

Contributions of formative research to the production of Speech, Language and Hearing Sciences: the case of a Colombian university

Aportes desde la investigación formativa a la producción en Fonoaudiología: el caso de una universidad colombiana

Nora Aneth Pava-Ripoll¹, Claudia María Payán Villamizar¹, Adriana Reyes Torres¹

ABSTRACT

Purpose: This research identified intellectual production regarding the subject disability, developed at the Speech, Language and Hearing Sciences program at the Universidad del Valle, Colombia, during 1996-2008, establishing relationships between historical developments of the disability concept and focusing on its social approach models and its relationship with the work of this discipline. **Methods:** Descriptive study that included all theses that were found in the academic program during the evaluation period (n=98). The theoretical study of the documents included six variables: disability model, intervention components, fields of activity, performance areas of the discipline, study type, and population. **Results:** The rehabilitation model of disability (53%) prevailed over the social models (32%), although the later have increased in recent years. The subject areas found were language (32%), professional issues (24%), speech (20%), communication (13%), and hearing (11%). The intervention component of habilitation/rehabilitation (41%) prevailed over the promotion and prevention (33%), and there was a strong positivist tendency (65%) and a timid position for hermeneutical approaches (21%). Forty three percent of the population emphasized the occupational role. **Conclusion:** It was found a greater number of theses framed in the rehabilitation model, but the results showed the consolidation of a research culture towards the social models of disability in recent years. It is evidenced that Speech, Language and Hearing Sciences seeks the rehabilitation of communicative and linguistic processes of subjects, with an upward path in the direction of potentiating social and cultural variables.

Keywords: Biomedical research/statistics & numerical data; Scientific and technical publications; Program development/statistics & numerical data; Education, higher; Language; Hearing; Speech; Speech, Language and Hearing Sciences

INTRODUCTION

The scientific production in Speech, Language and Hearing Sciences has been an issue of interest in recent years. In Colombia, the research tradition of the Speech, Language and Hearing Sciences has been led by products from professors and students from institutions of higher education dedicated to the formation of these professionals. The academic program in Speech, Language and Hearing Sciences at Universidad del Valle shares this reality and throughout its history, it has undertaken formative

research, especially from degree work done by its students. However, it is common to find a great deal of degree works remaining in libraries at university institutions; thereby, having low impact in the curriculum and in the professional practices, limiting their use to consultation activities by students and on occasion by professors, without accomplishing the continuity that could bestow upon them social and academic pertinence.

Hence, the production of degree work, which from formative research carried out in Speech, Language, and Hearing Sciences favors both the dissemination of knowledge accumulated throughout the years and the use of formation for the benefit of the different population groups. From this perspective, we may highlight the increasing importance of the concept of gray literature within the society of knowledge, which frameworks research reports along with career-end projects, as has been mentioned by some authors^(1,2).

There are few systematic and rigorous studies regarding the scientific production in Speech, Language and Hearing Sciences and even fewer studies on the production generated

Work conducted at the School of Human Rehabilitation funded by Universidad del Valle – Univalle – Cali, Colombia, under academic time assignment for the researchers.

(1) School of Human Rehabilitation, Universidad del Valle – Univalle – Cali, Colombia.

Correspondence address: Nora Aneth Pava-Ripoll. Calle 4B N° 36/00, Edificio 130 “Heladio Perlaza”, Piso 2, San Fernando, Cali, Colombia. E-mail: nora.pava@correounivalle.edu.co

Received: 10/4/2010; **Accepted:** 12/2/2010

by processes of formative research, which has become a greater demand in current professional formation, especially from current discussions on quality of education⁽³⁾. These degree works (gray literature) are considered pertinent and opportune, given that they contribute to the coherence of the curricular transformations, enable identifying the diverse theoretical postures predominant in research on the disability, and promote the generation of technological and conceptual progress from academia, projecting the University as a direct source of solutions at the social level⁽¹⁾.

To account for the disability models underlying the research interests of the present project, it is necessary to recognize how these conceptions have transcended throughout history^(4,5): from traditional models, from rehabilitation, from personal autonomy, from accessibility, to model of human capacity and rights approach, among others. But, recognizing the observations of the concept made from socio-anthropological public studies and the ethical-philosophical reflection, which place on the terrain the situation of discrimination in society⁽⁶⁾.

These discussions and approaches on ways of addressing disability make it clear that it is a dynamic, quite complex, and multidimensional concept, in constant evolution in which diverse fields of knowledge converge, which – from different perspectives – contribute to a debate ranging from epistemological postures to technical, social, political, and economic approaches. This is how the authors in this study have identified that all these paradigmatic views of the disability may be approached from two macro categories of models: individual and social models.

The *individual models*, whose origins stem from the roots of the concept, place the disabling condition on the person, on the individual's bodily structure, inherited from the medical model^(6,7). Its logic poses criticisms like the excessive situation of dependency created on the individuals, resting on medical situations; additionally, the environment is excluded from the disabling situation, thereby, it should not be modified. Within the views of these individual models, the rehabilitating model is highlighted, which surges as of World War II. The rehabilitating model recognizes the potentialities of individuals in disability and creates medical teams for their rehabilitation. This model centers the problems on individuals, their deficiencies and difficulties and for such, intervention is deemed from different specialists who control the rehabilitation process and permit overcoming the difficulties of the individuals.

But this reality paves the way for the appearance of the *social models* where the disability is not related to the body; rather, it is a consequence of social oppression: disability is totally and exclusively social⁽⁸⁾. This construction of the social model of disability dates to the late 20th century and places the problem upon society and not on the individual. Because of this, a strong organization of individuals and communities is necessary, incorporating participation and accessibility of handicapped individuals to diverse contexts.

Hence, this article becomes a significant advance of an interdisciplinary macro-project titled "A look at research on disability at the School of Human Rehabilitation at Universidad del Valle". The first phase of this macro-project was formulated through a documentary revision of the research in modality of degree works that have been conducted at the School of

Human Rehabilitation at Universidad del Valle, which is comprised of the academic programs of speech, language, and hearing sciences, physical therapy and occupational therapy. This article reveals the results from the Speech, Language and Hearing Sciences academic program, where research is one of the transverse axes of formation.

This work identified the guiding sense of the intellectual production that, in disability, the Speech, Language and Hearing Sciences academic program at Universidad del Valle has developed during 1996-2008, and established a relationship among the historical developments of the concept of disability, focusing on the social models of addressing such and its relationship with the disciplinary tasks at the Speech, Language and Hearing Sciences program in each of its area of professional performance (language, speech, hearing, communication, professional matters).

METHODS

The project was approved by the Human Ethics Committee in the School of Health of Universidad del Valle, according to internal protocol code n° 039-07.

A descriptive study was conducted for the development of this study. The unit of analysis was comprised by all the degree works from the Speech, Language and Hearing Sciences academic program in Universidad del Valle during the period between 1996 and 2008. The criterion to determine the year 1996 as the beginning of the documentary searches is based on the dynamics of the creation of the School of Human Rehabilitation at Universidad del Valle and the reform made that same year to the Speech, Language and Hearing Sciences academic program, increasing its time of formation to five years and continuing with the obligatory implementation of the degree works by the students as a requirement to opt for the professional degree. These administrative and curricular changes reveal that for 1996 the first research works could have been generated as a product of these dynamics. From 2008 to the current period, we see the start of the research project.

The average number of Speech, Language, and Hearing Sciences professionals graduated annually at Universidad del Valle is 20. As an exercise in formative research, students must conduct individual or group degree work; due to this, during the period covering this investigation there were 105 degree works (analysis unit), of which there was access to only 98 of these (work unit), given that the other documents (6.7%) were not found in the library or in the archives of the academic program when making the consultation.

This study was based on a documentary analysis, where we initially performed a track and search of the information to make an inventory of degree works available between 1996 and 2008. Then, a theoretical study was conducted to establish the variables (model of disability, intervention components, fields of action, areas of disciplinary performance, type of study, population), which permitted locating some central analysis axes. This view guided the creation of the instrument from which an analytical approach was made of the documents. The corresponding analyses of the variables evaluated were done via SPSS statistical software (SPSS Inc., Chicago, Massachusetts, USA) from descriptive statistics.

RESULTS

Table 1 shows the total number of degree works found per year during the study period.

Figure 1 shows how the rehabilitating model has had the greatest frequency along the period of study, with 52 degree works, equivalent to 53%, while the social models (integrating and systemic-ecological) correspond to 32% of the works done. The 15 works that do not apply (15%), concern final practice reports, monographs, or Works with emphasis on the level of formation and services offered, in which – although there is an approach from the very discipline, this approach is not made from the particular postures of the disability models.

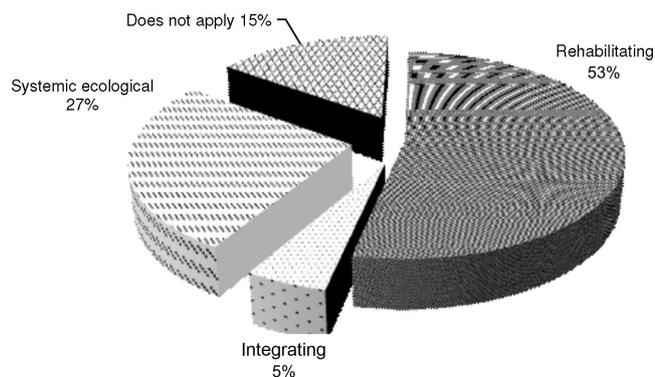


Figure 1. Classification of the degree works, according to disability models

As noted in Figure 2, the intervention component prevailing in the investigations is the habilitation/rehabilitation (H/R), with 40 works equivalent to 41%. The promotion and prevention component (P & P) has a considerable number of studies (32), which represent 33%. This tendency may be explained by the transcendence assigned in our nation and worldwide to primary health care. Additionally, the disability social models, upon bearing in mind the environment, privilege this scope.

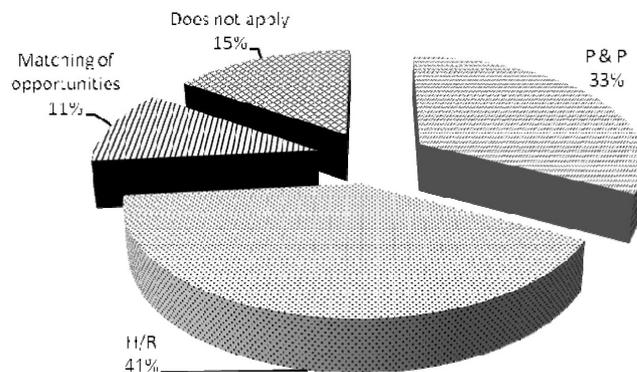


Figure 2. Classification of the degree works, according to the intervention components

According to that shown in Figure 3, the area of Speech, language, and hearing performance where more formative research has been conducted at Universidad del Valle is the area of language (32%). In the speech area 20 research products were found, corresponding to 20%. It may be said, further, that production centered exclusively on processes related to phonation, given that only one work registered swallowing and no works were found on the other speech processes. Nonetheless, four of the works dealt with some of the processes in comprehensive manner.

There are 23 (24%) investigations in the area of professional issues, followed by the area of communication, which comprehensively comprises the three disciplinary areas of the Speech, Language and Hearing Sciences program – language, speech, hearing – in which 13 projects are added, equivalent to 13% (Figure 3). This indicates a tendency to having a comprehensive view of the disabilities of communication and the basic psycho-biological processes that comprise it, which depend on the conditions of the immediate surroundings in which the individual is and determine the quality of life of individuals, their families, and their social environment.

Likewise, the area of hearing represents the lowest per-

Table 1. Degree works from the Speech, Language and Hearing Sciences program in Universidad del Valle, Colombia, during 1996-2008

Year	Total number of degree works done (Analysis unit)		Degree works found (Work unit)	
	Frequency	%	Frequency	%
1996	9	8.6	9	9.2
1997	8	7.6	8	8.2
1998	10	9.5	9	9.2
1999	7	6.7	7	7.1
2000	14	13.3	13	13.3
2001	7	6.7	6	6.1
2002	2	1.9	1	1.0
2003	5	4.8	5	5.1
2004	5	4.8	5	5.1
2005	12	11.4	12	12.2
2006	9	8.6	7	7.1
2007	6	5.7	5	5.1
2008	11	10.5	11	11.2
Total	105	100	98	100

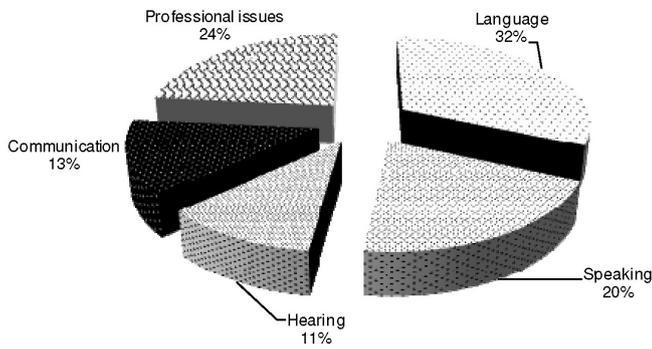


Figure 3. Classification of the degree works, according to the speech, language, and hearing performance

centage of investigations, with 11 products (constituting 11%), among which were highlighted, with little difference, occupational hearing (with five projects) on clinical hearing (with four projects) and rehabilitation hearing (two projects). The dispersion of a great number of works is evident in the area of hearing during the first half of the study period and only two works were developed in the area of clinical hearing between 2002 and 2008.

The analysis of the types of studies reveals a strong positivist tendency (65% of the studies have an empirical-analytical focus) and a timid positioning along the years of the hermeneutical approaches (21%).

Also, 43% of the study target populations were focused more on the analysis of the occupational role of the individuals (students, professors, company employees, employers, alumni, and other professionals), than the environment (33%) like hospital, community, academic, and legal. As shown in Figure 4, the emphasis in the view of the vital cycle was found in 13% of the studies conducted, especially on childhood and first childhood. Figure 5 shows the behavior of the models during the 13 years of the study, where it is evident that since

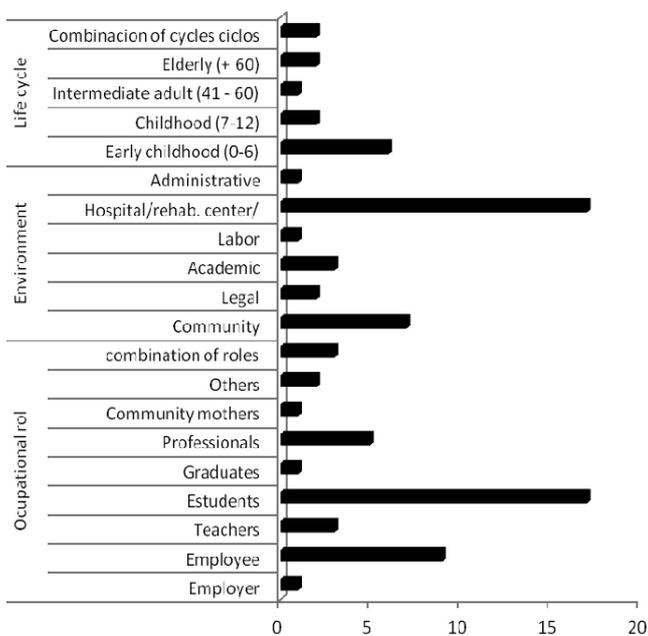


Figure 4. Analysis of the target population object of study distributed by vital cycle, environment, and occupational role

1998 the social models were being positioned over the rehabilitating model, without completely displacing it; a directive that is further highlighted during the second half of the study period, especially in 2003.

DISCUSSION

This study reveals that the disability rehabilitating model has had greater influence in the Speech, Language and Hearing Sciences program at Universidad del Valle along the study period, while showing evidence of the consolidation in recent years of the social models. This agrees with the historical perception of the concept at the international level, which demonstrates high influence of the rehabilitating model on disability approach processes and a recent positioning of the social models upon which, conceptually, there are two views: the integrating model and the systemic-ecological model. The *integrating model* starts from the idea that individuals with disability assume many roles: citizens, parents, users, workers, among others and that they must be incorporated onto the sectors in which a society is organized: family, education, healthcare, work^(8,9). Hence, there are national and international policies that favor integration in areas like social welfare, special education, and employment, with greater or lesser development in different nations. The *systemic-ecological model*^(4,8) stresses that to understand the disability concept we must bear in mind several factors where the individuals develop, whether these are their resources and/or needs and the life relationships. The ecological type of intervention deals with these factors to analyze the resources and strategies that promote the interests or causes of the individuals with disabilities to offer them support to access resources and information they may be lacking at that moment.

Thus is how, since 1993, at the School of Human Rehabilitation and in the Speech, Language and Hearing Sciences academic program at Universidad del Valle, the posture adopted emphasizes its action based on the systemic-ecological model (social model)⁽¹⁰⁾. This view is slowly being consolidated, but always evidencing large remains of the rehabilitating model approach.

The trend against the progressive but slow positioning of the social models along the study period is understandable, bearing in mind that the Speech, Language and Hearing Sciences program at Universidad del Valle was created in 1981, under a rehabilitating paradigm, where the medical-professional intervention prevails over the subject's demand⁽¹¹⁾. Said model, in spite of originating during the re-arrangements brought forth by the second world war, has prevailed in our country, given that those who created the first professional formation programs in rehabilitation in Colombia were strongly influenced by its postulates^(9,11). In that sense, although internationally there have been substantial transformations on the conceptions on disability, the principles upon which the work in this area was substantiated have taken root on the practices and imaginaries of the professionals.

Because of this, as shown in Figure 5, it is understandable that the dynamics on the social models are described with an S curve with periods of progressive increase, especially

during 2003, 2005, and 2008; on the contrary, it is notable how the individual models present a significant decrease as of the year 2000.

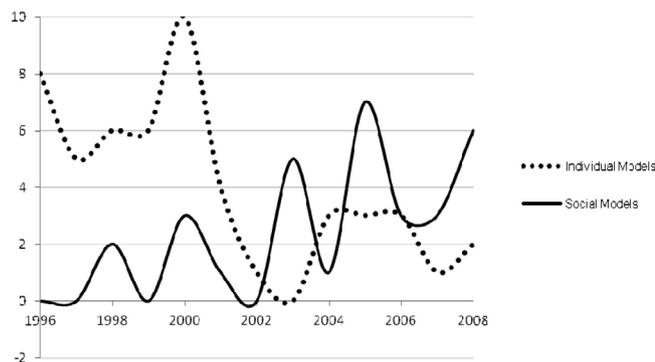


Figure 5. Frequency of the individual and social models of disability presented in the degree works from the Speech, Language and Hearing Sciences program during 1996-2008

However, beyond the individual biological view and which suggests sketches of cultural and social interrelations that affect the communicative process, it is necessary to understand communication from communication disabilities, given that these imply redefinitions of the individual's social identity and adjustments – often radical – in his/her daily living routines and of their families, the social relationships and the performance of functions in the different human groups to which they belong⁽¹¹⁾.

Disabilities related to communication are complex, given that they not only bear in mind subjects in their individuality and body, but in that it is seen from a complexity of variables operating at different levels: biological, cultural, social, contextual, among others^(8,11,12). These variables must act as facilitators so individuals with disabilities may interact within their environment; thus, managing to change their status in society and greater levels of social participation.

It is recognized, evermore strongly that these disabilities are configured within the relationship of the bodily, individual, and social dimensions, but necessarily framed and determined by contextual factors⁽¹¹⁾. This is why the Speech, Language and Hearing Sciences approach from an ecological framework, at Universidad del Valle, acknowledges the existence of several systems, which influence each other. Thereby, the Speech, Language and Hearing Sciences intervention of the disabilities related to communication, whatever their origin, is defined as the establishment of mediations between the professional, the individuals and their surroundings to optimize their communication. This aspect is especially relevant when the results of this study show the emphasis upon the population approach from the environment and the occupational role more than from the individual's vital cycle, as shown in Figure 4.

In the environments where individuals develop, there are barriers that must be controlled and facilitators that must be enhanced. That is why it is necessary to have a view in function of the supports that can be offered from this context to individuals with disabilities. It is there where the Speech, Language and Hearing Sciences professional plays

a fundamental role in the relationship of the subject with his/her environment, an action that not only implies a strong interrelation of all the variables previously mentioned, but a co-relation with the disciplinary areas, so as to give a sense of identity to their work. This ideal is feasibly consolidated through the formation of professionals capable of leading these changes and of participating in positioning referring to the social constructions around disability.

However, disorders, centered on basic psycho-biological processes: language, speech, and hearing show an individual, anatomic, and physiological foundation necessary for communication. Thus, from the analysis of the areas of professional performance it is necessary to highlight that in Colombia, legislation 376 of 1997 by the Congress of the Republic⁽¹³⁾ proposes the object of study of the Speech, Language and Hearing Sciences program; however, in 2003 the conceptual reflections were started around the formulation of the examinations on the quality of higher education – SABER PRO (ECAES)⁽¹⁴⁾. Hence, a suitable setting was presented for the discussion of the different classes led by the profession on the agreements framing the work of Speech, Language and Hearing Sciences professionals in Colombia. The existence of three disciplinary areas was identified: language, speech, and hearing and there was mention of a professional area that permeates the three: professional issues. However, for purposes of this investigation the communication area was defined, referring to research themes that jointly approach these areas.

In this sense, the contributions by this study are coherent with those of prior studies^(15,16) that found greater emphasis in Speech, Language and Hearing Sciences studies in the area of language. Regarding the other areas, these results do not agree with the study mentioned⁽¹⁵⁾ where the areas of professional issues and hearing have had greater development from formative research than those from the area of speech, while not finding very significant differences between these areas. Also, studies in other countries^(17,18) show progressive increase in scientific production in the Speech, Language and Hearing Sciences program and highlight the need for production with better balance of the themes.

From the specificity of each of the areas of Speech, Language and Hearing Sciences performance, it was found that the area of language privileges studies on oral language, followed by written language. These data can be compared to other studies^(19,20) given that they focus on determining the theoretical approaches addressed⁽¹⁹⁾ and conclude that there is a great variety of sub-areas, objects of study, methods from which production is made in the Speech, Language and Hearing Sciences program. Another study⁽²¹⁾ found that the areas studied most from language are aphasia, ADHD, dementia, autism, specific syndromes, among others.

From the hearing area, the studies found in the clinical, occupational, and rehabilitation areas are scant. However, in other countries⁽²²⁾ it has been found that there is greater concern on work-related hearing alterations, although studies are also being implemented in the neonatal population.

Reviews of research results highlight little from the area of speech, specifically in voice, articulation and swallowing processes.

CONCLUSION

Regarding this study, it can be concluded that over time it may be possible to consolidate a culture for investigative work in speech, language and hearing sciences toward social models approaching disability. The deep-rooted biologist tendency, although diminished, has not been totally replaced and is noted in both tendencies –individual and social – coexisting in the environment. But it is necessary to give more dynamics to approaches toward research strategies that manage to consolidate those social views.

It is evident that the Speech, Language and Hearing Sciences program seeks, from its discipline, the rehabilitation of communicative and linguistic processes of subjects. An increasing construction path is also evident toward changing the social and

cultural variables related to these communicative processes.

In addition, we must highlight the importance of emphasizing in the implementation of pedagogical practices, which do not merely continue fueling the formation of researchers capable of undertaking social mobilization toward social understanding of communication disabilities, but permit self-awareness of professionals who think of themselves and assume themselves as part of that changing reality.

ACKNOWLEDGEMENTS

The authors express their gratitude to Universidad del Valle for the funding awarded to conduct this research and special thanks to the San Fernando Library for the availability for information access.

RESUMEN

Objetivo: Esta investigación identificó el sentido orientador de la producción intelectual en discapacidad que ha desarrollado el programa de Fonoaudiología de la Universidad del Valle, Colombia, durante 1996-2008, estableciendo relación entre los desarrollos históricos del concepto de discapacidad y centrándose en sus modelos sociales de abordaje y su relación con el quehacer disciplinar de la Fonoaudiología. **Métodos:** Estudio descriptivo-documental que usó la totalidad de los trabajos de grado encontrados en el programa académico durante el periodo estudiado (n=98). La profundización teórica de los documentos incluyó seis variables: modelo de discapacidad, componentes de intervención, campos de acción, áreas de desempeño disciplinar, tipo de estudio y población. **Resultados:** El modelo rehabilitador de discapacidad (53%) predominó sobre los modelos sociales (32%), aunque estos incrementaron durante los últimos años. Las áreas disciplinares encontradas fueron lenguaje (32%), asuntos profesionales (24%), habla (20%), comunicación (13%) y audición (11%). El componente de intervención de habilitación/rehabilitación (41%) prevaleció sobre el de promoción y prevención (33%) y se observó una fuerte tendencia positivista (65%) y un tímido posicionamiento de enfoques hermenéuticos (21%). El 43% de las poblaciones enfatizaron en el rol ocupacional. **Conclusión:** Se encontró un mayor número de trabajos enmarcados en el modelo rehabilitador pero se demostró la consolidación de una cultura de trabajo investigativo hacia los modelos sociales de discapacidad en años recientes. Es evidente que la fonoaudiología busca la rehabilitación de los procesos comunicativos y lingüísticos de los sujetos, con un camino ascendente hacia la potencialización de variables sociales y culturales.

Descriptor: Investigación biomédica/estadística & datos numéricos; Publicaciones científicas y técnicas/estadística & datos numéricos; Desarrollo de programa; Educación superior; Lenguaje; Audición; Habla; Fonoaudiología

REFERENCES

1. Fuentes Pujol E, Arguimbau Vivó L. I+D+I: una perspectiva documental. *An Doc.* 2008;11(1):43-56.
2. Chaparro F. Conocimiento, aprendizaje y capital social como motor del desarrollo. *Ci Inf.* 2001;30(1):19-31.
3. Pava-Ripoll NA. Lineamientos para una reforma curricular en el programa de fonoaudiología de la Universidad del Cauca 2004. *Fase diagnóstica Rev Fac Med (Bogotá).* 2009;57(1):26-39.
4. Céspedes GM. La nueva cultura de la discapacidad y los modelos de rehabilitación. *Rev Aquichan.* 2005;5(1):108-13.
5. López González M. Modelos teóricos e investigación en el ámbito de la discapacidad. Hacia la incorporación de la experiencia personal. *Docencia Investig.* 2006;31(6):215-240.
6. Schalock RL. The emerging disability paradigm and its implications for policy and practice. *J Disabil Police Stud.* 2004;14(4):204-15.
7. Turnbull HR, Stowe MJ. Five models for thinking about disability: Implications for policy responses. *J Disabil Police Stud.* 2001;12(3):198-215.
8. Cuervo C, Escobar M, Trujillo A. Más allá de una visión clínica de la discapacidad. *Rev Ocupación Humana.* 2000;8(4):28-38.
9. Cuervo C, Trujillo A. Evolución de la visión conceptual sobre discapacidad e inclusión social en la Maestría de discapacidad e inclusión social. *Discapacidad e inclusión social reflexiones desde la Universidad Nacional de Colombia.* Bogotá: Universidad Nacional de Colombia; 2005.
10. Universidad del Valle. Programa Académico de Fonoaudiología. Proyecto Educativo Programa Académico de Fonoaudiología. Universidad del Valle Cali: Autor; 2009.
11. Cuervo C. La profesión de Fonoaudiología. Colombia en perspectiva internacional. Bogotá: Universidad Nacional de Colombia; 1999.
12. Egea García C, Sarabia Sánchez A. Visión y modelos conceptuales de la discapacidad [Internet] [citado 2010 Jul 29]; Disponible en: <http://usuarios.discapnet.es/disweb2000/art/VisionDis.pdf>.
13. Colombia. Congreso de la República. Ley n. 376 de 4 de julio de 1997. Reglamenta la profesión de Fonoaudiología y se dictan normas para su ejercicio en Colombia. *Diario del Congreso de la Republica, Bogotá;* 1997 Jul 9; n. 43.079.
14. Colombia. Presidencia de la República. Decreto n.1781 de 16 de junio de 2003. Reglamenta los exámenes de estado de calidad de la educación

- superior, ECAES de los estudiantes de los programas académicos de pregrado. Bogotá; 2003.
15. Martínez LM. Breve mirada a la investigación en el campo de la fonaudiología en Colombia. *Areté*. 2007;7(1):9-16.
 16. Vargas Díaz J. Estudio bibliométrico de la investigación sobre el quehacer fonoaudiológico. *Areté*. 2008;8(1):62-70.
 17. Berberian AP, Ferreira LP, Corteletti LC, Azevedo JB, Marques JM. A produção do conhecimento em distúrbios da comunicação: análise de periódicos (2000-2005). *Rev Soc Bras Fonoaudiol*. 2009;14(2):153-9.
 18. Andrade CRF, Ferreira LP. Análise da produção científica da Fonoaudiologia: experiência no CNPq no período de 2007-2010. *Rev Soc Bras Fonoaudiol*. 2010;15(2):313-5.
 19. Arakawa AM, Sitta EI, Caldana ML, Sales-Peres SH. Análise de diferentes estudos epidemiológicos em audiologia realizados no Brasil. *Rev CEFAC*. 2011;13(1):152-8. Disponível em: <http://www.scielo.br/pdf/rcefac/v13n1/16-10.pdf>
 20. Fajardo A. Estado del arte del lenguaje escrito desde la fonoaudiología en Colombia. *Areté*. 2007;7(1):115-8.
 21. Munhoz CM, Massi G, Berberian AP, Giroto CR, Guarinello AC. Análise da produção científica nacional fonoaudiológica acerca da linguagem escrita. *Pró-Fono*. 2007;19(3): 249-58.
 22. Vasconcelos SV, Pessoa AC, Farias AP. Caracterização das publicações periódicas em fonoaudiologia e neurociências: estudo sobre os tipos e temas de artigos e visibilidade na área de linguagem. *Rev CEFAC*. 2009;11(1):50-8.