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Analysis of the process of translation of knowledge regarding early childhood at the undergraduate level*

ANÁLISE DO PROCESSO DE TRANSLAÇÃO DO CONHECIMENTO SOBRE A PRIMEIRA INFÂNCIA NO ENSINO DE GRADUAÇÃO

ANÁLISIS DEL PROCESO DE TRASLACIÓN DEL CONOCIMIENTO SOBRE LA INFANCIA TEMPRANA EN LA ENSEÑANZA DE PREGRADO

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ABSTRACT

Objective: To analyze innovative contents on Early Child Development Promotion. **Method:** This action-research involves nine faculties from four Higher Education Institutions at inner-state of São Paulo, Brazil. Data were collected by syllabi analyses (2009-2011), interviews and focus group. We have adopted an ECDP underpinning from international consensus, thus evaluating KT. **Results:** We have found relevant incorporation between teaching and extension in Nursing (87,5%) and Psychology (75%) undergraduate courses, while Pedagogy was restricted to teaching. **Conclusion:** This KT evaluation has evinced innovative potential of extension, regardless teaching and research, for a better Early Childhood.

DESCRIPTORS

Child development
Health promotion
Education, higher
Diffusion of innovation
Program evaluation

RESUMO

Objetivo: Analisar a incorporação de conteúdos inovadores na promoção do desenvolvimento infantil com ênfase na extensão universitária. **Método:** Pesquisa-ação, descritiva e exploratória, envolvendo nove representantes de quatro instituições de ensino superior paulistas. Os dados foram obtidos por meio de análise de ementas (2009-2011), entrevistas e grupo focal. Embasou-se em consenso internacional relacionado à primeira infância para a avaliação da translação do conhecimento. **Resultados:** A incorporação de oito temáticas da promoção do desenvolvimento infantil ocorreu de modo relevante entre ensino e extensão dos cursos de graduação de Enfermagem (87,5%) e de Psicologia (75%). Observou-se restrição ao ensino no curso de Pedagogia. **Conclusão:** A avaliação da translação do conhecimento evidencia o potencial inovador da extensão universitária, integrada ao ensino e à pesquisa, em prol da primeira infância.

DESCRIPTORIOS

Desenvolvimento infantil
Promoção da saúde
Educação superior
Difusão de inovações
Avaliação de programas e projetos de saúde

RESUMEN

Objetivo: Analizar la incorporación de contenidos innovadores en la promoción del desarrollo infantil. **Método:** Investigación-acción que involucró nueve representantes de cuatro Instituciones Enseñanza Superior. Los datos fueron obtenidos del análisis de planes de cursos (2009-2011), entrevistas y grupo de foco. Se basó en consenso internacional sobre la Primera Infancia para evaluar de la traslación del conocimiento. **Resultados:** La incorporación de ocho temáticas sobre Primera Infancia ocurrió de modo relevante en la enseñanza y extensión del curso de graduación en Enfermería (87,5%) y de Psicología (75%). Se observó la limitación a la enseñanza en el curso de Pedagogía. **Conclusión:** la evaluación traslacional ha evidenciado el potencial innovador de la extensión universitaria, integrada a la enseñanza e investigación en la Infancia Temprana.

DESCRIPTORIOS

Desarrollo infantil
Promoción de la salud
Educación superior
Difusión de innovaciones
Evaluación de programas y proyectos de salud

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INTRODUCTION

Making early childhood a priority for political agendas, programmatic actions and the strengthening of care competencies from conception through the first six years of life is an intelligent strategy for the social development of the country.

This challenge is internationally recognized as an effective and creative way to promote health and prevent diseases^(1,2), guarantee more equity based on social determinants of health⁽³⁾ and deal with adversity, especially poverty, negligence in care and child maltreatment⁽⁴⁾.

Advances in neuroscience and molecular and epigenetic biology further our understanding of the effects of early experience on the human body; this new information highlights the importance of precautions that protect against adversity, since it interferes in brain architecture, the regulatory functions of the metabolism and the immune and cardiovascular systems. The effects of these *interferences* may persist and cause physical and psychological problems in adulthood^(1,2,5).

Human and social sciences have also contributed to these discoveries. Studies of the psychology, sociology and anthropology of childhood^(6,7) make it possible to extrapolate the biopsychic and developmental nexus for an expanded view that integrates socio-environmental, historical and cultural aspects in early childhood care.

Adequate moments for the individual's best development potential, also known as windows of opportunity^(1,2), may be strengthened and enlarged through integral care, which incorporates biological, emotional and socio-environmental aspects, and integrated care, which aims to integrate different sectors and areas of knowledge during programs focused on early childhood⁽⁸⁻⁹⁾.

In Brazil, Family Health Strategy (Estratégia Saúde da Família)⁽⁹⁾, the National Plan for Early Childhood (Plano Nacional Pela Primeira Infância)⁽¹⁰⁾, the Stork Network (Rede Cegonha),⁽¹¹⁾ and the Affectionate Brazil Plan (Plano Brasil Carinhoso)⁽¹²⁾ are positive contexts for applying innovative knowledge in strategic actions, especially by health, education and social assistance professionals, in performing integral and integrated care with a focus on Child Development Promotion (CDP)⁽⁸⁾.

Professional development must take into consideration projects based on integration between higher learning institutions (HLIs) and local services to build competencies for interprofessional and intersectoral teamwork, based on the needs of the community⁽¹³⁾. Among the three pillars that define work on higher learning in Brazil, university extension favors this integration with local services during academic development.

However, there is a low quantity of indicators and systematic evaluations of university extension that demonstrate how it is inseparable from education and research.

This reduces the possibility of bringing attention to the social engagement of faculty members, coordinators and administrators and of measuring their work.

Representatives of the Forum for Extension Proectors of Brazilian Public Universities (Fórum de Pró-Reitores de Extensão das Universidades Públicas Brasileiras) encourage the creation and evaluation of qualitative and/or quantitative indicators of this complex process⁽¹⁸⁾. In this sense, this study had as its objective the analysis of the incorporation of innovative content related to CDP in a process of translation of knowledge with an emphasis on university extension

Innovative content for early childhood care: Object of translation of knowledge.

This study presents an experience related to the production, translation and propagation of scientific knowledge on the promotion of early childhood derived from a partnership between the Maria Cecília Souto Vidigal Foundation (Fundação Maria Cecília Souto Vidigal) and municipalities in the interior of the state of São Paulo that met the following criteria: population stability, basic infrastructure for child development services, potential for integral and integrated care, and political push on the part of community leaders to create projects for early childhood⁽¹⁹⁾.

The Foundation secured an agreement with municipal representatives for the implementation of actions for improving early childhood development with the intention of improving public and private resources and strengthening the care networks of professionals who work, directly or indirectly, in family planning and prenatal, humanized birth and pediatric care during the first three years of life. This initiative was called Local Intervention Projects (Projetos de Intervenção Local) by the Foundation (<http://www.fmcsv.org.br>) and had as its objective the advancement of intersectoral articulation in regard to early childhood^(8,11,19).

An agreement was established for the strengthening of the Local Intervention Projects with mayors, representatives from the sectors of health, education and social assistance, members of the local community and professionals responsible for higher learning institutions (HLIs), since they are the main stakeholders in the process. For the application of the innovative contents, in other words, the objects of the translation of knowledge related to child development, eight key interventions (KI) were created, namely:

- KI1 Expanded prenatal clinic
- KI2 Pregnant family and teen pregnancy groups
- KI3 Humanization of birth
- KI4 Postnatal period and breastfeeding
- KI5 Expanded pediatric care from zero to three years
- KI6 Development of day care centers and child education center caregivers

- KI7 Community recreational spaces
- KI8 Family groups with children from zero to three years

These eight KIs were organized in two moments⁽¹⁹⁾. The first was composed of development workshops with professionals from the following sectors: education and social assistance, as well as other professionals involved in early childhood in the municipality.

The second was divided in three periodic supervisions (bimonthly or quarterly) to verify the applicability and replication of the contents of childhood development with the teams at their services of origin. The representatives from the higher learning institutions -- undergraduate and graduate students, faculty members, coordinators and directors -- participated in the KI⁽¹⁹⁾.

Each KI synthesizes scientific evidence⁽¹⁻⁸⁾ from biomedical and health sciences on the child development process, in conjunction with the body of knowledge of human and social sciences, with the objective of promoting, in an inseparable way, care, recreation and education; because of that they were chosen as the analysis axis.

It is understood that knowledge is a definition that is more comprehensive than scientific evidence⁽²⁰⁾. The latter belongs to the process of translation of knowledge, which consists of

“synthesis, exchange and application of knowledge by relevant stakeholders with the objective of accelerating the benefits of global and local innovations in the strengthening of health systems and in the improvement of the people’s health”⁽²¹⁾.

A study conducted in 2012⁽²⁰⁾ identified extended comprehension of three gaps in the translation of knowledge. The first gap is in the analysis of necessities of global health for the discovery of new knowledge

through research; the second gap concerns the bridge between this new knowledge and the production of clinical and social research to guarantee its applicability; and the last gap refers to the incorporation of produced knowledge in good practices and in policies of a specific health system.

To overcome these gaps, the analysis that was proposed in this study aimed to attribute an innovative angle to university extension based on evaluation of the translation of knowledge⁽²²⁾, from the applicability of evidence and the interaction of relevant subjects in complex processes of change.

The defense of innovative university extension, which favors the translation of knowledge and its integration with local services and the community, is endorsed by different contributions, challenges and roles of Brazilian higher learning institutions in the production and consumption of knowledge for the development of future professionals.

METHOD

Action research was chosen because of the participative, democratic and change process-friendly characteristics of the change processes⁽²³⁾ and its coherence with investigation methods in university extension in the integral and systemic perspective⁽²⁴⁾.

The administrative nature of the different participating HLIs -- public or private -- and the municipalities’ characteristics (Table 1) made it possible to code them as follows: community university center (CUC), private university center (PUC), private educational foundation (PEF) and federal public university (FPU). Only the PUC did not belong to the municipality participating in the Local Intervention Projects of the Maria Cecília Souto Vidigal Foundation.

Table 1 - Characterization of the higher learning institutions (HLIs) and of the municipalities participating in the Local Intervention Projects of the Maria Cecília Souto Vidigal Foundation.

HLI administrative nature	Analyzed courses that address childhood development	Dados sociodemográficos dos municípios			
		Total population	Life expectancy at birth (years)	Social exclusion index	Human development index (HDI)
CUC	Nursing, Pedagogy and Psychology	86.059	71.92	0.61	0.817
PUC	Pedagogy and Psychology	47.682	71.81	0.59	0.807
PEF	Pedagogy and Psychology	59.096	71.65	0.59	0.81
FPU	Nursing	226.322	73.08	0.55	0.841

Source: Brazilian Institute of Geography and Statistics, 2010 (www.ibge.gov.br).

The nine research subjects or key informants consisted of seven coordinators and two undergraduate professors in nursing, pedagogy and psychology. However, because of the institutional reorganization of the FPU, the coordinator of the nursing undergraduate course could not participate during the agreed time period (November 2010 to October 2012), her withdrawal being justified.

Data gathering involved the analysis of syllabi and education plans; interviews with the key informants; education, research and HLIs university extension activities; and focus groups for validation of gathered data.

The empirical material was triangulated in three stages. The first considered the available information on the

undergraduate courses up to 2009. The second consisted of the interaction and participation of the representatives from the HLIs in the Local Intervention Projects of the Maria Cecília Souto Vidigal Foundation and the incorporation of the key interventions. The last involved the reapplication of the data gathering techniques, focusing on the identification of changes that took place up to 2011.

Thematic analysis⁽²⁵⁾ was used for the reading of documents from 21 disciplines in 2009 and 25 in 2011, in addition to the answers to the questionnaires, the interviews and the focus groups with the key informants.

Based on the pre-analysis and the selection of units of analysis⁽²⁵⁾, the objects of the translation of knowledge were identified, in other words, the synthesis of scientific evidence on innovative content. In this study, such objects relate to the Local Intervention Projects in educational activities, research projects and the university extension actions of the HLIs after two years of partnership with the Local Intervention Projects of the Maria Cecília Souto Vidigal Foundation. The classification conducted in the corpus of this study used the following analytical scheme:

- Absent: the contents of the disciplines in the participating HLIs do not contemplate the objects of the translation of knowledge; in this case, they do not address any of the innovative contents of child development addressed in the key interventions of the Maria Cecília Souto Vidigal Foundation, with the attribution of a minimum value of 1;
- Incipient: related to the presence of key intervention topics exclusively in the education sphere, given the formative function of the HLIs, value 2;
- Regular: related to the presence of key intervention topics in education and research, without taking into consideration university extension, value 3;
- Relevant: related to the presence of key intervention topics in two spheres, with one of them being university extension, value 4;
- Complete: related to the articulated presence that involves the education triad, research and innovative university extension in the development process of human resources; in this case, with focus on the CDP, maximum value of 5.

This analytical scheme considered innovative scientific knowledge based on the fields of biomedical and health sciences, as well as human and social sciences, with a focus from gestation up to three years of age, as elements that should guide professional and family practices for the benefit of the integral development of the children^(1-6,8).

Work on the HLIs was performed through education, research and university extension activities. The analytical scheme considered education as the elementary dimension, because it represents a common denominator among the many administrative natures of the HLIs, and considered university extension as an opportunity for translation of knowledge.

This study was approved by the Research Ethics Committee of the Nursing School of the University of São Paulo (Process 949/2010) and met the requirements of Resolution 196/96. The coordinators and professors of the courses signed a Free Informed Consent Form after being informed of the objectives of the research and confirming their availability to participate during the different stages of evaluation for over two years.

RESULTS

The analysis of the empirical material made it possible to distinguish the innovative contents proposed by the eight KIs from other themes and approaches linked to prenatal care, family approach and childcare, beyond the three years of the study in the disciplines, in the internship spaces, in the research and extension projects of the undergraduate courses before (2009) and after (2011) influenced by the Local Intervention Projects of the Maria Cecília Souto Vidigal Foundation.

Based on the analytical scheme, the horizontal bars in the chart represent the incorporation of the objects of translation of knowledge, namely: 1 - absent (does not present innovative content for the CDP); 2 - incipient (education only); 3 - regular (education and research); 4 - relevant (education and extension); 5 - complete (university extension innovative for the CDP).

The nursing course (Figure 1) expanded the approach of innovative contents in the theoretical disciplines and the internship spaces *Nursing in childcare*, *Nursing in women's care* and *Nursing in newborn care* for university extension projects.

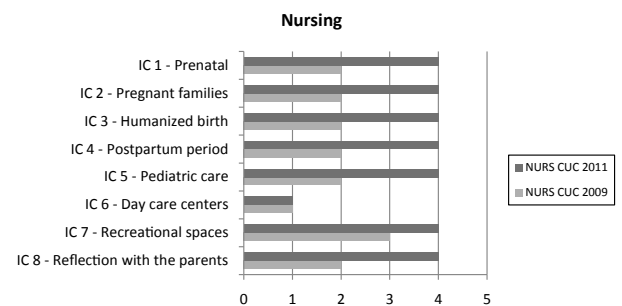


Figure 1 - Translation of knowledge related do CDP in education, research and university extension in the nursing course, São Paulo, 2014.

In the pedagogy courses (Figure 2), the CUC and the PEF created mandatory disciplines titled, respectively, *Learning psychology* and *Child literature*.

The psychology courses (Figure 3) demonstrated a higher assimilation of the eight key interventions. Human development discipline, Vital Cycle, created in the CUC, contemplated five key interventions. In the PEF there was the creation of an optional discipline *Psychology in recreational activities* and the incentive for the creation of end of course papers about early childhood. In the PUC there

was an increase in the hours of the discipline *Child development psychology* from 40 to 60 hours and the strengthening of the research group in a child and pregnant women psychology clinic.

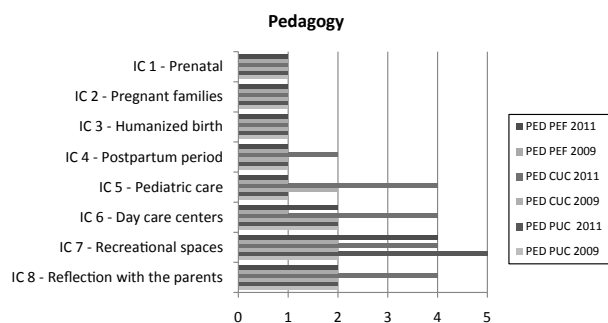


Figure 2 - Translation of knowledge related to CDP in education, research and university extension in pedagogy courses, São Paulo, 2014.

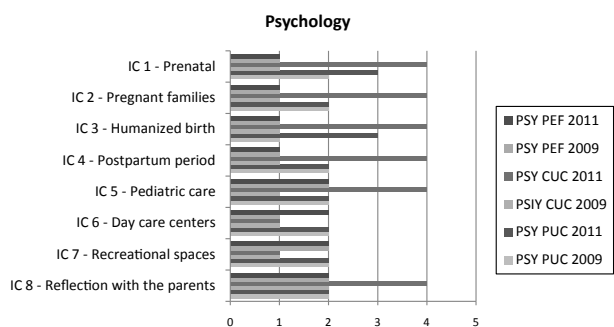


Figure 3 - Translation of knowledge related to the CDP in education, research and university extension in psychology courses, São Paulo, 2014.

Note that the key interventions, which do not present horizontal bars, address child development based on other theoretical and methodological approaches that, a priori, may not promote integral and integrated care according to international consensus regarding early childhood.

DISCUSSION

The nursing course of the CUC already incorporated seven of the eight theme proposals in the key interventions, going from incipient or regular to relevant (87.5%) in all, except in regard to the development of day care center caregivers, which remained absent.

The pedagogy course of the PUC was the only one to reach complete interaction (12.5%) related only to the creation of recreational spaces in the local community. However, the persistence of the absence of health themes focused on early childhood in the pedagogy courses reveals a critical obstacle in the education of the future pedagogues and their articulation with the health and social assistance teams for the benefit of higher integration of education, care and recreation^(8,12).

The pedagogy course of the CUC valued initiatives for university extension in half of the themes related to the approach for children from zero to three years and their families. In education, the PEF included content regarding nurseries and kept the group approach with parents of children from zero to three years. A highlight was the creation of extension projects for community recreational spaces, which reached the relevant level (12.5%).

The psychology courses demonstrated the higher reach in the incipient incorporation of the themes of the eight key interventions. A highlight was the relevant (75%) change that occurred in the CUC that integrated education and extension projects based on five key interventions. On the other hand, in the PUC, the incentive for research about prenatal care and birth humanization became regular (25%). These items may contribute to the work of psychologists in primary health care and in the Stork Network^(8,9,11).

There is no intention to infer that all these changes were a result only of the Local Intervention Projects of the Maria Cecília Souto Vidigal Foundation. However, it is noted that during two years of participation, municipal actions focused on early childhood allowed the inclusion of the themes of eight key interventions in undergraduate studies, research projects and, especially, university extension activities articulated in local services.

This new scenario is in accordance with recommendations that decision makers of the HLIs invest in practices related to early childhood through extension actions and internships that make it possible to have contact with different realities after graduation⁽¹⁰⁾.

The observed change during a two-year period showed that, in the majority of the researched courses, there was a higher integration between research, education and university extension. We reiterate that there are possible spaces for such integration, even when it comes to private HLIs, whose participation is not emphasized in the Forum for Extension Proectors of Brazilian Public Universities⁽¹⁸⁾.

A Canadian study⁽²⁶⁾, based on the education of medical school undergraduates concerning care in early childhood, showed good understanding of advances in neuroscience and lack of preparation for handling emotional and socio-environmental aspects of childcare.

The findings in this study contributed to improvement in the quality of education and its integration with services, since the researchers had consistent elements to promote the reform of the family medicine curriculum⁽²⁶⁾ in order to understand the effects of the nature and nurture interaction over life cycles and the recognition of community resources to provide care for the first six years of life^(1,5).

This study made it possible to find the strong points and gaps in the presentation of innovative content to

undergraduate students of different courses that train professionals who may participate in Family Health Strategies and the Stork Network and also in strategic actions of Affectionate Brazil, given the goals for expansion of day care centers, among other programs, in the participating municipalities^(8-12,19).

In this sense, knowing the gaps in integrated knowledge in the various courses concerning the period from gestation through the first three years of life highlights the need to include that knowledge for expanded development of professionals, and also makes possible knowledge that may facilitate an intersectoral articulation.

The creation of centers and agencies in the HLIs that transfer technologies and spread innovations may accelerate effective and efficient alternatives for the solution of complex problems presented by society⁽¹⁷⁾. Giving value to the role of HLIs in the Local Intervention Projects of the Maria Cecília Souto Vidigal Foundation reinforces such claims and favors the confrontation with the social determinants of pregnant females and children from zero to three years, without ignoring their families, neighborhoods and communities.

A translation of knowledge, as it occurred in this study, may contribute to an increase in evidence-based care in favor of the improvement of life and health conditions of the population⁽²⁷⁾. The Australian model, created by the Joanna Briggs Institute, guides this process and contemplates the following steps: initial evaluation of health needs; production; synthesis; transference; use and re-evaluation of the requirements for the promotion of good practices and public policies⁽²⁰⁾.

With this in mind, the translation of knowledge is an innovative process, capable of favoring what the author of one study⁽²⁸⁾ calls “promotion of alternatives for research, development, extension and organization that point to the democratization of the university public welfare” when recognizing and proposing collective solutions for local, national and global social problems.

It is believed that similar studies of evaluation of university extension should lead to reasonable knowledge – in this case, the innovative contents of the eight key interventions of the Local Intervention Projects of the Maria Cecília Souto Vidigal Foundation – for decent life that can lead to the improvement of quality of life for the children, their families and community through critical, citizen and supportive professionals⁽²⁹⁾.

The main advance of this study consisted of the application of the analytical scheme of the innovative university extension based on objects of the translation of knowledge. The quantitative character of the triangulated empirical material offered a good synthesis for the evaluation of changes that happened after two years of participation of the HLIs in Local Intervention Projects the Maria Cecília Souto Vidigal Foundation.

It is understood that a limitation of the study is its focus on undergraduate courses, since graduate courses also integrate education, research and extension. Given the emergence of the theme, it is hoped that it may contribute to other research to describe the contribution of university extension to the articulation between education and research in the process of translation of knowledge.

CONCLUSION

This study analyzed the translation of knowledge related to early childhood in the undergraduate courses in nursing, pedagogy and psychology of four different HLIs. After two years of intervention by the Local Intervention Projects in the participating municipalities and the adoption of the key interventions by the Maria Cecília Souto Vidigal Foundation, it was verified that the evaluated courses showed curriculum changes in theoretical and practical education, stimulated research projects without financing, and increased university extension actions.

The analysis scheme adopted in this study made it possible to portray the stage of articulation of this academic triad in the HLIs and aimed to contribute to the proposition of indicators of innovative university extension. Its use as institutional self-evaluation is suggested, with the objective of pointing to programs, courses and/or disciplines that promote a pedagogical praxis based on research on the requirements of communities and local services for the production and application of knowledge, scientific evidence and innovation.

The increase in this evaluation at state and municipal public universities, in addition to private educational institutions of various sizes, philanthropic and confessional, may complement the understanding of the translation of knowledge in other contexts, relevant social actors and target audiences.

Future studies about the participation of faculty members and students (undergraduates and graduates) in HLIs in this process and/or of partnerships of HLIs in intersectoral and interdisciplinary projects must be conducted with the objective of increasing comprehension about the effects of good academic practices based on the inseparability of education, research and university extension.

It is hoped that researchers from other areas may define different objects of translation of knowledge with the objective of understanding innovative university extension as an opportunity for redirecting the development of critical, resolute, participative professionals and committed citizens for the transformation of reality.

Conflict of interest

Anna Maria Chiesa, coordinator of this research, acts as technical consultant for the Maria Cecília Souto Vidigal Foundation. The remaining researchers have nothing to declare.

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