on educational development, will now be described.

Davidson (2004) used infographics in the science room for three research projects (recycling, water pollution, and air quality) during a Chemistry class with elementary students. For the first project, the class conducted an inquiry after which an infographic was produced individually and was evaluated by a peer. Experiments were conducted on water pollutants for the second project, in addition to classroom discussions about risks in the community. Finally, students wrote their report with infographics in teams. The last project consisted in looking for the causes and effects of air pollution so as to develop proposal for a solution, which were presented in infographics. For these three projects, the teacher, as well as having a didactic plan, gave students matching lists and guiding questions by which they were supported in carrying out self-assessment and peer evaluation of the development of both their research and their infographics.

Also used with the sciences, this time with high school students, is Lamb and Larry's work (2014), whose objective it was to teach students to make graphic representations in order to promote information literacy (the ability to discriminate junk information) while making infographics of the collaborative type under the "read and think out loud" scheme, an activity modeled by the teacher.

Matrix and Hodson (2014) report on an educational experience involving 620 students from two Canadian universities (Queen and Ryerson) in the online education modality. They approached the following education planning with a group of 500 students: first, they would carry out documentary research, then they would elaborate an infographic with some help from a rubric (an assessment instrument with graded criteria on the essential elements of an infographic) which received feedback from peers, ending in their experience in creating an infographic and reading it for didactic purposes. The remaining 120 students did the activity in order to illustrate a conceptual notion which was to be

published in a blog later on. The findings show that using infographics as a learning activity promote visual literacy competencies and support reflection and social exchange.

Cabrera (2013) elaborates education planning with 34 psychology students in Mexico City, consisting in the making of a digital infographic which allowed for the measuring of mastery of theoretical content on the visual material, prioritizing such content and using representative images in most cases. Moreover, it suggests implementing pedagogic assessment for the infographics elaborated.

Through focus groups, Dervill, Daradirek and Freberg (2014) explored the possibility of using infographics as a learning activity with 37 students from three universities (Oregon, Louisville, and Marquette) and 15 public relations graduates working in the area. Their findings show all participants acknowledging the importance of infographics in their time, the clarity that characterizes them, as well as the need to consider the audience to which they are addressed, an aspect which public relations students did not take into account. Also, they pointed towards the need for clarification of those competences developed when creating them (writing, research, managing image use in reports) as well as their importance in professional portfolios when seeking employment. A discovery was the importance of assigning topics for the infographics rather than allowing students to choose by them. This was suggested by the graduates since, they pointed out, it that was useful for work, as well as other examples of good and bad infographics in their field.

Making infographics is a way of teaching students to see research and writing as creation and design, which depends on the education planning so as to develop them while promoting discussion on their design, evaluation and reflection around activities, adapting them to relevant research projects in the curriculum, to the point that activities and instructions help students develop skills that make them aware of their own design and research (Mendenhall & Summers, 2015).

Generally speaking, the sequence for producing didactic infographics consists of the choice of a topic, researching it, organization, sketching, the design proper, reviewing infographics, and their publication (Aguirre, Menjívar, & Morales, 2015). We should reflect on the relevance of additional steps, or activities, as those which involve showing examples to trainees, or having them find their own, feedback as part of self-assessment and peer-evaluation, as well as evaluation carried out by the teacher, and having the chance of presenting infographics to the audience for which they were elaborated.

1.4. A proposal to elaborate infographics on sexual diversity

As mentioned in the background, infographics have a potential for promoting understanding and interaction with information during the learning process, since the association of ideas, comprehension of topics, and the increase of knowledge about authors can be promoted through images and text. This research therefore considers the creation of didactic infographics on sexual diversity an activity which will enrich the learning of medicine students on the subject of human sexuality, not only in its disciplinary aspects, but for the reason that diversity is an important issue on the global political agenda, concerning the formation of citizens who respect alternative behaviors, and expressions, to heterosexuality.

As far as the health area is concerned, the development of infographics has become an important resource to explain care procedures, diseases, medical processes, functioning of organs and systems, or health-related issues, aiming at providing people with clarity about diseases and treatments. Both the World Health Organization (WHO, 2013) and the Pan American Health Organization (PAHO, 2014) has used this tool to report illnesses to the population in general.

Infographics have become a strategy for educating the patient who expects many benefits, such as immediacy, accompanied by time optimization, education, ethics, while maintaining the scientific rigor which all information issued by the actors in the health sector should observe. In addition, to taking advantage of its digital format, it is spread through various means (González-Pacanowski & Medina, 2009; Guzmán-Cedillo, Lima, & Castilla, 2013).

In Mexico and other countries, there is an openness in the making of laws that protect the expression of sexual diversity, however, the changes are not manifest by decree of law (Official Journal of the Federation, 2013). More often seen on a daily basis are attitudes, and behavior, characterized by transgression of the rights of homosexuals, transsexuals, intersexual, bisexuals, or anyone who express a sexuality other than the constructed stereotype of couples consisting of a man and a woman.

Different sexual expressions are punished by various forms of violence ranging from jokes to murder, a kind of behavior that expresses meanings shared in the Mexican cosmogony. These meanings are reflected in responses from 50% of lesbians, gay or bisexual, who mention having experienced discrimination, expressed as lack of acceptance, criticism, and teasing, according to the National Council Against Discrimination in Mexico (CONAPRED, 2012; IMJUVE-CONAPRED, 2002; Flores-Ramírez, 2008).

In this regard, health staff also reject sexual diversity, not only because of insufficient education in human sexuality, which is generally lacking in these professionals (Alarcão, Ribeiro and Miranda, 2012), but due to a series of shared meanings about their social importance in classifying the world, inserting people into categories which relate to representations and social values, since these are the ways in which they understand reality (Machado, 2009).

When sexual diversity is assumed, it is ultimately a reflection on one's own conceptual categories of sexuality, for its insufficiency must be acknowledged. By putting in perspective and questioning these categories, it is possible to recognize their dynamism, allowing for an awareness of sexual expressions as part of a continuum of human characteristics. In consequence, the attitudes of rejection are modified (Flores-Ramírez, 2008).

Based on the aforementioned, the objective of this research is to identify the issues exhibited in the discourses of 21 medical students while writing about their individual experience in creating didactic infographics on sexual diversity

2. Method

For this research, medical students at the National School of Medicine and Homeopathy of the National Polytechnic Institute (IPN) in Mexico who are enrolled on the subject of Human Sexuality developed infographics in order to inform different audiences on different expressions of sexual diversity. At the end of their infographics, students responded to the open question "What was your experience when making an infographic?" Responses to this question were analyzed using the topic classification technique.

2.1. Participants (type subjects)

- 21 students enrolled in Human Sexuality class at the National School of Medicine and Homeopathy of the National Polytechnic Institute.
- Two education analysts, regarded as experts in data revision due to their experience and academic activity.
- A professor who worked as an expert in the field, carrying out the didactic sequencing for producing infographics with the group of students in question.

2.2. Analysis Unit

The analysis unit refers to the students' answers to the question "What was your experience when making an infographic?"

2.3. Instrument

With the aim of evaluating didactic infographics developed by the students, the teacher used an assessment rubric (see appendix 1). This instrument consists of five elements to be evaluated in each infographic: objective of information, title-information consistency, support for information, integration of image and text format. All of them are evaluated at three levels of performance: Advanced, intermediate, in progress, using a Cronbach alpha (α =. 52) (Guzman-Cedillo and Lima, 2013).

What follows is an explanation of the elements assessed by means of the rubric: the objective of information criterion, evaluates whether the topic has been detailed; the title criterion refers to the congruence between itself and the information dealt with; the support for information criterion revises the basis of a claim based on sources of information validated academically (associations, surveys, interviews, articles, etc.); the integration of image criterion identifies when the graphics used match the information raised; and, the text format criterion determines if a font allows for difference in headlines as well readability of the text.

A category that emerged implicit in the teacher's evaluation of the infographics is the claim that the product of learning does not become an infographic (is not an infographic).

2.4. Techniques for gathering and analyzing data

Students were asked to answer a question about their experience to elaborate the infographic. The technique for analyzing the participant's responses was thematization, or the topic classification technique which relates to a set of topics contained in an argument or speech. A classification of speech by means of a label is attempted, whose goal it is to gather or order information so that relevant analyses of research questions may be carried out as a result (Van der Maren, 1996). This is why after thematizing the work, extracts from the students' responses from categories that correspond to the regrouping of speech extracts on the making of the infographics, as similar responses are searched which may be consolidated under a single topic.

2.5. Procedure

2.5.1. Phase 1. Sequence implementation

Through a didactic sequence planned around the contents of sexual diversity included the curriculum for the Human Sexuality program, it was proposed that each student elaborated an infographic as a result of their learning (see Figure 1 for an example).

Students were given a research structure on LGBTI communities (lesbian, gay, bisexual, transgender, and intersex) for the production of infographics. Once the documentary research was completed, they presented their findings in an infographic made it with Picktochart, software available online. Then they printed out and showed their infographics to their fellow students.

Every infographic elaborated by the students was evaluated by themselves and the teacher, the rubric provided information on total scores and by category. These data was used for a descriptive analysis based on the frequencies of those performance levels that the students achieved.

For a final step, each student was asked a question about their experience.

Figure 1. Example of didactic infographic. Elaborated by Leticia Lira José (student)

2.5.2. Phase 2. Infographics Assessment

Every infographic was evaluated both by the student and the teacher; the rubric provided information on total scores as well as individual items. These data allowed for a descriptive analysis based on the frequencies in the levels of performance achieved by the students.

2.5.3. Phase 3. Thematization of the answers

Pre-reading

In the first instance, a general reading of the students' responses to the experience of developing an infographic was carried out. After this reading the teacher and a judge suggested topics that were considered significant by the judge, who determined whether extracts from the students' answers corresponded to the provisional topics.

Preliminary topics

After the pre-reading phase, 74 extracts were obtained. Both differences and similarities among them were identified. Then the extracts were re-classified by topic and reviewed by the first and second judges, who evaluated the relevance of their place within each topic.

Both the second and the third judges identified extracts which they considered were classified inadequately, which led to a discussion with the teacher. A joint definition and preliminary issues were created through high value judgment and with this a consensus for the reclassification of such extracts was achieved. At the same time, decisions were made to remove or regroup topics, taking as a criterion their repetition or their absence in the extracts.

Definition of topics

Once the extracts had been classified in each subject, we proceeded to perform the final definition, with the objective of creating a second class out of a sample of 15% of the extracts. This was done independently by each judge so as to corroborate the estimation unit for each subject.

Validation of topics

The second class carried out independently by both analysts and the teacher, we proceeded to obtain the percentage of agreement, re-defining the topics and subtopics until a minimum of 80% agreement between independent judges was obtained.

Topics elaboration

Based on the results, the most frequently mentioned topics were identified by the students and sample extracts were taken from each topic

3. Results

3.1. Accounting for the sexual expressions represented in the infographics

The sexual expression that was most frequently represented in the infographics elaborated by the students is homophobia (38%), as shown in figure 2.

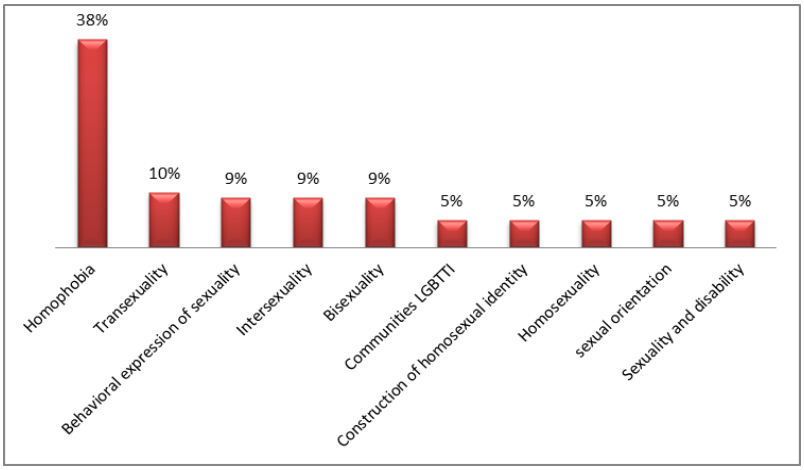

Figure 2. Sexual expressions shown on infographics by percentage.

3.2. Thematization of answers to the open question

Agreement between judges at the first definition of topics was 71%. After a second definition, agreement was 73% and, in a third exercise, the percentage of agreement on the topics was 100%. Three topics were developed from this these validation results: Learning, Characteristics of the infographic, and Proposals.

Chart 1 shows condensed topics from extracts and the results of thematization. The first column shows the name of the topic, its meaning, the percentage of presence in discourse, and an example of the extracts including the answers.

Table 1

Consolidated topics, experience in student elaboration of infographics.

Topics	Meaning	Percentage of presence	Example
	Students explain their experience of elaborating		"My experience was a very pleasant one towards the end of the

Learning	the infographics and mention three levels of learning: behavioral, declarative, and procedural. Behavioral learning comprises ethical, professional, or individual values. Declarative learning consists of knowledge as facts, concepts, or principles. Procedural learning encompasses strategies, techniques, or methods.	51%	activity...” “…learning, a knowledge that opened my horizon in that respect —I didn’t know anything about these topics…” “…the fact of seeing and knowing so much data on this topic…”
Characteristics of an infographic	Students mention the relevant particulars that rose during the elaboration of an infograph.	38%	“…it’s well applied and a didactic method…” “…at the beginning, finding the information is a little hard…” “…it’s more easily understood by most people…” “…I tried to find a way to get involved in it…”
Proposals	Students make suggestions on the use and elaboration of infographic.	11%	“…most likely, I’ll be making an infographic for parents in the future…” “I’ll use this tool for my education from now on.”

The feature of the infographics which is most frequently reported by students is ‘didactic’, since they consider the infographic as a fun way or simple way to present a topic, but also describe the process

of elaboration as complex and time-consuming, requiring research and problem-solving (see figure 3).

Figure 3. Infographic's characteristics reported by students.

3.2 Assessment of infographics

Regarding the elements of infographics evaluated by the rubric assessment: objective, title, support, integration of image and text format 33% (7) of all infographics were found in the advanced level of performance (see figure 4).

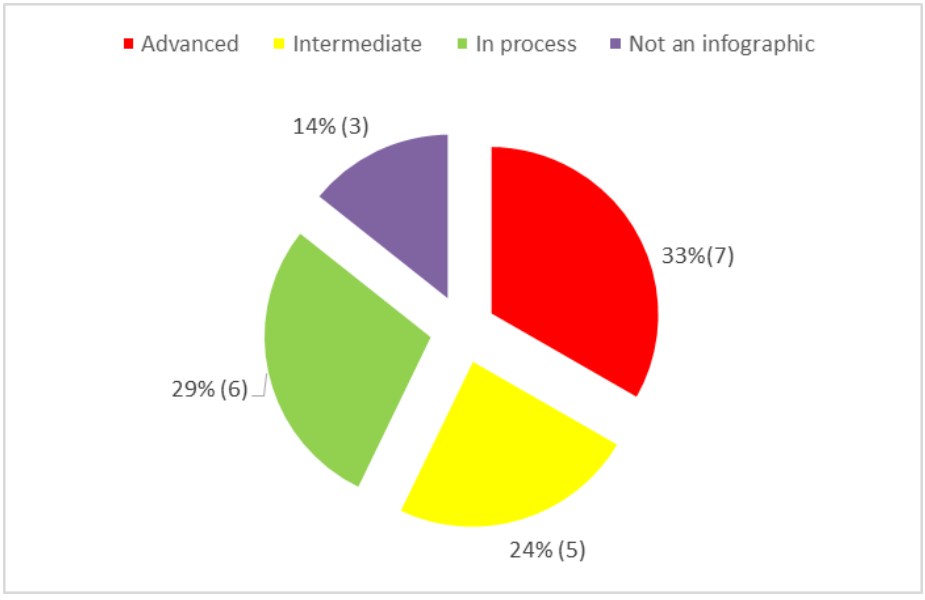

Figure 4. Infographics level of performance (holistic)

Figure 5 shows that the infographics achieved an advanced level for the first three elements evaluated (57%), while the image integration and text format aspects achieved an intermediate level of performance.

Figure 5 shows the level of performance per element by means of the percentages of evaluation of the infographics, with the area of image integration as the most frequent at an intermediate level. This emphasizes differentiated assessments of the levels of performance of the infographics.

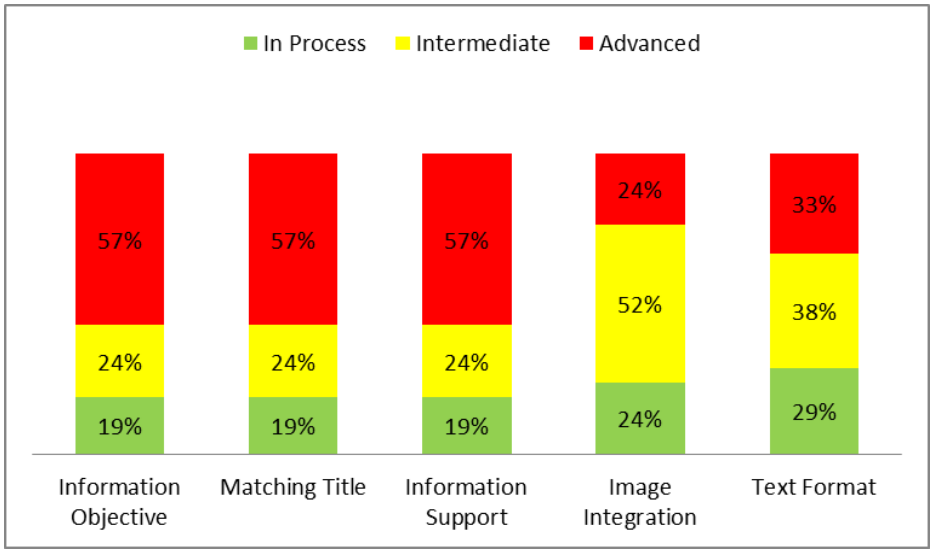

Figure 5. Performance levels per element

4. Discussion and conclusions

The question that generated this research on the topics which students report on their experience of elaborating didactic infographics has been answered by identifying the topics that are expressed in the written discourse of 21 medical students on their experience of drawing infographics on sexual diversity.

In the analysis, we observed learning of three basic types: behavioral, declarative and procedural. On a behavioral level, they were related to the idea of approval (Krauss, 2012; Garcia, 2014) as shown by the following comment: "... society hasn't yet accepted all of these people who are just like heterosexuals, they deserve respect."

In this aspect, the elaboration of didactic infographics after documentary research on issues of sexual diversity help to mitigate the manifestation of attitudes and behaviors that discriminate against lesbian, gay, transsexual, transgender, intersex or bisexual, people. For it represents a means of reflection on the conceptual hegemonic categories of sexuality held by health staffs, as mentioned results elsewhere (Alarcão, Ribeiro & Miranda, 2012); Machado, 2009; Flores-Ramírez, 2008; CONAPRED, 2012; Flores-Ramírez, 2008; Careaga, 2004).

Throughout students' commentary on the characteristics of infographics, the potential they see in them as a documentary source for the public, a method of analysis of information, or a teaching tool that promotes understanding and increases knowledge on a subject by the individuals who elaborate it, is evident. Therefore, the most frequently mentioned feature was its didactic quality.

"...learning, a knowledge that opened my horizon in that respect I didn't know anything about these topics..."

That is to say, didactic infographics represent an opportunity to investigate in a systematized, well-founded form, at the same time as they promote the development of writing, and visual communication, in order to elaborate the infographic. These are skills which several education institutions seek to promote in their students, as reported in elsewhere (Islamoglu, Mercimek, Donmez, Kuzu, & Odabasi, 2015; Freberg, 2014).

The content presented in the infographics teaching allows for informing and learning. The students as well as the authors of the literature reviewed agree that the infographic represents a clear, attractive, and simple, way of sharing information, in addition to defining their experience of elaboration as pleasant, interesting, novel and satisfying (Valero, 2010; Minervini, 2005; Cabrera, 2013; Martix and Hodson, 2014).

Despite their characteristics, those students (11%) who have appropriated the use of infographics as a learning tool when they talk about its use in their future education, or as a document to share health issues with other people, are but a few.

With respect to evaluating the infographics, the rubric provided information so as to distinguish the overall quality of the infographics as a product of learning as well as their components (Guzmán-Cedillo, Flowers, & Tirado, 2013). The first three components: the objective of information, title, coherence and support, were the ones that achieved more than a half at the level of advanced performance; this may be due to the fact that this part is determined by the research conducted on the sexual expression on which it seeks to inform. In order to be a determining factor in this conclusion the presence of that variable (research) must be measured, as well as its evolution during the elaboration of the infographic and its relation to the first three items.

In the case of the two latter components, namely the integration of the image and the format of the text, they are part of the elements of design which involve the elaboration of an infographic, which is why it is considered important to specify the performance criteria proposed within the rubric for each level in more detail.

From the percentages, it is seen as necessary to expand the rubric in order to evaluate elements that report on support and accuracy of the information, such as statistics, quotes or references. In addition to including aspects that relate to the harmonic proportion between images and text, features that are considered to increase the readability of the infographic, while giving it an aesthetic look (Reinhardt, 2010).

Based on this study, it is suggested that a line of research be started on didactic infographics as an educational resource for reflection on the ability to coexist with behaviors and alternative expressions which encourage respect for difference as part of the repertoire of attitudes that a citizen of any country and a health professional, such as a doctor must show, who, as part of their ethics, must set prejudices aside that would affect attachment to a treatment or the well-being of the patient.

In conclusion, continuing the research on didactic infographic is suggested, especially as part of the development of competences, assessment tools, as well as products, in addition to measuring the impact their development has on students' learning achievement beyond their scope.

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Appendix 1 Infographic assessment rubric

Directions. To evaluate the elements of the infographic place the number that describes the level of performance of each item in the highlighted box at the bottom right (total points 15).

Before you start assessing, we ask you to write the purpose of the infographic:

Element to evaluate	**Performance level**		
	Advanced **3**	**Intermediate** **2**	**In progress** **2**
Objective of information Referring to the expression of an informative message.	Information focuses on one aspect only.	More than one topic is mentioned as part of the information.	Information lacks concreteness.
Title and information	Title and subject	Title covers some	Title does not match

make sense together Infograph name which relates to content.	matter make sense.	elements provided in the subject matter.	subject matter.
Support for information This refers to the reliability of the information.	100% of claims are based on various sources of academically validated information (associations, surveys, interviews, articles, etc.)	More than 50% of claims are based on various sources of academically validated information (associations, surveys, interviews, articles, etc.)	Less than 50% of the claims are based on various sources of academically validated information (associations, surveys, interviews, articles, etc.)
Integration of image This refers to harmony of composition in the elaboration of the infograph.	Images match subject matter.	Some images are out of place or hinder understanding of subject matter.	Images bear little relation to subject matter.
Text format Considering font sizes.	Fonts allow for easy reading of text and headings.	Fonts are appropriate for reading the text.	Font are always the same or make reading difficult.

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