## A REFERENCE MATRIX FOR NURSING EDUCATION FOCUSING ON THE PERSON WHEN AGING

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# ABSTRACT

**Objective**: Aging is a collective and individual challenge. Therefore, educational responses in the field of health and nursing need to be effective, as the vast majority of graduates will provide care for the elderly. This article aims to present a proposal of a Reference Matrix for Nursing Education in the person when aging, the result of a Nursing PhD Thesis

**Methodology**: A qualitative and analytical study whose methodological path covered three sequential and complementary phases - documentary research, questionnaire and interviews.

**Results**: A reference matrix (dynamic, transversal, ascending and multidimensional) was elaborated, made up of elements (symbolic generalizations, models, values and examples) integrated in dimensions (the person when aging, nursing care, learning Nursing and learning contexts and caring).

**Conclusions**: Not being an end in itself, it is intended that the reference matrix could be useful to different actors with different purposes, promoting Nursing knowledge of aging development.

**Descriptors**: Person when aging; reference matrix; education in nursing.

# INTRODUCTION

The aging of population is, today, a global challenge, which needs to be study in their individual perspective – *bio-psycho-spiritual* – as well as their collective perspective – *economic-political-social*.

From the demographic view, we have a larger proportion of the population aged 65 or over (due to declining birth rates and increased longevity), constituting one of the most significant demographic trends of the 21st century[1]. In view of the highlighting that Portugal has the 5th highest value of the aging index in all 28 Member States of the European Union; the 3rd lowest value of the aging index of the working age population and the 3rd highest increase in the median age between 2003 and 2013[1] it is imperative to plan and implement health promotion responses by helping to conceive a good and just society for all ages.

As nurses and teachers, we are concerned with the educational responses in the field of Nursing, essentially in pre-graduate training courses, since the vast majority of nursing graduates that will provide care for adult and elderly persons (the latter being the main users of the health system) healthy and/or ill and living in different contexts.

The aim of this article is to present the proposal for a *Reference Matrix for Nursing Education* in the person when aging, which is a result of the findings of three different but complementary phases that made the methodological path of a PhD Thesis in Nursing (UCP – ICS Lisbon).

We define as goals (1) to analyze the curriculum in national pre-graduate training courses of Nursing in the person when aging; (2) systematize how is processed and viewed the curriculum development in order to provide the references of knowledge and skills acquisition promoters of Nursing caring in the person when aging.

The Matrix that we propose – *dynamic, transvers, ascending and multidimensional* – is formed by different elements shared and valued (symbolic generalizations, models, values and examples) integrated in different dimensions (the person when aging, Nursing care, learning Nursing and learning contexts and caring).

So, we structured this article around two themes: the first one describes the way – *From the Kuhn Disciplinary Matrix to the configurational elements and dimensions of the Reference Matrix; the second presents the outcome – A proposal of a Reference Matrix for Nursing Education in the person when aging*. We discussed the relevance of this proposal, at different levels, taking into account the reached horizon, as well as looking at new horizons.

## 1. From the Kuhn Disciplinary Matrix to the configurational elements and dimensions of the Reference Matrix.

The social problem studied was inserted in the issues related to aging and its implications in nursing education and profession, being the social practice, the context of the pre-graduate training course.

We accept concepts that we consider inseparable: (1) *health*; (2) *aging*; and (3) *Nursing education*, which led us to question the paradigm and, consequently, to the reading of the main works of Thomas Kuhn[2-3]. This author came to constitute the main epistemological reference of the study, for its vision of science, but fundamentally by the concept – *Disciplinary Matrix* "Disciplinary, because it refers to what those who practice a given discipline have in common; matrix, because it corresponds to an ordering of elements of varied nature, each requiring further specification"[2 p.245] from which made sense the construction and systematization of a Reference Matrix in this area of knowledge.

According to Thomas Kuhn, the elements of the disciplinary matrix include the commitment objects of the group and are, primarily, *symbolic generalizations* (expressions accepted and used by the group, formal or easily formalized); models (provide analogies and/or an ontology); values (widely shared, even not applied in the same way); and *examples* (solutions to specific problems)[2-3].

The methodological path we followed was aimed to answering two research questions: (1) what curriculum in the national pre-graduate training courses of Nursing in the person when aging? (2) how and if curriculum development is carried out in order to provide knowledge referentials and the acquisition of Nursing care promotion skills in the person when aging?

The study being developed in three sequential phases, draw from the results of the predecessor phase.

1. The first phase corresponded to documentary research (search and documentary analysis) of decree-laws of degree courses in Portuguese Nursing;

2. In the second phase, we used an online questionnaire addressed to all the teachers responsible for the coordination of these courses (questionnaire consisting of nine questions, whose answers were treated statistically and categorically, according to their nature);

3. In the third phase, we conducted interviews, directed at experts in the study area (according to the "snowball" sampling), and the respective verbatins were the subject of a critical analysis of discourse (a form of discourse analysis, defined as a theoretical perspective on language and, more generally, on semiosis as an element or moment of the social process, creating linguistic or semiotic analyzes inserted in comprehensive analyzes of the social process[4]).

Ethical issues were present in all phases of the study. We reflect essentially on the particularities inherent in a qualitative research, such as the responsibility and the duty to protect the participants freedom and their rights, attending them as research partners; the choice of method and techniques appropriate to the questions asked; the relevance and validity of the results inherent to each of the phases.

We combined data and methodological triangulation, which allowed us to meet the criteria of validity and reliability[5-6]. The project had a favorable opinion from the ethics committees of the institutions where the research was carried out.

We have obtained different findings, in relation to each one of the phases that have been added and consolidated mutually. We emphasize the most relevant.

The findings of the documentary research (first phase) allowed us to conclude, among other data, that 73.17% of Nursing pre-graduate training courses had curricular units directed to aging, although only 58.3% were merely directed to this area of knowledge.

The results of the questionnaire (second phase) allowed us to characterize, in a general way, the main integrating elements of the Nursing pre-graduate training courses in aging, such as: *characterization of the process of learning and teaching* (teacher conceptions, teaching practices and teacher perceptions; *carried out and ongoing research* (the aging phenomenon, the person when aging, and the person-centered Nursing intervention); *the most relevant content/thematic areas* (the aging phenomenon, the person when aging, the knowledge referentials in aging, and the person-centered Nursing intervention); *core skills/expected outcomes* (that integrated the skill profile defined by the Nurses' Regulator body) and *integrating skill elements* (knowledge, abilities and capabilities and aptitude or personal qualities); *curricular changes* (formal conception of change and informal conception of change); *the values that support the curriculum* (ethical and deontological values, social, political and cultural values and educational and scientific values); *the documents that reflect information about the curriculum* (formal documents, scientific works and documents produced and used in the Nursing  pre-graduate training courses).

The interviews findings (third phase) allowed us to integrate the discourse of experts in the area into four dimensions: *the person when aging*, which integrated three discursive topics (the specificity of aging, the singularity and complexity of the person when aging and the valuation of aging); *the professional aging nursing care*, which integrated three discursive topics (the nurse person, the constancy and multidisciplinary of care and an ethics for the elderly); *the learning of Nursing*, which integrated two discursive topics (the story - from teaching to learning aging and curriculum design and development); and *the learning contexts and caring in aging*, which integrated two discursive topics (institutional contexts and sociodemographic and political contexts).

We synthesize the methodology followed and the main findings in figure 1.

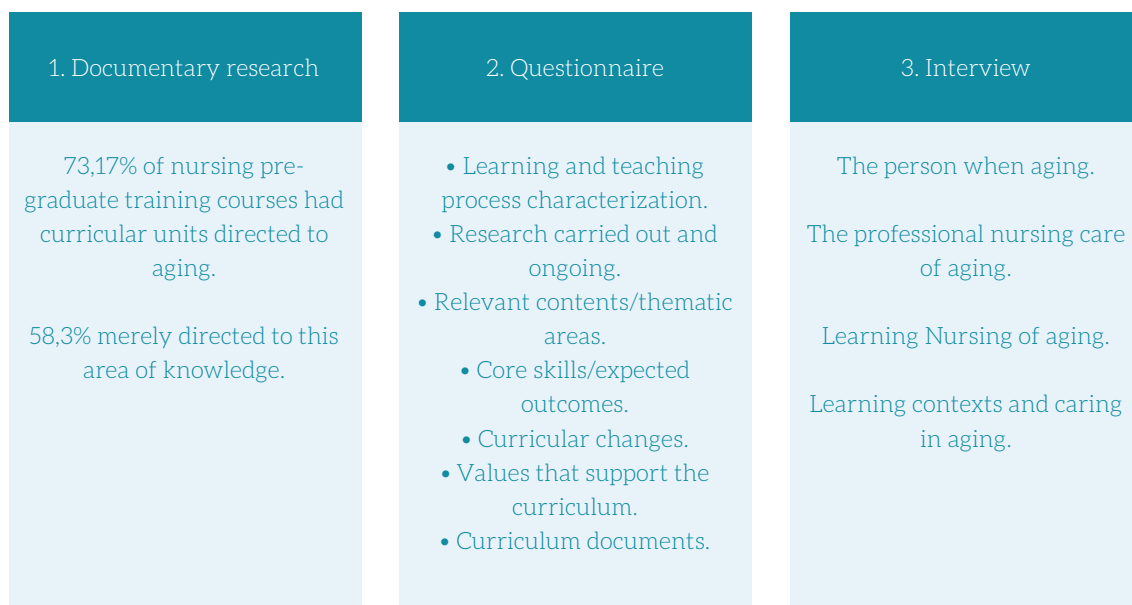| 1. Documentary research | 2. Questionnaire | 3. Interview |
|---|---|---|
| 73,17% of nursing pre-graduate training courses had curricular units directed to aging.<br><br>58,3% merely directed to this area of knowledge. | • Learning and teaching process characterization.<br>• Research carried out and ongoing.<br>• Relevant contents/thematic areas.<br>• Core skills/expected outcomes.<br>• Curricular changes.<br>• Values that support the curriculum.<br>• Curriculum documents. | The person when aging.<br><br>The professional nursing care of aging.<br><br>Learning Nursing of aging.<br><br>Learning contexts and caring in aging. |

Figure 1 – Schematic of the methodology and main findings.

We grouped and articulate the different findings as if it were a puzzle, culminating in a proposal of a Reference Matrix, which we call unifier.

## 2. A Proposal of a Reference Matrix for Nursing Education in the person when aging.

Building and systematizing the matrix naturally brought to the reflection, different questions related to learning and teaching Nursing; particularly curricular and didactic issues, however, the most interesting was to discover that the findings were much more appealing and ample, also attending to the configuration of the person receiving the care, the professional care that is valued in the Nursing area and the contexts (from micro to macro and from macro to micro) where the experiences of learning and caring come alive, through the discourses and the actions of different actors in relation – students, teachers, nurses, persons when aging, among others (figure 2).
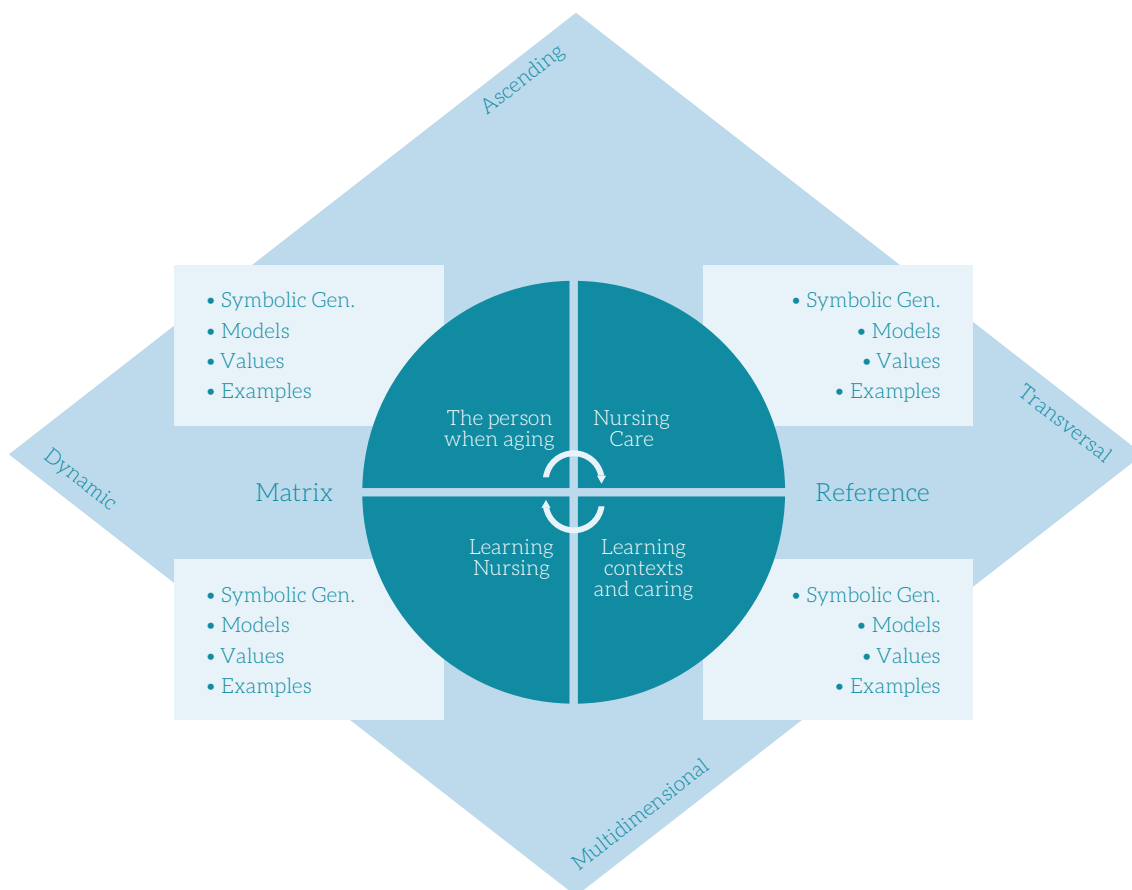


Figure 2 – Reference Matrix configurational elements.

The figure 2 synthesizes our proposal, presenting the matrix elements: symbolic genera-
lizations, models, values and examples (inspired by Thomas Kuhn[2-3] in dimensions: (1) *the
person when aging*; (2) *nursing care*; (3) *learning nursing*; and (4) *learning contexts and caring*.

The dimension *The person when aging* is explained in table 1, pointing a collective pers-
pective for an individual perspective of aging.

Table 1 - The person when aging.

| Symbolic Generalizations | Models |
|---|---|
| The world is aging, which determines different responses from today. | Age Parametrization - WHO defines elderly as a person over 65 years (in the case of developed countries) Age is an inaccurate but commonly used criterion. |
| In Portugal, we live longer but ill with acute inequalities in health. | Demography and its implications [social, economic, political, educational and health...]. WHO| EU| MS| INE| Crisp [*et al.*]. |
| Aging takes on different meanings for different persons [the person, the lifestory and the context]. | Social representations determine the way of thinking and acting, with implications in the relations of domination and discursive practices. |
| Being social and intentional, endowed with values, beliefs and desires, with specific, complex and multifactorial needs that make him unique, dignified and indivisible. | Health as a combination of factors [health determinants]. |
| Person wrapped in transitions, which contribute to more vulnerability [sickness and suffering]. | Meleis Transitions Theory [aging - process of gains and losses over time]. |
| Person dynamic, capable and vital to society, transmitting knowledge and experiences for the next generations. | Active Aging - [positive] valuation of aging. |

The Dimension *Nursing Care*, presented in table 2, integrates the nurse and nurse professional care.

Table 2 - Nursing Care.

| Symbolic Generalizations | Models |
|---|---|
| The nurse - being with peculiar characters and qualities, possessing a set of knowledge referentials and skills, especially relational nature, that allow him to act in an integrated and integrative way, developing a co constructed care in accordance with the contexts in which he lives. | Contexts of the integrative acting of Costa: (1) the context of the subject; (2) the context of the user; (3) the context of the profession; and (4) the context of the action. |
| The nurse assumes specific ways of knowing the person and the aging process [empirical, aesthetic, personal, ethical and sociopolitical knowledge]. | Barbara Carper Fundamental Patterns of Nursing Knowledge, characterizing the unique structure of Nursing Discipline. |
| The nurse promotes [health and well-being], prevents [illness and suffering], empowers [to self-care] and intervenes [taking into account the singular experience], adopting a health promoter multidimensional perspective. | Humanist model, centered on the person, on the subjectivity and on the multidimensional perspective; Rupture with the biomedical model and affiliation to the caring model. |
| The professional care of nurse aims to facilitate aging process [development transition] wrapped in transitions [health-disease]. Prevent unhealthy transitions and support healthy transitions indicators. | Meleis Transitions Theory [care centered on complexity and transitional multidimensionality]. |
| Nursing care centered on the person when aging is consistent in time and space, assuming a multidisciplinary nature. | Constancy and multidisciplinary in care - Health System; Workforce [ideological and hegemonic barriers] |
| It is imperative to develop an ethic for the elderly - assumed the ethical principles and imperatives inherent in person-centered care. | Respect for human dignity; recognition of singularity; freedom of decision of the person; recognition and protection of vulnerabilities; ethical requirement and social responsibility in monitoring the person; non-age discrimination; and the orientation for the conditions for an integral good and quality of life, by Nunes [*et al.*], CNECV. |

The Dimension *Learning Nursing*, in table 3, covers the educational and curricular issues, as well as its actors.

Table 3 - Learning Nursing.

| Symbolic Generalizations | Models |
|---|---|
| Education is a process of personal and social transformation. The person is an unfinished and nonconformist being in constant relation with the world. | Education and Change - Critical Pedagogy, by Freire. |
| Education is centered on learning. Looking at history leads to a clearer and more inclusive view of the profession identity these days. | The Nursing History - From teaching to learning. The main historical landmarks of education and the profession, by Amendoeira, Nunes, Vieira. |
| Student experiences are the starting point for discussion. It contemplates their active participation in curriculum development. | Education that emphasizes student understanding, reflection, freedom and development. Andragogical model that values the needs of the student, their identity and life experiences. |
| The curriculum is dynamic, flexible and multidimensional. Selection process, construction, management and reflexive training centered in the school. The curriculum assessment is reflected in the valuation of all elements of the curriculum. | Curriculum Critical Theory - Action and Reflection. Curriculum - Everything you want to learn, by Roldão. Informal conception of curricular change. |
| The Nursing pre-graduate training course aims to meet the needs of people throughout the life cycle, protecting them essentially in the course of transitions conferring greater vulnerability [aging]. | Globalization [consensus among experts; definition of key areas and common elements in the Nursing pre-graduate training course – PB\| DGES\| ENQUA\| A3ES] and curricular Identity [which is unique, specific, taking into account the surrounding contexts]. |
| Focus on learning outcomes [skills]. Students are a product of their history and relationships. They have traits and personal characteristics and develop knowledge, abilities and capabilities through learning experiences that, once combined and mobilized in action, unfolded in context, translate into skills. | Education that values the student, an active learning and an inclusive teaching. Skill involves three axes: (1) the person, (2) the training situations and (3) the professional situations, by Boterf. |
| Teacher - decision maker and manager of the curricular process. Mediates the proposal and the curricular concretion. | From the formal curriculum to the real curriculum, by Pacheco. |

The dimension *Learning contexts and Caring* is clarified in table 4, representing the set of circumstances and the discourses that emerges from them.

Table 4 - Learning contexts and caring.

| Symbolic Generalizations | Models |
|---|---|
| The contexts integrate the micro, meso and macro levels. Dynamic and in perfect relation and complementarity. | At the micro level, we integrate the particular contexts of actors and institutions; in the meso level the institutions and their relations with the surrounding and at the macro level we attend to the social space. |
| The learning contexts and caring in the aging are populated by different actors in relation. Institutional contexts [the context of care and the school context] are rich in ideologies and hegemonies.<br>Greater accessibility of care is sought through greater organization and less complexity, as well as adequate responses [focus on the natural context, in a positive and multidisciplinary view].<br>A humanist, critical and emancipatory education is envisaged through resistance to subordination [curricular rigidity]. | The unique contexts of the actors [the person when aging; the student, the nurse and the nursing teacher] nurture themselves, informing the context of the learning and care situation.<br>Organization Model of care and education services.<br>Local, national and international health policies [WHO| EU| MS].<br>Local, national and international educational policies [PB| DGES| ENQUA| A3ES]. |
| The discourses on aging, coming from different contexts, are analyzed, as the discovery of patterns and meanings through them, contribute to understand and simultaneously participate in the social phenomenon under study [aging]. | The discourses are analyzed in three dimensions: (1) textual analysis [vocabulary, grammar, cohesion and textual structure]; (2) analysis of discursive practice [strength, coherence, intertextuality]; (3) Fairclough's analysis of social practice [ideology and hegemony]. |

It is thus possible understand how different elements, namely symbolic generalizations and models, relate and sustain themselves in each of the dimensions and how they are constructed, leading to more widely shared values, not neglecting the examples or solutions considered to be more effective in solving the social problem under study (table 5).

Table 5 –Nursing Education in the person when aging.

| Values | Examples |
|---|---|
| Values are present in axes that aggregate and communicate with each other, redefining themselves and redistributing themselves continuously. | The aging specificity and relevance determines:<br>(1) Age-oriented CUs harmonized with the student's stage of development [1st and 2nd years - *preface*; 3rd and 4th years - *epilogue*]. |
| (1) Ethical and deontological values:<br>Universal values and human values [freedom, truth, justice, solidarity, competence, dignity]. | (2) Content definition \| thematic areas on aging [ascending and transversal].<br>Primary content to be integrated into the curriculum:<br>  a) <u>The phenomenon of aging:</u> individual perspective [bio-psycho-spiritual]; collective perspective [economic-political-social].<br>  b) <u>The person when aging:</u> concepts and meanings; health processes; disease processes; transition processes; networks and relationships. |
| (2) Social, political and cultural values:<br>Intergenerational solidarity, citizenship and culturally competent care. | c) <u>The knowledge referentials in aging:</u> transitions theory; theories of aging [deterministic and stochastic]; programs and projects of the DGS and WHO, among other entities of reference.<br>  d) <u>The Person-Centered Nursing Intervention:</u> Diagnose \| assess; promote health; prevent complications; intervene in health-disease processes; working in partnership and in a multidisciplinary team; attend ethical and legal issues. |
| (3) Educational and Scientific values:<br>Knowing and integrate and integrating acting | (3) Identification of key competences integrated in the profile of the Ordem dos Enfermeiros, the national regulator, taking into account a clear distinction with respect to the areas of expected competences, the competence description and criteria, contextualized to the person when aging.<br>Aspects to take into consideration in the design of the competencies referential:<br>  a) Competences does not replace content and objectives [the way forward], it is hoped that it will be drawn in connection with them, as well as in connection with methodologies, strategies and assessment.<br>  b) The required competence is not the real skill, and the referential is a point of reference according to which the process of learning is organized.<br>  c) An effective referential seeks to aggregate the general and the particular, not being too broad or too reductive, approaching the skill of know-how.<br>  d) Competences appeals to integrity when it lacks empirical, aesthetic, personal, ethical and sociopolitical knowledge, valuing the Nursing singular knowledge<br>  e) Competence is founded on a set of integrative elements [knowledge, skills, abilities, traits, and personal characteristics] that are expected to be analyzed, developed and equally assessment. |

Table 5 –Nursing Education in the person when aging.

| Values | Examples |
|---|---|
| Values are present in axes that aggregate and communicate with each other, redefining themselves and redistributing themselves continuously.<br><br>(1) Ethical and deontological values:<br>Universal values and human values [freedom, truth, justice, solidarity, competence, dignity]. | (4) Methodological design conceived in function of methodologies and strategies of a dynamic, critical and reflexive nature, capable of favoring, among other things, intergenerationality. There are significant gains when experience is intertwined with the knowledge frames, shared and with constancy throughout the Nursing pre-graduate education.<br>Methodologies and strategies that optimize the learning process of aging [ascending learning, based on a pluridisciplinary, global and integrative perspective of all the determinants of aging - gerontological and geriatric perspective]. |
| (2) Social, political and cultural values:<br>Intergenerational solidarity, citizenship and culturally competent care. | a) Problem-based learning: Solving concrete problems creates the possibility of learning symbolic generalizations and models, assuming the values shared by the group.<br>b) The simulated clinical experience: The simulation, combined with the resolution of concrete problems, placed at the level of the student's development stage, leads to a greater understanding of the uniqueness and complexity of aging and allows the creation of situations that favor the mobilization of the student.<br>c) The promotion of intergenerational meetings: The meeting, provided through interviews, study visits, fieldwork, clinical teaching and internships, among others, promotes the sharing of learning, leading to gains in health. |
| (3) Educational and Scientific values:<br>Knowing and integrate and integrating acting | d) The development of projects in and with the community: Community projects value the voice of people who experience the aging transition, promoting the understanding of the phenomenon under study.<br>e) The interconnection of theory with practice: Education appeals to constancy when it aggregates theory and practice, highlighting in the student the implications of learning in the health and well-being of the person when aging.<br>f) Involvement of students in research: research aging on different topics, such as: (1) the phenomenon of aging; (2) the person when aging; and (3) the intervention of the Nursing centered on the person when aging, becomes a priority in relation to the social, economic, political and cultural context in which we live, promoting the sedimentation of knowledge and the nurses skills and simultaneously a pluridisciplinary perspective, this is possible through joint interventions between the different actors of curriculum development. |
| | (5) Assessment that addresses all elements of the curriculum [from micro to macro level and vice versa]. Formative and dynamic, attentive to the expected student results [among them skill] but above all to the learning process. |

# CONCLUSION

The collective and individual challenges of aging were the motto for the research study entitled "Nursing Education in the person when aging. Contributions of a Reference Matrix". Qualitative and analytical study, focused on the questions related to the aging and its implications in the education and profession of Nursing.

The concepts, which we considered inseparable: (1) *health*; (2) *aging*; and (3) *Nursing education*, were developed during the sequential and complementary phases of research, integrating the Reference Matrix proposal.

The matrix brought to the analysis the voice of one of the main actors of curriculum development – the teachers – and also experts in the area in question, and in their voices, the voices of other actors also emerged, of which we highlight students, nurses and persons when aging.

Because it is not possible, for various reasons in this research listen all the actors in the first person, we consider relevant to do this in future investigations. Relevant examples are the perceptions identification and representations of nursing students, nurses and elderly about aging or the identification of people's needs as they grow older, from their perspective, of students (before and after significant theoretical and clinical experiences) and health professionals (nurses) among many others, as aging is a contemporary theme that deserves and needs to be studied at different levels and perspectives, crossing and putting different disciplines and professions in relation to each other, identifying their common points and, at the same time, extolling their singularities.

The two purposes of the research were, in our view, achieved – the first, the explicitness of a tacit knowledge, as far as we did not have at our disposal a reference in this area of knowledge capable of systematizing the elements shared and valued by a group; the second the identification of obstacles and solutions to solve the social problem studied.

Among the solutions found, we point out one that seems to be of prime importance: in order to attend to the curricular issues inherent to the processes of learning and teaching Nursing of aging, it is essential to take into account the configuration of the person receiving the care, the professional care we value and the contexts were learning and caring happen.

# REFERENCES

1. Instituto Nacional de Estatística. Envelhecimento da população residente em Portugal e na União Europeia. Destaque informação à comunicação social [Internet]. 2015 Jul [cited 2017 Nov 02] Available from: https://www.ine.pt/xportal/xmain?xpid=INE&xpgid=ine_destaques&DESTAQUESdest_boui=224679354&DESTAQUESmodo=2&xlang=pt

2. Khun, T. S. A estrutura das revoluções científicas. Lisboa: Guerra e Paz, Editores S.S., 2009.

3. Khun, T. S. A Tensão Essencial. Lisboa: Edições 70, 1989.

4. Fairclough, N.; Wodak, R.; Meyer, M. Critical discourse analisys as a method in social scientific research. In: Methods of Critical Discourse Analysis. London, Thousand Oaks, New Delhi: Sage Publications; 2001. p.121-138.

5. Nunes, L. Considerações éticas: a atender nos trabalhos de investigação académica de enfermagem. 2013. [cited 2017 Nov 06] Available from: http://hdl.handle.net/10400.26/4547

6. Júnior, F. G. P.; Leão, A. L. M. S.; Mello, S. C. B. Validade e confiabilidade na Pesquisa Qualitativa em Administração. Revista de Ciências da Administração [Internet]. 2011 [cited 2012 Dez 01]; 13 (31): 190-209. Available from: https://periodicos.ufsc.br/index.php/adm/article/view/2175-8077.2011v13n31p190/20846

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