

THE STUDY OF THE AMBIDEXTROUS MANIFESTATIONS AND AN ATTITUDE TO THEM AS TO POTENTIAL ABILITY AMONG UNIVERSITY STUDENTS

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Abstract

This article examines ambidexterity as a phenomenon associated with a lack of individual preference for use of a specific hand when performing different actions. This study seeks to answer the question if ambidexterity is an outstanding ability or pathology, a norm or an idiosyncrasy? Should we try to develop ambidexterity or limit its manifestations? Can we use ambidexterity to improve the productivity of modern workers belonging to Generation Z?

The article also focuses on the problem of attitudes to ambidexterity in the familial and educational environment. The total sample included 51 students under 20 years old and 98 parents. The authors applied an original questionnaire, which consisted of three parts: identification of ambidextrous abilities; students' attitude to ambidextrous people; and the experiences of parents who have ambidextrous children.

As a result, it was found that the majority of the respondents demonstrated neutral attitudes towards ambidexterity and that the manifestations of ambidexterity were minimal when the respondents were using traditional tools (for example, a pen, a pencil, a cup, etc.), and these manifestations became more pronounced when the respondents were asked to operate modern gadgets (for example, a tablet computer, a TV remote control, a smartphone, flash drives, etc.).

Our research has found differences between the views of parents and students about ambidexterity as a phenomenon and as a source of human potential. It is important to conduct further studies of ambidexterity since it can contribute to the fulfillment of human potential.

Key words: ambidexterity, attitude to ambidexterity, manifestation of ambidexterity

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Introduction

Ambidexterity is an inborn or learned ability to use both hands equally well. Ambidexterity

can be defined as a lack of hand dominance in most types of activity, which is often referred to as 'true ambidexterity'. According to expert estimates, truly ambidextrous people account for less than 1% of the world population.

At present, however, more and more children are born being ambidextrous. Ambidexterity is believed to be connected to the work of the brain hemispheres, which perform different functions: the left hemisphere is typically responsible for logical and analytic thinking while the right one, for comprehending visual imagery and for the emotional sphere.

Unfortunately, ambidexterity is often perceived as a negative phenomenon, especially by people belonging to professions related to health, education and upbringing. They tend to believe that ambidexterity prevents individuals from fully adapting to their social environment, more specifically, to some of its requirements. For example, doctors often diagnose ambidexterity as a 'psychomotor impairment'; teachers point out problems faced by ambidextrous students since the latter often write with a lot of erasures and corrections, get tired easily and suffer from attention deficit hyperactivity disorder, which can cause mental fatigue (not to be confused with mental deficiency). As for parents, they are often worried about their 'non-standard' children being treated as 'abnormal', especially by their peers. Therefore, a question arises as to whether or not a lack of hand domination manifested lightly or strongly, can be linked to a psychic disorder or whether it is just an individual preference. Can we consider ambidexterity and/or its specific manifestations as a norm or even an advantage which allows the individual to better realize their potential of using both hemispheres simultaneously?

The phenomenon of ambidexterity seems to be undervalued in terms of its practical application as a certain kind of a 'human resource'. Therefore, it is important to analyze this problem within the broad context of social and natural sciences: starting from medicine, psychology and pedagogy to social studies, economics and HR management. There are many celebrities who are known to be ambidextrous and who have made significant contributions to such important spheres as art, science, sport, and so on. For example, musicians Jimi Hendrix, Kurt Cobain, and Paul McCartney; scientists Nikola Tesla and Andrei Sakharov; artists Leonardo Da Vinci, Michelangelo, and Pablo Picasso; sportswomen Marina Navratilova and Maria Sharapova; famous kings Alexander the Great and Charles the Great; writers Vladimir Dal and Lewis Carroll; actors Charlie Chaplin, Tom Cruise and many others.

1 Historical background

The phenomenon of ambidexterity has been a long-term object of scientific interest. According to zoologists, ambidexterity prevails in the animal kingdom. Ancient scientists also observed that children are born being ambidextrous. It takes several years for one of the hands to start dominating; up until then the child uses both hands with equal facility. It means that both of the child's hemispheres are working harmoniously together. Supposedly, with the right approach, this harmony can be preserved throughout the person's life: in his 20s, 30s and 60s.

The cultures which are orientated towards rationalization of human activity tend to regulate not only behaviour but also naturally determined human abilities. This means that standardization and discipline should 'adjust' everything which is perceived as a deviation from the 'norm' and what cannot be adjusted should be isolated from the society. For example, ambidexterity or left-handedness used to be considered deviations and ambidextrous children were taught to use only their right hand to write and to manipulate cutlery. In the USSR, ambidextrous children were 'retrained' on a massive scale. However, as the Soviet experience has shown, 'retraining' of ambidextrous children in order to make them prefer one hand over the other led to deterioration of their physical and mental health. A.P.Chuprikov introduced a term 'dextrastress' to refer to this condition. Dextrastress (derived from Greek δεξτερ 'right') is a pathological psycho-physiological tension experienced by a left-handed (left-lateral) person under the pressure of the right-handed environment. Dextrastress most strongly manifests itself when left-handed children are forced to write with their right hand. The same happens to ambidextrous children who are taught to use only their right hand, which puts a severe strain on them and may significantly impede the development of their ambidexterity. Dextrastress may result in the child's health impairment such as different neurotic disorders and pseudo-neuroses (depression, phobias, nocturnal enuresis, stutter and so on), exacerbation of hidden pathologies resulting from the perinatal hypoxic encephalopathy — up to epilepsy. In 1985 the Ministry of Health Care of the USSR, and in 1986 the Ministry of Education adopted official documents to protect left-handed writing and to protect left-handed children's health in the USSR.

Currently the negative attitude to ambidexterity is gradually starting to give way to more neutral one; it does not mean, however, that we have a full picture of the advantages and potential of ambidexterity.

2 Research Description

This research is based on the original methodology, similar to popular questionnaires targeted at identifying hand preferences (Annett's Hand Preference Questionnaire, 1970; Questionnaire of Corey, Hurley, Foundas, 2001; The Edinburgh Handedness Inventory, 1971; Steenhuis and Bryden, 1989). Our questionnaire comprised the following three parts:

- 1) ambidexterity or no ambidexterity and manifestations of ambidexterity among university students aged 19-20;
- 2) attitude to ambidextrous people and to one's own ambidexterity;
- 3) ambidexterity or no ambidexterity among parents of students; their attitude to their children's ambidexterity and their treatment of their children's manifestations of ambidexterity in the process of their upbringing

In the first part of our research, that is, assessing the dominance or a lack of hand dominance, we asked the respondents to perform tasks which involved hand manipulations with about twenty objects: some of them were quite traditional, mostly mechanical objects, such as a pen/pencil, a toothbrush, a hammer, scissors, cutlery items, chopsticks, various knives, a comb, a cup, a sponge, and so on. The rest of the objects were mostly modern electronic gadgets such as a remote control for TV and other modern equipment, a smartphone, a stylus, a computer mouse, a selfie-stick, a USB-stick, and so on. In some of the tasks we asked the respondents to perform habitual actions such as unlocking a door, entering a PIN-code on an ATM or a numeric lock, turning the light on and off, typing a text on a computer, tablet PC or a smartphone, using household equipment and also to perform such gestures as applauding, holding hands, and to use hands as if one was temporarily incapacitated for work.

To evaluate the second aspect, that is, the attitude to ambidextrous people and to one's own ambidexterity, we asked the respondents questions about their reactions (rational or emotional) to manifestations of ambidexterity, including parental reactions, and about their willingness to develop ambidexterity as a useful resource.

The third part of the questionnaire was devoted to studying parental attitudes and it was focused on various reactions to manifestations of ambidexterity, in particular, seeing ambidexterity as an important ability and demonstrating willingness to develop this potential.

We studied two groups of respondents:

- 1) university students aged 20 (51 persons);
- 2) parents of these students (98 persons).

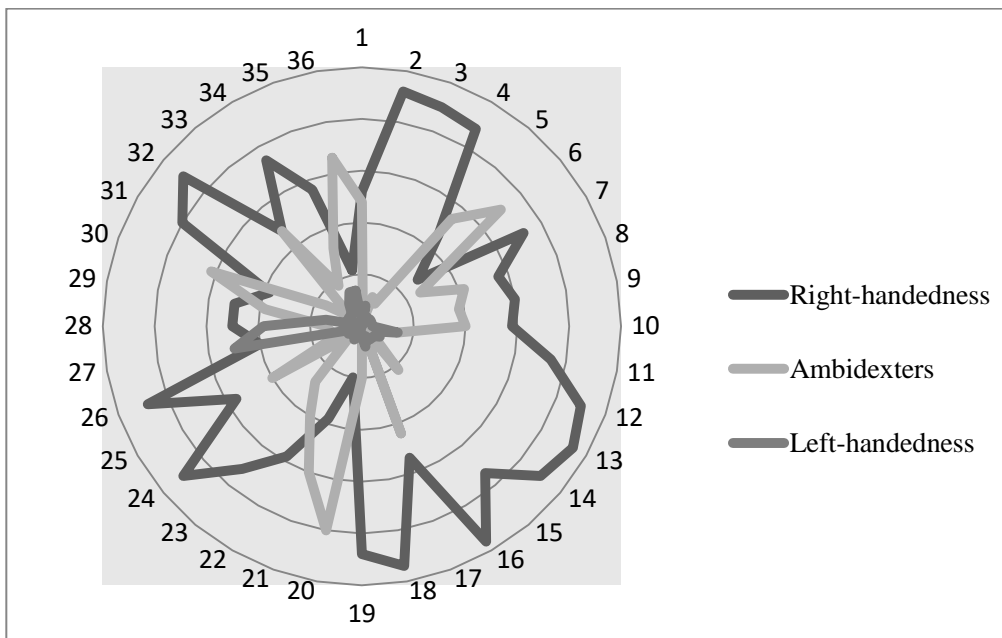
In the analysis of the data we used comparative methods.

3 Research results

We have obtained the following results for the sampled population.

The overall picture of ambidextrous manifestations in the sample looks the following way: 64 % of the responded showed pronounced predisposition towards right-handedness; 8% were found to be left-handed; and 28% demonstrated that neither of their hands is dominant (ambidextrous students). (See Figure 1).

Fig. 1: Ambidextrous manifestation in group in whole

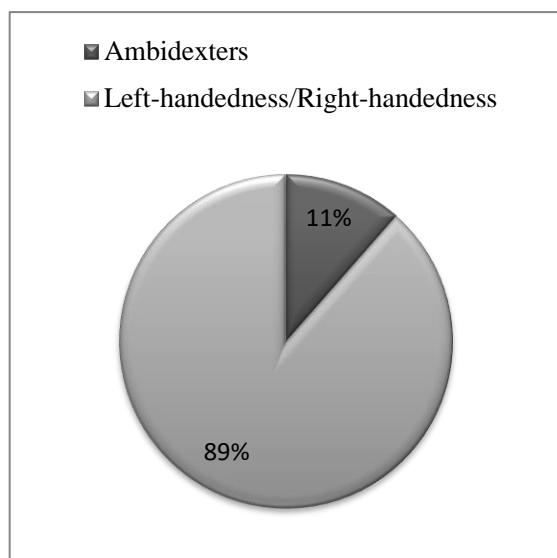


Source: own research, 2016

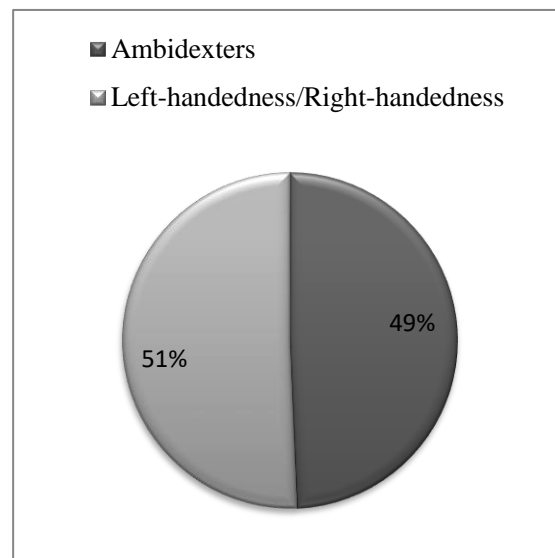
Our comparative analysis of hand use when operating traditional, predominantly mechanical, objects and more modern, electronic ones has shown two different tendencies. Firstly, when using traditional tools the correlation between right-handedness/left-handedness and ambidexterity lies within the value range characteristic of the group in general. Secondly, when operating modern gadgets, the picture changes dramatically and manifestations of ambidexterity become more pronounced (see Figures 2, 3).

**Fig. 2: Ambidextrous manifestation
in using traditional tools
gadgets**

**Fig. 3: Ambidextrous manifestation
in using modern
gadgets**



Source: own research, 2016



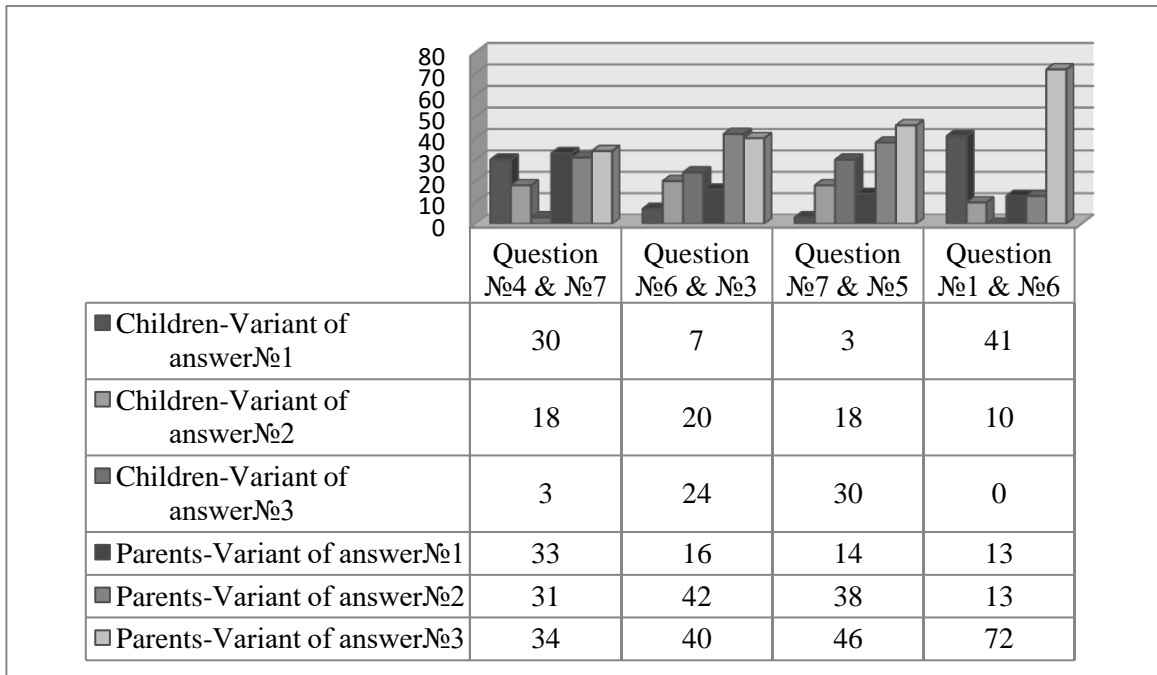
Source: own research, 2016

We also compared attitudes of students and parents towards ambidexterity and their evaluation of reactions to manifestations of ambidexterity. Parents and students were also asked to evaluate the importance of developing ambidexterity. The tendencies we found were quite contradictory: the majority of the parents (40 persons, 41%) claimed that they had not noticed their children ever manifesting ambidexterity in any form while 42 persons (43%) said that they did not remember anything like that. Only a small percentage of parents (about 14%) actively reacted to such manifestations.

The results concerning evaluation of ambidexterity by students and their parents also reveal contradicting tendencies: for example, the vast majority of the students (over 80%) demonstrated positive attitudes towards ambidexterity while most of the parents (over 73%), on the contrary, perceived this phenomenon negatively. Nonetheless, both subgroups (59% of the students and 34% of the parents) pointed out the necessity to develop ambidexterity, which means that they consider it as a personal advantage.

The aggregated results are shown in Figure 4.

Fig. 4: Attitudes toward ambidexterity and evaluation of reactions to manifestation of ambidexterity by students and their parents



Source: own research, 2016

Conclusion

1. Our research has found that the phenomenon of ambidexterity is often inadequately interpreted in the academic, medical or social environment while it holds a serious potential which can be applied in a wide range of spheres.

2. Since neither of the brain hemispheres of an ambidextrous person is dominant, such people can learn faster and are generally more versatile, open-minded and efficient.

3. The phenomenon of ambidexterity should become a subject of thorough research and analysis. This knowledge could be used in such spheres as:

- *Education.* Ambidextrous people would benefit greatly if the systems of preschool, primary, secondary and higher education were made more suitable for them. We could also introduce special coaching for ambidextrous people to enhance their personal and professional growth.
- *Business.* The development of ambidextrous people's skills could make them more efficient as team players or individual workers, which, in its turn, would improve the performance of the whole company.

- *Creative activity.* Ambidextrous people are capable of creating outstanding artistic works. Therefore, they could enable the humanity to overcome the chaos of commercialization in modern art and rise to a new cultural level.
- *Social and cultural sphere.* It is important to promote tolerance towards ambidextrous people and to eliminate harmful stereotypes and biases preventing them from developing their natural abilities.

4. It is essential to adopt a serious approach towards development of ambidextrous children since it will allow us to improve the society as a whole by making it more civilized, efficient and, therefore, successful.

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