

A STUDY OF ON-SITE AND ON-LINE ENVIRONMENTS IN HIGHER EDUCATION

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Abstract

This article presents studies on the class environment with the goal of elaborating educational proposals with resources from information and communication technologies (ICT) in higher education classes. Educational sequences were constructed with a study of the class environment using the following elements: place of study of the class environment; purpose of going to the location chosen; subjects of the discipline to be studied at the location visited; previous knowledge and information necessary in the period prior to making the visit; types of recording used (writing, filming, photography); and form of assessment of the experience required of the student.

Keywords: Higher Education. Educational strategies. Student-centered learning. Teaching methodology. Study of the environment.

1. Introduction

The current challenges posed to university professors require innovative strategies, which, according to Veiga and Oliveira (2012), based on the theory and practice relation, building knowledge from students' prior knowledge, using dialogic and reflective practices, teaching with research, broadening the space for dialogue and learning in class.

For Monereo et al. (1995, p. 25), learning strategies relate to the decision-making processes through which students choose and retrieve, in an organized way, "the knowledge they need to complete a determined objective, depending on the characteristics of the educational situation in which the action is taken". They are procedures applied in a controlled manner, in a plan designed with the objective of achieving a goal (POZO, 2002).

For Ponte Junior et al. (2003), teaching strategies as instruments at the disposal of professors and students can constitute an agent

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of change for improved quality in higher education. That requires professors with a solid background, knowledge of teaching and content, development of educational practices that use Information and Communication Technologies (ICT) as interfaces that meet individual and collective needs, which stimulate creative construction and the ability to reflect. They favor the development of intellectual and affective abilities, leading to student autonomy.

Teaching strategies, according to Haydt (2006) and Martins (2009), are forms of classroom intervention, which contribute to students mobilizing their operational schemes of thinking and actively participate in the learning experiences. The students do it by observing, reading, writing, experimenting, proposing hypotheses, solving problems, comparing, classifying, ordering, and analyzing.

By choosing a teaching strategy, professors consider its adequacy for the objectives established for teaching and learning, the nature of the content to be taught and the learning to start, the students' characteristics, such as age, the degree of interest, learning expectations and the time available.

For Masetto (2011), Bordenave and Pereira (1989), innovative curricula in higher education emphasize active learning, which values research and the ability to update changes and seek information. They involve a process of guided discoveries and the incentive for interactive learning in small groups. In this context, the selection of strategies enable student participation (debates, observation with discussion, readings, research, practical activities, activities in simulated reality environments, discussion of cases) and enable the placement of students in contact with professional realities starting in the first year of the program.

For Mizukami (2000), methods with student-centered approaches involve programs, techniques, flexible hours, adaptable to their circumstances, respecting individual working pace, assimilation of knowledge and group activities, with a variety of tasks and techniques. In this context, the concept of the class involves situations that generate investigations on the part of the student and educationally structured teaching activities. That will stimulate research, the incentive for scientific production and placement in the community in various ways or extension programs, in addition to teaching-learning evaluations.

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2. Studying the environment as a teaching strategy in higher education

Studying the environment is an interdisciplinary strategy applied to teaching from a constructivist perspective that works with concepts and

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skills to understand situations and make decisions. It places students in real situations, in which they must act like professionals. It enables them to learn about, collect information and analyze various aspects (cultural, social, environmental and economic) from a specific environment.

For Bittencourt (2004, p. 273), studying the environment has a logically structured sequence: situations that lead students to create problems in their reality; strategies for collecting and analyzing data collected from this reality; and developing intervention plans in the context studied. According to Cousin (2013, p. 101), studying the environment “allows one to build knowledge based on the observed, contextualized and analyzed reality, through mediation and interaction”.

For Sulaiman and Tristão (2008), studying the environment allows us to study the modifications of space and time and has the crucial stage of fieldwork, through which it is possible to have a plural and broad understanding of the physical, historical, cultural, environmental and economic space.

Studying the environment uses interviews, excursions, and visits as ways to directly observe and research reality, collecting data and information for later analysis and interpretation. In this strategy, students summarize, observe, discover, and are moved to participate directly in planning, proposing objectives, and executing the study of the environment. They do it by doing interviews, making visits, collecting data (information and materials), organizing and interpreting the data collected, elaborating the general conclusions and evaluating the process and its results.

Studying the environment provides experiences that go beyond the physical space of the classroom and require planning to guarantee the completion of its crucial stages. According to Cavalcanti (2002), the stages of studying the environment are:

- a. Identify the space to be studied – to gather the sources for study (files, people interviewed, material objects), which will enable the prior study of the location (a bibliography or other sources of information).
- b. Organize the syllabus to follow – identify the activities that involve collecting materials, a division of labor, choosing materials and equipment to use (cameras, camcorders, etc.).
- c. Prepare – raise awareness of the students to the issues of the topic; contact with some representation of the environment with texts, maps, photos.
- d. Plan – define the schedule, the subjects to interview, the groups of interviewers and the script for the interviews, as well as create a field notebook.

- e. Do the fieldwork – observe, record, describe and collect information, involving a perception of the space in its variations and contradictions.
- f. Explore the material collected in the classroom – return to the classroom to continue the activities, with a summary and presentation of the results, using ICT resources, involving the systematization of the information obtained and recorded, as well as impressions and reflections of the participants. Everyone's perceptions and those of each group socialize to produce knowledge, using the set of records to produce materials: album, video, book of poems, romance, theater, exposition of photos, model, and book.

Studying the environment as a strategy in higher education creates a relation to the content studied and is planned according to the following criteria: choose the environment that best illustrates the topics studied; define the objectives and letting the students know what should be observed; divide the scheduled tasks among the students; clarify any doubts regarding the relevant facts that will be observed in the environment; supervise the data collection and information to be researched/observed; require the students to write reports that will be read, discussed and presented after a study of the environment.

The activities of studying the environment go beyond the walls of the Higher Education Institution (HEI) and must be planned according to the objectives and the different learning topics. Studies of the environment involving excursions, trips, and visits are well-received by students and are an essential out-of-class teaching resource, since this is how students come in contact with practical situations and people as they are, concretely and objectively, enabling a direct observation of nature. The advantages of studying the environment are: it provides students with the ability to see that the materials they study are concrete realities, which leads to motivation and facilitates an understanding of the facts studied; it encourages students to observe the environment, creates the habit of research and collecting information; it leads students to have behavioral habits and attitudes in different environments; and it promotes the acquisition of skills, emphasizing observation and a command of organizing and analyzing oral and visual records.

The objectives of studying the environment are: to provide the circumstances for students to come into contact with their surrounding reality, promoting the study of its various aspects directly, objectively and in an orderly fashion; to provide the acquisition of historical, economic, social, political, scientific, artistic knowledge directly, through experiences; to develop the skills of observing, researching, interviewing, collecting, organizing and systematizing the data collected; to analyze and draw conclusions; to use different forms of expression to describe what was observed; in addition to

favoring the integration of various curricular components, helping students observe physical, economic, social, political and artistic facts in an integrated manner as they appear in reality.

Some examples of studying the environment in the area of Geography are: forests, lagoons, ponds, parks, industries, streets/avenues, colleges, museums, hospitals, villages, public organizations, restaurants, fairs, churches, lookout points, hotels, companies, real estate registry offices, meteorological institutes, slums. In the area of History: museums, art galleries, historical neighborhoods, communities, archaeological sites, villages, public archives, geographic institutes, libraries, sugarcane industries, mills, restaurants, fairs, lands, churches/temples, cemeteries, fortresses, registry offices, rivers, historical cities, popular celebrations, festivals, asylums, theaters/auditoriums/arenas, palaces, city hall, city council. In the area of Physical Education: camping, fitness clubs, research institutes, sports associations, sports media companies, sports industries, sports products commerce, sports consulting firms, sports museums. In the Legal area: forums, police stations, the district attorney's office, juries, registry offices, criminal mental hospitals, legal medical institutes, model law firms, the consumer protection and defense program, the Department of the Treasury, businesses, museums, Law Schools, schools, the Federal Police, airports, borders, shelters, the transportation department, the prosecutor's office, factories, courts, the legislative assembly, the Federal Senate, Cabinets, public companies, autocracies, unions, consulates, support centers for victims of crimes, centers for psychosocial support, federal and regional councils for professions, court hearings.

Table 1 - Proposals for studying the environment in on-site higher education

Location	Topic of the Class	Objectives	Contents
State Secretary of the Treasury	Posting and collecting a tax credit	Determine how taxes are collected; understand the tax system: theory of incidence, triggering event, tax obligation, posting, tax credit, current registration and debt.	Procedures stipulated in the legislation for collecting a tax; tax that will be studied; theories of incidence; triggering event.
Photographic Studio	Chemical kinetics in processing black and white photos	Show how Chemistry is present in students' everyday life.	The process of photographic processing: occurrence, duration, advantages, disadvantages. Methods of photographic processing. The chemical process used in photographic processing. Chemical reactions. Historical and geographical aspects of photography.

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Location	Topic of the Class	Objectives	Contents
Supermarket	Consumption of food additives	<p>Learning to read the labels on packages of food products.</p> <p>Awareness-raising in students on the risks of consuming food additives.</p> <p>Managing the Codex Alimentarius</p>	<p>Types of food additives and their risks. Chemical Bonds. Chemical reactions. Organic chemistry - functional groups and organic functions.</p>
Water and Sewage Services	Water and Sewage treatment and supply	<p>Show the stages of water purification treatment for human consumption.</p> <p>Show the stages of sewage treatment of the city.</p>	<p>Water as a substance: chemical composition. Purification treatment for human consumption. Importance of water for the existence of life on the planet. Treatment of domestic waste. The chemical composition of water. Chemical functions and reactions.</p>
Chemistry Laboratory	Worker protection norms in unhealthy places.	<p>Know the safety procedures for working in a chemistry laboratory.</p> <p>Observe the application of safety norms and worker protection.</p>	<p>Occupational health and safety. Unhealthy and dangerous activities. Worker protection norms in unhealthy places. The concept of unhealthy conditions.</p>
Hospital	Practical internship in an adult clinic and a particular health clinic.	<p>Provide the experience of practical development.</p> <p>Develop attitudes about nursing care for adults and those with special needs, connecting this experience with the future practice.</p>	<p>Specific pathologies are seen during the course.</p>
Laboratory of Chemical Analyses	Blood analysis	<p>Visit the hematology sector.</p> <p>Learn the stages of blood analysis, from drawing to release.</p> <p>Identify the equipment and utensils necessary for analysis.</p>	<p>Blood drawing, slide production and smearing.</p> <p>Read the slide under a microscope to confirm the findings of the electronic counter.</p>
Sanitary Landfill	Importance of recycling garbage	<p>Promote debates with the class on the topic of urban garbage.</p>	<p>Forms of garbage disposal. Damage caused by garbage in the environment.</p> <p>Correct ways of treating garbage, to avoid damage to the environment.</p>

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Location	Topic of the Class	Objectives	Contents
Hotel	Hotel administration	<p>Compare the different ways of administrating hotels.</p> <p>Identify the profile of professionals in each sector.</p> <p>Determine which strategies are used to solve problems with guests.</p> <p>Indicate how the working relationship between operational sectors takes place.</p>	Organization of hotel professionals.
Construction site	Support and execute operations of a construction site	<p>Plan to use the land not occupied by the building, to obtain the best use of physical space available, enabling men and machines to work safely and efficiently.</p>	<p>Analysis of the existing construction site.</p> <p>Subsidies to carry out stages of standardization and planning.</p> <p>Occupational safety.</p> <p>Reading executive projects.</p> <p>Notions of physical space and planning.</p>
City Council	Public sessions of the Council	<p>Promote a broad view of reality, a broad contextualization of the different aspects present in a determined reality.</p>	<p>Organic Municipal Law.</p> <p>Internal Regulation.</p> <p>The function of the Organizations of the Chamber.</p>
Museum	Museum of Archaeology	<p>Show the historical aspects, customs, ways of life of primitive indigenous cultures and prehistoric anthropology. Restoration of archeological findings. Preservation of material taken from the region. Reconstruction of the old culture in the region, crafts, funeral rituals, graphic representation, reconstruction of the local prehistoric fauna.</p>	<p>Technological Development vs. Cultural Preservation.</p> <p>Conservation of the historical-scientific patrimony.</p> <p>Crafts in the indigenous culture and their importance.</p> <p>Culture vs. Citizenship.</p>

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Location	Topic of the Class	Objectives	Contents
Sugarcane Industry - Agribusiness		<p>Identify the environmental (social and economic) impacts of the industry.</p> <p>Observe the cycle of sugarcane.</p> <p>Analyze the working conditions.</p> <p>Examine soil preparation: manual and mechanized fertilization.</p> <p>Learn about the primary pests, biological control, and pesticides.</p>	<p>Production of sugar and alcohol and its by-products and pollutants.</p> <p>The cycle of sugarcane.</p> <p>Use of "pollutant" by-products (stillage) in the fertilization process.</p> <p>Use of technology in the industry.</p> <p>Working conditions.</p> <p>Soil preparation: manual and mechanized fertilization.</p> <p>Specific laboratory for producing varieties to meet the needs of replanting.</p> <p>The fate of the final product and by-products.</p> <p>Main pests, biological control, pesticides.</p>
Fire department	Chemical reactions and the theory of fire	Learn about the components of fire. Fire onset. Fuel, combustion, and source of ignition and chain reactions.	Burning oxygen in materials used to control or fight fires. Chemical processes of combustion and how to control it. Extinguishing agents.
Candomblé Yards	History of religions in Brazil	Learn about Candomblé, religion and an expression of Afro-Brazilian culture; oral expression and the importance of Afro-Brazilian mythology; identify how Afro-Brazilian mythology expresses in the physical layout of the yard.	The interrelation between mythology, oral expression, and space. Candomblé – myths, aesthetics, history, physical space and human relations in the group. The formation of Candomblé in Brazil and its main characteristics; the African influence present in this religion.

Source: Created by the authors.

In an environmental study, the role of the professor is to supervise and coordinate planning, execution, and evaluation, to suggest problems for study and stimulate research, supervise students in proposing hypotheses and conclude from their observations and research.

Every environmental study demands data collection, based on dividing students into work groups. The information collected should be shared in debates or in creating corporate databases developed through research in written sources.

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The data collected can be statements, interviews, photographic records, filming, documents in different formats and notes, in addition to podcast recordings, through interviews and portfolios with experience reports, included in the research. Digital cameras can be used to record the environment visited. With images and videos, they will produce presentations using comic strips, album series, digital books, showing the processes investigated, reports referring to the procedures of the stages completed, writing reflective papers on the place visited, video productions presenting a report of the visit and observations containing photos taken by the student, presentations, publication of the class's work YouTube, in addition to a diary kept of activities and topics observed during the visit.

Field recordings allow students to develop research habits and procedures, such as supervised observation and recording data and systematized information, as well as their impressions of reality.

According to Lopes and Pontuschka (2009), field recordings are traditional instruments in research and are available with internet tools, such as Google Docs, podcasts, and video sites. They have a teaching-educational role in all stages of completing the study of the environment. Here, the participants of the activity quickly find the main instructions regarding data collection and information and the observation process, in addition to the spaces adequate for written records, designs and layouts. During the entire course of studying the environment, a field notebook is a work tool for the participants because it has the planned activities and the procedures chosen can easily be consulted in case of doubts.

Evaluating the study of the environment involves producing reports used for debates in the form of seminars, photography exhibits, and exhibitions of films made on the location. Also, presenting the topic seen during the experience, photography exhibit of the situations experienced in the study environment, presentation of talks on the environment visited, elaboration of a critical survey, among other forms of evaluation.

3. Studying virtual environments

Visits to institutions and places are activities that enrich student experiences and the university curriculum. However, the costs of transportation, distance and other obstacles frequently limit the frequency and possibility of doing these activities. In this context, the internet offers attractive alternatives, which are cheaper, varied and flexible, enabling students to travel to numerous places.

Virtual trips are as if an excursion represented in pages on the internet and facilitate exploration and investigation by going to places. The professor can prepare an exploration guide in advance, with questions that guide the trip and the pursuit of information on the part of students, using online resources, such as web maps or online maps, to supplement the available printed material in the classroom or the library. They learn about places/spaces and write a report on its relevance for the area of study.

These tools, according to Kripka, Viali, and Lahm (2014, p. 90), “enable the elaboration of different teaching activities. Using the technique of remote sensing, it is possible to explore high-resolution satellite images, from different regions of the planet, to see realities beyond the surroundings of the HEI”.

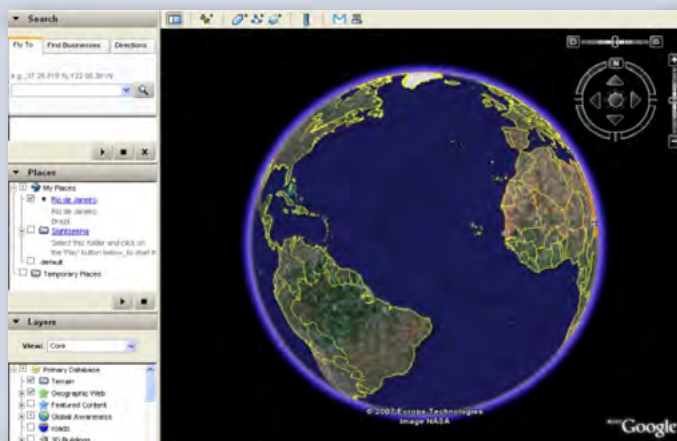
One of the most used programs is Google Earth (<http://earth.google.com>), a free browser that functions as a geographical atlas, which has a library of maps and images, satellite photos, animations, maps that can see almost the entire planet three-dimensionally. When flying over a determined region, one can see the local reality differently when compared to diagrams and static representations from textbooks. For Kripka, Viali and Lahm (2014, p. 90), Google Earth is

An application that allows seeing practically anywhere on Earth, through high-resolution satellite images. It allows evaluating the dynamics of geomorphological processes over time, through temporal comparisons of image views in different historical periods. [...] It allows to see 3D images of places that may or may not be inhabited, rotate images, mark locations, measure distances between points, draw routes, trace polygons, as well as determine the altitude, longitude, and latitude of the places viewed and allows to make virtual trips in 3D, in major cities, using the Street View feature.

With Google Earth, it is possible to locate different places on Earth, access satellite images, maps, plots of land and buildings in 3 dimensions. It allows you to see historical images taken around Earth, data from the bottom and the surface of the ocean provided by marine specialists; it is possible to explore geographical contents, save the places visited and share them with colleagues and groups.

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Figure 1 - Google Earth Interface



Source: Google Earth.

For Bairral and Maia (2013), Gonçalves et al. (2007), Hetkowski (2010), Lima (2012), Nascimento Junior (2011) and Santos Júnior and Lahm (2007), the Google Earth application, through satellite images, maps, plots of land and buildings in 3D, makes it possible for students to navigate around the globe. In it, it is possible to add various layers of information, in addition to associating it with Google Maps, which makes it easy to generate routes.

In using Google Earth, professors can explain the different types of the occupation of the territory; describe the cities of the region, with the online view. It works with challenges, such as finding an erupting volcano in Asia or a garden with circular forms in a determined neighborhood of the city in which to live.

In a geography and history class, the student can experience how the presence of the Greeks took place around the Aegean Sea. As support for historical maps, he/she can illustrate the conflicts between the Spartans and the Athenians, as well as the process of Greek colonization in the old world.

In a study of Minas Gerais baroque architecture, students can visit sites on the topic and follow an itinerary of Minas Gerais cities, characteristic of this period, mapping the central locations and essential monuments or writing an illustrated text with the images captured, demonstrating a summary of the study proposed.

In the Tourism program, students can create a travel itinerary to a country, with research on its historical, geographical, linguistic and cultural characteristics; creating an itinerary, a budget means of transportation, points of interest, etc.

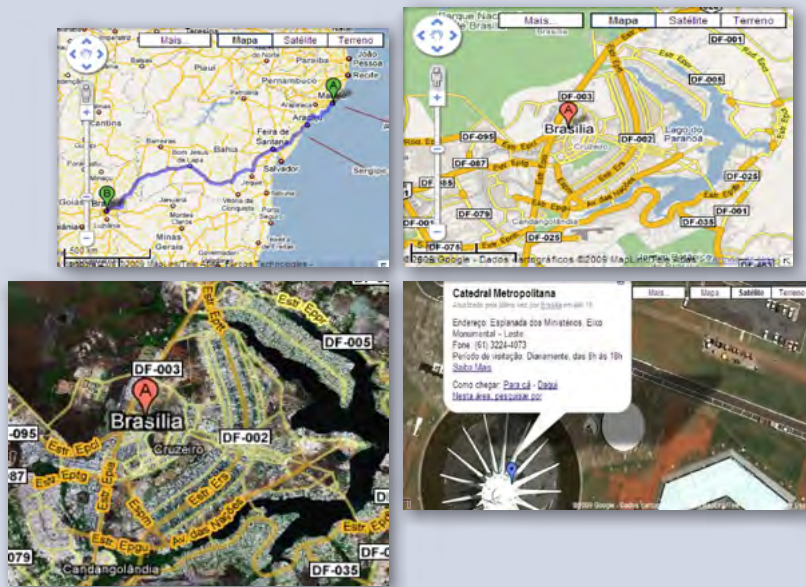
Another contribution of Google Earth is it stimulates professors to work with images captured by satellite. With old and recent images, it is possible to show the growth of the urban area or the deforestation caused by burnings in different regions.

Google Maps (<https://maps.google.com.br/>) helps explore the virtual environment since it allows you to research and view maps and satellite images of Earth. It also works as an online street guide. It shows maps of cities, streets and helps look for routes, with information of the routes in time and mileage. It allows users to create their maps, saving addresses and inserting text and images. For Kripka, Viali and Lahm (2014, p. 91), Google Earth is

An application that enables a view of maps and satellite images of various places on planet Earth and provides maps and routes available for many places, enabling zoom in major cities, as well as getting routes by car, on foot or by bus, with their distances and estimated times.

It allows to outline routes on maps and to watch major urban centers with zoom and register companies and businesses on the map (BERGAMI; TAVARES, 2015). Based on this system, everyone can highlight places, change paths, generate comments, and add data about the space itself and everyday life, generating individual and collective cartographies, which can be available in the form of text, photos, sounds, and videos.

Figure 2 - Examples of Maps on Google Maps



Source: <https://maps.google.com.br/>. Acesso em: 10 fev. 2009.

The main possibilities for using Google Maps are outlines of urban areas and road networks; investigating growth patterns of urban areas; the progressive invasion of agricultural space; a geographical study of space; human occupation and its physical, economic and social aspects; economic land use; and the study of geographical accidents.

There is also the MapMyGlobe project (www.mapmyglobe.com), in which users build an interactive travel guide, posting information and reporting stories on places in which they live or which they have visited. MapMyGlobe explores the identification of users with places. The contributions can come from any place on Earth, at any time, and involve any pixel on the map, thus enabling the construction of an open spatial representation in the constant process of creation.

With this software, it is possible to research Oscar Niemeyer, for example, to discover and mark where his buildings are in the world. Alternatively, in history classes, show the current borders of what was the Roman Empire.

Google Ocean (<http://earth.google.com/ocean/>) allows you to view, obtain information and see deep parts of the oceans to explore them. This program is part of Google Earth and is a virtual geographical world that maps Earth using images obtained from satellites. With tools from Google Ocean, it is possible to view the surface as well as the inside of any ocean on the planet.

Google Sky (<http://www.google.com/sky/>) is a resource from Google Earth to view and explore space. It simulates outer space in which the user explores space, seeing images of planets, constellations, and galaxies, as well as information on each of them. It uses satellite data from NASA, from the Sloan Digital Survey and the Hubble Telescope. It includes animations of planetary orbits and spaceships modeled in three dimensions, with tutorials to see the details of outer space. There are also trips to the Moon and Mars, interactive content, guided visits throughout the history of trips and high-definition images in which to observe craters, mountain ranges and all kinds of information previously only available in specialized centers. It provides a flight simulator that can fly over any map of any place in the world. According to Antunes (2013), the leading characteristics of Google Sky are to research, view and enlarge images of galaxies and stars obtained by telescopes; viewing historical maps of Astronomy; viewing the constellations and movement of the planets; play podcasts of astronomers; and mapping elements from space.

The software Celestia (<http://sourceforge.net/projects/celestia>) allows you to view animations and interactive navigators of the universe, demonstrating concepts, laws, contents, and videos that approximate real situations. According to Beserra et al. (2012), Celestia is a 3D space simulator that

works as a virtual reality environment. In Celestia the user has a view of celestial bodies as if they were inside a spaceship, being able to control the position and direction of the ship, besides its synchronization about the real movement of the observed object and the speed of time. It presents real images of celestial objects from the Solar System: Sun, planets, natural satellites, space probes, asteroids, and comets.

Some proposals for using Celestia involve the use of resources of orbital simulation, in which the student can accelerate time and move in intervals of one month in a few seconds. In this interval of time, the teacher can see the changes in Moon's appearance, observing details of its change in appearance, leading students to see that it occurs gradually, which is barely watchable on a day-to-day basis.

The software Stellarium (<http://www.stellarium.org/pt>), according to Beserra et al. (2012), is a virtual planetarium that shows a realistic sky in 3D, similar to what is visible to the naked eye. It allows to simulate a daytime or nighttime sky and twilight realistically, simulate planets, moons, stars, eclipses in real time, providing detailed information of thousands of celestial bodies. It can simulate traveling between galaxies, planets and celestial bodies, and the navigation allows to outline routes and measure distances between the bodies selected. According to Longhini and Menezes (2010, p. 436):

The program offers tools to deal with images, such as shining stars; shooting stars; meteor showers; time and zoom control; an interface in several languages; fish-eye projection for planetary domes; telescope control, among others. The program allows users to make personalized adjustments, like setting the geographical coordinates of the place where they live or where they wish to see the sky. It can also be configured for any date and time, such that you can go forward or backward in time, revealing the configuration of the sky at any time.

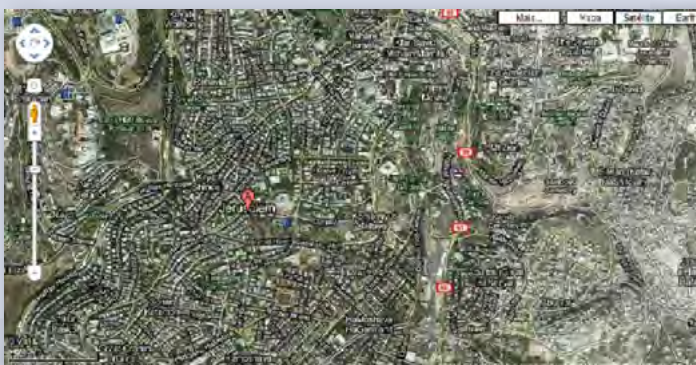
Some proposals for activities with Stellarium are: simulate the succession of days and nights, using Stellarium to locate and observe any place on the face of the Earth. Also, choosing a city or entering the geographical coordinates directly; movements of the Earth's rotation – simulate the removal of the atmospheric layer, to show that the Moon can be seen during the day but prevents the mirroring of the light from the Sun in the atmosphere. It is possible to increase the speed of time, so that see the days over the course of a year, presenting concepts such as the solstice, equinoxes and seasons of the year.

4. Teaching proposals for studying in virtual environments

4.1 Proposal 1 – Visiting the city of Jerusalem

The place researched will be the city of Jerusalem, specifically, the Western Wall and the Way of the Cross, in which to identify the transformations that occurred in these critical religious settings. In this setting, a study will be carried out referring to the path taken by Christ in the Holy City, identifying possible stops and length of the journey. It is necessary for students to have prior knowledge about the biblical records of these events.

Figure 3 - Map of the city of Jerusalem



Source: Photo taken from Google Earth, with an aerial view of the city of Jerusalem.

Google Earth will make the records and, in the case of the Western Wall, research will be in the work plan, as well as photos taken from Google Images. Teachers will ask students to write a comparative report between the records of sacred structures with written texts on the subject, using transformations observed in the online visit to base their points of view.

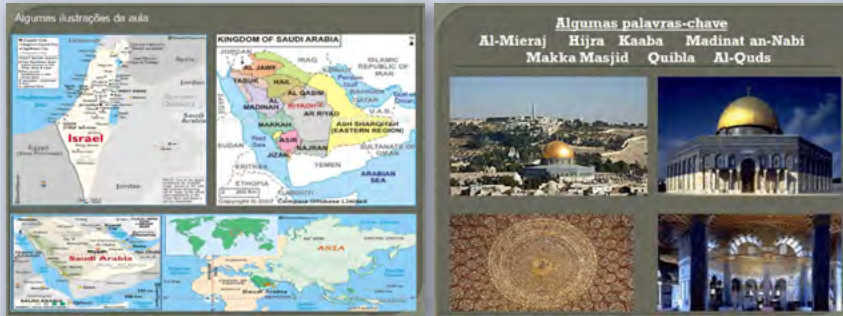
4.2 Proposal 2 - The sacred geography of Islam

Students from religious education can describe the geographical, historical, political and cultural context in which Islam emerged. They can show how the social context influenced the rise of the religion. They can demonstrate how the coincidence of the same sacred spaces highlight a common, Abrahamic core for the religions revealed, all having emerged in the same western context and sharing the same prophets and sacred locations.

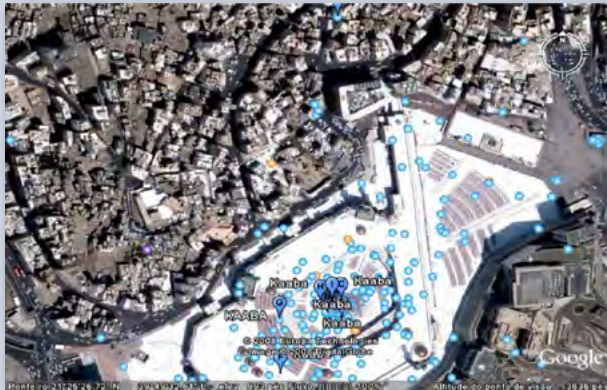
Students will have previously received printed material concerning the places to visit, topics to research, a description of the events that took place, as well as bibliographic sources. Then, they will visit the sites to obtain

supplementary information. The access to the central sacred locations of Islam will use the online resource and Google Earth.

Figure 4 - Maps and photos of Jerusalem, Israel



Source: Images taken from the internet to compose classroom presentation slides.



Source: <https://maps.google.com.br/>. Access on February 10, 2009.

In the evaluation, the students will research the presence of Muslims in the Iberian Peninsula, in which, for eight centuries, Jews, Christians, and Muslims lived together peacefully. Students will produce a report with illustrations, addressing the topic: “Jews, Christians, and Muslims: experiencing unity in diversity”.

4.3 Proposal 3 - A Trip on the Silk Road and the Adventures of Marco Polo

In this online study, the travels of Marco Polo will be explored to learn about some historical passages in the Middle Ages and his grand adventures and discoveries. The students will virtually visit the places that Marco Polo described in his travels. The study will involve the areas of mathematics, tourism, geography, history and the arts.

Figure 5 - Marco Polo took the Silk Road



Source: <http://www.chinadiscovery.com/assets/images/silk-road/maps/China-Silk-Road-Map-full.jpg>. Access on March 10, 2016.

This proposal will create a travel itinerary on the Silk Road, going through places visited by Marco Polo, narrated in the book *The Travels of Marco Polo*, by Carlos Heitor Cony and Lenira Alcure or in the reports in the *National Geographic Magazine* from May, June, and July of 2001.

The professor will ask the study groups to create a life story of Marco Polo, based on the research of sites that talk about his life, such as (in Portuguese):

<http://www.estado.estadao.com.br/editorias/2002/08/25/cad045.html>

http://www.canalkids.com.br/viagem/vocesabia/viagem_mpolo.htm

http://www.escoteiros.org/aventura/exploradores/marco_polo.html

<http://www.jt.com.br/suplementos/saba/2001/07/07/saba006.html>

Another source for research on this activity are the texts by Jean Pierre Drège: *Marco Polo and the Silk Road* (in Portuguese) (<http://www.historiaillustrada.com/media/conquistas.html>) and *Silk Road* (in Portuguese) (www.mundus.com.br/expedicao/rotadaseda/bibliografia.htm).

Students will research the Mongolian Empire, who Kublai Khan was, the importance of Venice when the trip began and the end of the trip for Marco Polo, at 17 years of age. What fascinated Marco Polo about China? Manufacturing porcelain, silk, paper and tea, paper money and jade.

After learning about the life of Marco Polo and the places visited on the Silk Road, students will organize a touristic itinerary to visit the places described in the travels of Marco Polo, using sites about these places, such as:

<http://webhead.com/www/india/> – India, culture, history, business and economy.

<http://www.astaspice.org/> – spices, recipes and the history of trading goods.

<http://www.itwg.com/home.asp> – research on real or virtual travel.

<http://sun.sino.uni-heidelberg.de/igcs/> – access to links about art, history, religion, economy, politics, education and other areas of interest.

<http://www.cnta.com/> – tourism office of the Chinese government.

<http://www.chinapage.com/china.html> – literature, philosophy, poetry and the history of China.

<http://www.bellereti.com/jzimm/Venice/venice.html> – thematic itineraries in Venice.

<http://www.afghan-web.com/> – Afghanistan: culture, history, politics, economy, geography.

<http://userwww.service.emory.edu/~sebrahi/PersiaNet.html> – culture, and history of Iran, ancient Persia and generic links on the Middle East.

The professor will ask the students to create an atlas illustrated with maps taken from the internet indicating the current places with photos, visited by Marco Polo in his travels. Next, students will describe the land, considering geographical aspects.

4.4 Proposal 4 - Migrations due to climate changes

According to the United Nations (UN), in the report *Refugees from China* (JULIÃO, 2011), climate change will make 50 million migrants by 2020. The UN defines an environmental refugee as a person who flees from where he lives because of drought, land erosion, rising sea levels, desertification, deforestation and problems related to the environment. Examples: Tuvalu (tide), Carteret Islands, in Papua New Guinea (tides), Louisiana (USA), Morocco, Tunisia and Libya, Kiribati, Bhola (Bangladesh), Maldives.

The professor will ask the students to create a virtual album with images that portray the cities researched, with the objective of identifying different geographical spaces and their cultural aspects and stimulate the written production of informative texts. Research on the internet, in magazines and postcards: images of the more significant places. Research on each country: location, language, currency, size, tourist attractions, trivia.

4.5 Proposal 5 - Traveling to the wonders of the world

Students can be historians with the objective of investigating the Seven Wonders of the Ancient and New World and visit and explore specific characteristics of old and new architecture.

Students can research the iconic places of ancient cultures, classified as the Seven Wonders of the Ancient World: Statue of Zeus at Olympia (Greece), Temple of Artemis (Turkey), Pyramids of Egypt, Mausoleum of Halicarnassus (Turkey), Lighthouse of Alexandria (Egypt), Colossus of Rhodes (Greece), and the Hanging Gardens of Babylon (Iraq). The class will be divided into seven groups so that each group is responsible for one monument. Organize a blog with photos and a history of the monuments. There will be a rotating evaluation, in which all groups visit the blog and comment on the topic produced by the other groups. For this activity, the suggested sites are (in Portuguese):

<http://www.misteriosantigos.com/as7.htm>

http://pt.wikipedia.org/wiki/Sete_maravilhas_do_mundo_antigo

<http://www.desvendar.com/especiais/historiadoturismo/as7maravilhas.asp>

<http://www.culturabrasil.pro.br/7wonders.htm>

The professor will draw a parallel between the ancient monuments with those of today's culture. For this achievement, each group of students will choose a new icon for the 7 Wonders of the New World: Colosseum of Rome (Italy), Chichen Itza (Mexico), Machu Picchu (Peru), Great Wall of China (China), Ruins of Petra (Jordan), Christ Redeemer (Brazil), and Taj Mahal (India). Students will organize a second page of the collective album (blog) with photos and a history of the monument that each group chose. They will participate in a vote of the new Seven Wonders, through an official site. There will be a rotating evaluation, in which all groups visit the blog and comment on the topic produced by the other groups. Suggested sites:

<http://www.new7wonders.com/>

<http://www.misteriosantigos.com/as7.htm>

<http://www.otimismoemrede.com/7maravilhas.html>

http://www.possibilidades.com.br/parabolas/sete_maravilhas.asp

5. Final considerations

Student-centered teaching methodologies allow students to learn through discoveries, by developing their analytical skills and motivation. Student participation and involvement have a significant impact on their learning, as well as their level of responsibility for their growth process.

Studying the environment serves to enrich students' experience, develop a sense of reality, reduce the verbiage of expository classes, and connect the HEI to the community. It also help reveal vocations by visiting places of practical work, from factories to laboratories, in addition to training observation, data collection and analysis, offering a variety of materials to work within the classroom.

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Student-centered teaching methodologies allow students to learn through discoveries, by developing their analytical skills and motivation

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