

162 - IDENTIFICATION OF PREFERENCE OF THE HEMISPHERIC PROCESSING IN STUDENTS OF BOTH GENRES

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INTRODUCTION

The neuroscience current studies demonstrate that exist certain specializations of tasks for each cerebral hemisphere, and each individual presents preferences in the mental processing, independently of the kind of processed information. Bogen (1969 apud MEDEIROS and SILVA, 2008) writes that, a cerebral hemisphere are specialized for a specific type of information. This affirmation is translated in the concept of hemisphericity, that refers "a significant preference to process information of the right or left cerebral hemisphere inside, of the type of content contained in the information independently" (FERRAZ, 2008:1).

As Ferraz (2008) only 25% of the population is hemispheric, that is, possess dominance cerebral in the right or left, being the 75% remain does not presents such dominance, processing information in the both hemispheres, called bihemispherics. Still according this author, parallel the fact of the hemispheric functionality, it meets the concept of the structural dominance, phenomenon associated with the hypothesis that the resident neurons in each hemisphere specialize for specific performances. Neurophysiologics studies of clinical and normal populations have defined this phenomenon as the lateralization of cerebral functions. Ferraz (2008: 1) says that was Bryden (1990 apud SPRINGER and DEUTSCH, 1998) who developed a model of cerebral function, in which, the cerebral hemispheres possess, also, dominance to process specific abilities.

In this line of research, it was Murray (1979 apud FERRAZ, 2008) who investigated, in pioneering way, the hemisphericity like a preponderant ability as a motor learning factor, finding a mating of hemisphericity characteristics with hemispherics strategies of education that can increase the level of the abilities acquisition. And then, the right hemispherics individuals process information with bigger easiness, if these will be demonstrated through holistic and not-verbal strategies, while left hemispherics individuals make it through analytical and verbal strategies of education. Such structural variations can establish conflicting relations, to the step that the type of preference of processing of one determined individual does not match with the structural nature of its hemisphericity.

Another known research in this area was developed by Fairweather and Sidaway (1994 apud MEDEIROS and SILVA, 2008). In this, individuals without hemispheric preference were investigated. Divided in three groups, each group received different strategies from education for the golf ability. In the first group - left hemispheric, the golf education strategies were verbal; in the second group, formed of right hemispherics, the education strategies had been holistic; e, finally the third group was composed for bihemispherics, with holistic and verbal strategies of education. The best results for the acquisition and retention of the ability with the golf were for the bihemispheric group, because there were two kinds of education strategies, verbal and a holistic one that represents the interaction of the two learning processes.

Among other researchers, it was Murray (1979 apud FERRAZ, 2008) that demonstrated the necessity to do an alteration in pedagogical models that do not present correlated especificity to the type of the student hemisphericity, aiming at the mating of the parts in order to provide better assimilation, on the part of the student, the pertinent contents to the learning and development of this. Thus, a preferred hemisphere to process one information possesses, structurally, the necessary functional contents to that information, becoming facilitated the assimilation of the information. Therefore, the task to learn presents less complex and the performance, more appropriate.

Moreover, this research also objectified to call the attention for the fact the importance of the use of varied methodologies of education, for the professionals of the education area in general, in the direction of this to favor the preferences of hemispheric processing of each individual.

In this way, its work objectified to identify the preference of hemispheric processing of students of both genres, in the ages band between 8 and 10 years of institution ABEU Colleges, situated in Belford Roxo, in Rio de Janeiro, beyond inquiring the veracity of literature in what it says respect to the percentage of individuals that possess one determined hemispheric dominance e, to serve as object of promotion of a methodologic boarding, on the part of the professionals of the education area, specific for each hemispheric type. If these professionals do not obtain identify the individual hemisphericity of its pupils, its necessary they vary its pedagogical boardings so that they obtain to reach the totality of the involved individuals in the teach-learning situation.

METHODOLOGY AND PROCEDURES

The research counted on 90 students of both genres, in the aging band between 8 and 10 years, of the educational complex ABEU colleges, situated in the city of Belford Roxo, in the baixada fluminense in the state of Rio De Janeiro. The participation of the individuals became possible due to previous release on the part of the institution of education, being carried through the tests in lesson schedule. The students were set free for testing in small groups, followed of a coordinator responsible of the college. The dates had been collected through the application of the CLEM test (Conjugated Movement Lateral of the Eyes), validated through Neurocomp, PROCOMP+, manufactured for the Thought Tecnology, Ltda, with use of the Biograph program (Version 2.1). This test is applied with the objective to identify trends of cerebral dominance in mental processings.

INSTRUMENTS

The CLEM test is destined to register the conjugated movement lateral of the eyes (determinative of the tested hemisphere in processing at the moment) and the analysis is registered in the model of numerical system of "face of clock" of Brog (1983 apud MEDEIROS and SILVA, 2008:8). "The lateral movement of eyes conjugated is the divergence of both eyes of a central focus in reply to a reflexive question" (BAKAN, 1969 apud MEDEIROS and SILVA, 2008:8). For accomplishment of the tests are necessary a video camera, a white card measuring 5 x 10 cm, placed soon above of the camera lens, that directs the look of tested and a black curtain (in this in case that, made of TNT material), that separates the camera and the operator, and the others professionals, by the tested one. The used space for the tests accomplishment was a room, in the institution measuring 4 x

3,5 meters, with a sofa and a chair for the researchers and a chair for the tested one. This room walls were painted in soft colors.

Then, fifteen questions had been used to evaluate the tested one, being 5 analytical, 5 spacial and 5 analytical-spacial ones. The reply, thought or mumbled, its corresponded to a question (problem) that was directed to a tested one, all with specific relations, to one or another hemisphere, or both. The test team was composed for three examiners (the coordinator of the research project and two learning scholarship graduated, holders of the physical education course, participants of the Project research (PROAPE)).

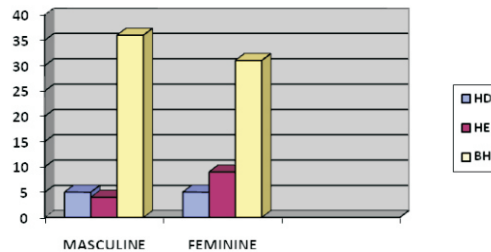
PRESENTATION AND DISCUSSION OF THE RESULTS

The adquired results from the application of the CLEM test had been compared with the ones of literature, when agreements had been observed. By the methodologic norm, five specific questions of each hemispheric type (HD or HE) and five for bihemispheric (BH) to each tested had been presented, detecting through the filming the lateral conjugated moviment of the eyes. This eyes conjugated movement was registered through a video camera for posterior evaluation and preference analysis the hemispheric processing when then, compared to a model of numerical system of Brog "face of clock". Regarding this conjugated ocular movement, in accordance with the literature, can be said that, when the eyes movement is made for the right side is indicative of activity in the left cerebral hemisphere and that when the movement is for the left side, indicates activity in the right cerebral hemisphere. Its also verified, through the described methodology, that in each ten pre-tested individuals, two the three of them, demonstrated a clear definition of hemisphericity, that is, however two right hemispherics and a left, however two left hemispherics and a right or, time for another one, only one right hemispheric and a left, being that, almost always, seven of them were bihemispherics.

The sample analysis of 90 children was composed then, 67 bihemispherics individuals (BH), 13 left hemispherics (HE) and 10 right hemispherics (HD), of both genres, being representative for the research the individuals totality. The described percentage in the scientific literature, shows approximately that 25% of one population, is hemispherics, that is, your information are processed in only one cerebral hemisphere, and 75% are bihemisféricos, conferring with the research developed.

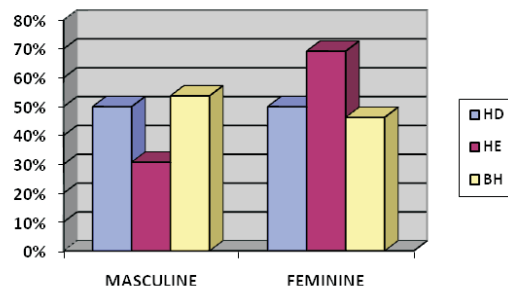
Being thus, the following graphs presents deriving results of the sample analyses, as specified in the session described in the research methodology.

Graph 1. Predominance of hemispheric processing for genre



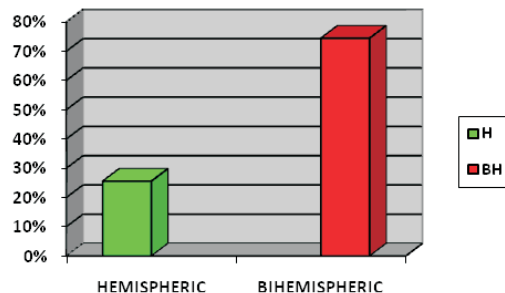
The graphical above indicates that through the CLEM test, with n 90 individuals of both genre, had been found 5 HD masculine genre, 5 HD feminine genre, 4 HE masculine genre, 9 HE feminine genre, 36 BH masculine genre and 31 BH feminine genre.

Graph 2. Percentage of individuals specified for genre



In accordance with the graph above, evidences that dividing the total of individuals by genre, by hemisphere, it met 50% HD of masculine genre and 50% HD of the feminine genre, 30.77% HE of masculine genre and 69.23% HE of the feminine genre, and 53.73% BH of masculine genre and 46.27% BH of the feminine genre. It's observed here that is a significant difference percentage between the genres, in relation to the left hemisphere (HE).

Graph 3. Total percentage of individuals for hemisphere



The graphical above demonstrates a coherence of the research realized in relation with specified in the literature, that is, that 74.43% of the total of citizens of the harvested sample are bihemispheric (BH) and 25.54% hemispheric (HD or HE).

This indicates the Brazilian population frame in the scientific parameters pointed by the literature that says 75% of determined population is bihemispheric (BH) and that 25% is hemispheric (HD or HE). Its still important consider that our sample was harvested in a city of the baixada fluminense in the state of Rio de Janeiro.

In this way, when being analyzed the adquired results can be observed that had predominance in both genres of bihemispherics individuals (BH). Its marked, that had predominance of feminine genre in relation the left hemispherics individuals (HE) and equivalence between right hemispheric individuals (HD) of both genres.

FINAL CONSIDERATIONS

As like previously correlated, this research is still in course, however it was possible to point some basic questions about hemispheric specialization that, analyzing the individuals characteristics, the ones HD are spatial, while individuals HE are more analytical. When correlating such fact to the especificity of the genres, the individuals of feminine genre had gotten a significantly bigger result in the tasks related to the left hemisphere, what it can be a pointer that the feminine genre is more analytical, while the male genre more spatial, but this question will be dicussed in another moment. In relation to the percentage of found bihemisféricos citizens, there were compatibility with the literature specifications, affirming that 75% of determined population are BH.

In function of the found results it can be said that in one population the amount of hemispherics and bihemispherics individuals, will equal itself with what says in the literature. In accord to the education professionals in a general way, this is a factor of utmost importance, since, if each individual processes information in specialized way and this consequently denotes a personal way to assimilate information and of new knowledge learning, becomes necessary to constitute adequate education methodologies the diverse hemispherics characteristics. We believe, therefore, that a time that if the education professionals offer varied methodologies of education, the process of education learning will become more efficient and pleasant.

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IDENTIFICATION OF PREFERENCE OF THE HEMISPHERIC PROCESSING IN STUDENTS OF BOTH GENRES SUMMARY

This research consisted from a boarding on the concept of hemisphericity and its implications in the education process and learning. In this, beyond identifying the preference of hemispheric processing, one compared the data of the harvested sample, in the direction to verify if the results are in accordance with the referring data to scientific literature on the percentage of hemispherics and bihemispherics in the world-wide population. The hemisphericity is present in about 25% of the population, that is, ¼ of the people processes information in the left hemisphere or the right hemisphere. The 75% remains of the population are represented by individuals that process the information in both hemispheres (bihemisphericity). In relation to the sample, composed of 90 individuals between 8 and 10 years, of both genres, was investigated how its manifest, in this community, the type of hemispheric processing. For such, the test of the CLEM was applied (Conjugated Movement Lateral of the Eyes). The data presented here are specific of the first phase of the research that still meets in progress in a particular school in the city of Belford Roxo, in the baixada fluminense state of Rio de Janeiro.

KEY WORD: hemisphericity, hemispheric processing, genre.

IDENTIFICATION DE LA PREFERENCE DE PROCÉDE HEMISPHERIQUE DANS LES ECOLIERS DES DEUX GENRES.

RÉSUMÉ

Cette recherche se constitue à partir d'un point de vue sur le concept de hemisphericité et ses implications sur le processus d'enseignement et d'apprentissage. Au delà d'identifier la préférence du procédé hémisphérique on a fait la comparaison entre les données concernant la littérature scientifique sur le pourcentage d' hémisphériques et bihémisphériques

sur la population mondiale, la hemisphericité est présente à peu près de 25% de la population, c'est-à-dire, 1/4 des personnes procèdent les informations sur l'hémisphère gauche ou droit. Les 75% qui restent de la population sont représentés par les individus qui procèdent les informations sur les hémisphères (bihemisphericité). Par rapport à l'échantillon, composée de 90 individus entre 8 et 10 ans, des deux genres, le type de procédé hémisphérique a été soumis à un processus d'investigation pour savoir de quelle façon il se manifeste dans cette communauté. Pour le faire, on a appliqué le test CLEM (Mouvement conjugué latéral des yeux). Les données ici présentées sont spécifiques cette première phase de la recherche qui est encore en cours dans une école particulière de la ville de Belford Roxo.

MOTS CLÉS: hemisphericité, procédé hémisphérique, genre.

IDENTIFICACIÓN DE PREFERENCIA DE PROCESAMIENTO HEMISFÉRICO EN LA ESCUELA DE AMBOS

SEXOS

RESUMEN

Esta investigación consistió de un enfoque de en el concepto de hemisphericidad y sus consecuencias en el proceso de enseñanza y aprendizaje. Esto, más identificar las preferencias de procesamiento hemisférico, compararon los datos de la muestra, a la si los resultados son consistentes con los datos relativos a la literatura científica sobre el porcentaje de hemisférico y bihemisférica de la población mundial. Un hemisphericidad está presente en aproximadamente el 25% de de la población, es decir, la cuarta parte de el proceso de información a la gente em el hemisferio izquierdo o el hemisferio derecho. 75% resto de la población están representadas por las personas que procesan la información en ambos hemisferios (bihemisphericidad). Para la muestra, compuesta de 90 personas de entre 8 y 10 años, de ambos sexos, fue investigado, como se muestra en esta comunidad, el tipo de procesamiento hemisférico. Con este fin, hemos aplicado la prueba CLEM (Movimiento lateral conjugada de los ojos). Los datos presentados aquí son específicos de la primera fase de la investigación, que aún está em progreso en un escuela privada en el municipio de Belford Roxo, en el Región de Baixada Fluminense de Rio de Janeiro.

PALABRAS LLAVES: hemisphericidad, procesamiento hemisferico, sexo

IDENTIFICAÇÃO DE PREFERÊNCIA DE PROCESSAMENTO HEMISFÉRICO EM ESCOLARES DE AMBOS OS

GÊNEROS

RESUMO

Esta pesquisa constituiu-se a partir de uma abordagem sobre o conceito de hemisfericidade e suas implicações no processo de ensino e aprendizagem. Nesta, além de identificar a preferência de processamento hemisférico, comparou-se os dados da amostra colhida, no sentido de verificar se os resultados estão de acordo com os dados referentes à literatura científica sobre o percentual de hemisféricos e bi-hemisféricos na população mundial. A hemisfericidade está presente em cerca de 25% da população, ou seja, 1/4 das pessoas processam informações no hemisfério esquerdo ou no hemisfério direito. Os 75% restantes da população são representados por indivíduos que processam as informações em ambos os hemisférios (bihemisfericidade). Em relação à amostra, composta de 90 indivíduos entre 8 e 10 anos, de ambos os gêneros, foi investigado como se manifesta, nessa comunidade, o tipo de processamento hemisférico. Para tal, foi aplicado o teste do CLEM (Movimento Conjugado Lateral dos Olhos). Os dados apresentados aqui são específicos da primeira fase da pesquisa, que ainda se encontra em andamento em uma escola particular no município de Belford Roxo, na baixada fluminense do Rio de Janeiro.

PALAVRAS-CHAVES: hemisfericidade, processamento hemisférico, gênero.

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