

**Cover letter**

**On the negative attitude towards left-handedness of pupils.**

**Malkhaz Makashvili, Tamar Taliashvili.**

**Ilia Chavchavadze University, Tbilisi, Republic Georgia.**

**29.04.2009**

## **Introduction**

Independent of cultural background majority of humans is right-handed and only 10% is left handed (Corballis M.C., 2003). Most likely lefthanders have been in the minority ever since Stone Age (Kenoyer J.M., 1998).

Some teachers and parents use to force left-handed children for right-handed writing. Most reports of writing hand shift attempts reveal that the pressure was applied in the early childhood usually by a teacher or parent (Porac C. et al., 1986, Searleman A., Porac C., 2003).

Most potent pressures applied to shifting handwriting from the left to the right hand occurred during the first decades of the 20-th century (Harris, L. J, 1990). However this may be true for Western societies, while shifting towards right-handed writing was popular in the 70-th of the 20-th century in China (Teng E.L., 1979) and is still practiced in Japan (Sato S. et al., 2008). Survey of schools in Republic Georgia in 2004 revealed that some teachers are enthusiastic at converting left-handers to the right-handed writing (Kotetishvili B. et al. 2005).

However shifting left-handers to the writing with their right hand may lead to some social and health problems.

Studies have shown that individuals with a history of switched hand preference may be at higher risk for hand and other types of accidental injury (Daniel WF, Yeo RA., 1991, Hicks RA et al., 1993, Hemenway D, et al., 1994). Porac C. and Searleman A. (2002) reported on lower quality of psychological and physical well-being in adult left-handers who in their childhood attempted to change their preferred writing hand but were unsuccessful, although left-handers successfully shifted to the right handed writing did not display psychological and physical problems as compared to the control group. At the same time, as compared to consistent left-handers, the inconsistent left-handers are more likely to successfully switch to right-hand writing (Searleman A., Porac C., 2003). Left-handed adults forced to write with the right hand did significantly worse on a mental-rotation spatial test than either control left-handers (left-handed for writing as well as for the other motor activities) or right-handers (Harris L.J., 1990). Some left-handed children who have been forced by parents or teachers to switch to the right hand, have consequently developed various learning disorders and stuttering (Johnson, W., Duke L., 1935, Clark B.B., 1959, Foundas A.L. et al., 2004, Kotetihvili B. et al., 2004, 2005).

Conversion of left-handers to right-handed writing causes reorganization in neuronal representation in executive brain regions. However representations in higher-order sensory-motor areas of the dominant hemisphere cannot be switched by educational training (Klöppel S. et al. 2007). Evidently, shifting to right-handed writing is not “easy task” for brain.

Thus, evidences are convincing, that shifting left-handed children to right-handed activity may lead to negative results.

To protect left-handed pupils from forced shifting to the right-handed writing, the reasons behind the negative attitude of teachers to the left-handed activity of kids should be found out.

### **Material and Methods**

Total of 745 primary school teachers of both sexes, mean age 34, served as respondents in the study presented. Among them 640 work in country-side schools, while 105 teach in schools in Tbilisi - the capital.

Teachers were requested to answer in writing the question: “Do you agree that left-handed pupils should use their right had for writing?” At the same time teachers were requested to explain their answer in details.

### **Results and Discussion**

Majority of respondents – 481 teachers, among them 401 in country-side schools and 80 in Tbilisi witnessed that left-handed pupils must be liberated and not forced for right-handed writing. Subjects were aware of negative consequences of forced shifting of left-handed pupils to the right-handed writing.

The rest 164 respondents (150 in country-side schools and 14 in Tbilisi) confirmed that left-handers should be shifted to the writing with a right hand. These subjects were not aware of negative consequences of forced conversion of left-handers to the writing with the right hand. Among them 109 reported it is tradition of the school to write with a right hand. They explained that this tradition originates from ancient ancestral preference to the right handed activity in everyday and ritual activities. The rest 55 point to the necessity to use the right hand in school activities because (according to them) “we cross with our right hand”. When asked how do they know about tradition of crossing with the right hand, teachers referred to the local priests.

One can find several sites informing that "Centuries ago, the Catholic Church declared left-handed people to be servants of the Devil". However this information is not based on clerical documents. At the same time Henry Tetrault, 75, born 1922, USA, witnessed that when attending Catholic school (first, second and third grade) he was forced to wear a glove on his left hand to make him write right-handed. According to anonymous communication: “I was educated in the USA in Catholic school in the 60's. My left hand was beaten until it was swollen, so I would use my right hand.” (See M.K. Holder’s site “Gauche! Left-handers in society”).

Obviously teachers in catholic schools have been predisposed against left-handedness.

Results obtained in the present study convince, that negative attitude to left-handed activity comes from some orthodox priests as well as from teachers belonged to orthodox parish.

At the same time, it must be outlined, that neither catholic, nor orthodox belief attribute importance to which hand is used to cross and prohibition of left-handed activity is rather personal initiative of some clericals and teachers.

Languages from around the world show how ancient civilizations preferred the right over the left. Word “left” in various languages means weak, worthless, clumsy, awkward etc. Traditions from around the world prescribe not to prepare and touch food with a left hand, to enter temples with a right foot and so on (See M.K. Holder’s site “Gauche Left-handers in society”). Negative meaning of the left hand and left side in New Testament (see Matthew 6:3 for example) must be an echo of negative attitudes towards the left in ancient civilizations.

In Georgian language word ‘left’ is semantically related with words “defeat”, “failure” and “shameful” while word “right” is semantically related with words “victory”, “adroit”. Getting out of bed on the wrong-side is expressed as “getting out of bed on the left foot” in Georgian. Left side is considered devilish in Georgian folklore. Tradition prescribes to step into the house with a right foot, to keep cup with a wine in the right hand. In ancient Georgia wine for libation was kept in pots, buried in the right corner of a cellar.

Presumably, negative attitude of some teachers to the left-handed activity of their pupils is a stereotype originating in ancient believes and from incorrect interpretation of Church traditions by some clergymen. At the same time, evidences are convincing, that some teachers are not informed about negative consequences of forced conversion of left-handed pupils to the writing with the right hand. School psychologists and physicians should provide special training to explain the problem of left-handed pupils to teachers. Church authorities should inform clergyman about the risks of incorrect interpretation of church traditions.

### **References:**

1. Clark M.M. Teaching left-handed children. NY: Philosophical Library, Inc.,1959.
2. Corballis M.C. From mouth to hand: gesture, speech, and the evolution of right-handedness. *Behav Brain Sci* 26:199 –208; discussion 208–160.,2003
3. Gabbard, C., S. Hart. General motor proficiency and handedness in children, *Journal of Genetic Psychology*, Vol. 156, No. 4, December, p. 411., 1995.
4. Daniel W.F, Yeo R.A. Handedness and accident proneness. *American Journal of Public Health*., 81(10):133., 1991
5. Dargent-Paré C., De Agostini M., Mesbah M., Dellatolas G. Foot and eye preferences in adults: relationship with handedness, sex and age. *Cortex; a journal devoted to the study of the nervous system and behavior* 1992;28(3):343-51.

6. Foundas A.L., Corey D.M., Hurley M.M., Heilman K.M. Verbal dichotic listening in developmental stuttering: subgroups with atypical auditory processing. *Cogn Behav Neurol.* Dec;17(4):224-32., 2004
7. Harris, L. J. Cultural influences on handedness: Historical and contemporary theory and evidence. In Coren C. (Ed.), *Left-handedness: Behavioral implications and anomalies.* Amsterdam: North-Holland., 1990
8. Johnson, W., Duke L., Changes in handedness associated with onset or disappearance of stuttering; sixteen cases. *Journal of Experimental Education* 4:112-132., 1935.
9. Hemenway D., Azrael D.R., Rimm EB., Feskanich D., Willett W.C. Risk factors for wrist fracture: effect of age, cigarettes, alcohol, body height, relative weight, and handedness on the risk for distal forearm fractures in men. *American Journal of Epidemiology.*,140:361–7., 1994
10. Hicks R.A., Pass K., Freeman H., Bautista J., Johnson C. Handedness and accidents with injury. *Perceptual and Motor Skills.*,77:1119–22., 1993
11. Kenoyer J. M. Birth of a civilization. *Archaeology*, (Jan/Feb)., 54-61.,1998.
12. Klöppel S., Vongerichten A., van Eimeren T., Frackowiak R. S. J., Siebner H. R. Can left-handedness be switched? Insights from an Early Switch of Handwriting , *The Journal of Neuroscience*, July 18, 27(29):7847-7853., 2007.
13. Kotetishvili B., Vardiashvili Z., Makashvili M., Azmaiparashvili T., Chikovani, T., Tseretel T. Left-handers at risk: social and healthcare problem in Georgia. *Proc. Georgian Acad. Sci., Biol. Ser.*, vol.30,4, 2004.
14. Kotetishvili B., Salakaia I., Kamkamidze N., Makashvili M., Azmaiparashvili T., Davlianidze G., Kutlia R., Gogia K., Lomidze N. Negative predisposition to the left-handedness of pupils in Georgian schools. *Proc. Georgian Acad.Sci.,Biol.Ser.*,vol.31, 2005.
15. Nachshon I., Denno D., Aurand S. Lateral preferences of hand, eye and foot: relation to cerebral dominance. *Internat. J. Neurosci.*;18(1-2):1-9. 1983.
16. Porac C., Coren S., Searleman A. Environmental factors in hand preference formation: evidence from attempts to switch the preferred hand. *Behavior Genetics.*, 16(2):251–61., 1986.
17. Porac C., Searleman A. The effects of hand preference side and hand preference switch history on measures of psychological and physical well-being and cognitive performance in a sample of older adult right-and left-handers, *Neuropsychologia*, 40, 2074–2083., 2002.
18. Searleman A., Porac C. Lateral preference profiles and right shift attempt histories of consistent and inconsistent left-handers, *Brain and Cognition*, 52, 175-180., 2003.
19. Sato S., Demura SH., Sugano N., Mikami H., Ochuchi T. Characteristics of Handedness in Japanese Adults: Influence of Left-handed Relatives and Forced Conversion, *International Journal of Sport and Health Science*, Advance publication by J-STAGE, 2008.

20. Teng E.L., Lee P-H., Yuang K-H., Chand P.C. Lateral preferences for foot, hand eye and their lack of association with scholastic achievement in 4143 Chinese., *Neuropsychologia* 17, 41-46, 1979.