

# **SCIENTIFIC COLLECTION INTERCONF**

**No 111**  
**June, 2022**

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**Proceedings of the 1st  
International Scientific  
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## **INNOVATIVE DEVELOPMENT IN THE GLOBAL SCIENCE**



**BOSTON, USA**

**6-8.06.2022**



**InterConf**  
Scientific Publishing Center

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## **INNOVATIVE DEVELOPMENT IN THE GLOBAL SCIENCE**

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## **INTERDISCIPLINARY, INTRADISCIPLINARY AND OTHER INTEGRATION TYPES IN THE INTERNATIONAL MEDICAL STUDENTS PREPAIRING FROM THE TUTOR'S AND STUDENT'S POINTS OF VIEW**

**Abstract.** *The article is devoted to discussing the integration different types together with habitual interdisciplinary and intradisciplinary used in the educative process by the tutors and the higher education applicants. The authors emphasize on these types importance in providing the integration of natural and social adaptation (with its separate types) of foreign students in part by means of possibility to reach maximal individualization in their educating process due to their typological belonging taking into consideration.*

**Keywords:** *Pedagogy, tutors, foreign students, typologies, integration, interdisciplinary integration, intradisciplinary integration, interhemispherical asymmetry individual profile, sinistrality, left-handedness, left-handers, right-handedness, right-handers, ambidextrism, ambidexters, educative process individualization, natural adaptation, social adaptation.*

The term “integration” is multi-facetated. On one hand there exists interdisciplinary integration between various academic disciplines: Biology, Cytology, Histology, Chemistry, Anatomy, Pathomorphology, Physiology, Pathophysiology; theoretical and clinical subjects. On the other hand, there is intradisciplinary integration between different topics in one or another academic discipline. Every person should create his/her picture of surrounding world. Mentioned integration types both are aimed to achieve deeper knowledge, so-called “knowledge survival”. There is an approach accordingly to which the students study all the subjects on one chapter (body system if to write about the medical ones), then

– the others. To our point of consideration such an approach can not show the interconnections between the organism separate systems. For instance, there are conjugated reflexes of cardiac-vascular and respiratory systems. On the contrast with the proper reflexes which reflectory arc is originated from one system and is ended in it, the reflectory arc of the conjugated ones is originated in one body system and is ended in the another one [1; 2].

The students save their conspectus on the previous and other subjects, the tutors include the schemes of interdisciplinary and interdisciplinary integration with the topical glossaries, topic study theoretical and applied significance in the methodical instructions. Some tutors at the training department use the terms' tables in several languages (English, French, Russian, Ukrainian, Latin, Arabic) to help the students to manage the common-biological lexics that is of crucial importance for successful further education. PSMU Physiology chair assistant Tkachenko E.V. uses English and French at her lessons with the International faculty students – in part, French – with the Moroccans and the Tunisians.

Big hemispheres asymmetry has been discovered in the 1836<sup>th</sup> by the French scientist Mark Dax. His report about separate functions of the right and left brain hemispheres, the speech connection only to the left hemisphere was failed. Probably because the right and the left brain hemispheres have their own approaches concerning to one and the same function. If Mark Dax was the hemispheres dominance' theory founder together with the French neurologist Paul Broca discovered motor aphasy at stroke and the cortex center responsible for it (inferior frontal gyrus posterior areas, later named after him) multiple consequent research demonstrated and proved the hemispheres equipotentiality theory based on various strategies in solving one and the same task and various approaches while performing one and the same brain function [3]. This second theory was proven in part on thinking: the left hemisphere can split, decompose; mark, distinguish the main, differentiate; perform consequent operations easily while possessing so-called successive pathway of the information processing [4]. The right hemisphere can not split, differentiate, it is rather difficult to it to mark and distinguish the main but easily to integrate, to use significant interdisciplinary and intradisciplinary



integration. What does it mean? It means that mentioned integration types are applied in the educative activity by left-handed and ambidextrous students and teachers. We are agreed that only left-handed tutor can understand the left-handed student completely and that it would be perfectly to organize educative process to the left-handed applicants by the left-handed tutors.

Iranian students were distinguished by huge degree of ambidextrism and the biggest abilities even to be the teachers at Physiology lessons when they were at the 2<sup>nd</sup> course. They used rather expressed intra- and interdisciplinary integration while their answerings in course of 40-70 minutes near the board. There was a personal experience of assistant Tkachenko E.V. when she was a tutor of Medical Biology, Biochemistry and Physiology in one English dental group graduating in 2009. One student was distinguished by forced sinistrality and then ambidextrism, used huge inter- and intradisciplinary integration while his answerings in these three subjects as well as by 56 printed works and very big love to oral reports at different-leveled conferences, congresses, meetings - also with both integration's types applying. He united the data of lesson with the ones on corresponding topics in other subjects while determining ability to repeat the past material and to create a new synaptic links in the students' memory. There is a point of consideration that the best understanding and remembering the material is based on such an approach when there is a big percentage of the old linked to the new material. And using the interdisciplinary integration encouraged to it. At the same time if you don't manage one or some previous topics it is rather hard to manage the new one well. Intradisciplinary integration with the material repeating will help this time as well. It is possible to involve the new terms in the thematic glossaries, find new words, examples, explanations to help the students: it is especially important while working with the foreign students, paying attention to the ones whose language training is not very good, to the students from Arabic countries who studied Medicine not in English, French and Arabic they know well. Some of the students else from the mentioned dental group demonstrated very high integration at their lessons as well as one Iranian girl student from medical faculty who has graduated in 2012<sup>th</sup> and was not a left-hander. Our data corresponds to the literary ones accordingly to which

the left-handers and ambidexters percentage in the Iranian population is 13-15% that is higher than in the others. It means that they possess additional development of the right brain hemisphere which is very helpful for inter- and intradisciplinary integration performance as it has been mentioned and described earlier.

The problem of changing the dominant extremity, the hidden (forced) and unreal sinistrality is rather actual in part in the educative process. It is known that sinistrality development is influenced by cultural peculiarities in big extent: it is impossible to eat with the left hand by religious moslemic traditions, the left-handers are hatred in Africa. It means that the expressed percentage of left-handers among the Arabic and the African students is 5% though it is more instead; also such students possess the right-hemisphere underdevelopment and thus decreased or absent ability to perform both interdisciplinary and intradisciplinary integration due to their simultant, right-hemisphered thinking pathway weakened or absent development. Of course it should be mentioned additionally that such left-hemisphered students have less or absent abilities to foreign languages study and management that harden the educative process in part due to inability to read much, to process much information. There are the data according to which the left-handers process much more information than the right-handers do because the information passes first to the right hemisphere dominant in them and then to the left one for so-called “recension and choosing the main and the correct one”. The right hemisphere underdevelopment in the hidden and unreal sinisters directs the information to the left hemisphere dominant in them that decreases the volume of processed information significantly. Also the “recension and choosing the main and the correct one” of the given information is much longer in this case comparatively to the first one. Described psycho-physiological peculiarities emphasize excessive time the harm of changing the dominant extremity and thus the dominant hemisphere.

Ambidextrism increases the opportunity to make mentioned integration during education process but at the same time there is a consideration that ambidexters often don't know which brain hemisphere to use and spend much time on this deciding, that decreases the work velocity, productiveness and results in less using the integration during knowledge receiving by the applicants; indeed it can be thought

that real sinistral or left-handed born by left-handed parents have the biggest chances to use interdisciplinary and intradisciplinary integration while their studying in the educative establishments. To our point of view, the tutor should ask the students about their dominant extremity while writing, perform main tests on the interhemispherical asymmetry individual profile (dominant finger, eye, Napoleon's pose, probe with applauding), as well as the additional one (dominant "strong arm", dominant "exact arm", dominant ear, dominant leg or the one up during the leg interference, during playing football, the leg for push during jumping etc.). The survey should include also the questions about the handedness in their parents and the close relatives, the traumas and accidents that could result in the dominant extremity and thus dominant hemisphere lesion, because it creates the real sinistrality character changing into the hidden (force) or/and the unreal one [5; 6].

The left-handed people percentage in the USA and Japan reached 95-98%. There is an opinion that American scientists have proposed the tests first and have refused from them first. To our opinion it would be physiologically backgrounded position not to give the tests to the left-handers, if to give – not to think their results as the main, to use oral asking obligatorily while putting the degrees (scores), to use only the educative tests without assessing their solving results or if it is impossible – not to give them on the papers but to write them on the board during the lesson, to discuss the answers with the students, to mark their correct answers on the board and to write either the tests with the correct answers in the copy-book completely or to write the test condition with the correct answer orally. The Physiology chair teacher Tkachenko E.V. follows this opinion concerning to the tests and sinistrality at the chair on the base of her big working activity with the foreign students since the 2001<sup>st</sup> at Physiology chair and her experimental works results [7], used and try using this approach at the lessons with the left-handers from different foreign countries. The conclusions about this aspect in the left-handers' educating were made in the students from different countries, real, hidden (forced) and unreal though unreal left-handers expressed left hemisphere significant development due to dominant right hand. Real left-handers demonstrated impossibility to solve the tests correctly mostly, ambidexters – it was in dependence on right or left

hemisphere dominance in the person. This distinguishing feature of the left-handed students is based on the mentioned fact that the right hemisphere dominant in the left-handers possesses information processing simultant pathway that results in difficulty or impossibility to split, to decompose, to choose one or several correct answers, to differentiate, to analyze; these peculiarities and skills are of crucial importance while different-leveled tests solving.

It is possible to say and to write about right and left hemispheres activity integration; the one of skills to solve the tests and to answer orally; oral or written task using; solve the one-leveled tests with only one correct answer and higher-leveled tests with two and even more correct answers; preference to work individually or in the groups; to use and to like habitual or non-habitual activity from the tutor's and the applicant's side; to use active, passive and interactive educative methods at the lessons from the teacher and to like one/two/three mentioned educative methods from the students; to use only white chalk on the board and to use the colored ones (for helping the students' right hemisphere to work better, it is asked by all foreign students independently on their interhemispherical asymmetry individual profile because it is difficult to distinguish the main, the separate letters to them, they also ask not to unite the letters while writing on the board because of difficult differential inhibiting while the foreign words' reading especially in other foreign groups than the English ones); also it is possible to say and to write about the integration of the methods of simple explaining the material during the lesson and using the interactive educative methods, the material on the electronic carriers (on CD, flash et al.; it is worthy to mention that practically all the foreign students asked and even insisted on the oral explanation because self-work is hard to them, some of them had difficulties to mark the main, to integrate the present material with the previous one/s, foreign students have often low velocity of writing, write with printed letters, leave the place for translation into their mother tongue or the language they manage well; some of them asked the teachers to give such multimedia presentations that have enough place for translation to their mother tongue, mostly Arabic or the second one that they know well and this translation takes much time in their study; interestingly that many foreign students from Arabic countries had the problems of low writing velocity as well as difficulty



to differentiate foreign language letters like practically all left-handers even while being right-handed people); separate integration form – ability to work well under remote and non-remote condition both for the students and for the teachers because there are the tutors who don't want or don't have abilities or opportunities to use such methods of teaching applied at distance learning.

Thus, integration is indeed multi-facetated phenomenon in part in Pedagogy while working with the foreign students. Of course, there can be other integration forms not mentioned by us, characteristic for the students' and tutors' work in the university.

To our point of view it is worthy to mention and to advise to take the students' (and the teachers') typological belonging - ethnicity, the interhemispherical asymmetry individual profile, temperament type, control locus (external, internal, mixed), behavioral strategies (coping, avoiding) in part and to assess them before the 1<sup>st</sup> lesson with them – to determine the maximal possible individualization of the applicants' study (that is especially of crucial importance during the foreign applicants' education) because it will allow successful multi-leveled and multi-facetated integration of a Student (or Higher Education Applicant, by novel nomenclature proposed) and a Tutor (again with the integrity of being a Tutor-Friend, Tutor-Advisor, Tutor-Helper, Tutor-Supporter, Tutor-Psychologist and Tutor-Controller; it is much better to follow the approach with the dominance of becoming and being all of them first all except the Tutor-Controller in work with the foreign student).

Any educational establishment Task – to provide a successful and complete integration of two main adaptation types for the foreign applicants – natural and social that can be psychological, to study, cultural, cross- or trans-cultural. Proper development of implementing the integration types described and mentioned in this article will encourage this aim in big extent doubtly.

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