

Educational and care-related (geronto) technology in Alzheimer's disease and in supporting the elderly/family: perspective of teachers and students^a

(Geronto) Tecnologia cuidativo-educacional na doença de Alzheimer e no apoio ao idoso/família: perspectiva dos docentes e discentes

(Geronto) Tecnología cuidativa-educativa en la enfermedad de Alzheimer y en el apoyo al anciano/familia: perspectiva de los enseñantes y estudiantes

Silomar Ilha¹

Silvana Sidney Costa Santos²

Dirce Stein Backes¹

Edaiane Joana Lima Barros³

Marlene Teda Pelzer²

Adriane Maria Netto de Oliveira²

1. Centro Universitário Franciscano. Santa Maria, RS, Brasil.
2. Universidade Federal de Rio Grande (FURG). Rio Grande, RS, Brasil.
3. Hospital Universitário Dr. Miguel Riet Corrêa Jr. Rio Grande, RS, Brasil.

ABSTRACT

Objective: Knowing the comprehension of teachers and students of health and human sciences about the group on Integrated Multidisciplinary Care to Caregivers of People with Alzheimer's disease as an educational and care-related (geronto)technology in the context of Alzheimer's disease and of support to the elderly person/family. **Methods:** Exploratory, descriptive and qualitative research involving seven professors and nine university students of a support group in Rio Grande do Sul, Brazil. Data were collected between November and December/2015, through Focus Groups, and then submitted to Discursive Textual Analysis. **Results:** Teachers and students understand the group as a (geronto)technology, due to the developed educational and care-related activities. For them, the group is able to produce new gerontotechnologies, which demonstrates its ability as a complex educational and care-related (geronto)technology. **Conclusion:** It is necessary to rethink the Group as a complex educational and care-related (geronto)technology, thus strengthening it to develop new technologies.

Keywords: Aged; Alzheimer's disease; Technology; Nonlinear dynamics; Nursing.

RESUMO

Objetivo: Conhecer a compreensão dos docentes e discentes dos cursos das áreas da saúde/humanas acerca do grupo Assistência Multidisciplinar Integrada aos Cuidadores de Pessoas com a doença de Alzheimer como uma (geronto)tecnologia cuidativo-educacional no contexto da doença de Alzheimer e de apoio à pessoa idosa/família. **Métodos:** Pesquisa exploratória, descritiva, qualitativa, realizada com sete docentes e nove discentes do grupo de apoio de uma instituição universitária do Rio Grande do Sul, Brasil. Os dados foram coletados entre novembro e dezembro/2015, pela técnica de Grupo Focal, e foram submetidos à Análise Textual Discursiva. **Resultados:** Docentes e discentes compreendem o grupo como uma (geronto) tecnologia, pelas ações de educação e cuidado desenvolvidas. Referem que o mesmo possui a capacidade de produzir novas gerontotecnologias, o que demonstra a sua capacidade como (geronto)tecnologia cuidativo-educacional complexa. **Conclusão:** Necessita-se repensar o Grupo como uma (geronto)tecnologia cuidativo-educacional complexa, fortalecendo-o para o desenvolvimento de novas tecnologias.

Palavras-chave: Idoso; Doença de Alzheimer; Tecnologia; Dinâmica não linear; Enfermagem.

RESUMEN

Objetivo: Conocer la comprensión de enseñantes y estudiantes de las áreas de salud/ciencias humanas acerca del grupo Asistencia Multidisciplinaria Integrada a los Cuidadores de Personas con la enfermedad de Alzheimer como una (geronto) tecnología cuidativa-educativa en el contexto de la enfermedad de Alzheimer y de apoyo a la persona anciana/familia. **Métodos:** Investigación exploratoria, descriptiva y cualitativa con siete enseñantes y nueve estudiantes universitarios de un grupo de apoyo en Rio Grande do Sul, Brasil. Los datos fueron recogidos entre noviembre/diciembre 2015, mediante Grupo Focal, y posteriormente sometidos al Análisis Textual Discursivo. **Resultados:** Enseñantes y estudiantes comprenden el grupo como una (geronto) tecnología, debido a las acciones de educación y cuidado desarrolladas. Ellos afirman que el grupo es capaz de producir nuevas gerontotecnologías, lo que demuestra su capacidad como (geronto) tecnología cuidativa-educativa compleja. **Conclusión:** Es necesario replantear el Grupo como una (Geronto) tecnología cuidativa-educativa compleja, fortaleciéndolo para el desarrollo de nuevas tecnologías.

Palabras clave: Anciano; Enfermedad de Alzheimer; Tecnología; Dinámicas no lineales; Enfermería.

Corresponding author:

Silomar Ilha.

E-mail: silo_sm@hotmail.com

Submitted on 12/19/2016.

Accepted on 02/27/2017.

DOI: 10.5935/1414-8145.20170039

INTRODUCTION

There is a growing increase in the number of elderly people, as well as the chronic diseases of progressive nature, such as Alzheimer's disease (AD), which, although can also affects young people, has its highest incidence in people over 65 years.¹ The AD begins slowly, quietly and has a variable clinical picture from person to person, which leads to mild forgetfulness to a bedside restriction. In this context, constant supervision and care are necessary,² usually performed by a family member at home,³ which indicates the need for investment in the care of family members/caregivers.

Realizing the reality experienced by these families and the importance of an integrated performance in the context of Gerontology, some professionals and health/education institutions have invested efforts in the care and guidance to them, with the creation of support groups to families/caregivers of the elderly with the AD. In these groups, professionals from health and human disciplines meet with family members/caregivers, providing them with guidance on the disease and extended and contextualized care, both to the elderly person as to the self-care of family members/caregivers.⁴

In this perspective, is presented the Group Integrated Multidisciplinary Assistance to Caregivers of People with Alzheimer's Disease ("AMICA"), developed since 2007 by a group of teachers and students of Nursing, Pharmacy, Physical Therapy, Nutrition, Dentistry, Psychology and Occupational Therapy of a Higher Education Institution (HEI) in Rio Grande do Sul.³ AMICA aims to providing assistance to caregivers, discussing daily issues related to AD, assisting them in understanding this disease, as well as on improving the quality of life (QOL) of the elderly person and the family/caregivers.^{4,5}

The process described is possible through the interaction and interrelation that enables reciprocity between caregivers, teachers and students, as well as exchange of ideas and interactivity, which has contributed to the teaching/research/extension triad in the researched reality.⁴ This process, carried out in a planned and circular manner, has repercussions on the education and care of the elderly person with AD/family.

A study developed at AMICA has also shown its contribution to teachers and students in relation to the (re)construction of knowledge through their experiences, which enabled them to grow personally and professionally.⁵ AMICA presents itself as a complex assistance-educational (geronto)technology for family members/caregivers of elderly people with AD, teachers and students of the health/humanities courses, generating new care (geronto)technologies for the elderly/family.

The term "complex assistance-educational (geronto) technology" was derived from the union of the concepts of technology,^{6,7} gerontology⁸ and complexity.^{9,10} It can be understood as: any product, process, strategies, service and/or knowledge, for the assistance and educational purpose of the elderly person and their relatives/caregivers, as a result

of a complex collective construction/experience that values relationships, interactions and feedbacks from who are involved, through inter-multi-trans-meta-disciplinary knowledge.

It is important to understand the perception of teachers and students participating in AMICA about this statement, since the way they think and reflect about the group has a direct impact on the way in which they carry out the activities developed in it. Thus, is justified the need and relevance of this study, which can serve as a guide for other professionals/services who want to or are already carrying out similar activities.

Front the exposed, it is questioned: What is the understanding of the teachers and students of the health/humanities courses about AMICA as an assistance-educational (geronto)technology in the context of AD and support for the elderly/family? Objective: To know the understanding of the teachers and students of the courses of the health/human areas about AMICA as an assistance-educational (geronto)technology in the context of AD and support to the elderly/family.

METHOD

Exploratory, descriptive, qualitative¹¹ research that has as a guiding thread the Complexity of Edgar Morin.⁹ The study counted on 16 participants, of whom seven teachers and nine students of the courses of the health/human areas, which participate in AMICA.

The inclusion criteria for participation in the study were: to be a teacher or student of one of the courses in the health or human areas and to be attending weekly in the meetings of the project for a minimum period of six months, enough time for the participants to have already interacted with AD, acquired knowledge about the disease and understood the way AMICA works, being able to describe their experiences.

Teachers and students were invited to participate in the study during one of AMICA's meetings. After the acceptance, data were collected through the Focal Group technique (FG), which enables dialogue on a particular theme, experienced and shared through common experiences. The choice for this technique occurred because of the possibility of expanding the interactions, since the collective expression served as element to explore the different ideas.¹² The FG counted on the participation of a coordinator, the main researcher and an observer, who assisted in the collection process, recording of collective speeches, notes and dynamics in the meetings.

In the period from November to December of 2015, four focal meetings were held, two with the focal group of teachers and two of the students. Each meeting lasted approximately 120 minutes and was guided by a specific theme. At the first meeting with the teachers, the moderator invited the participants to reflect on AMICA, from the questions: How is it being to you to participate in the activities of the AMICA? Do you believe that the group contributes to the teaching-learning process about the complex care in the AD context of elderly/families? As a result,

the participants elaborated a summary of the main subjects addressed, moment that potentiated collective dialogues and reflections about the points discussed.

On the second meeting, a number of points from the previous meeting were discussed and the moderator asked participants what they understood by "technology" and "gerontotechnology". Afterwards, some concepts of technology and gerontotechnology were presented and the moderator asked: Based on your answer about the concepts previously presented and discussed, how do you perceive AMICA in this context? Then, it was sought to expand concepts with the objective of developing the group's understanding as a complex care-educational (geronto)technology, and the collective synthesis of the meeting was constructed based on the themes studied.

In the first meeting with the students, the moderator provoked a reflection on the meaning of AMICA, which led the group to a collective discussion about the contribution in its formation process. Subsequently, the moderator instigated the discussion through the questions: What led you to participate in AMICA and what keeps you in the group? Do you believe that AMICA contributes to your teaching-learning process about complex elder/family care with AD?

On the second meeting, were resumed and expanded points highlighted in the previous meeting. Then, the participants reflected and discussed about what they understood by "technology" and "gerontotechnology" and the moderator asked how they perceived the AMICA in that context. The answers led the group to reflect on the care-educational process that occurs in the AMICA. From this, the moderator held the question: At what time or how you perceive the care-educational process developed in AMICA? Then, expanded the understanding of AMICA as a complex care-educational (geronto)technology.

The FGs were recorded on an MP3 player and transcribed. Afterwards, the data treatment was carried out based on the technique of discursive textual analysis, organized from a recursive sequence of three components: 1) *Unitarization*, where the researcher examined with intensity and depth the texts in detail, fragmenting them in the sense of reaching units of meaning; 2) The moment in which the establishment of relations between the basic units was sought, combining them and classifying them, resulting in one or more levels of categories of analysis; 3) *Communication*, where the researcher presented the understandings reached from the two previous focus, resulting in the metatexts, which were constituted of description and interpretation of the investigated phenomena.¹³

Ethical precepts involving research with human beings were considered, according to Resolution 466/2012 of the Ministry of Health.¹⁴ The Project was approved by the Research Ethics Committee by CAAE: 48877315.2.0000.5324. Participants were identified by the letters TE (teacher) and ST (student) followed by a numeric digit (TE1, TE 2 ... TE 7; ST1, ST 2 ... ST 9).

RESULTS

Initially, the characterization of the participants in the study are presented in Table 1, and the findings are described in relation to the course to which they belong, gender, age, higher degree for teachers, semester of the course for students and the time of participation in AMICA. Then, the analysis and interpretation of the data are described in three categories: AMICA: technology or gerontotechnology? AMICA: complex care-educational (geronto) technology; AMICA: complex environment and generator of new (geronto)technologies of care.

AMICA: technology or gerontotechnology?

From the teachers' understanding, AMICA is characterized as a (geronto)technology, built through actions that are developed in a positive way. Some participants added, when referring to AMICA that it can be considered a gerontotechnology or a technology at the same time, depending on the life cycle for which it is being used:

[...] AMICA is a gerontotechnology! Even without realizing it, before we knew what a gerontotechnology was, we were already acting in gerontotechnology in an extremely positive way, we just did not have the knowledge that it was gerontotechnology. We have built a group as gerontotechnology for all the actions we have developed in it, which meet the definitions of gerontotechnology; realizing that makes me very happy! (TE2).

AMICA is a technology and a gerontotechnology of education and care at the same time, because in the group we take care of ourselves, colleagues, teachers and students as well. So we use a technology of care, because none of us are still in the stage of being considered an elderly. And, as we implement actions and processes that meet the care of the elderly with AD, AMICA is also considered a gerontotechnology. So the Group is a technology and a gerontotechnology at the same time, because it depends to whom we are directing it at a certain moment (TE3).

It can be seen that in the group, in addition to caring for family members/caregivers, education and care are provided at the same time among the others involved - teachers and students. The participant TE5 complements that AMICA is a gerontotechnology because it demonstrates practical application, since if reproduced in another reality and for people with other pathologies using the same tools and methodologies of work, similar results will be achieved:

The group is a gerontotechnology, but it is because it is applied, because if we develop it to another group of people, as, for example: for people with Parkinson's

Table 1. Characterization of the participants

Teacher - course	Gender	Age	Higher degree	Time of participation in AMICA (in years)
Nursing	Female	39	Doctorate degree	8
Pharmacy	Female	38	Master	5
Nutrition	Female	58	Master	10
Nutrition	Female	-	Master	2
Odontology	Female	40	Doctorate degree	7.5
Psychology	Male	37	Master	6
Occupational Therapy	Female	31	Specialization	1
Student - course	Gender	Age	Course Semester	Time of participation in AMICA (in months)
Nursing	Female	26	Fourth	6
Nursing	Female	23	Second	6
Pharmacy	Male	22	Fourth	6
Physiotherapy	Male	29	Sixth	12
Nutrition	Female	42	Sixth	6
Nutrition	Female	20	Sixth	12
Dentistry	Male	22	Eighth	18
Psychology	Female	18	Fourth	12
Occupational Therapy	Female	24	Eighth	24

or rheumatoid arthritis, using the same methodology, tools and form of work that we use here at AMICA, we could achieve a similar result. The AMICA group is a gerontotechnology that uses other gerontotechnology and builds other gerontotechnology, such as study, seminars, presentations, dialogue, listening, and can be used for any group of people with different contexts and pathologies (TE5).

AMICA: a complex care-educational (geronto) technology

The students recognize AMICA as a (geronto)technology that enables the constant construction and reconstruction of knowledge coming from each of the parts to the whole. In the group, the knowledge of teachers, students and family/caregivers is combined, which instigates the constant search for knowledge:

The AMICA Group is a (geronto)technology, because through it we are always looking for more knowledge about aging and Alzheimer's disease, in order to pass on to family/caregivers who do not know much about the disease, but who seek the group looking for the knowledge. At the same time, these family members/caregivers are the main source of the group, as they bring many novelties and changes that instigate us to seek more (ST1).

It is really a knowledge building, in AMICA we are always building, always improving, always learning, always innovating, the group is a technology (ST4).

In AMICA, the constant construction and reconstruction of knowledge, through the exchanges established between the different professions and the family/caregivers, which instigates us more and more to the search for new knowledge, this is the strong point of this gerontotechnology (ST7).

This knowledge is built by the permanent exchanges among all the participants, the presentations of scientific works and the socialization of knowledge in the human, personal and professional dimensions:

I understand AMICA as (geronto)technology, because it builds knowledge here through the presentation of scientific works, exchanges of human, personal, professional knowledge, as well as fondness, affection, solidarity, from contact with colleagues, with teachers and family/caregivers (ST8).

This socialized knowledge in AMICA, through the various actors involved, constantly instigates more knowledge, which provides, according to the following reports, better care for family/caregivers and the elderly person with AD:

The group is a (geronto)technology, because, through the integration of the various professions, of the various knowledge, we have been able to provide better care to the relatives/caregivers of the elderly with AD [...] we are always in search of new knowledge to bring to the group and family/caregivers also bring us what they create at home to facilitate and improve care for the elderly at home (ST3).

The students, in turn, also learn from their families/caregivers, who bring from their of everyday life with the elderly person with AD experience and knowledge, enabling them to create gerontotechnologies to facilitate elderly care on a daily basis in home environment.

AMICA: complex environment and generator of new (geronto) technologies of care

It can be understood that AMICA, besides being a (geronto) technology, constantly produces/generates new (geronto) technologies, being able to be considered as a complex (geronto) technology, generating new (geronto)technologies of care:

[...] AMICA is constantly generating new gerontotechnologies and, among them, what I see as one of the most complex is the reception. The reception is a very complex technology, because you work with something very intimate, which is to seek to know them and to welcome their yearnings. A machine learns to move with a certain ease, now, to welcome a person who is there for help, as AMICA does, for me it is a very complex technology that the group constantly develops in every meeting, at each gathering (TE1).

The teacher also stresses that welcoming a person is something very complex, while tinkering with a machine is something that is learned with some ease. Other (geronto) technologies generated in AMICA are presented by a teacher, such as strategies, ideas, instruments, studies, methods, tools used to produce knowledge within the group and improve the practice of care in the context of AD. There are other forms of (geronto)technologies generated in AMICA:

AMICA generates other gerontotechnologies, because of it arises strategies, ideas, knowledge to be applied in the best care in the context of AD; Tools are created to facilitate care, the group also develop studies aimed at improving the practice of care. In day-to-day, the methods, tools that are used to produce knowledge within the group are gerontotechnologies. In the group, we learn to listen and from this listening we construct new gerontotechnologies in function of the care and orientation of that person in the group or even of the elderly with AD (TE2).

It is observed that the care and the educational aspect are constant in the group in a circular and complementary form, which allows AMICA the characteristic of (geronto)technology of assistance and educational training, at the same time:

Another gerontotechnology that I realize that the group performs are the home visits for the elderly with AD; This visit is a highly complex gerontotechnology, because we enter a very intimate environment of people, we talk with the elderly person and the family, we evaluate the place. Finding ways to improve care in their reality runs through different processes and this is a gerontotechnology of care (TE1).

The home visits carried out by the teachers and students participating in the group are also, according to a teacher's report, a form of complex (geronto)technology produced by AMICA, since they aim to improve care in the specific reality of each family member/caregiver participating in the group. The students report that AMICA is, by its very nature, a (geronto)technology, and that it has the potential to generate other (geronto)technologies from the acquisition, construction and socialization of the knowledge acquired in the group and of strategies applied in the practice of care to the elderly with AD:

The group generates gerontotechnologies when the family members/caregivers extend the knowledge built here in AMICA to the other members, relatives and friends, and thus the knowledge is transmitted, socialized and expanding (ST4).

In this way, the family member/caregiver is responsible for the socialization and expansion of the knowledge about care for the elderly with AD, since it brings the knowledge to the other family members, after participating in AMICA:

New gerontotechnologies always appear here in the group in the form of care strategies. We notice that caregivers write down each strategy suggested by the group and when they get home they put it into practice. At another moment, they return to the group and say that they applied and if it succeeded or not, if that strategy had positive application in care practice (ST 3).

Moreover, family members/caregivers are essential and also the main responsible for testing the new (geronto)technologies that emerge from the AMICA meetings. Apply the knowledge, strategies and/or product forms suggested in the group to the elderly person with AD, and then return their experiences to the group, indicating if a strategy suggested by AMICA has emerged effective or not in the practice of care.

DISCUSSION

The term "technology" was derived from the Greek, from the interconnection of the words *techné* (art, technique) and *logos* (body of knowledge). For this reason, the word "technology" has been used to apply the knowledge of some techniques used for the purpose of accomplishing something. By its breadth, technology should not be perceived in any way limited to mere use of equipment, but relative to a comprehensive sphere of transformative ideas.⁷

The same occurs with regard to gerontotechnology, derived from the concepts of gerontology and technology, which are characterized as contributory technologies for the healthcare of the elderly, taking into account aging and the health/disease process, promoting care, co-responsibility and co-participation.¹⁵ Care in the perspective of technology leads to the reflection of the inherent capacity of the human being to seek innovations capable of transforming their daily lives, aiming at a better QL and personal satisfaction.¹⁶

The teachers of the courses of the health area, participants of this study, recognize in AMICA this capacity, since they understand it as a technology and, at the same time, a gerontotechnology, because from it are implemented actions and processes that meet the care for the elderly with AD. Education and care are also provided to family members/caregivers, teachers and students who are not considered elderly. For this reason, it is evident that AMICA is characterized as (geronto) technology of care and education at the same time. The students referred to AMICA as a (geronto)technology that enables the constant construction and reconstruction of knowledge coming from each of the parts to the whole.

This process takes place through the valorization of the different knowledge derived from the knowledge of teachers, students and family members/caregivers who, together, are strengthened forming a whole, which, according to Edgar Morin, is a complex unit and is not reduced to the sum of the elements that constitute the parts.¹⁰ Such knowledge, shared in a way that does not exist the dominion of any discipline or of any professional over the other, allows the extended care, according to the needs of the people in their singularities.¹⁷

AMICA allows the articulation among the different areas of action and training, which give space to Edgar Morin's discussions on multi-inter-trans-disciplinary action. Multidisciplinarity consists of an association of disciplines, on account of a common project or goal. However, they may be gathered against their will, as in a convocation, for example; or by self-interest and therefore, in this way, in complete interaction. The complexity of the system brings interdisciplinarity as action that originates a set of mediations not only theoretical, but also political, social and cultural.¹⁸

Edgar Morin emphasizes the duality that this action entails, noting that interdisciplinarity may only represent that people from different disciplines come together, each one defending their own point of view. At the same time, it conceives that there can also be exchanges and cooperation, which makes it positive.⁹

In the context of elderly people with AD/families, nurses and other health professionals participating in AMICA need to direct the thinking to the complexity, to the reconnection and transposition of the disciplinary knowledge, aiming to be able to attend to the multidimensionality that includes both the part, understood as the elderly person and the caregiver family member, as the whole, which is, the family as a complex unit.³ With the objective of gathering, socializing, disseminating and expanding knowledge, with a view to a complex knowledge that enhances the visualization of the whole, regardless of the disciplines or specializations of each area of knowledge, transdisciplinarity emerges.⁹

This transposition sometimes occurs so quickly that important disciplinary knowledge is lost in the process. They are the inter-multi-trans-disciplinarily complexes that perform and play a fruitful role in the history of science. In this sense, Morin suggests the use of the concept of meta-disciplinarity, which has the characteristic of overcoming and at the same time conserving the knowledge of the various disciplines.⁹

Through it, professionals transpose disciplinary knowledge, extending it beyond isolated disciplines, building a knowledge of the whole, transdisciplinary and complex. At the same time, when it is necessary, they use the specific disciplinary knowledge of each area of activity. Due to its complexity, AMICA includes inter-multi-trans-meta-disciplinarily in order to promote the health of the human being - elderly person, family member/caregiver, teachers and students - in an integral and articulated way with everything that surrounds him. Through this interaction, networks of relationships and interactions are potentiated which allow the collective construction of new forms of care, consistent with the complexity and singularities existing in each elderly person/family.⁵

In addition to being a (geronto)technology, teachers and students participant of the study reported that the AMICA is constantly producing/generating new gerontotechnologies, among which are the hosting, the strategies, ideas, instruments, studies, methods, tools used to produce within the group and to improve the practice of care in the context of AD. They also report home visits by teachers/students, since they aim to improve care in the specific reality of each elderly person and family member/caregiver participating in the group.

The teachers and students participating in AMICA have a complex understanding of (geronto)technologies, since they have transposed the understanding of the machine and diverse material equipment in the form of product. Technology is not limited to the equipment, it is turned to the organization of the activities, in such a way that it can be systematically observed, understood and socialized. It should be understood as the set of procedures that make possible the planning, execution and evaluation of the system.⁸ According to complexity, efforts to improve QL for elderly people require much more human presence than automatic devices.¹⁹

The teachers and students mentioned that the family member/caregiver is one of those responsible for the socialization

and expansion of knowledge about the care of the elderly person with AD, since it takes the knowledge to the other relatives, after participating in AMICA. They are essential and also the main responsible for testing the new (geronto)technologies that emerge from the AMICA meetings. Apply the knowledge, strategies and/or product forms suggested in the group to the elderly person with AD, and then return their experiences to the group, indicating if a particular strategy suggested in/by AMICA has emerged or not effect in its practice of care.

Thus, it is evident that AMICA is characterized as a complex care-educational (geronto)technology, generating new geronto-technologies of care to the elderly person/family with AD, with the capacity to distinguish without separating, associating without identifying or reducing, through the meeting of relations and inter-retroactions that allow reciprocity between the whole and the parts, that is, each participant in its singularity and the group as a complex whole. Recognizes, at the same time, the human unit amongst the individual and cultural differences and vice versa.²⁰

CONCLUSION

From this research, it was possible to perceive that teachers and students understand AMICA as a (geronto) technology through the actions that it develops. They refer that it uses other (geronto) technologies and has the capacity to produce new (geronto)technologies, which demonstrates its capacity as a complex (geronto) technology. Stood out, as the group's strengths, the reception, listening, knowledge, inter-relationship among the aspects of care and education, between the knowledge of the teacher, the student and the family member/caregiver. AMICA contributes as a (geronto) technology of care and education to care, at the same time, since it builds knowledge that, applied in practice, improves care for the elderly person with AD.

Fragilities permeated the construction of this study, among them the difficulty of bringing together teachers and students for the development of focus groups. Understanding that the disorders are propellers of a new order, researcher and researched (re)organized themselves for the effectiveness of the group, which had their meetings called off and rescheduled a few times, until the conclusion of the process of data collection. As a potentiality, the collection through the FG that allowed the identification of differences/similarities in the unique experiences of each participant, perceiving them as parts of a complex whole.

The data analysis allowed a dynamic, circular and multidimensional process that enabled, with the Complexity referential, to illuminate the phenomenon under investigation. These factors contributed to the effectiveness of this research, which presents characteristics that make it contribute to the innovation and rethinking of the AMICA Group as a complex care-educational (geronto)technology, which strengthens it for the development of new technologies with the objective of helping family members/caregivers in the process of caring for the elderly with AD.

The conclusion of this research leaves the "certainty" that it is a work in constant fulfillment, considering that caring for elderly

people with AD requires dynamic, complex, multi-inter-transmeta-disciplinary actions through a continuous and networked process.

REFERENCES

1. Alzheimer Association. Alzheimer's Disease Facts and Figures. Alzheimer's & Dementia [Internet]. 2015 [cited 2016 Oct 05]; 11(3): 332-384. Available from: https://www.alz.org/facts/downloads/facts_figures_2015.pdf
2. Seima MD, Lenardt MH, Caldas CP. Relação no cuidado entre o cuidador familiar e o idoso com Alzheimer. Rev Bras Enferm [Internet]. 2014 Mar/Abr [cited 2016 Oct 5]; 67(2):233-240. Available from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0034-71672014000200233. <http://dx.doi.org/10.5935/0034-7167.20140031>
3. Ilha S, Backes DS, Backes MTS, Pelzer MT, Lunardi VL, Costenaro RGS. Family (re)organization of elderly with Alzheimer: the professors perception based on its complexity. Esc. Anna Nery [Internet]. 2015 June [cited 2016 Oct 5]; 19(2): 331-337. Available from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S1414-81452015000200331&lng=en. <http://dx.doi.org/10.5935/1414-8145.20150045>
4. Ilha S, Zamberlan C, Gehlen MH, Dias MV, Nicola GDO, Backes DS. Qualidade de vida do familiar cuidador de idosos com Alzheimer: contribuição de um projeto de extensão. Cogitare Enferm [Internet]. 2012 Abr/jun [cited 2016 Oct 5]; 17(2):270-276. Available from: <http://revistas.ufpr.br/cogitare/article/view/27876/18481>. <http://dx.doi.org/10.5380/ce.v17i2.27876>
5. Ilha Silomar, Zamberlan C, Piexak DR, Backes MTS, Dias MV, Backes DS. Contributions of a group about the Alzheimer's disease for family members/caregivers, professors and students from the healthcare field. J Nurs UFPE online [Internet]. 2013 May [cited 2016 Oct 05]; 7(4):1279-1285. Available from: http://www.revista.ufpe.br/revistaenfermagem/index.php/revista/article/view/3967/pdf_2469
6. Áfio ACE, Balbino AC, Alves MDS, Carvalho LV, Santos MCL, Oliveira NR. Analysis of the concept of nursing educational technology applied to the patient. Rev Rene [Internet]. 2014 Jan/feb [cited 2016 Oct 05]; 15(1):158-165. Available from: http://www.redalyc.org/pdf/3240/324030684020_2.pdf
7. Nietsche EA, Lima MGR, Rodrigues MGS, Teixeira JÁ, Oliveira BNB, Motta CA, et al. Tecnologias inovadoras do cuidado em enfermagem. Rev Enferm UFSM [Internet]. 2012 Jan/Abr [cited 2016 Oct 05]; 2(1):182-189. Available from: <http://dx.doi.org/10.5902/217976923591>
8. Goncalves LHT, Polaro SHI, Alvarez AM, Goes TM, Medeiros HP. Tecnologias de/em enfermagem no cuidado da vida e saúde do cliente/ usuário/paciente idoso. In: Nietsche EA, Teixeira E, Medeiros HP, editores. Tecnologias cuidativo-educacionais: uma possibilidade para o empoderamento do(a) enfermeiro(a)? Porto Alegre: Moriá; 2014. p. 97-112.
9. Morin E. A Cabeça bem-feita: repensar a reforma, reformar o pensamento. 17ed. Rio de Janeiro: Bertrand Brasil; 2010. 128 p.
10. Morin E. Ciência com consciência. 14 ed. Rio de Janeiro: Bertrand Brasil; 2010. 344 p.
11. Lacerda MR, Costenaro RGS. Metodologias da pesquisa para a enfermagem e saúde: da teoria a prática. 1ed. Porto Alegre: Moriá; 2015. 511p.
12. Trad LAB. Grupos focais: conceitos, procedimentos e reflexões baseadas em experiências com o uso da técnica em pesquisas de saúde. Physis Revista de Saúde Coletiva [Internet]. 2009 [cited 2016 Oct 05]; 19(3):777-796. Available from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0103-73312009000300013. <http://dx.doi.org/10.1590/S0103-73312009000300013>
13. ..Moraes R, Galiuzzi MC. Análise textual discursiva. 2 ed. Ijuí: Editora Unijuí; 2011. 224p.
14. Ministério da Saúde (BR). Resolução nº 466, de 12 de dezembro de 2012. Diretrizes e normas regulamentadoras de pesquisa envolvendo seres humanos. Brasília (DF): Conselho Nacional de Saúde; Ministério da Saúde; 2012.

15. Barros E JL, Santos SSC, Gomes GC, Erdmann AL. Gerontotecnologia educativa voltada ao idoso estomizado à luz da complexidade. *Rev Gaúcha Enferm* [Internet]. 2012 Junho [cited 2016 Oct 5]; 33(2): 95-101. Available from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S1983-14472012000200014. <http://dx.doi.org/10.1590/S1983-14472012000200014>
16. Schwonke CRGB, Lunardi Filho WDL, Lunardi VL, Santos SSC, Barlem ELD. Perspectivas filosóficas do uso da tecnologia no cuidado de enfermagem em terapia intensiva. *Rev bras enferm* [Internet]. 2011 Jan/Fev [cited 2016 Oct 5];64(1):189-92. Available from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0034-71672011000100028. <http://dx.doi.org/10.1590/S0034-71672011000100028>
17. Santos SSC, Hammerschmidt KSA. A complexidade e a religação de saberes interdisciplinares: contribuição do pensamento de Edgar Morin. *Rev bras enferm* [Internet] 2012 Jul/ago [cited 2016 Oct 5]; 65(4): 561-565. Available from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0034-71672012000400002. <http://dx.doi.org/10.1590/S0034-71672012000400002>
18. Backes MTS, Backes DS, Drago LC, Koerich MS, Erdmann AL. Cuidado ecológico como um fenômeno amplo e complexo. *Rev Bras Enferm* [Internet]. 2011 Set/Out [cited 2016 Oct 5]; 64(5):876-881. Available from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0034-71672011000500012. <http://dx.doi.org/10.1590/S0034-71672011000500012>
19. Morin E. A via para o futuro da humanidade. 2 ed. Rio de Janeiro: Bertrand Brasil; 2015. 392p.
20. Morin E. Método 1: A natureza da natureza. 2 ed. Porto Alegre: Sulina; 2008. 479 p.

^a Extracted from the Thesis "Support Group in the context of Alzheimer's Disease among elderly people/families: complex (geronto)technology care-educative" presented to the Nursing Graduate Program from Federal University of Rio Grande (FURG) in 2016.