DISTANCE EDUCATION FOR ELDERLY
The Construction of a Pedagogic Architecture

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Abstract: The prospect of a long life for a large population poses new challenges for both public policy and to the individuals themselves. In this context technological resources and the Internet represent an important channel and conducive to a continuing education. The distance education in this scenario can become a form of social inclusion for the many possibilities. But with new emerging paradigms there is a need to investigate how planning should be done online courses for seniors. Thus the pedagogic architecture, organizational structures and planning, can help in discussion and reflection on the subject. Therefore, the objective of this research is to build pedagogic an architecture for distance education toward the elderly population. The study will be from a qualitative and quantitative approach, consisting of three stages of development. In the steps we aim to build arrays of pedagogic architecture and apply them. Data collection will be held from participant observations, interviews, questionnaires and production technology of the participants. With the study is to develop the awareness that the elderly have the potential to learn through distance education, which will require cultural change through new learning.

1 INTRODUCTION

The elderly population is rising, mainly due to social restructuring and attention in aging process. In Brazil, this demographic transition will place the country in the next 20 years as the sixth of the world's elderly population, which represents, in absolute numbers, about 33 million people aged 60 years or more (UN, 2001). Currently, according to updated data by the IBGE (2011), the elderly population in Brazil is 20.590.599.

In this process the search for quality of life was highlighted. One way to provide the quality of life is participation in activities that promote wellness, including continuing education.

In recent years, offering courses in digital inclusion facing the elderly has increased. Soon more and more educational resources to be used by the elderly on the computer have been developed to be aggregated to learning processes, and can be adapted to different needs of users. Learning environments in recent decades, have suffered both methodological and technological transformations. With new paradigms, there emerges the need to investigate the use of technology, particularly Distance Education (DE) as an educational opportunity that provides an effective participation of the elderly with a potential for continuing education.

Because it is a form of continuing education, distance education can contribute greatly to a quality of life for seniors. Since this form of education can provide the elderly to update that so many seek to join courses in digital inclusion, besides the possibility of social interactions that are necessary at this stage of life.

Unfortunately, there is little research about the use of distance education with the elderly. There were three publications of experiences outside the country of study (Trentin, 2004); (Kimpeler et al., 2007) and three in the country, Brazil (Pasqualotti, 2003); (Paulo and Tijiboy, 2005); (Reis, 2006).

However in this article we understand that the DE may be a process that permits meet the diverse demands of the public, from the targeted content, time and specific pedagogic practice for the elderly. From this perspective, the construction of a pedagogical architecture (PA) will allow the

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planning of enriching pedagogical space for the elderly.

Therefore, we intend to present in this article an array of pedagogical architecture in the DE to encourage new teaching practices with this audience. That is, to provide seniors the opportunity to take courses online that threaten the emerging needs of the same.

Thus, the objective is to highlight and publicize the elderly as active, fighting erroneous prejudices related to this age group, providing quality of life. For this it is first necessary to understand what is the scenario of the use of technologies by the elderly.

2 GERONTOTECHNOLOGY: THE USE OF TECHNOLOGY WITH/FOR ELDERLY

With technological advancement comes the need for studies on the use of technologies and the elderly. In Europe and the United States a new area arises, gerontotechnology. That is, the dynamic interaction of two factors: population growth and technological advancement. However the technology is studied from the standpoint of its potential to improve the quality of life of older people and facilitate their participation as full citizens in society (Bouma, Fozard, Bouwhuis, Taipale, 2007).

Besides the creation of technological resources, in recent years a part of the elderly population was interested to learn how to handle the technologies that arise, and between them and the computer.

With the emergence of the first personal computers in 1971 to the spread of these began a process of digital exclusion. Training for use of computer resources, mostly disregard the needs of the elderly. The ideal would be to provide computer use by the elderly critically, not only as a means of technology, but as a form of social inclusion, thus countering exclusion.

The Internet is one of the tools that fascinates the elderly by the possibility of obtaining information easily, fast and by an interactive way.

The information available on the Internet offer the elderly the chance to experience now without the need to abandon experiments already experienced (Pasqualotti, 2003).

Besides the elderly public, the Internet provided a new perspective to education. From a historical process, distance education in recent years has become more present in society through training courses, training and instrumentation for digital resources. With the popularization of the Internet in recent years, DE initiated the use of online tools.

In this context, distance education stood out as a possibility for the elderly, in society, struggle to be an active citizen from continuing education. Distance education can provide learning without borders, where the educational institutions may offer various courses with topics that may interest the elderly, especially the possibility of choice (utility) and applicability.

Therefore, using the DE with the elderly is the ability to discern that they can continue to learn and that their presence and opinion will make a difference. This presence could lead to changes in values and concepts, thus facilitating the life of near elderly and improving their quality of life.

There is little research focused on a specific form of education for the elderly (gerontogogy or educational gerontology) on digital inclusion, especially in distance education, which is still an unexplored field.

As the authors Kimpeler et al., (2007) in a report carried out in Germany, there is virtually none of research group on e-learninng and elderly and those which started are probably still in development with no published results.

For Trentin (2004) and Reis (2006) the training of professionals, both designs, as tutors and teachers can be differentiated, based on gerontogogy or andragogy. But an experiment conducted by Reis (2006) in the training of professionals who acted with the elderly in Distance Education showed low demand and lack of interest in the topic. Alves and Lopes (2008) suggest that for DE for the elderly: offer continuing education for older people retired or in the process; make the adoption of incentive policies for entries in online courses for older audiences; developing opportunities for socialization of experiences and offering the democratization of information; providing the link between education institutions and create study groups on the subject.

To provide a quality in distance education more accessible communications spaces are being created for the elderly public. The use of virtual learning environments (VLE) and learning objects (LO) will address the personal needs present in this audience, as well as the main characteristic that is respect for the learning time of each senior.

In addition to digital resources, the VLE allow exchanges of messages, information between people of different cultures, which in the context of learning facilitate the establishment of learning communities.

Reis (2006) highlights some elements necessary

for working with older people in Distance Education: Knowledge: issue to be worked in the discipline or course; Time: refers to the time required for the construction of knowledge; Didactic-methodological procedures: the procedures to enable the proposal.

The perception of time, ie, awareness of the limited time frame of any individual life and their educational implications, is a limiting factor of personal expectations and, consequently, of certain decisions. Especially decisions related to participation in activities, cultural and educational programs (Martín, 2007).

This time perception, consciousness of the fleeting nature of life, is associated, inevitably, to certain expectations about the possibilities of the individual over the years.

As in this type of education there are several factors that influence, it is up to us to reflect how to think, plan and develop online courses for seniors. How to build a pedagogical architecture for elderly?

The construction of an array of pedagogical architecture can help future online courses for the elderly public. Below is listed each part of the pedagogical architecture (Behar, 2009):

a) Organizational aspects: refer to pedagogical planning from the definition of objectives, organization of time and space and defining the duties of each participant in the process (student, teacher, tutor, etc.);

b) Content: discusses the materials and components to be used during the course. These contents could be constructed to meet the demands required in a virtual course, making possible the development of skills and abilities of students. Currently, there are different ways of providing content, from simple texts, to learning objects, *HTML* pages, videos and presentations, among others, according to the intended goals;

c) Methodological aspects: despite remit only the "how" will be worked on the course content, can be considered forms of connection, association of technological resources and the procedures used, and considering the objectives defined in educational planning;

d) Technological aspects: the definition of a virtual learning environment and what tools will be used, as well as other technological resources, is essential in distance education, especially when one considers which one fits best to the proposal of the course and to the students.

It is important to highlight that erroneously we consider a pedagogical architecture as a rigid model and that should be massively reproduced without considering the elements involved (subject, time / space).

The elements (Aspects of Management, Methodology, Content and Technology), which provide a pedagogical architecture interact. The teacher in this process can balance, as the reality in which it is included, which fits best to achieve their goals. That is, the teacher is the one to adapt the pedagogical architecture to the educational needs of their students, thus enabling the construction of knowledge. For an understanding of the topic will be developed below each constituent element of an PA.

To construct the PA for online courses focused on older people was necessary to follow some steps to develop the research. Thus, the following will address issues concerning the methodology used in order to clarify certain questions that arise on the subject.

3 METHODOLOGY

This article discusses the development of a research project developed in a quantitative and qualitative approach. This format was chosen to the viability of complement the data, to assist the understanding the object of study.

Related to the qualitative aspects an interpretive approach was used to aid the process of understanding the data that were collected during the survey.

Data collection was conducted from participant observations, questionnaires and interviews performed during the course development. Data were used in the steps suggested by Bardin (2004) for the analysis of the content.

On the other hand, the quantitative aspects were analyzed by frequency distribution represented in percentages, mean and standard deviation.

Data analysis was during the implementation of a pilot project, which occurred between 2009 and 2010. This project is part of a doctoral thesis that aims to work with the resources of Distance Education for the elderly.

Thus, the pilot project began with the release of the extension course "Introduction to web resources for distance education with the elderly".

Were randomly selected based on inclusion criteria (age 60 years or more, be literate, have basic knowledge of computers), 40 seniors from a list of entries from 200 older people. This list was formed from telephone calls made by seniors interested in the ad linked to a Brazilian newspaper in the same

year.

In order to answer the research question and meet the objectives, this proposal has three stages in its development: 1) PAA1, 2) Pilot Project, 3) PAA2. The steps occur recursively, aiming the construction, deconstruction and reconstruction of the PA to DE with elderly public.

Steps 1 and 3 aim to build the Pedagogical Architecture Array (PAA). These arrays were implemented, evaluated and reevaluated constantly, in a recursive motion. The step relates to the development of the course and application of PAA1.

3.1 Step 1: The construction of Pedagogical Architecture - PAA 1

The construction of the Array 1 of the Pedagogical Architecture (PAA1) was performed in 2009, from reports published in studies and found in the literature, especially aspects of digital inclusion of older people and the distance education.

The PAA1 was constructed from theoretical reference about distance education, and characteristic aspects of gerontology education and gerontogogy. The gerontogogy or gerontology education aims education for elderly according to the specific needs of this audience (Both, 2001).

Regarding distance education was initially found three studies that reported the use of this mode of education for the elderly, but there was not a deepening of possible methodological strategies for its development.

The characteristics found were categorized according to four aspects that make up a PA: content, organizational aspects, methodological aspects and technological aspects.

From the data in the literature and the construction of a PAA 1 was possible to develop a course for seniors, as will be seen below.

3.2 Step 2: Pilot Project - Choosing Strategies

In 2009 the development of an extension course "Introduction to web resources fordistance education to the elderly" began in order to apply the PAA 1 and identify possible strategies that meet the constituent aspects of a PA in the DE for the elderly.

The lessons were developed in three modules: Module 1: presencial, Module 2: semi presencial and Module 3: virtual. For the classes we used the computer labs of the Federal University of Rio Grande do Sul/Brazil. Two groups were formed: A and B, each consisting of 20 people.

Every elderly used a computer individualy with access to broadband Internet. Classes lasted 2 hours, being developed once a week. During this period, it was possible to apply the PAA 1 and analyze possible changes in the PA.

During the development of the project it was used web resource and tools of the virtual learning environment Cooperative Network Learning/ROODA (www.ead.ufrgs.br/rooda) as support for course development.

Were also designed and used learning objects (LO) to meet the demand for content that was being worked on.

All learning objects have texts and challenges which are proposed reflective activities, of construction and interactive. The built Los were available online on the course page so that students could use it during and after completion of activities.

3.3 Step 3: The Construction of Pedagogical Architecture - PAA 2

Based on the application of the PAA 1 and development of the pilot project, there was a redesign of the course in order to build a PA in DE with the elderly, where it was possible to rebuild the array 1.

4 ANALYSIS AND DISCUSSION OF DATA – PAA 2

From the preliminary indications of the pilot project and PAA 1 occurred a few modifications and some adjustments that provided the construction of the PAA 2. From the forty seniors selected at the beginning of the course, only 16 finished (all 3 modules). The profile of these students shows a mean age of 67 years, being 4 males. In relation to education, predominates complete primary education (44%), followed by secondary education (38%) and complete higher education (6%), incomplete (6%) and incomplete secondary education (6%).

During the project, were carried out data collection and analysis through reports from users in presencial and semipresential situations, observations/interviews by the researcher and records on the features of the environments (forum, Webfolio).

The classes were developed once a week, lasting 2 hours each. In Module I were conducted presencial classes grading on computer skills. This first module had longer duration than planned because many elderly omitted, in the course registration, they didn't have computer knowledge.

After a short recess, Module II began and was semi presencial. We began the use of VLE (Virtual Learning Environment) ROODA as a platform for teaching and learning. This VLE was chosen to emphasize in its structure the development of cooperation, interaction, autonomy and ability to adapt to the needs of the teacher and student (Behar, 2005).

Module III was developed for the collection of information regarding virtual learning and its difficulties or facilities for the deconstruction and reconstruction of methodological references of PAA.

Unfortunately, this step was not successful in implementing the plan that provided full virtual classes. There was resistance from the students, especially for not carrying out the proposed activities and no sufficient autonomy outside the classroom. It is possible that one of the reasons for this resistance is the fear still present in the management of technology and lack of human contact, affective contact with colleagues, teachers and monitores.

Although it is not possible to implement fully virtual classes, these were developed in a way that was more virtual than presencial.

Based on preliminary indications of the pilot project, it was possible to hold another course planning to build an PA in DE with elderly. Thus was built the PAA 2. For a better graphical display PAA 2 was built in the form of a "map" of aspects of the PA.

Thus was formed the following pedagogical architecture:

Methodological aspects:

-Use of interactive materials;

-Provide critical reflection;

-Encourage the sharing of materials (collaboration/cooperation);

-Activities that foster problem solving;

-Base on aspects of gerontogogy or gerontology education;

-Materials built according to usability issues necessary for the elderly (font size, color contrast);

-Repetition of content worked;

-Explanation in detail of the course plan.

Content:

-Useful subjects for elderly (over aging);

-Short subjects using references to past events (crystallized intelligence);

-Issues that enable the self-knowledge;

-Themes preferably suggested by the elderly.

Organizational aspects - teacher/tutor:

-Build a flexible planning (meet the emerging needs of students);

-Adequate training to work with elderly public;

-Mediating VLE interactions, encouraging more communication between students;

-Set the time, in the plan, that will be necessary to carry out the activities;

-Build point goals and which demonstrate the usefulness of content for the elderly;

-Plan some presencial meetings.

Organizational aspects - student:

-Provide a greater autonomy;

-Hold basic computer knowledge;

-Be motivated to perform virtual courses;

-Be open-minded (DE);

-Be friendly to changes in time perception;

-Has optimistic attitudes towards life;

-Have a computer with internet access;

-Organize time for study.

Technological aspects:

-Use of LO as a way to meet individual needs;

-Utilize resources of simple use to enable meeting all students' personalities;

- VLE featured with synchronous and asynchronous communication resources (forum, chat and message);

-VLE with virtual diary to give seniors the expression of feelings.

It should be noted that there are many similarities with the needs of any student in distance education, but which differs this PA with the elderly is the intensity of each item with the elderly public. The most relevant changes of PAA 2, in particular the essential elements of PA, are related to content (LO) and technology. The use of LO stood out, because it gave greater autonomy to students, especially by the great difference of knowledge and learning pace of the participants. This can be seen in the story of a student "It is great doing work at home. We learn a lot by searching".

The development of a page to guide the student on the content worked in class provided, especially in Module I, a security to the elderly who unfortunately missed classes for different reasons.

The VLE ROODA stood out as a great platform for exchanges among participants, especially for the communication tools.

These preliminary indications show that the development of online courses for the elderly should be differentiated. This preliminary analysis allowed for the planning and development of extension course "Introduction of distance education to the elderly".

5 CONCLUSIONS

From the data collected in this pilot project it was possible to build the array of pedagogical architecture in Distance Education for the elderly. The pedagogical architecture built enabled the improvement and development of a new course for other seniors who were interested in their participation. It was verified during the construction of the PAA2 that the planning of online courses for the elderly should be differentiated from other courses for younger audiences.

Distance education provides greater coverage of the elderly public. Therefore, the aim is an awareness of the society, family and elderly that virtual learning is possible and implies cause cultural changes through new learning.

Another relevant factor of this pedagogical architecture is the possibility of amplification of the project to other locations as it allows a greater scope of the public studied. Multiplication is also possible with training and qualification of teachers to work with elderly public in Distance Education.

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