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HOMAGE TO PROFESSOR PHD. DUMITRU VALERIU

The editorial staff of Euromentor Journal pays a sincere homage to the late Professor PhD. Dumitru Valeriu, who was one of the most active and illustrious collaborators of this academic publication, supporting with great professionalism and dedication this academic research project in the field of education sciences.

Professor PhD. Dumitru Valeriu was an authentic model teacher and researcher in the field of educational and behavioral sciences, an exceptional mentor with a huge teaching experience. He trained and evaluated an impressive number of teachers for pre-university education. He coordinated the students' pedagogical training in secondary schools from Argeş county, as well as in the neighbouring counties.

He was an emblematic professor for the Faculty of Education Sciences at the University of Piteşti. A professor with an exquisite intellectual and moral demeanour, respected and loved by all the colleagues and students with whom he collaborated.

It was a great chance to meet him and he became one of my closest collaborators, a true friend, an authentic man. The unexpected passing away of Professor PhD. Dumitru Valeriu means a huge loss not only for the scientific board of Euromentor Journal, but also for all of us, for those who really knew and appreciated him.

A passionate researcher, very committed to his field, Professor PhD. Dumitru Valeriu contributed substantially, through the quality of his articles, to the increase of the scientific prestige of Euromentor Journal.

The late Professor Dumitru Valeriu leaves behind many specialized works, studies and articles in the field of educational and behavioral sciences, which are consistent benchmarks for those who specialize in this field.

All those who knew and appreciated Professor PhD. Dumitru Valeriu will keep alive the image of the real educator and we will cherish him "in aeternum".

Prof. PhD. hab. Gabriela Pohoață

Editor-in-chief COGITO & EUROMENTOR JOURNALS

FORMATIVE AND DIALOGIC INTERACTIONS: JAPANESE SCHOOL AND THE ROLE OF ZENJIN EDUCATION

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Abstract: *The present article discusses the system of zenjin-education, and introduces new perspectives on social learning that explore: (a) the proposition that 'good learning' is contingent upon reciprocal and inter-subjective interaction, and (b) the correlation between reciprocal learning interactions ('intersubjective-learning') and the intrinsic motivation to learn. Next, our article turns to field evidence gathered from Chikuzan Primary School in the city of Akita. The analysis introduces the stages of a Japanese math classroom, with a specific focus on neriage in practical contexts and concludes with a section entitled "Reflection".*

Keywords: *zenjin education, formative assessment, Japanese classroom interactions*

Ikiru chikara (Zest for life) as a national policy

In the Delors Report, UNESCO's International Commission observed a crisis of democracy and a loss of interest in its values[1]. The report's prognosis for the 21st-century was not optimistic, and appeared to doubt education's potential to equip people with the competencies needed for the next century. In the same year in Japan the Ministry of Education, Culture, Sports, Science and Technology (MEXT) reported its awareness of

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[1] Jacques Delors, *Learning: The treasure within*. Report to UNESCO of the International Commission on Education for the twenty-first century. UNESCO, Paris, 1996, p. 55.

the challenges ahead, describing the advent of the new century as "a difficult period of rapid change, in which the way ahead would be difficult to discern"[2]. Energetic political interventions created new pressures for educators around how to design curricula that nurture the 'whole-child' or *zenjin* aptitudes and attitudes.

In 2002 MEXT introduced a subject named "Integrated Courses" into the formal curricula of elementary and junior high schools. The aim of this activity was to promote a so-called "zest for life", or *ikiru chikara* [life-skills][3]. The "zest for life" (*ikiru chikara*) is a national policy initiative in response to a perceived decline in young learners' "basic abilities and skills to discover, learn, consider, and judge issues independently and to act in order to solve problems in a better way"[4]. The concept was first discussed in 1996 when the Ministry of Education proposed a reform of the traditional education system by introducing the so-called "relaxed education" (*yutori kyôiku*) by reducing a number of classroom hours with the aim of achieving a shift in learning[5].

The concept of *ikiru chikara* entails capabilities to adapt to social changes, to find and solve new tasks, and to strike a balance between academic prowess (*chi* 知), morality (*toku* 徳), and body/health and fitness (*tai* 体)[6]. The competencies necessary to successfully overcome the challenges of a new century are defined in research by the National Institute for Educational Policy Research (NIER) as "holistic qualities and abilities that include not only knowledge but skills and attitudes"[7]. Among the abilities are: (1) *practical abilities to act for the world*, such as autonomous activities, relationship building, motivation to social participation, responsibility for building a sustainable future; (2) *collaborative thinking and problem-solving abilities*, which include problem-solving, logical and critical

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[2] MEXT, *Priorities for a lifelong learning society: Increasing diversification and sophistication chapter: Encouraging zest for living.* Central Council for Education. Tokyo: MEXT, 1996, p. 62.

[3] Makoto Kobayashi, *Prospects,* UNESCO International Bureau of Education, vol. XXXIV, 2004, p. 13, www.ibe.unesco.org/sites/default/files/obara.pdf.

[4] MEXT, *Various Skills and Natures Suggested Until Now section,* n.d., para. 1.

[5] Daisuke Kimura, & Madoka Tatsuno, *Advancing 21st Century Competencies in Japan,* Asia Society Center for Global Education, 2017, p. 3,
https://asiasociety.org/files/21st-century-competencies-japan.pdf,

[6] MEXT, *Priorities for a lifelong learning society: Increasing diversification and sophistication chapter: Encouraging zest for living*. Central Council for Education, Tokyo, MEXT, 1996, p. 7, Kimura & Tatsuno, *op.cit.*

[7] Kimura & Tatsuno, *op.cit*., p. 4.

thinking, meta-cognition, adaptability; and (3) *basic literacy and thinking tools*, such as literacy, numeracy and information literacy[8]. In particular, nurturing moral competences centered on the concept of relationship (*kankei*), such as "cultivating relationships with others", being aware of "the importance of courtesy and communicate honestly with other people", and "relationships with nature and… [feeling] … the importance of nature and living things"[9]. The concept of "zest for life", with its three-pronged goal of nurturing academic knowledge, moral values and body is based upon the ideals of *zenjin* ('whole person') education, an education philosophy blending Japanese history, culture and tradition with ancient and modern western instructional methods.

***Zenjin* education**

The original author of the *zenjin* method, Kuniyoshi Obara, (1887-1977), was a key member of the Kyoto School (*Kyōto-gakuha)* since 1915, and a prominent leader of the New Education Movement in Japan[10]. The purpose of the Kyoto School (1913-) was to integrate *creatively* those selected elements of global policy into Japanese systems by authoring philosophies, "far too original to be straightforwardly equated with pre-existing thought"[11]. Obara's *zenjin* education, also known as "whole-man education" or "whole-person education", aimed at the harmonious development of the human being by blending six basic values: truth (*veritas*), goodness (*bonum*), beauty (*pulchritudo*), holiness (*sanctitas*), health (*sanitas*), and wealth (*copia*)[12]. These values were seen as corresponding with six human activities: truth as the ideal of academe; goodness as the ideal of morality; beauty as the ideal of art; holiness as the ideal of religion; health as the ideal of the body; and wealth as the ideal of livelihood[13]. The term *zenjin*, which would translate as "whole person", is inspired by Pestalozzi's '*der ganze Mensch*', and '*zenjin kyôiku*' (i.e. *zenjin* education), by Froebel's '*Menschenerzeihung*'[14]. The dualistic value-systems

[8] *Ibidem*, p. 5.

[9] *Ibidem*, p. 4.

[10] Kobayashi, *op.cit*., p. 1.

[11] Stanford University, *The Kyoto School,* 2014, para. 3, http://plato.stanford.edu/entries/kyoto-school.

[12] Kobayashi, *op.cit*., p. 6.

[13] *Ibidem*.

[14] Margaret Mehl, *Lessons from history? Obara Kuniyoshi (1887-1977), new education and the role of Japan's educational traditions,* History of Education, vo. 38, 2009, p. 530.

theory which lies at the core of his *zenjin* philosophy draws from Platonic idealism, according to which spirit is superior to matter[15]. The Renaissance Humanism, with its central concept of *Homo totus*, or the well-rounded individual, as well as the philosophical theories of Rousseau, Kant, Herbart, Schoppenhauer, Lipps, Nattorp, Windelband, Munsterberg, also influenced Obara's philosophy[16]. His ideas took inspiration from some of his Japanese contemporaries, among whom Nishida Kitarô, his former teacher at Kyoto University[17].

Hiroshi Sugita, Director for Special Curriculum Subjects at MEXT, delineated the Japanese perspective on *zenjin*-education into three broad and overlapping curricular areas: (1) personal inter-relationships, (2) social duty and responsibility, and (3) autonomous decision making[18]. The overall purpose of the Japanese curriculum is to nurture well-rounded (*zenjinteki*) and mature (i.e. autonomous) young learners. This is consistent with the ideas promoted by UNESCO's Commission for the 21st-century, which highlighted "learning to live together" as a matter of existential importance: "[...] it is no exaggeration on the Commission's part to say that the survival of humanity depends thereon"[19]. Therefore, the question guiding the construction of this discussion is: What are the circumstances in which Japanese schools sustain and reproduce *zenjin* ('whole-child') assessment-communities that perform significantly above global levels on STEM disciplines?

Inter-relationships (*Kankei*)

Kankei is an important word in Japanese culture because it encapsulates the fundamental concept of *inter-relationships*. It is particularly salient here because the meaning of *kankei* can also be deconstructed to symbolise the various fundaments required for social justice to exist. *Kankei* may be described variously as equitable, mutual, reciprocal, inter-subjective, or harmonious, stable and balanced. Such relationships engage learners, motivating in them the initiative to express

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[15] Kobayashi, *op.cit.*, p. 9.

[16] *Ibidem.*

[17] Mehl, *op.cit.*, p. 530.

[18] MEXT/Hiroshi Sugita, *Excerpts taken from a lecture given to novice Japanese teachers in light of the full implementation of Special Activities (tokkatsu) in the New Japanese Curriculum,* 2012, http://www.p.u-tokyo.ac.jp/~tsunelab/tokkatsu/cms/wpcontent/uploads/2016/03/sugita.pdf

[19] Delors, *op.cit.*, p. 18.

their ideas and to assist each other towards a successful outcome. Put another way, Japanese classrooms optimise the learning environment by balancing stability with interactivity. Such classrooms support 'good learning' with the synchronous collection and strategic use of whole-group feedback[20]. The struggle toward 'wholeness' is resolved by teachers' best collective efforts to interact with children in ways that reproduce levels of social justice. Japanese teachers help students realise their complete human potential by employing interactive styles of assessment, advanced by the OECD as "a fundamental approach to education reform"[21].

The OECD's 2015 PISA report recognises the Japanese education system's general commitment to social justice, noting that "the Japanese school system ensures equity in education opportunities"[22]. Further, it makes the connection between test performance and equity of outcomes: "Japan [...] achieves high levels of performance and equity in education outcomes as assessed in PISA 2015, with 10% or less of the variation in student performance attributed to differences in students' socio-economic status"[23]. This finding emphasises the cultural importance attached to equity and social justice in Japanese culture. Equity of outcomes is a fundamentally important measure of whole-school success for two reasons. Firstly, because equitable learning relationships maintain balance and sustain stability[24]. Secondly, the cultural emphasis placed on relationships generally, and therefore on *zenjin* education means that educators involve themselves at a deeper, more holistic level of awareness of their children than that which determines merely the focus on sitting the next test[25].

[20] Arimoto & Clark, *op.cit*., Noriyuki, Inoue, *Zen and the art of neriage: Facilitating consensus building in mathematics inquiry lessons through lesson study*, Journal of Mathematics Teacher Education, vol. 14, 2010, pp. 5-23.

[21] Organisation for Economic Cooperation and Development (OECD). *Formative assessment: Improving learning inside secondary classrooms*. (November) Policy Brief. Paris, OECD, 2005, p. 1, http://www.oecd.org/edu/ceri/35661078.pdf.

[22] Organisation for Economic Cooperation and Development (OECD), *Country note: Japan.* Programme for International Student Assessment: Results from PISA 2015. Paris, France, OECD, 2016, p. 1, http://www.oecd.org/pisa/PISA-2015-Japan.pdf.

[23] *Ibidem*, p. 6.

[24] Arimoto & Clark, *op.cit*.

[25] Kanako N. Kusanagi, *The bureaucratizing of lesson study: A Javanese case.* Mathematics Teacher Education and Development, vol. 16, no. 1, 2013, pp. 171-200.

Shifting the focus towards 'intersubjective learning' and 'dialogical pedagogy'

Zenjin education and 'zest for life' hinge on the concepts of intersubjective learning and dialogue. Dialogue is defined as a process of "serious continuing discussion which allows people's voices to develop and be heard[26]. Its aim is not only to achieve cognitive results but also to "transform social relations in the classroom, and to raise awareness about relations in society at large"[27].

Fernández-Balboa and Marshall describe some of the characteristics of dialogue. It is a free act, inasmuch as the participants are willing to engage without being coerced. It is social and participatory because it involves more than one person and each participant has his/her own voice and perspective. It is also inclusive as every participant's voice must be taken into account, but at the same time it is normative, because the participants' behavior is expected to adhere to a set of rules. It is ongoing, anticipatory and transformative in its potential of constructing possibilities for new realities and influencing people's lives. The pedagogical benefits of dialogue in the classroom are manifold. First, it enhances student motivation and involvement in the learning process. The free exchange of opinions and ideas makes students feel validated and in control of their own learning. Moreover, democratic participation of learners to dialogue helps develop student responsibility, solidarity and cooperation[28].

Vygotsky postulates that development is "an inherently social process of meaning making and the mechanism underlying this process is intersubjectivity"[29]. Intersubjectivity is "the communicative mechanism that fosters learning and development as individuals negotiate a shared understanding of their social, emotional, cognitive and cultural world"[30]. In intersubjective learning, the group is the learning agent which

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[26] Herbert L. Kohl, *Growing minds on becoming a teacher*. New York: Harper and Row, 1984, p. 111.

[27] Ira Shor & Paulo Freire, *A pedagogy for liberation*, South Hadley, MA, Bergin and Garvey, 1987, p. 98.

[28] Juan-Miguel Fernández-Balboa & James P. Marshall, *Dialogical pedagogy in teacher education: Toward an education for democracy*, Journal of Teacher Education, vol. 45, no. 3, 1994, pp. 174-175.

[29] Cited in Lynda. D. Stone, Charles Underwood, & Jacqueline Hotchkiss, *The relational habitus: Intersubjective processes in learning settings,* Human Development, vol. 55, 2012, p. 65.

[30] *Ibidem*, p. 65.

influences the behavior of individuals[31]. Matusov redefines the concept of intersubjective learning as "a process of coordination of individual participation in joint socio-cultural activity"[32]. Using a mixed-method design to study how learners use language "to combine their intellectual resources" Mercer places an explicit emphasis on students' *cognitive* reasoning when explaining how children learn collaboratively, or "interthink"[33]. Mercer's work is excellent technically, but it is worth noting that intersubjectivity goes beyond this exclusively "intellectual" version of Vygotskian theory. Rather than a purely cognitive process, the notion of intersubjectivity also includes motivational and inter-*affective* states, experienced as a range of feelings from anxiety to excitement[34]. At the University of Tokyo, Sakaiya and colleagues found that intersubjectivity (arising from the nexus of heart and mind) is so essential that without it cooperative human relationships, essential to and constitutive of learning, appear impossible. Although the high value attributed by this team of Japanese scientists to reciprocity and intersubjectivity may arise from cultural tradition, it is also a proposition supported by European research. For example, it is also found in Schilbach's German-based review addressing the neural basis for social interaction. Schilbach and colleagues found that emotional engagement is required in order to gain intersubjective states of consciousness - a necessary condition for the recruitment of the neural reward-related (releasing the 'rewarding' chemical dopamine) networks to occur[35]. Such findings suggest the objective of Japanese learning communities is to reproduce intersubjective relationships for successful *zenjin* outcomes[36].

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[31] Daniel D. Suthers, *Technology affordances for intersubjective meaning-making: A research agenda for CSCL*, International Journal of Computer Supported Collaborative Learning, vol. 1, 2006, pp. 315-337.

[32] Eugene Matusov, *Intersubjectivity without agreement,* Mind, Culture, and Activity, vol. 3, no. 1, 1996, p. 26.

[33] Neil Mercer, *Words and minds: How we use language to think together.* London, Routledge, 2000, p. 139.

[34] Ian Clark & Guillaume Dumas, *Toward a neural basis for peer interaction: What makes peer-learning tick?* Frontiers in Psychology, vol. 6, 2015, pp. 1-12.

[35] Leonard Schilbach, Bert Timmermans, Vasudevi Reddy, Alan Costall, Gary Bente, Tobias Schlict, Kai Vogeley, *Toward a second-person neuroscience*, Behav. Brain Sci. vol. 36, no. 4, 2013, pp. 393–462, doi:10.1017/S0140525X12000660.

[36] Masahiro Arimoto & Ian Clark, *Interactive assessment: Cultural perspectives and practices in the nexus of 'heart and mind*. In J. Smith & A. Lipnevich (Eds.), Cambridge Handbook of Instructional Feedback, New York, CUP, 2019.

The relevance of intersubjectivity to a child's learning is twofold. Firstly, the extent to which the "hidden" ideas, intentions and values of one participant are accessible to, understood, and reciprocated by others. Secondly, from the increasingly relevant empirical domain of social neuroscience, intersubjectivity as a deeper realisation of collaborative interaction that may recruit the intrinsically motivating dopamine-releasing networks. This is confirmed in experiments conducted by Japanese, European, and American scientists[37]. As promising as this sounds, we also know from our own personal experience that a stable intersubjective state is sometimes elusive and difficult to sustain. For Japanese educators, however, relational stability is an inherent goal of any *zenjin* lesson.

Case study: Inside the Japanese learning community at Chikuzan Primary School

The discussion to follow is applicable to any curriculum subject that can be taught through enquiry and problem-solving. In this case, we follow the general trend by emphasising mathematics as an important discipline and a key STEM research area. Researchers from Tohoku University's GSE, led by Prof. Masahiro Arimoto, videoed and transcribed 5th grade mathematics classes at Akita Municipal *Chikuzan* Primary School, Akita City. The Japanese problem-solving lesson for mathematics was found effective for nurturing higher-order thinking and encouraging students to utilize previously learned knowledge and skills to learn something new through the process of solving a problem[38]. The main stages of such a problem-solving lesson are: *hatsumon*, *kikan-shidô*, *neriage,* and *matome*[39].

The first stage of a 45-minute mathematics lesson in a Japanese classroom, the *hatsumon* ('posing a problem') is a short opening which

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[37] S. Sakaiya, Y. Shiraito, J. Kato, H. Ide, K. Okada, K. Takano, & K. Kansaku, *Neural correlate of human reciprocity in social interactions. Front. Neurosci. vol. 7,* 2013, p. 239. doi:10.3389/fnins.2013.00239; Schilbach et al., *op.cit*.; Elizabeth Redcay, David Dodell-Feder, Mark J. Pearrow, Penelope L. Mavros, Mario Kleiner, John D.E Gabrieli, & Rebecca Saxe, "Live face-to-face interaction during fMRI: A new look for social cognitive neuroscience", *Neuroimage,* vol. 50, no. 4, 2010, 1639–1647, doi:10.1016/ j.neuroimage.2010.01.052.

[38] Jerry P. Becker, Edward A. Silver, Mary Grace Kantowski, Kenneth J. Travers, James W. Wilson, *Some observations of mathematics teaching in Japanese elementary and junior high schools.* The Arithmetic Teacher, vol. 38, no. 2, 1990, pp. 12-21.

[39] Y. Shimizu, *Aspects of mathematics teacher education in Japan: Focusing on teacher's roles.* Journal of Mathematics Education, vol. 2, 1999, pp. 107-116.

introduces concepts based on a simple math problem. The easy opener is refined so that it is interesting and age-appropriate. In this case study, the young students need to interpret and present data on the changing weights of pet hamsters. The teacher opens the lesson by addressing the 'collective student' (CS). These early collective interactions, of only 90 seconds in duration, are significant in reproducing a community organised around consensus.

Once the 5th grade children have begun the introductory task, the lesson then moves directly to the second stage, *kikan-shidô* ("instruction at students' desks"). Teachers move among desks, and gather evidence of the students' problem-solving methods through observation. It is a generally silent stage, used along with evidence collected from teachers' prior experience of teaching this area to other students. While some teachers will also use questioning to elicit evidence of individual learning if they think it is useful, the teacher in the Akita case study did not question students verbally. On a few occasions, the teacher is observed to use hand gestures (pointing at the paper). It is a culturally familiar gesture indicating her close attention to the individual student work. In some cases, teachers will use their observations to decide which student will be the first to answer questions or attend the board. However, the teacher in this study employs a different questioning strategy and permits her students to invite selection by raising their hands and standing by their desks. After 5 minutes precisely, during which students should mark a scale on the Y-axis to accommodate the hamsters' weights, the teacher addresses the CS, and displays her own example of how their line-graph should look. She then asks the CS two questions relative to the hamsters' changes in weight over the seven days of observation. She comfortably accepts a range of responses from individual students who are permitted at this point of the lesson to contribute spontaneously, but respectfully. Teacher 1 (T1) provides no verbal feedback other than to confirm correct responses with a "yes", while pointing at the graph on the board accordingly. This strategy invites a number of responses from CS, exposing community members to the ideas of others. This set of questions also transitions the class-work from *kikan-shidô* to stage three, *neriage* ('deeper thinking through dialogic interaction'). The teacher begins *neriage* by asking students to present their graphs.

In accordance with the Japanese emphasis on consensual meaning-making, teachers and students engage in a "dynamic" and "collaborative"[40]

[40] *Ibidem.*

process known as *neriage* - a traditional metaphor borrowed from the vibrant pottery-crafting industry. The *neriage* metaphor embraces classroom dialogue as elevating, elaborating, and 'kneading' the substance of student reasoning. Such processes make students' thinking 'visible' to the whole group, exposing the CS to the ideas of individual community members equitably. More specifically, in this case mathematics learners are called on to consider issues like efficiency, generalisability, and similarity to previously learned ideas[41]. Although there are flexible opportunities for teachers to initiate assessment interactions (and observations) at any time, *neriage* is emphasised as the interactive "heart" of the lesson. A high value is attached to the *neriage* stage of a lesson because it is considered to be the time when teachers endeavour to deepen students' conceptual understanding prior to any 'real world' or simulated application they may face later. It is therefore a specific opportunity to collect and use evidence of student learning by engaging with the collective student. As a Japanese participant in a Japan-America workshop on professional development convened by the American National Research Council (NRC) remarked, "So, we have to have *group* discussion in class in order to have *neriage*, OK?"[42]

The term *neriage* relates to the work of a craftsman, and so uses the artisan as a metaphor for *zenjin* - a 'whole person' in possession of good spirit, technique and physical condition. The Japanese classroom, as a microcosm of wider social life, is fully engaged with interactions that preserve *kankei*, assuring group connection and consensus[43]. As Walshaw remarks, "*neriage* is centred on whole-class discussions in which the teacher compares and contrasts different students' strategies and, rather than pointing to the best solution, works to build consensus amongst students"[44]. The equitable social processes of *neriage* provide a benchmark for the process of 'synchronous feedback' at the heart of the more effective

[41] Akiko Takahashi, *Neriage: An essential piece of a problem-based lesson. Teaching through problem solving: A Japanese approach.* Paper presented at the Annual conference of the National Council of Teachers of Mathematics. Salt Lake City, UT, 2008.

[42] American National Research Council (NRC), *Studying classroom teaching as a medium for professional development.* International Organizations Board. Washington DC: National Academy Press, 2002, p. 230, https://www.nap.edu/read/10289/chapter/1#ii

[43] Inoue et al., *op.cit.*, Takahashi, *op.cit.*; Margaret Walshaw, *Working with teachers to enable both student and teacher learning*, Journal of Mathematics Teacher Education, vol. 14, no. 1, 2011.

[44] Walshaw, *ibid.*, p. 2.

dialogic style of assessment[45]. When the teacher in our Akita case study says, "Let's have someone present his or her graph for us", the students understand that *neriage* has begun. They know that they are expected to contribute their own ideas, and that their individual ideas are valuable to the collective. The assistant teacher (T2) is integral to the social balance of the classroom in this case-study. T2 interacts with T1 to form a brief double-act, transitioning *neriage* into a deeper turn by introducing the 'big idea' of efficiency. By interacting in this way, *neriage* takes a deeper turn, moving towards the interactive interior (the "heart") of the lesson. After several further turns of individual and collective interaction about dealing with changes in the line's steepness, T2 (at T1's indirect cue) formalises "today's objective" on the marker board. She writes, "Work out how to draw graphs in a way that it would be easy to observe changes" on the marker board. T2 writes very carefully, using a large board-ruler to draw a box around the objective. T1 elicits students' opinions on what makes a graph easy to follow. In this teacher's case, perhaps we have arrived at the heart of her lesson. We suggest this is so because it is at this point of *neriage* that the teacher is seen to use a new interactive strategy. She asks a student to talk about T2's graph, and after he completes his answer, she prompts him to call upon a peer to "share his/her thoughts". The phrase "share his/her thoughts" is therefore a culturally-sanctioned invitation, and its standardised use overtly transmits the high community value placed on the ideas of others to the young individuals learning inside it. To hear somebody's thoughts is to recall Vygotsky's words, "a thought unembodied in words remains a shadow"[46]. Here we see a fundamental aspect of the democratic classroom, in which learners are required to 'do as their teachers do' - place the same cognitive demands and demonstrate the same social courtesies with each other, but in a more structured system[47]. In the Japanese primary school classroom, one observes the idea of 'discussion' *transformed* into a structured learning system in which children practice not only learning mathematics, but also cultural

[45] Paul J. Black, & Dylan Wiliam, 2006, *Assessment for learning in the classroom*. In J. Gardner (Ed.), Assessment and Learning, London, Sage, 2006; Ian Clark, "Formative assessment: Assessment is for self-regulated learning", *Educational Psychology Review,* vol. 24, 2012, pp. 205-249. doi:10.1007/s10648-011-9191-6.

[46] Lev S. Vygotsky, *Thought and language*, Cambridge, MA, MIT Press, 2012, p. 56.

[47] David Bridges, *A philosophical analysis of discussion*. In J. Dillon (Ed.), Classroom Questioning and Discussion: A Multidisciplinary Study. Norwood, N.J., ABLEX, 1988, pp. 15 – 28.

participation. Such 'entry-level' socio-cultural scaffolding is motivating for young learners who may experience some level of neural reward when participating in "culturally prescribed patterns of social interaction"[48]. As "today's objective" is discussed, students invite their peers to "share thoughts" three times. T1 then implements a teacher-centred turn-taking strategy, selecting three more students for a question each. It is T2, (not T1), who then summarizes her more efficient graph to the class, doing so very skillfully in only 50 seconds. Twenty-four minutes into the lesson, T1 mentions peer-learning for the first time, prompting the CS to reflect on their peers' opinions and write down anything that they found convincing and edifying. After a minute or so, T1 employs a certain discursive move. She explicitly connects peer learning when she tells the collective "Good job, you did it all by yourself". The issue of "personal agency" (as seen in the work of Albert Bandura) is understood as autonomy in *interdependent* settings in Japanese classrooms[49]. T1 directs her encouragement towards CS, while recognising the individual effort her students may make in learning from their peers. Next, T1 formally dictates the key points, and brings *neriage* to a close.

The last fifteen minutes of the lesson are devoted to the 'summing-up' or *matome* stage. Japanese teachers see *matome* as indispensable. Shimizu identifies *matome* as a critical difference between Japanese classroom activities and those documented elsewhere. Japanese mathematics teachers are practiced in making "a final and careful comment on students' work in terms of mathematical sophistication", by "theorizing key ideas and applications of the ideas to new problems"[50]. In our Akita case study, we see a robustly strategic use of *matome*'s potential by foregrounding a forthcoming field-trip to the Integrated Environment Centre in Akita City. The 5th-grade students at *Chikuzan* Primary School are provided with substantive waste-output data from the Centre, and are required to use a line-graph similar to the graph on the hamsters to express this data from 2011-2016. T1 engages a group discussion to clarify the details of creating the graph. Here, into the *matome* stage, we see the teacher transition from previous class work ("It's the same as[...]"), and towards the further

[48] Shinobu Kitayama, Hazel Rose Markus, & Masaru Kurokawa, *Culture, emotion, and well being: Good feelings in Japan and the United States,* Cognition and Emotion, vol. 14, no. 1, 2000, p. 95.

[49] Peter Cave, *Schooling selves: Autonomy, interdependence and reform in Japanese junior high education*. Chicago, University of Chicago, 2016.

[50] Shimizu, *op.cit.*

development of concepts related to the OECD's "Global Capability Development Based on Education for Sustainable Development"- inspired learning project, which addresses key cultural themes of environmental stability and sustainable development, bringing the exemplary teachers of Akita city and the international research community together. After 4 minutes of peer discussion the lesson transitions to T1-CS interaction. After this further period of consolidation, the teacher convenes a second peer-discussion so students can adapt their work if they have had new ideas. As a final 'summing-up' question, T1 asks the class an open-ended question:

> T1. Did you notice anything? Looking at these line graphs, did anyone notice anything? Sakataro, let's hear you speak.
>
> Saka. Yes. The amount of garbage went down between Heisei 24 (2012) and Heisei 25 (2013). I think this is because the cost of garbage bags went up.
>
> CS. Same here.
>
> T1. We can make a prediction, but we can't tell what the answer is for sure[...] I would like to try to find out why it is through the Internet, and also try to ask about it during our field trip.

Even as she selects an individual to share thoughts, T1 invites the CS to think and to listen to the ideas of their peers. It is an example of how open-ended questions of cultural relevance (i.e. waste management and civics) are brought into a consensual space and support children's struggle to realise the *zenjin* ideal. In her closing remarks T1 says, "So, yes, I think it was great that we learned about efficiency today. Before we call it a day, let's try to reflect upon what we have learned and write down our thoughts". With the students' own summation under way, *matome* and the Japanese mathematics lesson draws to an end.

Reflection

"*A thought unembodied in words remains a shadow*"[51]

We have seen that the value attached to verbal discourse and dialogue (in a culture that values indirectness, even silence) in the Japanese classroom is highest during *neriage*, and not *matome*. This is because *neriage* is designated as the 'interactive heart' of the lesson, and while *matome* is

[51] Vygotsky, *op.cit.*

crucial, its specific purpose is not to shape basic student reasoning - this may be done most equitably with *whole-group* interaction[52]. Vygotsky's words provide a timely reminder of the social construction of collective understanding and consensus. Teachers employ questioning strategies that bring evidence of learning "out of the shadow" and "into the light"; sharing thoughts in ways that model culturally-sanctioned [53] verbal feedback interactions experienced as more rewarding by their students. Japanese teachers employ questioning strategies that engage students in ways that make their contributions - their *efforts* - visible and valuable to the classroom community. The Japanese school system pays careful attention to the promotion of student autonomy, and provides many opportunities for its cultivation and development[54]. School staff enact the role of "fellow travellers" who "scaffold"[55], or assist[56] learners to become confident and capable of making good decisions inside, outside, and beyond school autonomously[57]. Sugita directs Japanese teachers to work alongside learners, urging them to "observe what children are doing..."; to ask, "how do you suffer with them, and what do you enjoy together"; and of course, to encourage autonomy in interdependent settings by "letting children face problems which they can manage in sincere collaboration"[58].

We have discussed how inviting ideas and valuing learners' efforts recruits the reward-related networks of the human brain. Learners, therefore, experience positive feelings ('intrinsic motivation') associated with dopamine production, leading them to feel a sense of anticipation, even excitement for the next interaction[59]. This means that the simple expectation of a high-quality interaction, based on past experience, activates the social reward networks in the brain.

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[52] American National Research Council, *op.cit.*

[53] Kitayama et al. *op.cit.*

[54] Catherine C. Lewis, *Educating heart and minds: Reflections on Japanese pre-school and elementary education*, Cambridge University Press, 1995.

[55] David Wood, Jerome S. Bruner, & Gail Ross, *The role of tutoring in problem solving*. Journal of Child Psychiatry and Psychology, vol. 17, no. 2, 1976, pp. 89–100.

[56] Lev. S. Vygotsky, *Mind in society: The development of higher psychological processes.* Cambridge, MA, Harvard University Press, 1978.

[57] Ian Clark, *Translating high level curriculum principles into classroom practice*, Curriculum Journal, vol. 26 no. 1, 2015, pp. 91-114; MEXT/Sugita, *op.cit.*, p. 3.

[58] MEXT/Sugita, *ibid.*

[59] John D. Salamone, & Mercé Correa, *The mysterious motivational functions of mesolimbic dopamine*, Neuron, vol. 76, no. 3, 2012, pp. 470–485.

Despite the (European) Enlightenment's legacy of pervasive rationalism[60], we encounter in education policy aspects of political thought that are consonant with *zenjin* ideations. For example, as Europe's political institutions such as UNESCO's International Commission prepared for the 21st-century, the Delors Report urged schools to lift the "minds and spirits" of their children to the "plane of the universal and in some measure to transcend themselves"[61]. In closing, we pause to reflect upon Black and Wiliam's observations of nascent social learning in British and American classrooms:"The involvement of students both in whole dialogue and in peer group discussions, all within a change in the classroom culture was creating a richer community of learners where the social learning of the students was becoming more salient and effective"[62]. In these final remarks we find the beginnings of a learning environment consistent with that idealised by *zenjin* educators.

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[61] Delors, *op.cit.,* p. 18.

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IMPACT OF THE COVID-19 PANDEMIC ON MOTIVATION FOR LEARNING IN THE STUDENTS

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***Abstract**: The article approaches the problematic of the teaching-learning activities in Higher Education during the Covid-19 pandemic. The study emphasizes the results of a recent research accomplished a survey Likert-scale. The participants in the research are 261 students from the University of Bucharest, from different faculties, who have been given a survey Likert-scale during the adapted form of training derived from the crisis. Results of the analysis of research data shows that students have seen their ability to concentrate and motivation to perform tasks affected, but they did not leave university. In this respect, the most difficulties were in carrying out group work than individual. The adaptations made by the University during lockdown have been positively appreciated.*

***Keywords**: Higher Education, motivation, Covid-19, online learning, ICT.*

1. INTRODUCTION

The situation of international crisis derived from Covid-19 has meant the incorporation of many universities into modalities of teaching-learning distance teaching. Although Higher Education institutions were quick to replace face-to-face activities with video conferencing and online learning, these closures affected learning and assessments, as well as relationships between students, work teams, and projects. Different strategies have also been adopted in Romania, but the health and social emergency has impacted on the ability to follow activities.

The challenges facing teachers at the university today are complex and diverse. Its performance has been rethinking based on educational models focused on student learning, which also demand substantial changes in the academic-administrative organization of higher education institutions.

These changes have been driven through international, sectoral, and institutional policies aimed at improving the quality and equity of this level of education.

According to Schleicher (2020) the COVID-19 pandemic has also had a severe impact on Higher Education as universities closed their premises

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and countries shut their borders in response to lockdown measures. Although Higher Education institutions were quick to replace face-to-face lectures with online learning, these closures affected learning and examinations as well as the safety and legal status of international students in their host country[1].

2. THEORETICAL PERSPECTIVES

Today, the digital age is considered one which we need to embrace. Technology in education opens a huge world of possibilities as to how we convey, share, and engage with students presenting different ideas, facts and theories.

Innovative technologies not only have the potential to evolve pedagogical practice, but also completely transform entire learning environments. When technology is leveraged with a very strategic vision and change management plan, the results can be revolutionary[2].

The digital transformation is an unending tidal wave continuing to change how we work, communicate, play, and conduct our daily lives. Not only is this the world our learners are currently immersed in, but it will also continue to progress and the world that is their future will be digital in ways we can't even begin to imagine. Learning environments today must be at least partially digital, not only to provide students with access to the tools and ways of operating that are infused in our world, but also to engage them in modes of learning that mirror their personal activity. The pedagogies and learning experiences described thus far connect with numerous cognitive competencies and capacities, but also with digital literacy—helping to develop critical skills to engaging with, consuming, and producing digital media (Hobbs, R., 2010)[3].

The psychological aspects are some of the most evident by the students along with the social ones and coincide with the scientific concern about the effects of the Covid-19 crisis in this sense (Urzúa et al., 2020)[4].

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[1] A. Schleicher, *The impact of COVID-19 on education: insights from Education at a Glance* , OECD, Paris, 2020, p. 4.

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According to Ryan and Deci, students are more motivated and stay motivated, driven by intrinsic rewards such as constructive criticism rather than extrinsic, such as good grades because the intrinsic rewards give more satisfaction than the extrinsic rewards. To be motivated means indeed to be moved to act (Ryan & Deci, 2000)[5].

After reviewing of the literature Brophy (2010) asserts that motivation is a theoretical construct used to explain the initiation, direction, intensity, persistence, and quality of behavior, especially goal-directed behavior (Maehr & Meyer, 1997).

Furthermore, motives are hypothetical constructs used to explain why people are doing what they are doing. Motives are distinguished from related constructs such as goals (the immediate objectives of particular sequences of behavior) and strategies (the methods used to achieve goals and thus to satisfy motives). For example, a person responds to hunger (motive) by going to a restaurant (strategy) to get food (goal) (in Brophy, 2010, pp. 3-4).

According to Brophy (1987), motivation to learn is a competence acquired "through general experience but stimulated most directly through modeling, communication of expectations, and direct instruction or socialization by significant others (especially parents and teachers)"[6]. In his study Brophy (1987) asserts that the state of motivation to learn exists when student engagement in a particular activity is guided by the intention of acquiring the knowledge or mastering the skill that the activity is designed to teach. In particular, students are more likely to want to learn when they appreciate the value of classroom activities and when they believe they will succeed if they apply reasonable effort.

Lazarus et al.[7] (p. 19) defined stress as „a particular relationship between the person and the environment that the person considers to be taxing or exceeding his or her resources and putting his or her well-being at risk". These authors further postulated that stress is best viewed as an interpretative paradigm between the stressors and the individual's psychological reactions.

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[7] R.S. Lazarus, S. Folkman, *Stress, Appraisal, and Coping,* Springer Publishing Company: New York, NY, USA, 1984.

Anxiety, being a subcategory of psychological impacts, has attracted less attention, although it is as widespread and conceivably as crippling as depression[8]. Anxiety can be fueled by uncertainty and by fears of risk of harm to self or others. Anxiety is still undiagnosed and under-treated in the global context[9].

In addition to intense feelings of fear or panic[10], anxiety patients may also experience other physiological symptoms, such as feeling weak, fainting, pain or nausea, shivers, rapid breathing etc. [11]. Anxiety impairs focus and concentration[12], memory[13], and visual motor skills[14]. Specific to this study, early literature has documented the negative influence of pandemics on students' psychological well-being[15], which has led to acute depression and anxiety[16].

Cao et al. (2020)[17] investigated the psychological impact on university students in China during the COVID-19 pandemic. Out of 7143 students studied, 0.9% had severe anxiety, 2.7% had moderate anxiety, and 21.3% had mild anxiety.

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[17] W. Cao, Z. Fang, G. Hou, M. Han, X. Xu, J. Dong, J. Zheng, *The psychological impact of the COVID-19 epidemic on college students in China.* J. Psychiatry Res., 287, 2020, 112934.

The study by Wang et al. (2020) on 1210 students from 194 cities in China, found 53.8% of respondents having severe to moderate psychological impact, with female students being associated with greater psychological impacts. As suggested in previous studies (Wang, G. et al., 2020[18]; Bayram, & Bilgel, 2008[19]; Bruffaerts et al., 2018[20]) also opined that heightened uncertainty and its bearings on students' academic progress could influence students' psychological well-being[21].

According to Edelhauser & Dima (2020) the COVID-19 pandemic represents a crisis for the whole world, but maybe a challenge for the education system. A challenge and also a test for the relationship between face-to-face education and virtual education, a trigger for the transition to a new education system[22].

The global health crisis has paralyzed face-to-face attendance at compulsory education classes for children and adolescents, but it has also had a major impact on university education. There has been much international discussion about what school closure meant (Cifuentes-Faura, 2020), but not so much in reference to Higher Education[23].

The findings of the study by Tan (2021) indicated that the students lost motivation and learning performance using online learning methods during this period. Students are not able to focus on learning using online learning methods and, they lack motivation during the pandemic[24].

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[18] G. Wang, Y. Zhang, J. Zhao, J. Zhang, F. Jiang, *Mitigate the effects of home confinement on children during the COVID-19 outbreak*. Lancet, 395, 2020, pp. 945–947.

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[21] Cf. S. Sundarasen et al., *Psychological Impact of COVID-19 and Lockdown among University Students in Malaysia: Implications and Policy Recommendations* . Int. J. Environ. Res. Public Health, 17, 2020, 6206.

[22] E. Edelhauser, L.L. Dima Is Romania *Prepared for eLearning during the COVID-19 Pandemic?* Sustainability 2020, 12, 5438.

[23] J. Cifuentes-Faura, *Consecuencias en los Niños del Cierre de Escuelas por Covid-19: El Papel del Gobierno, Profesores y Padres.* Revista Internacional de Educación para la Justicia Social, 9(3), 2020.

[24] C. Tan, The impact of COVID-19 on student motivation, community of inquiry and learning performance, Asian Education and Development Studies, 10(2,) 2021, p. 309.

3. THE RESEARCH METHODOLOGY

3.1. Objectives of the research

We have proposed to know that are the perceptions of students on the impact of the Covid-19 emergency to learn in the online classes.

3.2. Research sample

To know how the Covid-19 crisis has affected them in the context of confinement, and thus detect the main difficulties that students may have in their studies in general, a Questionnaire was designed as a technique for collecting information and they were asked, among others, the following open question: In general, how has the Covid-19 crisis affected your academic studies? To what extent your motivation and concentration have been affected?

The open question was asked to 261 students from various faculties of the University of Bucharest between May and July 2020.

When asked how the Covid-19 crisis has affected them in their studies in general, some even say that they have not undergone too many changes or that they have only been of a solvable practical nature. But the vast majority do perceive many psychological aspects that have changed under the current situation.

In the following, we present a more detailed description of the structure of the sample (see Fig. 1).

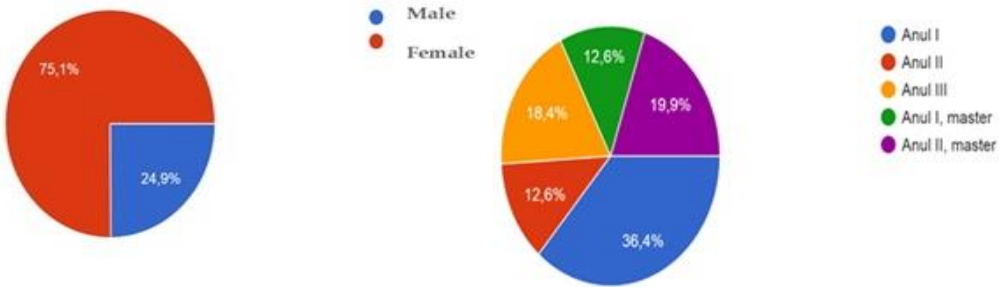

Fig. 1. Distribution of population

3.3. Procedure

The procedure followed to obtain the data was the written application of the questionnaire, sent to the students by email.

4. RESULTS

As result of the analysis of the data obtained from the investigation, we found that the subjects appreciated the lack of motivation, and the concentration decreased considerably during this period.

I noticed that my concentration to complete the works / projects was reduced during this time (strongly agree - 5- 88(33,7%) and agree-4 – 58(33,2%).

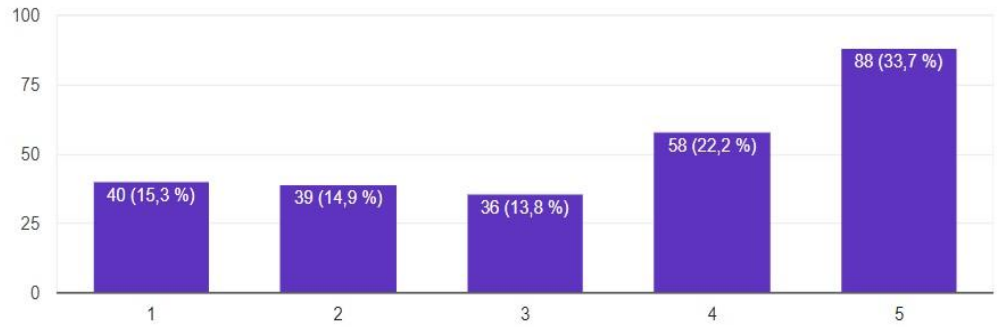

Fig. 2. Graphic responses of subjects (concentration)

I noticed a low motivation regarding the studies / learning activities during this period: strongly agree- 5- 79(30,3%); 4 – agree – 49(18,8%)

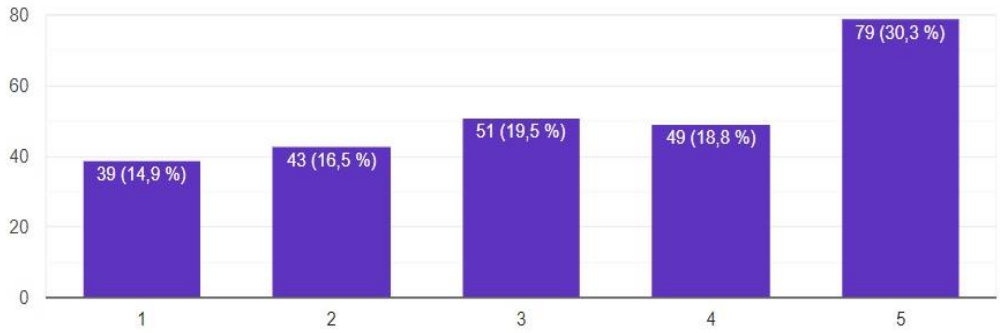

Fig. 3. Graphic responses of subjects (motivation)

In situations such as those experienced, concentration and motivation are aspects that can be greatly affected and have a direct relationship with the possibility of studying and carrying out University activities.

On the other hand, interest in carrying out the exercises that the teachers have adapted may also be reduced. In addition, the responses of the participating students reveal that the loneliness of a confinement also represents a significant loss for all people and is increased among people who are used to sharing an activity as social as university.

The international situation has been so serious that the context has not helped to disconnect from negative situations. This has an impact on concentration and the desire to study, which can affect many people in an intense way, as the students explain in the answers. In fact, some students even speak of depression because of the situation that was happening. Some students mention a higher "energy consumption" when carrying out the activities. Which is also related to an increase in stress to which they have been subjected.

From previous studies (Duță, 2015) we noticed that students need a „management" of knowledge through which to implement the new knowledge, to exploit knowledge in real-life contexts and challenging, to capitalize the individual learning by highlighting the benefits acquired at his lifetime[25].

According to Ambrose et al. (2010) "students are more likely to exert effort in a course if they anticipate an eventual payoff in terms of their future professional lives. Consequently, instructors can enhance motivation by linking their course content to students' intended professions, pointing out how the skills and knowledge students are gaining in class will help them after they graduate"[26].

As we have noted the students are motivated by the atmosphere during classes. The climate is established through some interesting and attractive hours by applying modern working methods (in groups, guided discussions, debates, use of the new technology). The climate needs to be relaxed and at the same time captivating, and the teacher to manifest enthusiasm and passion.

5. CONCLUSIONS

The data analysis indicates the fact that understanding personal needs and learning objectives provide increased motivation; the emphasis on the

[25] N. Duță, *Importance of the motivation of students for learning–Premise for academic performances. Inventory of reasons for which students learn*, Euromentor Journal, 6(2)/2015, p. 60.

[26] S.A. Ambrose et al., *How Learning Works: 7 Research-Based Principles for Smart Teaching*, San Francisco, CA: Josey-Bass, 2010.

essentialization on the quality of the information in the act of teaching and not on quantity determines dynamic content to teach positive motivation; participation in classroom activities through modern methods, discussion, effective communication techniques increase learning motivation; the subjects taught interestingly enough, attractive and which have a support practical and applicative influence motivation in learning.

Research has also shown that good everyday teaching practices can do more to counter student apathy; most students respond positively to a well-organized course taught by an enthusiastic teacher who has a genuine interest in students and what they learn. Thus activities a teacher undertakes to promote learning will also enhance students' motivation. He needs to know his students well, be enthusiastic about his subject and accept any student problem as a challenge that needs to be overcome.

Lessons for the successful introduction of technology in schools: technology management, appropriate infrastructure and overcoming other barriers. Technology is most effective when there is a holistic strategy to integrate digital and no digital resources; the school's infrastructure needs to facilitate the use of the technology being introduced.

Interactive pedagogy is not an outcome of technology use and does not simply change because of the introduction of new technology. Instead, the power of using technology in the classroom relies on the premise that it is integrated into existing pedagogy.

Making our online class as interactive as possible is one of the ways can motivate students to participate in class. Learners are typically familiar with social features like commenting and sharing online content. Having features like this as part of the online learning process can improve participation and engagement. Should also get learners to communicate and interact with each other.

Even for online courses that are focused more on individualistic learning, can still make use of online forums and other tools that foster group discussion and collective problem-solving. It may not be as much as what you would get with face-to-face meetings, but human interaction will provide some form of motivation and improve the experience of your learners.

In general, there are students who are happy and very proud of the University professors, because even at critical moments, professors and students mobilized to achieve everything that was going to be achieved even in the normal period of study.

Considering the perceptions of students about the studies affected by Covid-19, it can be concluded that the system of teaching activity, academic evaluation should be regulated and, in turn, could be reformed through the integration of university teaching staff in a system of continuous training on topics of current interest.

The challenges in the new context of Covid-19 and post-Covid19 mean additional work for all university teachers, but also for global education**.**

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QUALITY AND COMPETITIVENESS OF EDUCATION IN THE REPUBLIC OF MOLDOVA IN GLOBAL INDICES

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Abstract: *In the age of digitalization, the relevance of studying the quality of education is increasing. The main task facing the education of the Republic of Moldova is to increase the competitiveness on the world market of educational services, because the degree of digitization increases comparatively faster than the level of knowledge, and increases the gap between knowledge and skills. The research object of this study is to evaluate the quality and competitiveness of education in global indices. Various research methods were used: statistical method, comparative analysis, methods to visualize statistical data, etc. The quality and competitiveness of education were analysed both for the Republic of Moldova and for the neighbouring partner countries. In this study, the analysis of the advantages and disadvantages of the Education Index (component of the Human Development Index), the pillar "Education" of the Legatum Prosperity Index and the pillar "Skills" of the Global Competitiveness Index were performed.*

Keywords: *quality of education, Education Index, Human Development Index, Legatum Prosperity Index, Global Competitiveness Index.*

Introduction

The well-being of the population depends on the level of development and competitiveness of the national economy. One of the main factors contributing to the development of both the economy and society is human capital. Therefore, the primary task of a modern society is to enhance the quality and increase the competitiveness of education. In the age of digitalization, society needs specialists capable of professional reorientation, continuous training and access to quality higher education for anyone.

Given the expansion of the globalization process and the departure of some of the active youth to study or work abroad, the education system faces a number of problems: the aging of teachers, the departure of young teachers abroad to work illegally, the demotivation of young people to obtain in the local education system deep knowledge and their application in the home country, because there is a gap between professionalism and

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remuneration. The main task of the education system is not only to acquire knowledge, but also to train the younger generation of skills necessary in everyday life, the ability to adapt to a rapidly changing world.

The research object of this study is the application of global indices to the evaluation of the quality and competitiveness of education. The researches were carried out within the project of the State Program 20.80009.0807.29 "Improving the application mechanisms of the innovative instruments oriented towards the sustainable growth of the well-being of population of the Republic of Moldova."

Literature review

There are many approaches to the quality of education in the literature. Some scholars argue that the quality of education and the quality of teaching are identical concepts, others consider that the quality of education is the quality of knowledge, another group of scientists points out that personality development reflects the quality of education, and the fourth approach focuses on preparing the individual for daily life. We will analyse the scientific interpretation of the "quality of education" in this regard.

Researchers A. Thangeda, B. Baratiseng and T. Mompati believe that quality education provides knowledge and skills "to apply the gathered information in real life scenarios."[1] The views of pedagogues S. Shilova and A. Moiseev are diametrically opposed. The first teacher argues that quality education ensures that the needs of society are met[2], and the second – that educational outcomes must first coincide with the expectations of the students themselves, only then the teachers, the school management and, finally, society[3].

Aspects of quality education are listed by Linda Darling-Hammond in the study "The importance of quality Education: From start to End", such as "earning resources, technology, program enrolled, modules done, lecturing methodology, attachments, qualifications, co-curricular activities, performance awards, etc."[4] McAleese has reduced the number

[1] A. Thangeda, B. Baratiseng & T. Mompati, *Education for Sustainability: Quality Education is a Necessity in Modern Day. How Far do the Educational Institutions Facilitate Quality Education*, *Journal of Education and Practice*, 2016, Vol. 7, No. 2, 9–17.

[2] S. Shilova, *What do we Expect from the Quality Economy System*? *Standards and Quality*, 2002, No. 1, 50-53.

[3] A. Moiseev, O. Moiseeva, *Strategic Management in School: Textbook*, Moscow, Center for Pedagogical Education, 2007, 256 p.

[4] L. Darling-Hammond, *The Importance of Quality Education: From Start to End,* 2013; http: www.nie.edu.sg/nienews/sept13/?g=content/20/01

of factors that can be used to assess the quality of education to the following four: "the teaching system, programs provided, quality of lecturers, and the learning environment."[5]

As in the case of competitiveness, there is no single definition for the quality of education. M. Potasnic reveals that the quality of education is a certain level of knowledge and skills, of mental, physical and moral development, which graduates of an educational institution have achieved in accordance with the planned goals of education and upbringing, that is, it acts as a ratio of goal and result, measures to achieve the objectives set operationally and predicted in the area of potential development of pupils/students[6]. The quality of the educational process is determined by scientists L. Merkulova and N. Solovova as the integrity of the consumer properties of the educational services provided, creating conditions for the comprehensive development of the individual's personality[7] [8].

The author of this study shares the opinion of researchers N. Selezneva, L. Merkulova, N. Solovova who consider that the quality of education is an integral concept that combines the quality of the educational process, its results and the quality of the functioning of the entire educational system[9].

Database and methodology

The theoretical and methodological basis of the study is the approaches presented in the classical and modern studies of foreign and domestic scientists. The dialectical and logical method of research, applied statistical method, comparative analysis, tabular and graphical methods for viewing statistical data were used in this paper. In the study, the comparative analysis was performed for the Republic of Moldova and neighbouring partner countries.

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[5] M. McAleese, *Improving of the Quality of Teaching and Learning in Europe's Higher Education Institution*, 2013;

http://ec.europa.eu/education/library/reports/modernisation_en.pdf

[6] M. Potasnic. *Management of Education Quality*, Moscow, Pedagogical Society of Russia, 2006, 443 p.

[7] L. Merkulova, *Formation of Professional Mobility of Technical Specialists by Means of Foreign Language*, Dissertation of doctor of pedagogical sciences, Samara, 2008, 454 p.

[8] N. Solovova, *Control of Methodical Work of the University in the Realization of Innovative Teaching Objectives*, Dissertation of doctor of pedagogical sciences, Samara, 2011, 571 p.

[9] N. Selezneva, *The Quality of Higher Education as an Object of Systematic Study: Lecture-report*, Moscow, Research Center for the Problems of the Quality of Training of Specialists, 2004, 95 p.

The analysis period was established for each global index based on the availability of statistical data. A single period for all these indices could not be set because they were elaborated in different years and presented by different institutions.

Education Index

The Education Index is an integral index, the calculation methodology of it was changed in 2010. Initially it was calculated as an index composed of the adult literacy index and the Index of the cumulative share of students in primary, secondary and tertiary education, and today it is calculated based on two indicators: average years of schooling for adults and expected years of schooling for children. This index is considered one of the key indicators of social development and is a component of the Human Development Index[10].

The analysis of the Education Index's evolution of the Republic of Moldova shows that the highest level was registered in 2013. Subsequently, this index decreased in the next three years, then it increased insignificantly. Although in general index has upward trend, the reached level is considerably lower compared to the level of neighbouring partner countries. In Romania, the Education Index increased until the global financial crisis of 2008-2009, after it decreased in the next three years. Ukraine compared to Romania did not register essential disturbances during the analysed period (Figure 1). In 2019, the Republic of Moldova has been ranked at 82nd in the Education Index, while Ukraine - 47th, and Romania - 58th.

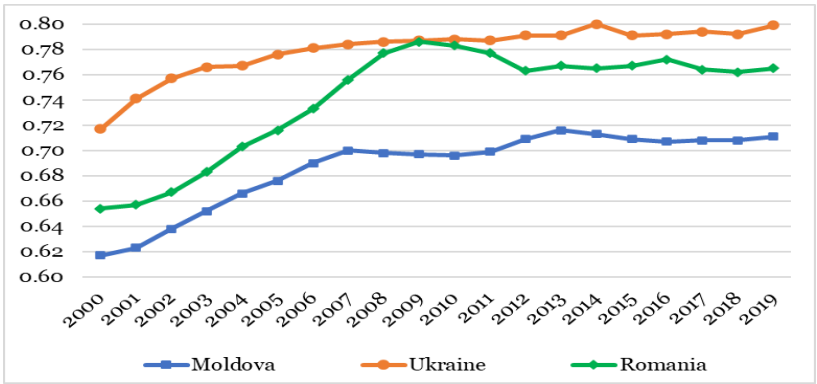

Figure 1. Education Index, 2000-2019

[10] *Human Development Report 2020*, United Nations Development Programme, New York, 2020, 412 p.

This index is a universal indicator, in the latest published report "Human Development Report 2020" it was calculated for 189 countries. However, it also has limitations. Education Index does not take into account students studying abroad; this fact may distort the data for some small countries, such as the Republic of Moldova. In 2016, every sixteenth Moldovan student studied abroad, and in 2019 – every tenth. Therefore, 10% of students are not taken into account (Table 1). The trend of the ratio of the number of Moldovan students studying abroad to the number of students in the Republic of Moldova shows that the share of students who will not be taken into account will continue to grow.

Table 1: Number of Moldovan students studying in the country and abroad

	2014	2015	2016	2017	2018	2019
Number of students in the Republic of Moldova, persons	89529	81669	74726	65543	60608	56840
Number of Moldovan citizens studying abroad, persons	5469	5515	6095	5922	5566	5668
The ratio of the number of Moldovan students studying abroad to the number of students in the Republic of Moldova, %	6.11	6.75	8.16	9.04	9.18	9.97

Source: Data of the National Bureau of Statistics of the Republic of Moldova[11] and data of the statistical compendium of the Ministry of Internal Affairs of the Republic of Moldova[12]

[11] *Moldova Statistical Database*, National Bureau of Statistics of the Republic of Moldova;

http://statbank.statistica.md/pxweb/pxweb/ro/30%20Statistica%20sociala/30%20Statistica%20sociala__07%20INV__INV010__INV010rev/?rxid=b2ff27d7-0b96-43c9-934b-42e1a2a9a774

[12] Statistical Compendium of the Extended Migration Profile of the Republic of Moldova, Ministry of Internal Affairs of the Republic of Moldova, Chişinău, 2020, 40 p.; http://bma.gov.md/sites/default/files/sites/default/files/atasamente/comunicate/cs_al_pme_2017-2019_ed_2020.pdf

Evaluation of Education in the Legatum Prosperity Index

The Legatum Institute was founded in 2007, and since this year it has been collecting the database for calculating the Legatum Prosperity Index. This index initially combined over 70 variables and was calculated for more than 50 countries around the world. In the 2010 edition, 110 countries were classified according to eight basic pillars of prosperity, but in the 2021 edition, the performance of 167 countries was already analysed and the index includes 300 indicators systematized in 12 pillars[13]. One of the pillars of the Legatum Prosperity Index is Education. Figure 2 shows the dynamics of this pillar for the Republic of Moldova and neighbouring partner countries.

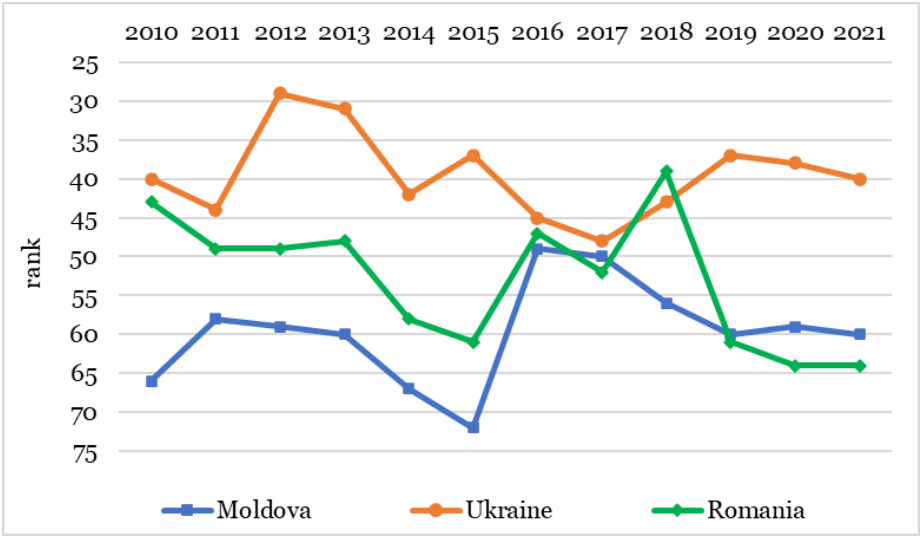

Figure 2. Pillar "Education" of the Legatum Prosperity Index, 2010-2021

The pillar "Education" combined 18 indicators in 2021, including 1 indicator for pre-primary education, 3 indicators for primary education, 4 indicators for secondary education, 5 indicators for tertiary education and 5 indicators for adult skills. Twelve of the eighteen indicators are quantitative. Therefore, every third indicator of the pillar "Education" is qualitative.

The level of education is assessed in terms of access to education, the quality of education and human capital. Access to education is estimated using the following indicators: "the percentage of children (adults)

[13] *The Legatum Prosperity Index*, United Nations Development Programme, New York, 2021, 23 p. https://li.com/reports/2021-legatum-prosperity-index/

enrolled in education (pre-primary, primary, secondary, tertiary), the Gini coefficient of education distribution among 15+ population, accounting for average years of schooling among the population, etc."[14] The quality of education is calculated using indicators that reflect public opinion on education (expert survey). The average number of years of primary, secondary or tertiary education per capita is taken into account in assessing "human capital".

The pillar "Education" of the Legatum Prosperity Index comparative to the Education Index has advantages. Firstly, it contains 9 times more indicators, and secondly it allows the evaluation of the quality of education at various levels of education (pre-primary, primary, secondary, tertiary). The disadvantage of this index is that the method of calculation is changes frequently, which can distort the results of the analysis of the quality of education in dynamics.

In 2021, the Republic of Moldova registered the highest performance in Social Capital and Education (Figure 3). Despite this, during the analysed period the Republic of Moldova yields to Ukraine in the ranking. In 2021 Ukraine ranked on the 40th position in the pillar "Education" (Figure 2).

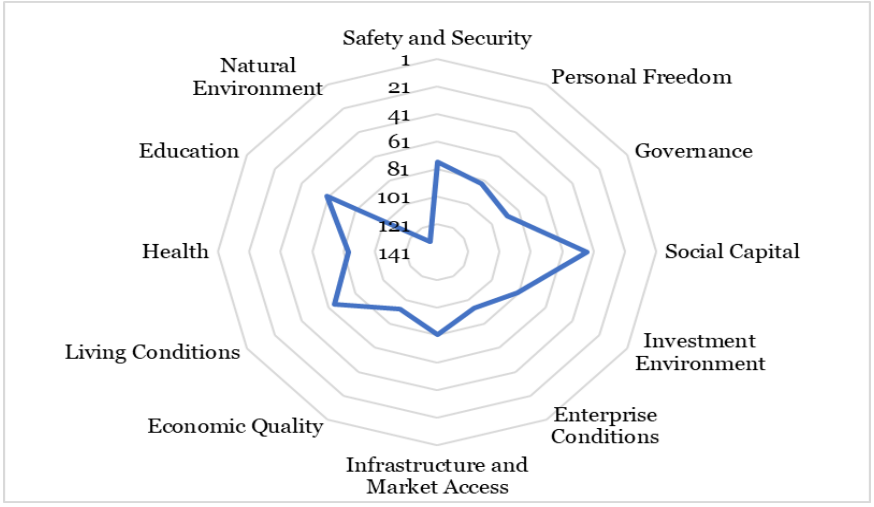

Figure 3. Radar chart of the pillars of the Legatum Prosperity Index of the Republic of Moldova in 2021, rank

[14] *The Legatum Prosperity Index*, United Nations Development Programme, New York, 2021, 23 p. https://li.com/reports/2021-legatum-prosperity-index/

The uneven evolution of the level of education in Moldova is caused by the optimization/closure of primary and secondary educational institutions[15], and the rather modest efficiency of the education reform.

Assessment of the competitiveness of education

The Global Competitiveness Index (GCI) is used to analyse the competitiveness of the national economy, including the competitiveness of institutions, infrastructure, education, health care, etc. In 2017, a new methodology (GCI 4.0) for calculation GCI was developed, and in parallel with the old methodology, the new one was tested in the calculation of competitiveness.

According to the old methodology, the indicators that reflect the competitiveness of education were divided between the 4th pillar "Health and primary education" and the 5th pillar "Higher education and training", and in the new methodology these indicators form the 6th pillar "Skills". The set of indicators has also been modified, 8 out of 10 indicators have been excluded from the calculation algorithm and another 7 new indicators have been included[16]. Therefore, because obtained skills reflect the competitiveness of education, in the new methodology the pillar of competitiveness of education is called Skills.

Unfortunately, the results of the calculations according to the new methodology were published only for the years 2018-2019, and in the subsequent reports for 2020 and 2021 the ranking of 141 countries in the division of pillars and indicators is not presented. The "2021 IMD World Competitiveness Ranking" presents only the ranking of 64 countries according to the Global Competitiveness Index.

Figure 4 shows the dynamics of education competitiveness of the Republic of Moldova and neighbouring partner countries. As we can see, the competitiveness of education in Moldova is comparatively lower compared to the level reached by Ukraine and Romania.

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[15] T. Gutium, *Approaches to Measurement of Well-being: Case of the Republic of Moldova*. In: *International Conference Innovative Business Management & Global Entrepreneurship (IBMAGE2020),* 2020, Lumen Proceedings: Volume 14, pp. 256-269; https://proceedings.lumenpublishing.com/ojs/index.php/lumenproceedings/article/view/566/568

[16] *The Global Competitiveness Report 2019*, Geneva: World Economic Forum, 2019, 666 p.; https://www3.weforum.org/docs/WEF_TheGlobalCompetitivenessReport2019.pdf

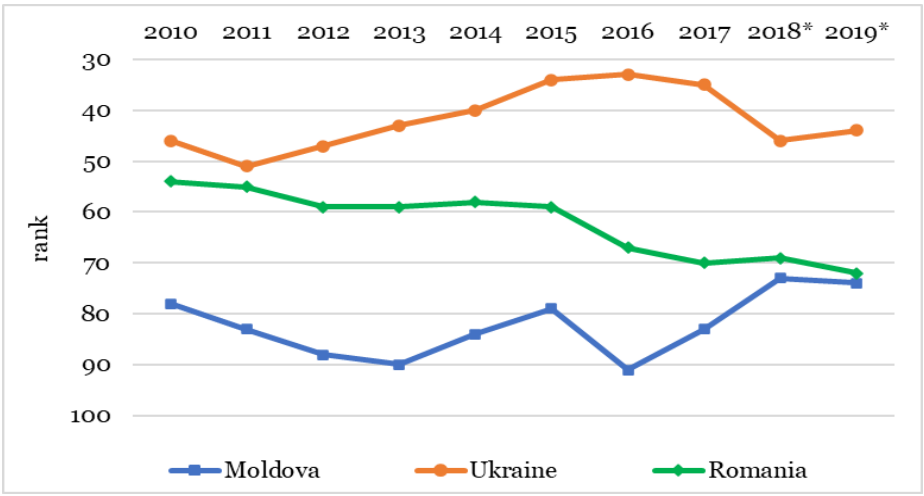

Figure 4. Pillar "Skills" of the Global Competitiveness Index, 2010-2019

Note: * The Global Competitiveness Index is calculated according to the new methodology GCI 4.0.

During the years 2010-2019, Moldova dropped by 18 positions in the ranking of the indicator "Quality of vocational training". As mentioned above, the cause is the closure of primary and general secondary education institutions (Figure 5).

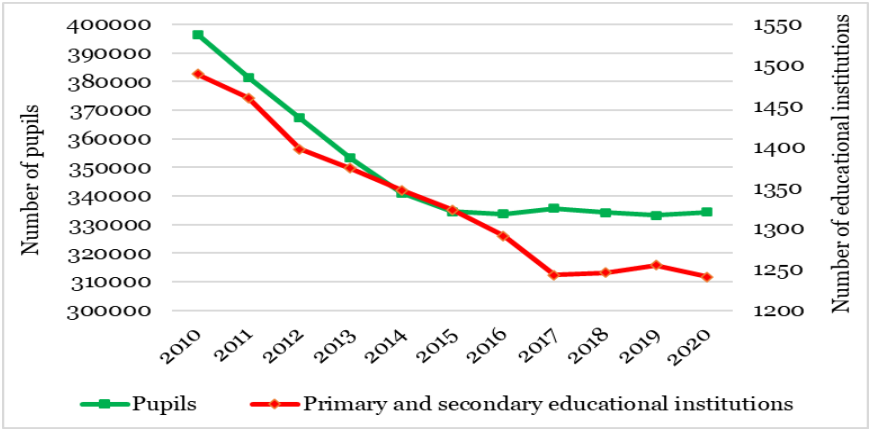

Figure 5. Evolution of pupils and educational institutions, 2010-2020

During the years 2010-2015, both the number of students and the number of educational institutions decreased. In the subsequent period, despite the fact that the number of school-age children was relatively constant, however, in 2016 and 2017 the process of closing schools

continued. The number of primary and general secondary education institutions decreased by 32 institutions in 2016 and by 48 in 2017. In 2020 the destructive process continued, another 14 schools were closed, although the number of pupils increased by 1231 people.

Conclusion

The analysis of the global indices used to evaluate the quality of education showed that the most reliable is the pillar "Education" of the Legatum Prosperity Index. First, it combines 18 indicators, while the Education Index (a component of the Human Development Index) includes only 2 indicators, and the pillar "Skills" of the Global Competitiveness Index – 9 indicators. Secondly, this index is calculated annually by the Legatum Institute, which ensures that the data series will not be interrupted.

The accessibility of education helps citizens to develop their own potential and make a productive contribution to the development of the national economy and the increase of well-being, because education is one of the basic components of well-being and is used to assess quality of life. Therefore, closing schools while the number of pupils is relatively constant or increasing is not rational. Continuing to close primary and secondary schools will inevitably lead to diminished prosperity and quality of life.

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HUMAN PERSON AND THE METAPHYSICS OF EDUCATION

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Abstract: *The nature of the human person as a subject of lived experience and as an indispensable agent of rational knowledge presents to the society the necessity to duly and reasonably educate the individual in order to have proper knowledge of the whole existence. With metaphysics as the Theory of Reality the human society understand that the conceptualization of knowledge is indispensably dependable on the knowledge of the human person, beyond the power of physical/sensible perceptibility. As such, the idea of metaphysics makes the education of the human person very concrete, robust, holistic and integral in understanding the workability of nature, due to the power of the human mind. Adopting phenomenological method of analysis in assessing the implications of metaphysics as a Theory of Reality in education, the paper concludes that the societal integration of the metaphysical imports of education will concretize the realization of integral human development and engineer proper advancement of the society*

Keywords*: Education, Human Person, Metaphysic, Knowledge, Integral Human Development*

Introduction

The aspect of knowledge in philosophy of education or educational philosophy interests itself with the value of metaphysics, popularly referred to as: *Theory of Reality*. With this classification of metaphysics as the theory of reality, we derived the indispensable placement of education, for what is realistic is what can be educated or being educated as knowledge. As the study of reality, it becomes education itself. Here, we situate it in the development of the human persons through education

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of the minds. It equally assesses its implications in the education of students as persons whose socialization, civilization and innovations are driven by the effects of the lived-experiences. Metaphysics as a branch of philosophy is directed to seek the truth inherent in realities.[1] It is about making the fullness of reality to humanities, and through such truth discovered, the human person as subject of knowledge develops the world in accordance with his or her worthiness and rights invested by human persons themselves existentially.[2]

Such understanding of the human person posits that, it is in seeking the nature of reality that knowledge of the world is developed and obtained. The nature of reality is known because it is experiential, and to metaphysics, every reality can be known as such reality can be perceived sensationally, rationalized or idealized. The theory of reality as mode of knowledge posits that, it is by understanding the philosophical conceptualization of realities as metaphysical and existential entities that the human persons as subjects of knowledge are greatly and fully understood, especially in reference to the development of the human society through educational pedagogies, creativities and innovations, as products of human intelligibility and rationality.

Linking the valuation of integral human development with the metaphysical interplay of faith and reason, through ontological and existential capacity and capability of the human mind, John Paul II asserts that; "metaphysics should not be seen as an alternative to anthropology, since it is metaphysics which makes it possible to ground the concept of personal dignity in virtue of their spiritual nature." With the spiritual capacity and capability of the human mind, the sociological imports of development are hinged on the valuation of the individual as a subject of creativity and innovation. In a special way, the person constitutes a privileged locus for the encounter with being, and hence with metaphysical enquiry.[3]

Such mental passage of learning directs us to explain the meaning and societal conception of metaphysics as a core branch of philosophy for the development of intellectual minds of learners, with special reference to its

[1] See, C.K. Ogonnaya, *Man knows thyself: an inward life in practical living*. *IMSU Journal of Philosophy*, 1(2), 2012, pp. 70-80.

[2] See, P. Iroegbu, *Communalism towards justice in Africa*. Owerri: Int'l Universities Publications, 1996, pp. 366-7.

[3] John Paul II, *Fides et Ratio*. Vatican City: Libreria Editrice Vaticana, 1998, no. 83.

applications and consideration in education of the minds.[4] It situates education within the societal workability of philosophy as a discipline which help the individual as a teacher and learner in making good use of mental (spiritual and moral) capabilities.[5] It recognizes that ideas can be developed or generated from every perceived or idealized reality, and this allows the individual to assess the contents of knowledge and wisdom beyond one's professed discipline of specialty. Metaphysics is about the truth of life and of the valuation of living, which education is to always expatiate it in bringing out the ingenuity in human creativity and innovation.

Understanding Education

From the valuation of human lived experiences, we understand that there are many sides of the meaning of education. They depend on its values at a particular time and situation. They also depend on the interest groups that are concerned. The belief in the universal benefit of education is entrenched in almost all cultures of the world. Education is taken as the bringer of light and all the ideals that make our earthly existence less cumbersome.[6] But the central point is that it is about the acquisition and application of knowledge and skills. It is about the development of the human person. Philosophically, the term 'education' has been defined and described in various ways; all of which cannot be correct. We often speak of the person as having received his education from a certain school. In this sense, education is equated with schooling or what goes on in the school.

Etymologically, the word 'education' is derived from the Latin word 'educere' which means 'to lead out from' or 'bring out from'. This ideal implies the liberation of the individual who is been educated from the shackles of ignorance and illiteracy and acquitting such person with some forms of knowledge.[7] Education is not limited to what is mainly done in an academic institution or a formal gathering. It also involves the whole process of transmission of intellectual, cultural, moral, religious and social

[4] M.M. Uzomah and P.O. Isanbor, *Philosophies and Theories of Education*. Kaduna: Eizy, 2019, p. 123.

[5] See, Kai Nielsen, *Philosophy and the search of wisdom. Teaching Philosophy*, 16(1), 1993, p. 6.

[6] See, G.O. Ozumba, *Branches of philosophy and education*. In A. F. Uduigwomen and K. Ogbinaka (eds). *Philosophy of education: an analytical approach*. (pp. 47-64). Lagos: JERP Ltd, 2011.

[7] G.O. Ozumba, *Branches of philosophy and education,* p. 48.

values from an individual to another or a group of individuals for continuity and proper ordering of the society. This is on the conception from another school of thought which holds education is derived from the Latin word "educare" which means "to form" or "to train". They believe that the child's or learner's mind is a "tabula rasa". In other words, when a child is born, the mind is like a blank or erased slate on which to write. It is the sensation which comes from external objects that put impressions on the mind and give it pieces of information and knowledge.[8] Hence, education involves the training of individuals in order to acquire a particular skill or skills and also the formation and development of moral character and mental power.

Hence, the whole aspect of education is centred towards the formation of the human person in order to make such person or persons capable of utilizing their entire resources for the good of the society to which they belong. Education is mainly divided into formal and informal education. This definition of education further connotes that individuals must be exposed to all forms of knowledge which are expressed through various school subjects. Education is about the all-round development or formation of the individuals, and in extension, to the development of the society which they belong.

Metaphysics as the Theory of Reality

The word "Metaphysics" is believed to have Greek origin in about 70 BC with the Greek philosopher, Andronicus of Rhodes when he was editing the works of Aristotle.[9] Etymologically, the term metaphysics is derived from the Aristotelian philosophic expression: "after the things of nature" (subsequent to physics). The two Greek words that form the word "metaphysics" are "meta" (after) and "phusis" (physics or nature). Aristotle called it the "First Philosophy," and as the study of *being qua being*. It takes God as the Ultimate Reality that be studied. Metaphysics is usually based on the perspective of philosophers. It is identified to be a philosophical method that regards phenomena as unchanging. The object of metaphysics is to determine the actual natures of realities, material and spiritual, mundane and divine. Amongst those championed metaphysics as a branch of philosophy are: Plato, Aristotle, Augustine of Hippo, Thomas Aquinas, G. E. Moore, W. T. Stace, George Berkeley and John Paul II.

[8] M. M. Uzomah and P. O. Isanbor, p. 5.

[9] S. U. Attoh, p. 42; M.M. Uzomah and P.O. Isanbor, p. 30.

Through the social placement of metaphysics as a *Theory of Reality*, we understand that, human person with his or her conscious valuation of his or her life is at the centre of reality—of history. The manifestation of being is generally reckoned in time and space, and that the existential or cosmological events of the past; whether properly recorded or not, are factual, time-bound, and are irreversibly cast on the sands of time.[10] Such mental-developmental consciousness directs the nature of history, especially through human creativity and innovation. With metaphysics in the education of the human person, we understand that the possibility of the realization of integral human development is beyond the contents of thinking or reasoning, but on the values of the human person who does the thinking and reasoning.

With the considerations of the peculiarity of culture for human sense of values and dignity, John Paul II speculates that placement of integral human development is within the harmonization of faith and reason in pursuance of true knowledge, and that; "every people have its own native and seminal wisdom which, as a true cultural treasure, tends to find voice and develop in forms which are genuinely philosophical. One example of this is the basic form of philosophical knowledge which is evident to this day in the postulates which inspire national and international legal systems in regulating the life of society."[11] Proper knowledge of any society in developing its native and seminal wisdom and philosophical tradition cannot be devoid of its cultural and metaphysical imports in understanding nature. Through ontological and culture consciousness of the human persons, the human society understands that, metaphysics as the *Theory of Reality* is concerned on the knowledge of realities through free exercises of the human minds as seats of rationality and intelligibility. With freedom from education, societal issues in relation to integral human development are greatly understood. Education is a process of self-realization which aims at reformation of the human minds.

Metaphysics as a *Theory of Reality* develops the capacity and capability of the human person to speculate and assess the nature of realities beyond their sensory perceptibility. According to Uduigwomen and Jeje, as a mode of development of the human mind, "metaphysics aspires to bring to our knowledge 'what there is' in the world or to determine the 'real

[10] C.N. Ogbujah, *The Culture of Death and the Crisis of Modernity. Igwebuike: An African Journal of Arts and Humanities*, Vol. 6, No. 7, 2020, p. 124.

[11] John Paul II, *Fides et Ratio*, no. 3.

world' of things, since things, as they present themselves to us, must be investigated to enable us to comes into contacts with the real nature (knowledge) of things, which in most cases, if not all the time, transcend appearance.[12] As a mode of education, it helps the human minds to assess in the connectedness and interrelatedness of the ontological and cosmological natures of realities and directs the possibilities of and in sustaining the values.

Metaphysics is the philosophical science that studies the ultimate causes and first principles of all things (or all reality). It studies the *ultimate causes* of things (the four causes, namely material causality, formal causality, efficient or agent causality and final causality, as well as the First Cause of all things, namely, God). Metaphysics also studies *first principles*, like the principles of non-contradiction; excluded middle; sufficient reason, and Identity.[13] Metaphysics is popularly defined as *the science of being as being*. What is metaphysics' *material object* and *formal object?* Its *material object* (that is, its subject matter) is *being*, that is, all reality. Its *formal object* (or the particular point of view or aspect in which the subject matter is studied) is *being as being (ens in quantum est ens)*. Hence, it remains a speculative science of realities. It has absolute value of the knowledge of reality, especially those realities that are beyond human physical perceptions.[14] With metaphysics, the spirit, angels, God, gods, ideas, the dead, and the likes, are regarded as real things, simply based on the projections of the human minds beyond the world of experiences. It renders secure the ultimate foundation of all science. It is the task of metaphysics to examine all absolute principles. The norms of life ultimately depend upon metaphysical principles.

Methodologically, metaphysics explores both induction and deduction. It does not implore deduction exclusively nor induction exclusively, though induction is used principally, as a method at arriving at knowledge, it adopts the elements of inductive and deductive methods of enquiry. With such methodology of epistemic enquiry, metaphysics asks questions like: What is reality? Does God or devil exist, and if so, is there any evidence of such existence? What is evil? What is the true nature of the human person? Are human actions free, or are the human persons determined or being

[12] A.F. Uduigwomen and K.O. Jeje, *Metaphysics and education*. In A.F. Uduigwomen and K. Ogbinaka (eds). *Philosophy of education*. Lagos: JERP Ltd, 2011, p. 97.

[13] Attoh, p. 42.

[14] Attoh, p. 44.

controlled by external forces? What is the meaning of life? Is there life after death? Hence, as a system or mode of knowledge and for the development of the human person, metaphysics answers the above questions and others alike by placing primacy of importance on the inseparable unity of the material and spiritual natures of reality (for this, we have idealistic and Materialist Metaphysics). With this conviction, idealism is regarded as a metaphysical view that reality is mental and solely depends on the capacity and capability of the human mind. The human mind becomes the seat of enquiry and knowledge, for the mind and spiritual values are fundamental in the world of experience as a whole.

Human Person and the Existential Perceptions of Development

To assess the metaphysical disposition of the human person, the psychological classifications of the individual need to be put into perspectives, and these perspectives of it did not escape his or her existentialists' conceptions of development. These perspectives as perceptions centred on how the human person as a subject of lived experiences and as an agent of development has been able to express his or her dilemmatic *beingness*, that is, the values of his or her own existence within his or her intelligibility, rationality, choice-making, freedom, freewill, authenticity. More surely, with these psychological observations, humanity looks for the conclusive analysis to justify its existence as a 'special animal' in creation, and then seeks peace and justice in development.

There are many socio-psychological and existential classifications or conceptions[15] that show the complexity of the nature of the human person, a being capable of many things and functionalities, In all, with

[15] Man as the human person or individual is said to be "a rational animal" (Aristotle), "a chained Prometheus" (Sophocles), a fallen soul" (Plato), "an image of the Logos" (Philo), "an image of God" (Origen), "a rational subsistent" (Aquinas), "a thinking reed" (Pascal), "a mode of the substance" (Spinoza), "An agent for the will of power" (Nietzsche), "a symbolic being" (Heidegger), "an alienated essence" (Cassirer), "an incarnate spirit" (Mounier), "an utopic being" (Bloch), etc.[15] On a more existential note, humanity is: "the modifier of living" (Scheler), "the highest ground of Being" (Kant), "the working intellect" (Augustine), "a being seduced by glittering and attractive life", "a promising being" (Marcel), "a being-in-relationship" (Buber), "a being as a stranger" (Jasper), "the essential being" (Camus), "the original fruit of Wisdom" (Oredipe), "the extended reality" (Kierkegaard), "the nurtured spirit" (Benedict XVI), "instinctive and fixated agent" (Freud), "conditional embodied personality" (Fromm), "faith essence" (John Paul II), "a freak of chance"; "an "evolutionary specimen"; "a product of mutations" (Sartre).

existentialist mindset, but, on the negation of its existence and possibilities of essential exaction, Olajide asserts that; "there is no necessity to his or her existence, no law of logic or that of physics that insist that he or she must be. He or she is therefore like his or her choices and values contingent, unnecessary and accidental. His or her existence is superfluous."[16] And that, all these qualities exemplify the complex nature of humanity that cannot be fully defined, the composition of body and spirit that are in unity for its wellbeing, in controlling the contents of its desires, interests and dispositions. But contemporarily, for the sake of ethical and communal living, humanity is today anthropologically called *Homo sapiens* (the wise man- the last and highest degree of evolutional development).[17] On this sense of its indispensable importance; it is classified as *homo veritatis* (the man of truth), *homo pacis* (the man of peace). Because, without peace and its collaborative justice, no meaningful or authentic human development can be envisaged or seem to be possible.

With metaphysics as a *Theory of Reality*, we better understand the existentiality of the human person in relation to his or her authenticity and subjectivity in the presence of fears, anxiety, indifference, indecision and absurdity. The fear of not being alienated has necessarily and indispensably plunge the human person as an agent of development and as a subject of lived experiences into relationship, relationships with other persons, with God and with nature. Hence, it is not lost on me to recognise that the subjectivity of the individual must be situated in objectivity of the others for communitarian consciousness of purpose and development, even beyond death of the individual, because, the mind of the individual must regenerate in the family lineage which a part of the community of persons.[18] This explains that the human development transcends physical death because the human mind never dies, but continuously in the domain of relevance due to its metaphysical perceptibility.

Education, Metaphysics and Valuation of the Human Person

There is always an indispensable link between the values of the human person and any mode of experience, and metaphysics as a branch

[16] Francis A. Olajide, *In Defence of the Unborn and the Limit of Existential Option*. Being 47th Inaugural lecture, Ekiti State University, Ado-Ekiti, Nigeria, 2017, p. 17.

[17] A.C. Dimkpa, *Is pacem in Terris really Possible?. West African Journal of Ecclesial Studies*, Vol. 10, 2013, pp. 47-68. See, p. 48.

[18] Anthony Echekwube, *A metaphysical Analysis of the Concepts of Reincarnation: Towards Global Harmony and Peace*. Inaugural Lecture, Ambrose Alli University, Ekpoma, 2002.

of philosophy or as a way of understanding realities beyond their physicality is not an exception. Education is seen in every mode of experience, for as one experiences the world around him, he or she is educated. For education belongs to the human person as a subject of lived-experience. To some lay persons on the street, and to so many other supposed scholars especially those who are scientifically inclined, at the mere mention of the word, 'Philosophy' what spontaneously comes to their minds is, 'can anything good come from Nazareth?' Their attitudes are not somewhat that of curiosity, rather of disdain and apathy.[19] It was Dewey, who plausibly asserted that, philosophy and education are intrinsically interwoven to the point that the two concepts cannot be extricated without the other.

In all, right from the dawn of philosophical excursus to this moment, philosophers have being rationalizing and postulating varied perspectives which in their respective bent they consider veritable to teaching and learning, for guidance as a blueprint towards achieving meaningful, effective and efficient education.[20] These perspectives include (but not limited to) the following: idealism, realism, perennialism, essentialism, reconstructionism, progressivism, experimentalism, etc. In a nutshell, they depend on its metaphysical values of the realities, especially the human person. They also depend on the interest groups that are concerned. Hence, the belief in the universal benefit of education is entrenched in almost all cultures of the world. Education is taken as the bringer of light and all the ideals that make our earthly existence less cumbersome. But the central point is that it is about the acquisition and application of knowledge and skills. It is about the development of the human person.[21]

It is germane to note that the aforementioned philosophical perspectives on education reflects and recommends what is to be taught, the curriculum, modes of teaching, methods of teaching and other modalities that are germane to integral teaching and learning through proper understanding of the actual natures of realities as metaphysics suggests. Consequently put, it demands that every groups and agencies for the formations of human minds and for the shaping of the human society through education, should plan diligently and effectively discharged their duties and responsibilities based on the respects,

[19] Uzomah and Isanbor, p. 126.

[20] Ibidem, p. 123.

[21] See, G.O. Ozumba, *Branches of philosophy and education,* p. 52.

promotion and protection of human life, rights and dignity, the tents of metaphysics projects.

Implications of Metaphysics as a *Theory of Reality* in Education

With metaphysics, we have to see realities as they really are, in order to proper educate them. With such clarity in learning, any model of development is to direct our consciousness to the values of living and to avoid any acts of dehumanization. It has to do with learning how humankind has survived the fear of the reality of death, cope with disease and even found cures and the principles of survival. In a nutshell it has to do with transmitting the culture of survival of a particular generation to the next and improving on them. Philosophy with metaphysical imports of learning then comes to look at how a particular generation has done very well in the process of transmitting its mode of survival and adaptability of interests and values.

The metaphysicians as the idealists maintain that education should train the human persons as subjects of lived-experiences and to use their abilities for the betterment of the society, having the capacities to assess realities as they are, and enhance them meaningful to better their world. As Plato introduced the idea of universal and compulsory education for all free citizens in Athens, he therefore initiated the idea of State control of education realizing the benefits the society would gain from well-trained, well-educated persons.[22] This is simply because everyone possessed mind, and at such, he or she has the ability and capacity to think or rationalized based on the knowledge of the realities of the world around him or her.

Therefore, the metaphysical imports in education indispensably direct The learners' consciousness to meet the educational challenges of their time through the development pragmatic ideologies in changing their world positively and sustaining the ontological values which help to develop and sustain the culture of human anthropology rather than robotic anthropology. It thereby posits the need to adjust learners' thoughts in accordance with the realities of their time and civilization, existentially. In a nutshell, Metaphysics as *Theory of Reality* helps to develop rational ideologies, and it favors schools teaching subjects of the human minds as is found in most public educational institutions. With the adoption of metaphysics as learned in the philosophy of education, the schools' function is to sharpen intellectual processes, to present the

[22] See, Uduigwomen and Jeje, p. 105.

wisdom of the ages, and to present models of behavior that are exemplary. Students trained strictly with the tenets of the theory of reality stand the chance of having insight on the connectivity of all things, the oneness of humanity and the unity of knowledge.

Conclusion

From the foregoing, we tried to explicate the indispensable link of education and metaphysics in understanding the human person and the needs to sustaining metaphysical imports in education. We started by establishing the dynamism of philosophical influences of metaphysics as a *Theory of Reality*, the intricacies of development of the human person inherent in education as a way of enlightening the human minds and in metaphysics as a branch of philosophy used in interrogating the values of realities beyond their physicality, and the summation on the implications of metaphysics as a theory of reality in education of the human persons as subjects of lived experiences. Each day of our living, the nature of some realities continues baffle us and challenge our level of intelligibility and rationality, in reference to our existence. With this condition of living, the human persons as subjects of lived-experiences continue to learn from realities around them.

With metaphysics as a branch of philosophy has its flaws, simply being too abstractive in attaining knowledge, it does have its strength, especially in providing true meaning of life and living. As long as we continue to seek a better understanding of the nature of reality and as new realities in discover in nature, metaphysics continues to add values to life and living, and continue to advance the knowledge of all realities. Through the theory of reality, we seek to evolve ideologies to guide our political, environmental, legal, educational, economic and cultural policies of development though proper understanding of true nature of realities around us. Metaphysics provide the philosophical base from which an understanding of issues of development can be obtained.

Human's critical quest for meaningful and integral living and development remains inevitable and endless or continuous, as human person never cease to learn. Metaphysics as a Philosophy of Life has not just being concerned about problem solving and answers providing, but always to footing ground for human quest for knowledge as new realities are discovered in nature every day. It provide viable and critical apparatus of understanding realities as they as discovered, and always focused on the nature and questions and answers given in order to

plausibly decipher the connection of the human person and other realities in nature. To develop some reflective and critical minds in learning and studying, even in teaching place heavy demands on all educational institutions to adopt the values of metaphysics in innovative and creative learning and development in order to avoid the culture of dehumanization of the human persons in education.

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RELIGIOUS DIVERSITY AND ITS ACCOMMODATION BY WESTERN DEMOCRACIES

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***Abstract**: Religious diversity became the norm for many Western democracies. However, they face many challenges in addressing religious minorities' needs. For this reason, this article aims to explore the accommodation of religious diversity, highlighting how it has been addressed so far, as well as to identify the main challenges. Drawing on religious diversity data and the secularization thesis, the article points out the relationship between the state and the church, and the Church's influence on state responses to religious diversity management. It concludes that although the accommodation is possible it requires more effective actions to be achieved.*

***Keywords:** diversity, religious minorities, religion, diversity challenges.*

Introduction to religious diversity reality

Nowadays, religious diversity has become a common characteristic of modern states, and it is a fact that can hardly be contested. On the contrary, some authors argue that it is a gradual process, reached through significant societal changes in the religious realm, namely "from hegemony to pluralism"[1]. Many factors contributed to this change and forced modern democracies to reconsider the role and place of religion for some religious groups. Primarily, the increased visibility of religious groups settled in Western democracies has challenged the old hegemony, asking for recognition and the right to practice their religion peacefully and freely. As Bader argues, "the situation of a more or less peaceful coexistence of divergent types of religions visualizes religious diversity"[2]. Despite this fact, there is a lack of data on religious beliefs' followers and their active members. However, the limited statistical information available can help to better understand the modern realm of religious diversity, and for this reason, some basic data must be analyzed.

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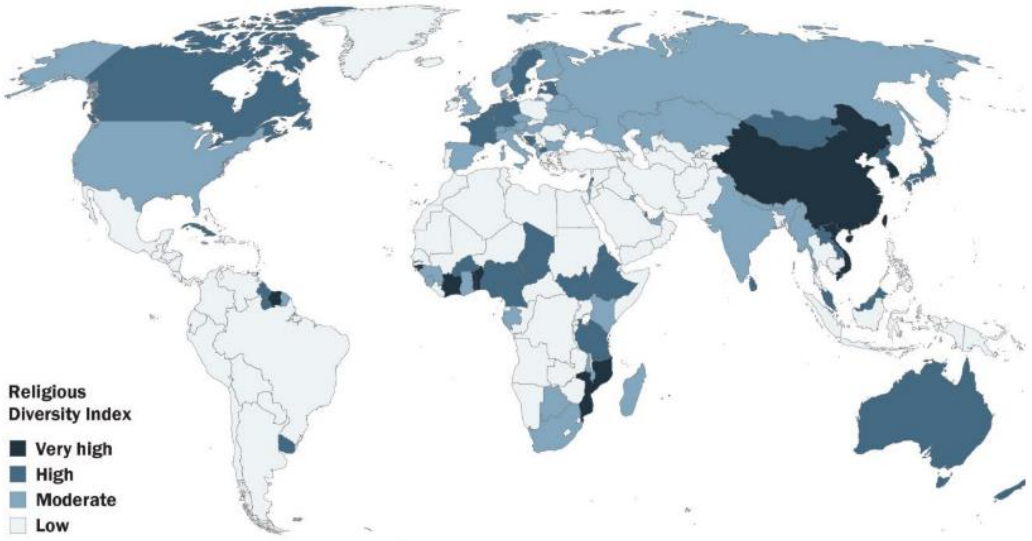
[1] Veit Bader, *Secularism or Democracy? Associational Governance of Religious Diversity*, Amsterdam, Amsterdam University Press, 2007, p. 36.

[2] *Ibidem*

The Pew Research Centre (PRC) analyzed the situation of religious diversity globally in more than 200 countries. Consequently, PRC established the following levels of religious diversity: low (for example Iran with a population almost entirely Muslim), moderate (for example Spain with a majority religion but with the existence of some minority religions as well), high (for example France that has a high degree of religious diversity, since Christians make up 63% of the population, and two other groups: the religiously unaffiliated 28% and Muslims 8%) and very high religious diversity (for example: Singapore).

Figure 1. Levels of religious diversity.
Countries are shaded according to the level of religious diversity



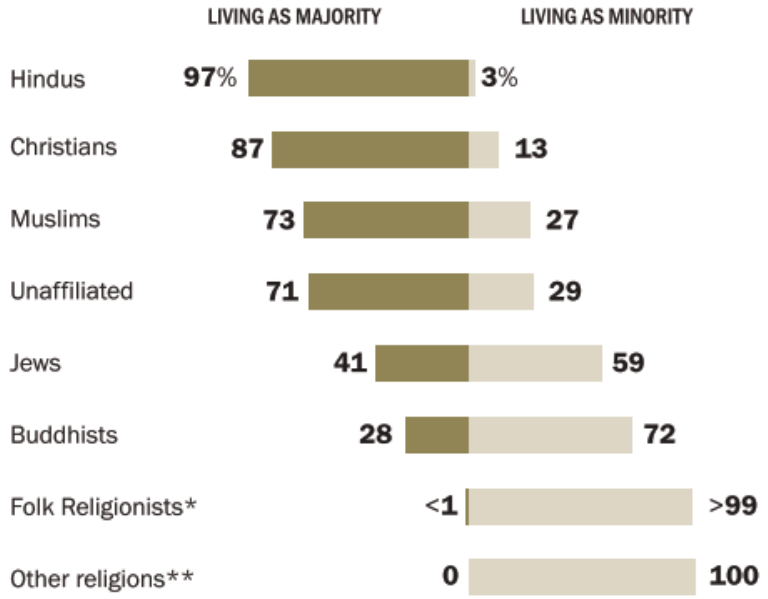
Source: Pew Research Center, Report *Global Religious Diversity*, available at https://www.pewforum.org, [accessed September 8, 2019].

The PRC analysis focuses on five widely recognized world religions: Buddhism, Christianity, Hinduism, Islam, and Judaism, showing that religious diversity differs substantially by geographic region. "Looking at the percentage of each country's population that belongs to the eight major religious categories included in the study, 12 countries have a very high degree of religious diversity. Six of the 12 are in the Asia-Pacific region (Singapore, Taiwan, Vietnam, South Korea, China, and Hong Kong); five are in sub-Saharan Africa (Guinea-Bissau, Togo, Ivory Coast,

Benin, and Mozambique); and one is in Latin America and the Caribbean (Suriname). No countries in Europe, North America, or the Middle East-North Africa region have a very high degree of religious diversity as measured in this study"[3]. However, in Europe, religious diversity has become an issue of increased concern, specifically in addressing the peaceful coexistence of minorities and majorities.

Additionally, looking at the religious minorities and majorities' coexistence, the PRC data show that nearly three-quarters (73%) of the world's population live in countries in which their religious group makes up a majority of the population and about a quarter (27%) of all people live as religious minorities[4]. Thus, religious minorities worldwide are numerically weak and are in a disadvantaged position when trying to request their recognition or accommodation (Figure 2).

Figure 2. Percentage of each religious group that lives in countries where its adherents are a majority or a minority.



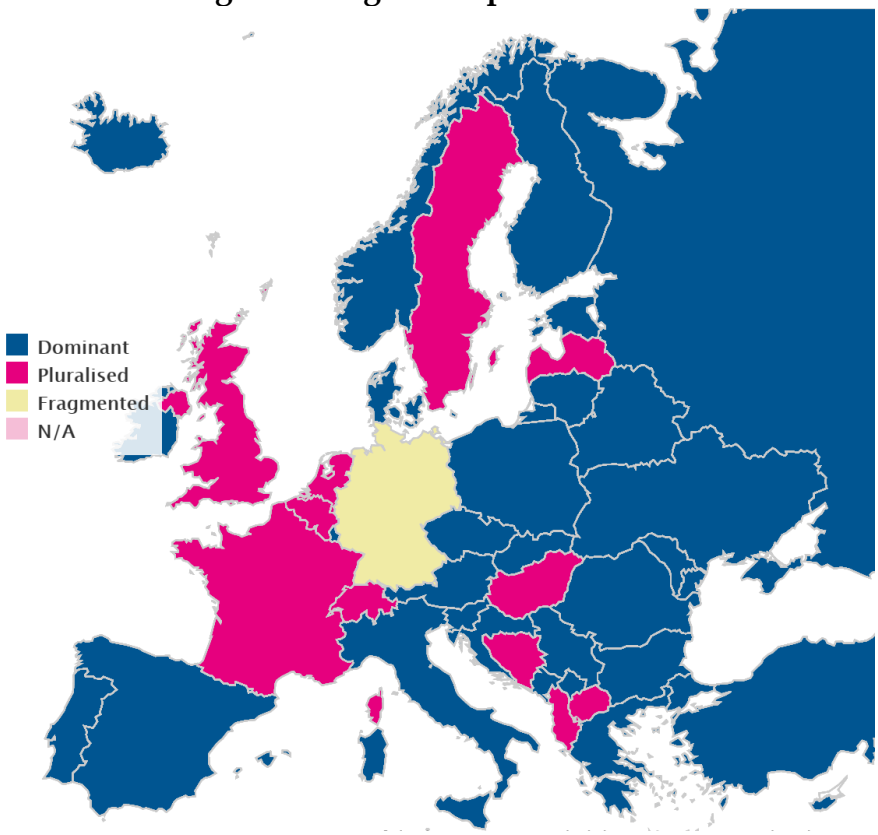
Source: Hackett, Conrad, and Brian J. Grim. 2012. The Global Religious Landscape. *A Report on the Size and Distribution of the World's Major Religious Groups as of 2010*. Washington, D.C., p.11.

[3] Alan Cooperman, Conrad Hackett, Katherine Ritchey, *Global Religious Diversity*, Washington, D.C., 2014, p.4.

[4] Conrad Hackett, Brian J. Grim, *The Global Religious Landscape. A Report on the Size and Distribution of the World's Major Religious Groups as of 2010,* Washington, D.C., 2012, p.11.

The above data are relevant for the present study as there is almost no state today that exists with only one religion inside its borders. Additionally, this trend is likely to increase in the future due to human mobility as well as other factors. In effect, this may lead some countries to become even more diverse in religious terms. As the report shows, the European continent is no exception to the global trend. However, some differences can be identified within Europe. For example, the Swiss Metadatabase of Religious Affiliation in Europe (SMRE) clearly shows the differences that exist among European Union member states and evidences different degrees of religious pluralization (Figure 3).

Figure 3. Degrees of pluralization.



Source: Created by the author with the database tool available at: www.smre-data.ch, [accessed July 28, 2019].

(Remark: *dominant*= largest religious group >= 60% of total population; *pluralized* = largest group >= 35% and <60%; *fragmented* = largest/all group <35%)

According to the SMRE database, France, Sweden, Latvia, Belgium, Netherlands, and Hungary represent the most pluralized countries in the European Union, where the largest religious group has a value between 35% and less than 60% of the total population. Germany is the only country that registers fragmented data. Here the majority religion and minority religious groups register less than 35% of the total population. Also, SMRE database brings evidence that Bosnia and Herzegovina, Albania, and Macedonia are amongst the most plural countries of the Balkans. The same dataset argues that some European states have a dominant majority religious affiliation making up more than 60% of the total population, such as Spain for example.

The data point to a global trend of increasing religious diversity. This development returns the question of religion to the political agenda. If for some people or groups, religion is not important and should have no place in the public sphere, for others it is highly relevant and it is embodied in a complex network of social relations and solidarity. These two mainstream differences particularly challenge the public order and have become a source of social anxiety over the last decades.

Religious diversity, secularization and accommodation

As the above data show, modern states have become more and more plural in religious terms. However, the religious other is not always tolerated, recognized, or properly accommodated. Such a situation is neither new nor just a contemporary phenomenon. For example, the Romans were initially tolerant of other people's gods, allowing natives in their provinces to worship whatever God they chose[5]. In this way, different religions and philosophies cohabitated peacefully and there was no religious hegemony in the early Roman Empire. Despite this tolerance, the Apostles disagreed and proclaimed their faith as the one true religion for all. From its very origin, Christianity is proselytistic, as other religions alike, such as Islam. Nowadays, some religious groups maintain a similar idea, bringing arguments to convince others that their religion is the only true faith. This fact heavily neglects religious differences and poses a serious challenge to religious diversity in many states.

Undoubtedly, this situation raises important questions of a religious as well as political nature. On one hand, if God exists, why is it so difficult

[5] Historycentral. *Religion in the Roman Empire*, Available at: https://historycentral.com/dates/Rome/Religion.html, [accessed March 29, 2020].

to believe in different and contradictory forms of his or her manifestation? Is there only one truth or more than one? Could we accept that there might be one God with different names? Hick ("*positivist*") tried to answer these questions by pointing out that the same God may have different names and his extensive work evidences his argument. However, he considers that people are capable of understanding if they "go beyond the dominant self-understanding of each [particular religious] tradition" and become able to "[dis]regard [their religion] as uniquely superior to the others". For this purpose, he proposes a "genuinely pluralistic hypothesis" that can change world religions through interpretation "to see itself as one among many, deemphasize its own absolute and exclusive claims"[6].

Hick may be moving in the right direction but his practical application seems to be quite troublesome as it requires a radical change of minds and hearts of people. Consequently, deemphasizing the religious absolute and exclusive claim might be difficult for a deeply faithful person or a religious leader[7]. Additionally, one might find him/herself challenged to accept the difference, to accept the emerging disagreements, and be able to accept the different points of view. In a democracy, political disagreements are normal and usual but the question here is whether the religious disagreements can be handled through democratic processes, or whether one should accept the exclusivity claims of the various religious communities as hostile to rational discourse. Following this line of thought, Habermas argues that "in modern societies, religious doctrine has to accommodate itself to the unavoidable competition with other forms of faith, and other claims to truth. It no longer moves in a self-contained universe directed, so to speak, by its absolute truth. Every religious doctrine today encounters the pluralism of different forms of religious truth – as well as the skepticism of a secular, scientific mode of knowing that owes its social authority to a confessed fallibility and a learning process based on long-term revision"[8]. Additionally, referring to Rawls' reasonable and comprehensive doctrines, Habermas considers that "it has an important political consequence that the community of the faithful can ascertain why it must refrain from the use of violence - and

[6] John, Hick, *An Interpretation of Religion: Human Responses to the Transcendent*, New Haven, Yale University Press, 1989, p.3.

[7] Mariana Roşca, From Exclusivism to Pluralism: A Reflection on European Religious Minorities. *The Age of Human Rights Journal* (10): 139–58. 2018.

[8] Jürgen Habermas, *Religion and Rationality. Essays on Reason, Good, and Modernity.* ed. Eduardo Mendieta. Cambridge, Blackwell Publishers, 2002, p.150.

state-sponsored violence above all - as a means for the promotion of religious belief. In this sense, what we call the 'modernization of faith' is an important cognitive presupposition for the achievement of religious toleration and the construction of a neutral state power"[9]. This process, according to the author, has to take place under the rationalization of the forms of interaction that are executed or brought about from 'above' and 'below'. "From below, by the very success of the subsystems of instrumental action that, with each gain, continues to expand vertically, taking over more and more subsystems of purposive or instrumental action. Progressively and ineluctably every major and minor structure of traditional society is brought under the logic of instrumental or strategic rationality. Simultaneously, but now as if from 'above', worldviews, whether mythological or religious, lose their power and 'cogency'. This rationalization from above is what Weber (*sceptic*) called secularization and is made up of two aspects. On the one hand, traditional worldviews lose their power and status as myths, rituals, justifying metaphysics, and immutable traditions, as they are interiorized. In this view, secularization means subjectivization or subjective relativization. On the other hand, secularization also means that such traditions, world-views, rituals, legitimating metaphysics, etc., are transformed "into constructions that do both at once: criticize tradition and reorganize the released material of tradition according to the principles of formal law and the exchange of equivalents (rationalist natural law)" [10]. In this way, for Habermas, rationalization means that traditions become the locus of contestation and innovation as well as the site for the preservation and transmission of tradition. Additionally, Habermas asserts that a rationally founded consensus is possible within the context of ideal communication, which can only take place when the external factors or power are excluded and the barriers to participate in the discussion are eliminated. In spite of this, his work has been criticized and labeled as Eurocentric and universalizing tendency of Western domination through globalization. For example, Kaufman argues that "Habermas's theory of communicative rationality relies strongly on notions of common sense and, more seriously, cannot stand without the notion of Western superiority on which it is founded"[11].

[9] *Ibidem*

[10] *Ibidem*. p.16.

[11] Cynthia Kaufman, *The Unforced Force of the More Familiar Argument A Critique of Habermas' Theory of Communicative Rationality*, *Philosophy Today* 43(4): 348–60, 1999, p.348.

Despite the critics, Habermas might have been right and his ideal situation based on freedom and equality as the main basic requirements for the communicative action might address the challenge of religious pluralism and lead to the common good. In a normative sense, Soper et al. argue that "states ought to address many of the conflicts that arise because of religious (and other forms of) diversity by applying a set of principles that honor the importance of that diversity to the common good"[12]. Additionally, the authors argue that there is a need to "root the pluralistic principles in a specific concept of 'positive' or 'substantive' neutrality" of the state, that could positively address the challenge of pluralism. These requirements are important for religious minorities who, due to their differentiation from the majority, constantly suffer inequalities, lack proper recognition, and cannot freely practice their religion. Such a situation leads to clashes and conflicts that require proper accommodation by secular states.

Beckford rightly argues that "one of the ironies of secularization (however the term is defined) is that it does not necessarily mean that religion becomes unproblematic" and he claims that "on the contrary, religion becomes more controversial precisely at the time when it is in the process of losing its significance as a force shaping social and cultural life"[13]. In a later work, the author writes that the concept of religious diversity in social science literature is closely related to the theory of secularization and with the idea of subjectivization and privatization of religion[14]. At first glance, these two theories seem to be compatible. In spite of that, the decline in religious attendance and of the social relevance of religion, as well as the emergence of some new forms of religion, has become more and more common in the contemporary era. Additionally, these developments have been accompanied by a process of alienation from the faith-based institutions and by an individualistic approach to the search for spirituality. On the topic, Taylor points out the timeframe of profound changes to the place of religion in the West and he calls it "the secular age"[15]. He considers this period as characterized by a constant

[12] J. Christopher., Soper, Stephen V. Monsma, Kevin R. Dulk. *The Challenge of Pluralism: Church and State in Six Democracies,* 3rd ed, Lanham, Rowman & Littlefield, 2017, p. 3.

[13] James A. Beckford, *The Management of Religious Diversity in England and Wales with Special Reference to Prison Chaplaincy*, *International Journal on Multicultural Societies* 1(2): 55–67, 1999, p. 55.

[14] *Ibidem,* p. 73.

[15] Charles Taylor, *A Secular Age*, Harvard, Harvard University Press, 2007.

transformation of society that forces human beings to continuously evaluate the meaning of life. Religion and spiritual life, as well as anti-religious sentiments, are among the main changes. To explain these profound transformations, the secularization thesis was, and sometimes is still used, to see the role of religion in society by referring crudely to the decline in influence of religion in the public sphere. Durkheim describes this as follows "the old Gods are growing old or already dead"[16]. Other authors emphasize the secularization's cross-cutting influence. For example, Bader points out three connected and contested distinctions: culturally, socially, and politically. "Culturally, it designates the secularization of general cognitive and normative cultural frames: views of world, society, and man. Socially, it designates a decline of religious beliefs and practices in modern societies. Politically, it refers to the secularization of state and politics"[17]. However, later on, Bader proposes to re-think this argument because "the process of change of meaning from a legal concept to a broad, metaphorical, free-floating, cultural, and philosophical notion" leads to a vague, ambivalent, multi-dimensional term with many and often incompatible meanings[18]. While Bader was busy finding a definition for secularization, other authors were interested in discovering the main factors that keep the secularization thesis alive. For example, Casanova started questioning what are the reasons, if any, that could explain the persistence of the secularization thesis, despite the overwhelming empirical evidence against it[19]. A starting point might be the social sciences, where the secularization thesis was, for a time, the main framework to understand and explain what was happening to religion in some Western democracies. In this context, a useful argument belongs to Weber, who heavily defended the secularization thesis. His concepts of 'enchantment' and mystery assumed that religion is often irrational, based on superstition and illogical beliefs, and consequently, should not have any place in modern states. For Weber, the old churches serve only for those "who cannot bear the fate of the times like a man" and

[16] Emile Durkheim *The Elementary Forms of the Religious Life*, London, George Allen & Unwin LTD, 1915, p. 475.

[17] Veit Bader, *Secularism or Democracy? Associational Governance of Religious Diversity*, Amsterdam, Amsterdam University Press, 2007, p.39.

[18] *Ibidem,* p. 40.

[19] José Casanova *Public Religions In The Modern World,* Madrid, Promoción Popular Cristiana, 2000, p. 48.

cannot make the "intellectual sacrifice"[20]. Accordingly, the mainstream secularization thesis states that as societies become more modernized, the authority and influence of religious beliefs and institutions will eventually disappear from public life and will only be relevant to individuals on a private level, if at all. However, such a claim is only partially true because while some religions have registered a decline, others have succeeded in combining religion and modern life. As such, the main secularist idea seems to be compromised.

Following this, Gauchet stresses that the empirical evidence on the decrease of followers of some religious beliefs creates a naïve perception about secularization thesis. He argues that secularization is not only influenced by the number of people that go to church but by the secular emancipation and differentiation processes of religious institutions and norms. These processes do not necessarily imply that people abandon their religious beliefs but that religion ceases to be a structuring force in society[21]. Therefore, in Gauchet's terms, the secularization thesis might refer to Christianity mainly, which according to him is a 'religion of the exit of religion' and without which the advent of democracy would not have been possible. However, the separation of religion from public power in the West does not deplete the process of 'disenchantment' because it incorporates the invisible into our lives and it represents a more personal form of spirituality.

Other authors emphasize the currently changing role of religious authority. For example, Chaves argues that secularization should not be understood as a decline of religion, but as the declining scope of religious authority[22]. Building his arguments on 'new differentiation theory', the author points out the need to look at the religious authority structure, defined as "a social structure that attempts to enforce its order and reach its ends by controlling the access of individuals to some desired goods, where the legitimation of that control includes some supernatural component"[23]. Consequently, religious authority's influence and control is weakening in a secular age. He argues that secularization must be seen as multidimensional

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[20] Max Weber, *Religious Rejections of the World and Their Directions*, In *From Max Weber: Essays in Sociology*, London, Routledge, 323–59, 1991, p. 343.

[21] Marcel Gauchet, *The Disenchantment of the World: A Political History of Religion*, Madrid, Editorial Trotta, 2005.

[22], Mark Chaves, *Secularization as Declining Religious Authority*, *Social Forces* 72(3): 749–774, 1994.

[23] *Ibidem,* p. 756.

and for this reason, he proposes three dimensions: a societal process of laicization (refers to the process of differentiation whereby the institutions gain autonomy from religion and religion becomes just one institutional sphere among others), religious change or transformation at the level of religious organizations - internal secularization (the processes through which the religious organizations undergo internal developments toward conformity with the secular world) and the shifts among individual persons or religious non-involvement (refers to the decline of religious beliefs and practices among individuals).

Following a similar idea, Cohen and his colleagues analyzed the transformation of religious authorities through a process of deregulation. As a consequence of this process, 'new' sources of authority's legitimation appear as well as 'new' actors that pretend to represent this authority. If such a process of reformation takes place, the authors wonder how it will affect the religious message, how it will be understood, and how it will influence the legitimization of the religious authority. Furthermore, if this transformation process affects the two religious traditions (Christian and Jewish) in Europe, then how will this affect Islam as a recently established religious tradition in Europe[24].

A relevant contribution to answering these questions comes from Koening. Drawing on the differentiation theory, he argues that the key argument of secularization theory is conceived by the assumption that social institutions or systems are increasingly separated from religion. In this process of separation, the author emphasizes, in particular, the changes in actor-constellations, institutional frameworks, and cultural contexts within which different patterns of differentiation and secularity are embedded. These changes contributed to the institutional reconfiguration and as a result, led to the renegotiation of the place of religion in the public sphere and, thus, changed the patterns of secularity[25]. It is particularly the changes to institutional frameworks that European nation-states have registered and that have been the main argument for addressing increases in religious diversity. The transformation in the presence of religious expressions in Europe entailed changing the institutional framework as well. It is particularly these

[24] Martine Cohen, Jean Joncheray, Pierre-Jean Luizard. *The Transformations of the Religious Authority*, Paris, L'Harmattan, 2004, p. 10.

[25] Matthias Koenig, *Religious Vitality and Mechanisms of Institutional Regularization in Europe*, *Social Compass*, 2008.

transformations that required the progressive incorporation into policies and institutions of religious diversity as an answer to the increased religious pluralism visible in the public sphere. Consequently, the religious revival and the public visibility of religious diversity, together with the religious minorities' demands for recognition and equal rights, has led to a change in the relationship between public institutions and religious ones, in a framework of institutional laicity.

The critical analysis of the classical secularization paradigm suggests rethinking this process that seems to relate less to the disappearance of religion from the public sphere and more with the religious transformation of the place and role of religion in modern societies. Casanova proposes the 'deprivatization' of religion in the modern world. He argues that the religious traditions in various parts of the world cannot continue to be confined to the space assigned by the secularization theory[26]. Therefore, the author contradicts the academics that consider the secularization thesis as one integral theory and he sees it as a theory composed of three unintegrated dimensions (institutional differentiation, the decline of religious beliefs and practices, and marginalization of religion to a private sphere). Thus, Casanova's secularization thesis is framed into three separate arguments. According to the first argument raised, secularization refers to the increasing separation of religion from politics, science, and other secular domains. The second one argues that this separation is to be distinguished from the declining social significance of religious belief; and, the last one argues that the secularization thesis includes the concept of the privatization of religion, according to which, religion is increasingly reduced to the private sphere. It is particularly the third argument that Casanova is challenging. If the first two processes are ongoing, then the process of the privatization of religion, he claims, is reversed and it is called 'de-privatization'. In other words, religion has returned to the public sphere, becoming a public issue. To sustain his argument, Casanova brings evidence from a broad range of societies that, according to him, have amply proved the process of de-privatization of religion and that it is undoubtedly a global trend[27].

[26] José Casanova, *Public Religions In The Modern World,* Madrid, Promoción Popular Cristiana, 2000.

[27] Idem, *Secularization and the World Religions*, In *The Religious Situation in Europe*, eds. Hans Joas and Klaus Wiegandt, Liverpool, Liverpool University Press, 206–27, 2009, p. 101.

According to Casanova, "it is simply fallacious to argue, for instance, that the permanence or increase in religious beliefs and practices, and the continuous emergence of new religions and the revival of old ones in the United States or anywhere else, serves as empirical confirmation that the theory of secularization is a myth. It only confirms the need to redefine the theory by distinguishing between the general historical structural trend of secular differentiation and the different ways in which different religions in different places respond to and are affected by the modern structural trend of differentiation"[28].

It seems that the transformations that took place in the modern world did not diminish the role of religion for individuals but rather diversified the religious panorama. Consequently, in the modern world, the individual has different alternatives of religious traditions to choose from and follow. Thus, the individual becomes an active actor in deciding and changing his or her religious tradition. It is particularly the individualization that affects the deregulation of religious institutions and generates, in Davie's words, a situation of 'believing without belonging'[29]. He argues that while believing seems to persist, belonging is declining, and the marked imbalance between the two variables pervades religious life to a great extent. Other authors explore the case of "belonging without believing"[30] and show that while the Catholic Church has maintained its pre-eminent position in the religious market, it has lost ground in recent decades and, at present, must contend with a considerable lack of both vitality and orthodoxy. These two situations are a vivid example of religiosity transformation. Due to this, religion continues to interest scientists from different disciplines and their arguments are progressively incorporated into the public debate[31]. This process provides a fair measurement to the emerging reality and also questions the consequences that it poses, in redefining the religious panorama in modern societies, as

[28] Idem, *Public Religions in the Modern World*, Chicago and London, University of Chicago Press, 1994, p. 212.

[29] Grace Davie, *Believing without Belonging: Is This the Future of Religion in Britain? Social Compass* 37(4): 455–69, 1990.

[30] Roberto Marchisio, Maurizio Pisati, *Belonging without Believing: Catholics in Contemporary Italy. Journal of Modern Italian Studies* 4(2): 236–55, 1999.

[31] Mariana Rosca, *European Religious Minorities: Between Pluralism and Exclusivism*. In *XIII Congreso "La Fortaleza de Europa: Vallas y Puentes/A Fortaleza de Eoropa: Valados e Pontes,"* Santiago de Compostela: Asociación Española de Ciencia Política y de la Administración (AECPA), 15. 2017.

well as for its implications for politics, social relations or collective identities.

In these terms, cultural or religious diversity is framed by two opposite opinions. From one side, some see it as beneficial to society, while others consider it harmful. There are examples of both cases, depending on the relationships between religious minorities and the institutional structures of a particular society. Specifically, if a society is defined in plural terms, this should not be limited to a simple description of the realm, but it should include rules of recognition of plurality that guarantee the peaceful coexistence of differences inside. However, societies that reject religious diversity and label it as a religious 'other' can hardly negotiate the disagreements that plurality generates without previously going through conflicts and, eventually, violence.

Until the 1990s, there was a predominant belief in politics, political philosophy, and sociology of religion that religious pluralism had caused deep troubles in the past and, due to this, religion should be kept outside of the public sphere[32]. Additionally, it was widely assumed that there is a principle of religious tolerance recognized and that tolerance is deeply rooted in Western democracies' institutions and practices. Also, the traditional religious institutions (such as the Church) lost their power and authority, and religion became a private matter that had none or little interference in the public sphere. The main argument was that the modern and secular states require complete separation from religion. This predominant opinion on the relationship between religion and the state in the West was contested, and the evidence from other parts of the world reflected completely different situations. Bader was among the researchers that vehemently argued that religion does not pertain to the private realm and that the re-emergence of it is proved by the recent widespread presence of religion in the public realm. The author added that "currently, conservative and fundamentalist religions, as well as progressive religions, are re-politicizing 'private' relations and re-normativising the economic and political sphere"[33]. Since the 1960s, this counter-evidence has gained some recognition in politics, mainly being fortified by increasing religious diversity.

[32] Veit Bader, *Secularism or Democracy? Associational Governance of Religious Diversity*, Amsterdam, Amsterdam University Press, 2007.

[33] *Ibidem,* p. 18.

However, Bader argues that political theory is still not sufficiently prepared to deal with the increasing (visibility of) religious diversity and, particularly, with the threat of religious-political fundamentalism[34]. In today's world, Bader argues, from one side the political theory lacks institutional concreteness, historical and comparative knowledge of the real world, and from the other side, only recently have social scientists taken up the task of critically evaluating existing institutions and policies and engaging in institutional design[35]. The huge and complex task nowadays, according to Bader, is to design new institutional settings of religious pluralism and policies that could be more in line with re-conceptualized principles and institutions of liberal democracies and be more effective in containing religious fundamentalism. Such a task can be achieved in two steps. The first step is "to defend a conception of minimal morality that should be applied and enforced everywhere but which, at the same time, allows maximum accommodation of non-liberal but decent groups within liberal -democratic polities"[36]. The second step is to "systematically connect emerging discussions of institutional pluralism in political philosophy with a broad social science perspective of governance"[37].

Thus, the solution is in interdisciplinary studies where different angles and perspectives can be analyzed and which could make a real contribution to the future religious diversity accommodation. In this line, the current political trend of securitization of diversity seems to not be constructive. As Modood et al. point out "the fact is that the securitization framework has penetrated most diversity-management thinking, preventing more open, cosmopolitan and humanistic policies toward newcomers and those who have already been living in reception societies for some time, and the fact that in recent years strong trends have emerged showing that second-generation migrants are strongly embracing radical outlooks, are signs of a very extreme situation for the core project of multicultural Europe"[38]. Therefore, the issue of religion and religious minorities' remains improperly addressed by the public institutions and proper accommodative measures become necessary, and this means that

[34] *Ibidem,* p. 21.
[35] *Ibidem,* p. 22.
[36] *Ibidem.*
[37] *Ibidem,* p. 23.
[38] Modood, Tariq, Anna Triandafyllidou, Ricard Zapata-Barrero, *Multiculturalism, Muslims, and Citizenship: A European Approach*. London and New York, Routledge, 2006.

although the accommodation is possible it requires more effective actions to be achieved.

Conclusions

The increasingly changing religious landscape of many modern states requires a proper accommodation of religious minorities. Although, this process seems difficult and framed by the historically dominant religion, as well as by the persisting debates among positivists and skeptics, it seems a necessary process that has to be put in place for the common peace, security and proper cohabitation.

The development of modern states brought about some lines of thoughts that considered that religion has no place in modernization and argued that religion should be separated from the states affairs and sooner or later will lose its relevance for the human beings and disappear. While European States slowly seemed to move towards this scenario, by losing their religious followers, other religions in Europe and in other parts of the world, seem to show a different and contrary reality taking place. Therefore, this state of the art contradicted the skepticism thoughts and opens the room for religious pluralism, supported by positivists, who consider the accommodation of religious diversity possible and necessary.

Supporting the pluralist line of thoughts, it can be mentioned that it requires proper accommodative measures by the states and an openness of the society as a whole for the religious "other", based on values such as tolerance and respect.

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MEDICINE AND LITERARY ROMANTICISM

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Abstract: *The present article is aimed at drawing a parallel between two seemingly separate fields: medicine and literature. The two do not exclude each other, on the contrary, they complement happily. The representatives of medicine, with obvious erudition, have been, throughout the history of humanity, some of the important initiators of the understanding of life in its various forms: scientific, artistic, aesthetic, etc. The human being, examined both physically and spiritually, needs a broad approach that combines several sciences. It is the art of healing that has, since ancient times, succeeded in leading to a deeper perception of man. The present study is an interdisciplinary attempt to connect the study of literature with medicine. In this paper we aim to analyze personalities of the medical world who, loving aesthetic values, have left the narrow world of science, managing to become creators of works of art and literature with a strong impact on culture. The present study is an interdisciplinary approach which connects the study of literature with the one of medicine.*

Keywords: *medicine, Romanticism, subtlety, reverie, turmoil of the soul*

Literary Romanticism and medicine are not as separate fields as one might think. Aimed at human needs, romanticism also touched the scientific areas of society, freeing the individual from the preconceptions and dogmatism of previous literary movements, especially classicism. Born into the family of a teacher in a town on the east coast of England, George Crabbe (1754-1832) embraced various professions until he chose the path of medicine. The interest that young Crabbe had showed in literature since adolescence was supported by his father, who also loved literature. In the family, evenings were organized in the family in which verses signed by John Milton or other poets were read. Although his father had hoped that the young man would become more active, George Crabbe was enchanted by the reverie that the poetry evoked in his soul. Crabbe was a precocious child and studied not only classical literature but also exact sciences. The writings of the playwright Abraham Cowley, the lyrics of Alexander Pope, the lyrics of the poet and adventurer Sir Walter

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Raleigh and the allegories of Edmund Spenser had a great influence on the young man in his infancy. Aged fourteen, Crabbe began his apprentinceship with a village doctor, but soon left for Woodbridge Harbor, where he began to have the courage to write poetry. In 1772 he won a competition organized by a magazine for writing a poem on hope. Although the style adopted was not an innovative one, Crabbe managed between 1772-1775 to gain the confidence to write more and more.

Because writing did not provide him with a secure income to start a family, Crabbe decided to go to London to start. But the big city would bring him even more financial trouble. Despair drives him to write Edmund Burke. The two would develop a lasting friendship in which Burke tries to promote Crabbe in London literary circles. At the same time, Burke got him a stable job as a chaplain to the Duke of Rutland. In the literary circles he frequented, Dr. Crabbe would meet the London intellectual elite. Among the poets he met and whose literary influence can be seen in Crabbe's evolution were the Scotsman Sir Walter Scott, the romantic poet William Wordsworth, and the Poets of the Lakes.

The sad story of the one who decided to become a writer after trying his luck in medicine is told by Augustine Wells when he wrote the biography of another poet who grew up in a scientific spirit who left the path of medicine to dedicate himself to literature. The parallels between the two are striking: „Crabbe began as Keats did, as an apothecary's apprentice, but his lot seems to have been worse. He slept in a barn and was occupied for the most part in running errands and performing menial services. When he essayed to set up for practice on his own ac- count, he did so poorly that he nearly starved, and had to supplement his income by hard, manual labor. But finding that he had talent for writing, and encouraged by some friends, he pulled up stakes-or rather, pulled down his sign."[1] The life full of deprivations involved in medicine is just one of the commonalities of the two. One of Keats' favorite readings were George Crabbe's poems. He was the one who marked the beginning of Romanticism in the English realm and was to influence many writers who found their inspiration in Crabbe. And Keats was one of them.

Through excellent descriptions of nature, the need to unleash the rigors of certain patterns, individual freedom as a favorite theme, the promotion of national ideals, the fiery spirit in which he sustains his poetic

[1] Walter Augustine, Wells, *A doctor's life of John Keats*, New York, Vantage Press, 1959, p. 106.

feelings, the use of agrestic vocabulary at times, the glorification of certain patriotic feelings and the idealization of love, the poems that Crabbe has signed over time frame him in romance without a doubt. The most representative of his verses are gathered in volumes such as *The Village* (1783), *Poems* (1807), *The Borough* (1810), *Tales* (1812) and *Tales of the Hall* (1819). Unlike the romantics of his day, however, Crabbe tries to be as faithful as possible to the reality he describes in his lyrics and to describe the dark parts of life in the small provincial towns, the countries of English society and the sufferings of the many poor. His entire literary career lies on the border between the romanticism that flourished at the time, in response to the rigid forms of classicism, and the literary realism that was only at the dawn of its existence.

Born into a modest family of stablemen, John Keats (1795-1821) chose medicine as a surgeon. After his father's death, when he was eight, his mother would be his only support. Remaining a widow, she remarried, but the children were raised by their maternal grandmother. Seven years later, his mother also died of tuberculosis. In the same year, Keats began working as an apprentice for a surgeon. Housed in the small attic above the doctor's office, Keats took a break during this period to recover emotionally and to settle his emotions. After completing his apprenticeship, medical studies followed. From 1815 to 1817 he studied at Guy's Hospital.

A year earlier, in 1814, Keats had written his first poem, which was to be published three years later, *An Imitation of Spencer*. The inspiration for this poem is the allegory *The Fairie Queene* signed by Edmund Spencer. Written in iambus, poetry is enlivened by the poet's belief that nature, both animal and plant kingdom, possesses a special spirituality. Most representatives of Romanticism promoted animism and Keats is no exception. The omniscient narrator poet and the poetic images are constructed with the help of grandiose metaphors. These opening lyrics abound in vivid colors and symbolism. Thus, Flora, in Greek mythology the goddess of flora, is one of the characters of Keats with the ancestor of the Roman nation (*Aeneas*); other characters are the Phoenician princess who founded Carthage, King Lear and Morning. The colors that Keats used to impress a positive and fresh feeling are: green, emerald, amber, silver, gold, ruby, ebony, azure. The whole of nature is bathed in an opulence worthy of a rococo painting.

Ah! could I tell the wonders of an isle
That in that fairest lake had placed been,
I could e'en Dido of her grief beguile;

Or rob from aged Lear his bitter teen:
For sure so fair a place was never seen,
Of all that ever charm'd romantic eye:
It seem'd an emerald in the silver sheen
Of the bright waters; or as when on high,
Through clouds of fleecy white, laughs the cœrulean sky.
And all around it dipp'd luxuriously
Slopings of verdure through the glossy tide,
Which, as it were in gentle amity,
Rippled delighted up the flowery side;
As if to glean the ruddy tears, it tried,
Which fell profusely from the rose-tree stem!
Haply it was the workings of its pride,
In strife to throw upon the shore a gem
Outviewing all the buds in Flora's diadem. (*An Imitation of Spencer*[2])

Although, only two years after this poem, in 1816, Keats received the right to practice medicine and the profession of pharmacist, his decision was in favor of literature. In 1816 Keats published a sonnet, *O Solitude*, in *The Examiner*. Keats's loneliness is palpable and becomes personified knowing all author's feelings. The poet's proposal to Solitude, which has become tangible, is to share existence with him in a rural landscape, with flowery valleys, where deer roam freely, the water of the river shines, and the bees gather their nectar from the flowers. As in Renaissance sonnets, Keats uses a rhetorical tone in his request for loneliness. The poet tries to coexist with this feeling and the most suitable place is in the bosom of nature. Removal from his peers and retreat into the virgin nature is a compensation for the feeling of uprooting that Keats had.

Interestingly, of all the flowers, the poet mentions the foxglove. We believe that this choice is not accidental because this plant is a medicinal one, widely used in the pharmaceuticals of its time in order to treat edema associated with heart failure or as an ointment against ulcerations and wounds. The poet's medical knowledge must be taken into account when analyzing his lyric because the five years spent as a pharmacy apprentice

[2] John Keats, *Poetical Works,* London: Macmillan, reprinted from the original editions, with notes by Francis T. Palgrave, (1884), p. 20,
https://www.bartleby.com/126/9.html

and a year of medical training allowed the poet to create a happy intertwining between practice and lyrical emotional states. Despite the fact that the companionship of loneliness no longer frightens him, the poet wishes, as the last verses of the sonnet show, to have as companion another human soul. This being who would be welcome in the world that the poet builds must, however, be a candid soul, with a subtle thought and able to share the same affinities.

Yet the sweet converse of an innocent mind,
Whose words are images of thoughts refin'd,
Is my soul's pleasure; and it sure must be
Almost the highest bliss of human-kind,
When to thy haunts two kindred spirits flee.
(*O Solitude! if I must with thee dwell*[3])

This fellowship with a related soul is what each of us is looking for. It is that blessing that few have in their existence. *O Solitude!* was the first poem by Keats to be published in a prestigious magazine.

The apprenticeship in the pharmacy taught the poet that the greatest healers are the natural remedies. Keats does not hesitate to invoke nature in its healing capacity even for the turmoil the soul through which the poet passes. As a true physician, Nature — personified in these verses as well — can relieve the poet's soul of the overflow of feelings as a physician performed phlebotomy in those days to reduce the patient's malaise. The metaphor of the blood of the spirit is the poetic essence just as the blood is the one that keeps us all alive. The theoretical medical knowledge that Keats possessed acquired in its verses a superior delicacy.

Physician Nature! let my spirit blood!
O ease my heart of verse and let me rest;
Throw me upon thy tripod, till the flood
Of stifling numbers ebbs from my full breast.
A theme! a theme! Great Nature! give a theme;
Let me begin my dream.
I come—I see thee, as thou standest there,
Beckon me out into the wintry air. (*To Fanny*)

[3] Ibidem, p. 10, https://www.bartleby.com/126/20.html

Mortality and the limits that the human body has, limitations that can only be overcome by daydreaming, often seem to return quite often in Keats' lyrics. Aware of his poor health, in the light of his medical knowledge, Keats laments the limitations of the handcuffed body in its carcass of flesh and blood. Possessing a mortal body, the poet uses fantasy and poetic imagination to overcome the obstacles that the physiology imposes on him. Keats's lyrics emanate, at the same time, as in *A Song of Opposites*, contradictory feelings: sadness for what has passed and can no longer be repaired, but also joy for what the future and fate can offer.

In 1818, Keats, who had given up his medical career a year earlier, moved to Hampstead to care for one of his brothers suffering from tuberculosis. But despite living far from the capital, Keats did not break off contact with the London literary circles in which he had been so warmly received. The first symptoms of tuberculosis appeared in 1818. His brother, George, who had gone to America with his family, would die of the same disease, and his remaining brother in England, whom Keats cared for with great care, Tom, would pass away at the end of 1818. The following year, though difficult for his health and sprinkled with pecuniary shortcomings, would bring his poetic maturity. Fighting his own illness, Keats transposes his inner tumult into the lyrics of the six odes written in 1819: *Ode on a Grecian Urn*, *Ode on Indolence*, *Ode on Melancholy*, *Ode to a Nightingale*, *Ode to Psyche*, *To Autumn*.

Keats had suffered many years from tuberculosis. Despite going to several doctors, none confirmed his diagnosis. In one of his letters, Keats relates the words of the doctor who treated him. "The Doctor assures me that there is nothing the matter with me except nervous irritability and general weakness of the whole system, which has proceeded from my anxiety of mind of late years and too great excitement of poetry."[4] The preconceptions were not lacking at that time either and, unfortunately, all the doctors he visited told him the same thing: that he had problems with his stomach and with exaggerated sensitivity. In the last months of his life he traveled to Italy believing that he would find a treatment for his suffering there. The doctor who treated him in Rome, despite the frequent vomiting of blood, kept him on a strict diet and, whenever he had a fever, he performed a phlebotomy.

'By such propitious parley medicin'd
'In sickness not ignoble, I rejoice,

[4] *The Letters of John Keats*, Maurice Buxton Forman, Oxford University Press, 1935, p. 486

'Aye, and could weep for love of such award.'
So answer'd I, continuing, 'If it please,
'Majestic shadow, tell me: sure not all
'Those melodies sung into the world's ear
'Are useless: sure a poet is a sage;
'A humanist, physician to all men.
'That I am none I feel, as vultures feel
'They are no birds when eagles are abroad.
'What am I then? Thou spakest of my tribe:
'What tribe?' The tall shade veil'd in drooping white
Then spake, so much more earnest, that the breath
Moved the thin linen folds that drooping hung
About a golden censer from the hand
Pendent. 'Art thou not of the dreamer tribe?
'The poet and the dreamer are distinct,
'Diverse, sheer opposite, antipodes.
'The one pours out a balm upon the world,
'The other vexes it.' Then shouted I
Spite of myself, and with a Pythia's spleen,
'Apollo! faded! O far flown Apollo!
'Where is thy misty pestilence to creep
'Into the dwellings, through the door crannies
'Of all mock lyrists, large self worshipers,
'And careless Hectorers in proud bad verse.
'Though I breathe death with them it will be life
'To see them sprawl before me into graves.
'Majestic shadow, tell me where I am,
'Whose altar this; for whom this incense curls;
'What image this whose face I cannot see,
'For the broad marble knees; and who thou art,
'Of accent feminine so courteous?' (*The Fall of Hyperion - A Dream*)

The medical practice that Keats had benefited from was one in step with the discoveries of the time: the preparation of pharmaceutical preparations, mainly from plants, the use of leeches. When he became a medical student, studying anatomy and visiting the sick were part of his duties and his manual dexterity and ability to learn new skills were noted because in the second year he attended surgery. However, in 1816, when he received his diploma that gave him the right to practice medicine, Keats

was already determined to devote his energy to writing. His literary successes encouraged him to follow this unconventional path, which also deprived him of financial means. Once his own health problems began, in 1818, Keats tried to treat himself with the means that medicine had at that time. The lack of antibiotics and exposure to tuberculosis while caring for his sick brother would, however, lead to the tragic end of 1821.

His dreamy spirit could not live up to the demands of science. For his unrestrained soul, science can only restrain the imagination, kill the poetic dream and destroy the mystery. The poetic imagination can only be stifled by the prose of science. The lyrical beauty is born only in the territory of the supersensitive, Keats seems to declare. Through philosophy, the poet designates the whole spectrum of sciences which, through the coldness of the analysis and the objectivity it promotes, cuts off the creative momentum. Sometimes the mysteries must be undiscovered but, on the contrary, they must be appreciated and protected. The more enigmatic science wants to peel reality, the greater the disservice to humanity. Lamia's transformation, her transformation into a mortal being, is a convulsive one, dominated by pain. Keats has experienced both professionally and personally the intensity of physical pain, the limitations that the human body has in the face of disease and death.

> At the mere touch of cold philosophy?
> There was an awful rainbow once in heaven:
> We know her woof, her texture; she is given
> In the dull catalogue of common things.
> Philosophy will clip an Angel's wings,
> Conquer all mysteries by rule and line,
> Empty the haunted air, and gnomed mine—
> Unweave a rainbow, as it erewhile made
> The tender-person'd Lamia melt into a shade. (*Lamia. Part II*)

In August 1818, Keats was to receive a negative review from John Gibson Lockhart of *Blackwood's Edinburgh Magazine*. A first article is *On the Cockney School of Poetry* in which the critic attacks Keats, Shelley and William Hazlitt. Lockhart's diatribe would be countered by Keats in *Ode to a Nightingale*. If the critic sees a drug in poetry, Keats sees in the lyrics an escape from the narrow world of reality dominated by suffering and death.

Two years earlier, in 1816, Leigh Hunt had written the essay *Young Poets* in *The Examiner*. Along with Keats, Shelley and John Hamilton Reynolds, Hunt also compliments Keats as one of the representatives of a

new type of lyric that he praised for the truth of his ambition and for "ardent grappling with Nature."[5] In the fall of the same year, the poet tried to study to become a member of the Royal College of Surgeons. Keats was getting to know more and more people of letters but also personalities of the moment. Among them was the lawyer Richard Woodhouse, who was not only a close friend of the poet but to whom we owe the largest collection of poems to the one who would die so young. Multiple colds, exposure to the tuberculosis virus when he cared for his sick brother, Tom, led to the onset of the disease. Not knowing the micro-bacterial cause of the disease, phthisis was perceived as a weakness of temperament and repressed sexuality. Despite the suffering that the loss of his brother with tuberculosis triggered in Keats' soul, the winter of 1818 would be a prolific literary one. It was also during this time that he met Frances (Fanny) Brawne, for whom he had a great love until his death in Rome in 1821.

The language that Keats used to create his lyrical world has been analyzed by many exegetes. But M.H. Abrams, in his essay *Keats's Poems: The Material Dimensions*, went so far as to identify a particular tone. The melodic character of Keats' lyrics comes, according to the citation, from the voluptuousness generated by juxtaposition, repetition and consonant variation. Abrams exemplifies this phonetic theory with the help of the first lines of *Ode to a Nightingale*. The materiality to which the critic refers is the almost palpable, fleshy character of Keats's lyrics that build an independent reality only through the play of sounds. Perhaps not by chance, this corporality that Abrams identifies with Keats,"(…) the poem's body is enunciated speech, which has a complex kinetic and tactile as well as auditory physicality"[6], can also be found in the prose writer Max Blecher, who died of the same disease as the English poet a century later.

The materiality that Keats builds is a sound one. This recreated reality is, according to Abrams, one created by "morpheme symbolism, that is, frequently recurrent combinations of speech-sounds in words that overlap in what they signify."[7] The transcendentalism that Keats's lyrics emanate is just a form of manifestation of the subjective feelings that Romanticism promotes. Freedom of expression allowed Keats not only to be shocked by phonetic alternations, which was also surprised by exegetes, but also to

[5] Leigh Hunt, *Young Poets*, in *The Examiner* No. 466. SUNDAY, DEC. 1, p. 761

[6] M.H. Abrams, *Keats's Poems: The Material Dimensions*, in *Bloom's Period Studies, English Romantic Poetry*, Chealsea House Publishers, 2004, p. 321.

[7] Ibidem, p. 321.

use the medical language he had acquired throughout his medical studies to create unique artistic images. The Romantics were adept at the untrained use of classical customs, and Keats had the lexical background to achieve his goal. His lyrics oscillate between the perennial and the ephemeral, between the living world of nature and the sometimes gloomy feelings that darken the poet's horizon. Keats uses his senses, sounds and visual perceptions to refine his "brush." The poet manages to combine allegorical images, emotional reactions with his own regrets. Physical suffering was no stranger to him because his long lung disease drained him of the energy of a physically fit young man. But it is precisely this ability to give one's torments aesthetic value that makes Keats not only a romantic but also a skilled poet capable of translating vicissitudes into artistic form.

The abstract nature of Keats's metaphors aroused the interest of many exegetes. One of the most notable writings on Keats, which refers to his medical studies juxtaposed with his lyrical creation, belongs to Walter Augustine Wells and is entitled *A Doctor's Life of John Keats* (1959). Born prematurely, orphaned by his father at just nine, and by his mother at fifteen, Keats always had a poor physical condition and retired to study. His favorite subjects were the study of classical languages and reading. For Keats, nature was a refuge from vicissitudes and suffering. His daydreaming nature would reveal an unstable emotional character, oscillating between outbursts of anger and moments of joy.

The medical student years Keats had at Guys Hospital is described by Walter Augustine Wells as follows: "He was an exceptionally sensitive, impressible person, one who closely observed and was keenly alive to everything about him. He usually made friends and became deeply attached to them, and was strongly influenced by those with whom he came in contact."[8] But Keats often fell into day-dreaming, as evidenced by his medical notebooks on which he used to write rhymes or draw. However, the poet seemed to have an extraordinary scientific talent and had a surgical dexterity.

His young friend Charles Wells relates that once when they were taking a walk together, there was a street accident in which a man suffered a broken leg, and that "Keats stepped forward and set the broken leg and dressed it in a most skillful fashion. Without doubt, Keats' position as

[8] Walter Augustine Wells, *A doctor's life of John Keats*, New York,Vantage Press, 1959, pp. 69-70.

dresser had given him a lot of valuable experience and he profited by it. Keats himself once pointedly mentioned his own surgical accomplishment. In a letter to his friend Brown, he wrote: My last operation was the opening of a man's temporal artery. I did it with the utmost nicety, but reflecting what passed through my mind at the time, my dexterity seemed a miracle, and I never took up a lancet again. He thought he had skill enough and he would be willing to bring it into service if the need was urgent, but evidently he considered himself temperamentally unfit for a medical career."[9] Keats constantly oscillated between the two fields: literature and medicine. In a letter from 1818 the poet described this mixture from his soul "Were I to study physic or rather medicine again, I feel it would not make the least difference with my poetry; when the mind is in its infancy a bias is in reality a bias, but when the mind has acquired more strength a bias becomes no bias. Every department of knowledge we see excellent and calculated toward a great whole. I am so convinced of this I am glad at not having given away my medical books, which I shall look over again to keep alive the little I know towards that work; and moreover intend through Reynolds and Rice to become a pip physician."[10]

In 1980, George Lakoff and Mark Johnson proposed in *Metaphors We Live By* a unique way of analyzing literary text. The cognitive metaphor, proposed by the two to define the analytical capacity to give an idea the meaning of another, also seems to characterize Keats's lyrics, which he used to convey his emotional states, the deepest feelings but also the fears that haunted his creation and life.

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[9] Idem, pp. 80-81.

[10] Idem, p. 103.

THE NATURALNESS IN/OF THE ARTIFICIALITY OF CLONING

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Abstract: *This paper is an empirico-inductive attempt towards a commonsense defense of (reproductive) cloning. Cloning simply defined is the scientist's photocopying or replication of the bit or part or entirety of an organism. Organisms replicated either in part or whole necessarily and essentially share same genetic template with the original stuck. Since the first attempt towards cloning by scientists it has attracted formidable retribution and disapprobation from conservative minded scholars and other conservative members and institutions of the society. One of the most positive points of order often raise against the art and science of cloning is that it is an artificial intrusion into the natural order of organisms. Without undermining the cogency of this point of disapproval, this paper employing the expository analytic method painstakingly, through a commonsense approach, demonstrates the naturalness in the artificiality of cloning. The analysis reveals that ironically, cloning has been occurring naturally in plants, animals and humans in natural reproductive process. An apt example to this effect in humans is the instances and phenomena of monozygotic twins otherwise known as identical twins.*

Keywords*: Artificial, Asexual Reproduction, Cloning, Monozygotic Natural, and Sexual Reproduction.*

Introduction

The title of this paper seems to sound paradoxical or oxymoronic, yet it is an expository exercise and a commonsense approach aimed at a cautionary defense of the naturalness of artificial cloning (genetic engineering). The essential philosophy that underpins human genetic engineering is the quest for eugenics and ultimately, improved human health and wellbeing. These bio-medical technologies are essentially tailored towards genetic modification. In ruminating on genetic engineering in a work titled, *Review of Ethical Issues in Medical Genetics*, Wertz, Fletcher, and Berg, K. explain that, "modification in humans can possibly take place at enhancement (eugenics) and therapeutic stages. Genetic modification for therapeutic purposes aims at curing the illness or

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deficiency in a person from their ontological root; whereas, genetics for the purpose of enhancement or eugenics is tailored towards making the health condition of a person to become better than average. Raising human capabilities into the average range may be regarded as treatment. Raising capabilities above the average is enhancement, historically called positive eugenics".[1] "The term human enhancement encompasses a range of approaches that may be used to improve aspects of human function (e.g. memory, hearing, mobility). This may either be for the purpose of restoring an impaired function to previous or average levels, or to raise function to a level considered to be beyond the norm for humans".[2] These two levels of genetic tinkering are considered as human genetic interventions. Specifically, the core of genetic engineering either for therapeutic reasons or for enhancement ends is cloning. Cloning entails the two face of genetic engineering.

Cloning is a profoundly controversial as well as paradoxical biomedical technology. Of all biotechnologies, cloning raises the most herculean moral question and dilemma. This brute fact prompted Stuart Sprague to assert that, "…. And today when scientists give us the option of changing the human body at the cellular level through cloning, the moral stakes seem higher and the way forward is more cloudy and uncertain".[3] As such, cloning conjures the mix-feelings of fascination and fright, relishing and appalling, excitement and phobia, approbation and disapprobation. This accounts for why the history of scientific development is replete with fascinating societal engagement of cloning, mostly because its revolutionary nature bluntly challenges the traditional configuration of the human person. Consequently, the debate on the moral worth or significance of cloning has polarized humanity and this practically signifies 'different strokes for different folks'. There are two separate polemics (moral defence) based on arguments and counter arguments presented by people at the both side of the divide in support of their stand on cloning. First, both those for and against appeal to violation

[1] D.C. Wertz, J.C. Fletcher, K. Berg, *Review of Ethical Issues in Medical Genetics*, "Report of Consultants to WHO, World Health Organization Human Genetics Programme, Geneva: World Health Organization, 2003, p. 14.

[2] Martín-Arribas and Díaz, cited in Michael Uzomah Maduawuchi, *The Necessity of Jurisprudence for an Effective Bioethics in Gene Technology and Human Dignity,* A PhD. Dissertation submitted to the Department of Philosophy, Ekiti State University, Ado-Ekiti, Unpublished, October, 2019, p. 68.

[3] Stuart Sprague, cited in Uzomah, p. 89.

of inalienable human rights as the moral justification of their respective stand; second, both parties also alluded to the possible harm, it might cause the individual as well as the society at large. This of course makes the cloning debate a highly controversial and dilemmatic contest. It is germane to assert that one of the most formidable moral arguments often advanced by conservative scholars against closing is that it is an artificial meddling on organisms. However, a close examination of the genesis of this categorical claim may reveal that it is instigated by the unfounded and spontaneous aversion of conservatives (especially religious conservatives) have against any attempt by humans to mimic or tinker the natural working of organism (especial that of animals and human beings); even when these attempts are mostly targeted towards perfecting the imperfections of the natural dynamic nature of organisms.

Although, debate on the moral worth of cloning are often considered important to discourses on cloning, however, this paper is an expository analysis aimed at a commonsense demonstration of the naturalness and imperativeness of reproductive cloning. A critical look at the history of science and technology from stem to stern, with specific reference to biotechnology, reveals that it copies and enhances the nature of the phenomenon, element or organism it studies. Biotechnological engineering, though, 'unnatural' finds precedence on the natural dynamics of organisms. Its principal objective has always been to improve that given object of study from its linchpin or its core ontology so as to catalyst an innovative elevation of the natural workings, functionality and productivity (fruitfulness) of such organism. This governing propensity that drives biotechnological tinkering with organism as typified in cloning (the core of genomics and genetics) is the philosophy of improving life and health of humanity the crown of the material order upwardly. Consequently, this paper asserts and defends the thesis that reproductive cloning, and even therapeutic cloning are commonsensically justified premised on the fact that they are inspired and are rooted in one of the awesome characteristics again and again exhibited in human natural reproductive processes. In some historical instances where this relishing phenomenon has occurred, it has exposed the odious imperfections and defects of natural reproductive processes based on chance. Therefore, cloning becomes humans' conscious attempt towards not just working in line with established natural processes, but must essential it is a creative attempt to avoid the limitations, liabilities and deficiencies of natural processes left to chance. In this light, instead of obstinately considering

cloning as artificial and therefore anti nature, cloning should be plausibly considered trans-natural and in service of nature.

Genomics

Genomics studies the genes of organisms to decipher the 'secret of secrets' behind human life, health and disease. Within scientific parlance, it is believed that the human genome is apparently, the "secret of life" or the "code of codes" or the "map of human life." In metaphysical language, human genes are the primordial controlling forces that order the functionality of the physiological, anatomical and hormonal dynamism of the human body and activities. They are immanent in every facet and bits of the human body; such that their actions and inactions, swishing on or off control the cells, tissues, structures and functionality of the human body. It is believed that the map of the human genome is very essential for understanding human life because it is the instructional manual and the material substance of the human body. Consequently:

> Never in human history has humans beings understood their biological make-ups that it is evident that they can edit their offspring has they have in our time.[4]

Like the pioneers of philosophy whose primary objective was to decipher the primordial stuff in order to account for the origin of the material order, geneticists and bio-scientists see in the human genes the *urstuff* that conceals the secret of the mechanism of human life, health and disease. Genetics leverages on data, accruable from genomics for the innovative therapy and enhancement of organisms from their ontological root (genes). From this ontological engagement, either a part or whole is improved, modified, duplicated or reproduced (as practically typified in cloning). The modus operandi of biotechnology in general and red biotechnology in particular is in tripod: First, it undertakes a profound inquiry to unravel the intrinsic powers inherent in the object of its ontological engagement; second, it creatively mimics the inherent powers discovered so as to be conversant with their innate capacities in order to replicate them; third, in this innovative replicating of their intrinsic

[4] Culled from the Thematic Rationale, of the International Conference In Honour of the Late Professor George F. Mclean, School of General Studies, University of Nigeria, Nsukka, May 15th 16th, 2017.

powers, it alleviates the natural limitations discovered by way of therapy and enhancement. This tripod is genomics and genetics simply defined, and it is the principle behind cloning (reproductive and therapeutic).

Cloning may be described as a bio-reconstruction-an artificial replication of the natural process of making a copy. This has led to the redefinition of reproduction socially, economically, politically, culturally and religiously, even technologically. Added to this is a concurrent phenomenon of expansion and diffusion of reproductive politics which is occurring across this proliferation of sites and locations. [5] Natural reproduction which happens after sexual intercourse is left to chance and subject to congenital errors. So with cloning technology, humans bio-reproduces copies of existing organism with exert genetic properties. The difference between the former and the latter is that, while the former is left to chance, the latter is masterminded and determined by the bioengineers responsible. In doing this, the bioengineers seek to expunge the purported clumsiness and unreliability of natural procreation.

The meaning of the term "Clone"

The term clone which was derived from the Greek word *Klon* may be seen as a group of organisms or group of identical entities produced without sexual union from a single parent.[6] It has recently also come to mean a member of such a group and, in particular, an organism that is a genetic copy of another organism. The term applies not only to entire organisms but also to copies of molecules (such as DNA) and cells.[7] From these definitions, it may be logically asserted that the keyword that is definitional of the term clone is 'asexual reproduction' and 'sameness of genetic templates' with original organism. A clone is an organism or aspect(s) of an organism asexually reproduced to have sameness of genetic constitution with the original organism wherefrom it is derived. When it applies to molecular engineering, it is genetic engineering on the level of therapeutic cloning. When a clone refers to an aspect(s) of an entity replicated asexually, it is an embryonic cloning for therapy and research purposes, but when it refers to the whole entity, it denotes an organism

[5] Franklin, cited in Uzomah, p. 90.

[6] Peter O. Ottuh, 2015, "Ethicao-Theological Assessment of Therapeutic Cloning and its Implication for Human Society", in *Niger Delta Journal of Humanities and Social Sciences*, (NIDCAASRES), Vol. 2, No. 3, October, p. 2.

[7] WHO 2004, No. 5.

created through Somatic Cell Nuclear Transfer to have sameness of genome with existing mother-organism.

Cloning involves reproducing an animal or plant artificially from the cell of another animal or plant in which case the animal or plant becomes identical with the animal or plant from which cell it was artificially produced. Thus, a clone is a plant or animal which has the same genes as the original from which it was produced.[8] When it involves humans, a clone is a human individual species reproduced asexually and as such having same genomic nature with the original person whose Somatic Cell (DNA) was the material used for the asexual reproduction. The point of emphasis of the foregoing definition is that a clone is an aftermath of an 'artificial and asexual reproduction'. It is the result of bioreproduction or biomanufacturing. Cloning, whether done on the level of therapy or on the level of reproduction involves an artificial (engineering) manipulation of organisms whether in whole or part to replicate their genetic particulars to meet either a research need or therapeutic need, etc. A clone can be a molecule or a whole organism duplicated from already existing molecule or organism with which it shares sameness of genes. Meanwhile, it might interest you to know that even when considered artificial, and maybe rightly so, yet cloning has its root on the natural order of things. Based on this debatable fact, one may aptly talk about the 'naturalness in/of the artificiality of cloning.

Cloning generally entails genetic interventions at the interception of genetic enhancement and genetic therapy. Specifically, reproductive cloning embodies and manifestly expresses the philosophy of eugenics and transhumanism that move towards creating an enhanced human community. Nevertheless, scientists insist that even when cloning (reproductive cloning) aims at producing organisms with enhanced genetic templates, yet, the tinkering or altering of genes of the clones is not only to help researchers probe the mechanisms behind human diseases, but also essentially to aid drug screening and the development of other therapies. In this sense, one cannot but agree that:

> To define when a genetic intervention is "enhancing" or "therapeutic" or how the benefit from a genetic enhancement should be calculated in

[8] Madu, 2003, p. 26. Cited Uzomah, p. 95.

> comparing its risks and benefits are some of the challenges of Genetic enhancement.[9]

This goes a long way to show that, there is actually no clear cut cleavage between genetic tinkering for enhancement purposes and genetic tinkering for therapeutic reasons. This argument may be likened to Willard Van Orman Quine's insistence in his *Two Dogmas of Empiricism* that there is no cleavage between analytic and synthetic judgments. This is because most genetic engineering whether somatic or germline modifications that have enhancement as their immediate end, ultimately effects or achieves therapy. In other words, prosecuting one deliberately and inadvertently perpetuates the other concurrently. Meanwhile:

> Reproduction can be said to be in the midst of a set of cultural redefinitions and (literal) reconstructions, primarily as a result of a convergence between two branches of science-genetics and embryology-of scientific "assistance" have by means of which unprecedented forms have been given to the process of reproduction and development.[10]

Having made the above clarification, it is useful to note that cloning, whether at the level of reproduction or therapy, is made possible by the knowledge of human genomic information as provided by human genome project.

The art and science of reproductive cloning

Cloning is understood in this study as a science as well as an art. It is a science because as a biotechnology, it is the application of scientific knowledge in biomedicine. Moreover, it is a genetic intervention in genetics (molecular biology), the branch of biology that deals with the principles and mechanisms of heredity and with the genetic contribution to similarities and differences among related organisms. It is equally an art in the sense that it is humans' (scientists) efforts to understand and control the mechanics of reproduction and their innovative application of scientific knowledge towards the advancement of the life and health of humanity. In this sense, it is humans' exceptional display of their unique

[9] Ibid.

[10] S. Franklin, cited in Uzomah, p. 98.

architectural prowess and ingenuity whose teleological end is to take charge or dominate the art of reproduction. This artistic nature of cloning displays the trans-naturalness of cloning.

The first fact that must be known about reproductive cloning is that it is an asexual reproduction. The second fact is that, being asexual, it appears to be a direct departure from the normal conception (whether natural or artificial) that arises as a result of the mating of sperm and egg. The example of monozygotic twins as given above occurs after the union of sperm and egg during cell division. This is known as sexual reproduction. However, in a loose sense, sexual reproduction in cloning is possible with the technology Assisted Reproduction called In Vitro Fertilization (IVF). Through this technology, the mitochondria of sperms and eggs of different parents can be manipulated to produce a child or children that shares their genetic make ups in a single In Vitro Fertilization process (further elaboration on this will be done later). This reproductive technology is remotely or if you like, analogously considered cloning because of the genetic (engineering) selection involved. But strictly, cloning in general and reproductive cloning in particular is achieved asexually through Somatic Cell Nuclear Transfer (SCNT) instead of the union of germline cells. As stated earlier, while discussing two pertinent distinctions made as per genetic engineering that, at the second level of distinction is the distinction between somatic cells and germline cells. Somatic cells are skin or muscle cells and they contain 23 chromosomal pairs and do not transmit genetic information to succeeding generations. Germ-line cells are the egg and the sperm cells and they contain 23 unpaired chromosomes and provide genetic information to offspring, as well as to the future generations descended from those offspring. Asexual reproduction which works with somatic cells reproduces offspring from a single linage, whereas sexual reproduction which works with germline cells reproduces offspring with mix-lineage (23 chromosomes each from both parents peered to give rise 46 chromosome-newly reproduced individual). A succinct summary of the distinction between sexual reproduction (germline cells) and asexual reproduction (somatic cell) is given thus:

> Reproduction other than reproductive somatic cell nuclear transfer (SCNT) involves the conception of a child through the mixing of genetic lineages. Reproductive somatic cell nuclear transfer (SCNT), on the other hand, involves the production of a child

> through an asexual procedure using an existing genome. This process represents a fundamental departure from natural or assisted conception in which a child's genome is unique from either parent. For those who subscribe to this perspective, no situation would justify reproductive somatic cell nuclear transfer (SCNT) because the act itself is considered immoral.[11]

Consequently, it may be asserted that cloning is simply defined as a bioengineered asexual reproduction that replicates organisms with same genome from a single parent (DNA). Organisms bioreplicated share same genetic identity with its parent stock. This technology goes through procedural steps that are at the moment still subject to trials and errors.

Somatic Cell Nuclear transfer is a very highly technical, sensitive, sophisticated and probable scientific procedure/method that is carried out systematically. The sensitivity and probability of this techno-scientific procedure is manifestly expressed by the fact that it is producing a low success result. According to French J. Andrew, Wood H. Samuel et al., "it is a technically demanding, multistep procedure with the potential for cumulative errors that can impact developmental potential and each stage of development. Although numerous variations exist, the basic features of the procedure used in both laboratory and domestic animals, have remained the same since nuclear transfer in mammals was first performed in the early 1980s.[12] This is summarized below:

i. Enucleation of the oocyte to form a cytoplast;

ii. Merger of the donor cell or nucleus with the cytoplast to form a reconstructed one-cell embryo;

iii. Parthenogenetic activation either before or after reconstruction of the reconstructed one-cell embryo; and,

iv.Preimplantation embryo in vitro culture.[13]

The process of deleting or sucking out nucleus from the donor specimens for cloning which is the fulcrum of this asexual reproduction is that it is done using different scientific methods in the laboratory.

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[11] Judith Daar, Paula Amato, et al., 2015, *Human Somatic Cell Nuclear Transfer and Reproductive Cloning: an Ethics Committee Opinion,* Birmingham, Alabama: American Society for Reproductive Medicine, last published in Fertil Steril pp. 98:804–7.

[12] French J. Andrew, Wood H. Samuel et al., 2006, p. 268.

[13] Andrew, Samuel et al., 268.

According to the *Encyclopedia Wikipedia* "Cloning is done by finding a donor egg, sucking out the nucleus of the egg (DNA), injecting a cell from the person you wish to recreate or copy as the new nucleus of the egg, and culturing this to grow. It will be exactly as the older sperm. In this case, even a dead child can be recreated".[14] The nucleus in both the donor sperm and egg are the germline cells. They are deleted from the egg and sperm through a process or method of somatic cell nuclear transfer referred to as 'enucleation' or what we may rather call 'enuclealization' and replaced by the cells in both organisms.

Since the advent of the culture of Somatic Nuclear Cell Transfer (SCNT), despite its inefficient and low success rate, it has been employed in cloning plants, animals and even human embryos. "To date, SCNT, in combination with transgenic strategies, has been applied to laboratory and domestic animals in the areas of:

1. Basic research to generate animal models of human disease to further our understanding of biological events surrounding development and functional genomics;
2. Animal breeding programs to increase biological efficiency at a reduced cost;
3. Preclinical testing of new therapeutic interventions for human medicine; and
4. Genetic rescue of endangered mammals by cross-species SCNT.[15]

The fundamental objective of SCNT otherwise known as cloning is the aspiration of scientists to decipher the nature of genes as the 'secret of secrets' that holds the master key to unlocking the secret behind human life, health and disease. As the inexorable elements that control the cells, tissues, organs, structures and indeed the entire body activities, it is believed that understanding the dynamics or intrinsic capacities of these causal principles is crucial to improving the life and health of organisms. According to the World Health Organization document on cloning:

> Scientists were initially interested in SCNT as a means of determining whether genes remain functional even after most of them have been switched off as the cells in a developing organism assume their specialized functions as blood cells, muscle cells, and so forth. The

[14] Cited in Ani, p. 85.

[15] Ibid, p. 267.

> fact that the DNA of a fully differentiated (adult) cell could be stimulated to revert to a condition comparable to that of a newly fertilized egg and to repeat the process of embryonic development demonstrates that all the genes in differentiated cells retain their functional capacity, although only a few are active.[16]

The first point of destination or the basic teleological end of cloning is to generate clonal embryos with same genetic particulars or templates. The generation of embryo via SCNT is not an end in itself, rather, a means to other ends. Prior to and at this point, one cannot distinguish between reproductive cloning and therapeutic cloning because both commences hereafter. Therapeutic or reproductive cloning is henceforth distinguished based on the motif and the use that is made of the clonal embryo(s) so generated. For instance, when the clonal embryos are used purely for research purposes and for the generation of stem cells for gene therapy, it is designated as therapeutic cloning; but when the clonal embryos are further cultured (implanted into the uterus of organisms) for gestation to reproduce a whole organism, such is known as reproductive cloning.

According to official global record, no human cloning has been reported done because of an ethical embargo placed on it by the global society. Some scientists may be remotely attempting cloning of the whole human person in secret. However, cloning of human embryos for research and therapeutic purposes is allowed globally. "The first sensational cloning of human embryo occurred in September 1993. Then was realised the famous multiplication of 17 microscopic human embryos into 48 by Jerry Hall and his supervisor Dr. Robert Stillman, both of the US George Washinton University Medical Team. The process started with the case of an abnormal egg meant to undergo fertility treatment in the laboratory".[17] The event is below described in five stages with a conclusion thus:

First Stage: The egg removed from a woman and fertilized in a petri dish. The egg was put in a zona pellucida which is a coating that promotes normal cell division. It was then fertilized by the insertion of sperm, this time of several sperms to ensure success in the fertilization.

Second Stage: Quickly one such cell divided in two as a developmental process. This could be compared to twining in normal

[16] World Health Organization 2004, No. 8.

[17] Iroegbu, p. 639.

baby situation, what is usually called identical babies. In this case, however, the process is human induced.

Third Stage: The zona Pellucina coasting was removed with an enzyme. Then the two fertilized embryos were separated, left to lie side by side.

Fourth Stage: To promote further development of the embryo, artificial zona pellucida coatings were added. This novel technique allowed progressive development of both embryos, in their separate locations.

Fifth Stage: For the first six days, the two cells continue to divide. They formed genetically identical embryos. The multiplication stopped after six days and the number came to 48 embryos. Had the embryos being normal or healthy, the multiplication could perhaps have continued.

Conclusion: All the fourth eight embryos were identical in form, outlook and characteristics, i.e. they have the same genetic identity. This cloning process was done to the admiration of many medical experts, but to the consternation of the socio-political and religious leaders of the planet.[18]

When these identical embryos are neither used for the generation of stem cell (via therapeutic cloning) nor for research purposes, they are possibly used for reproductive cloning.

Reproductive technology encompasses all current and anticipated uses of technology in human and animal reproduction, including assisted reproductive technology, contraception, prognostics and others. [19] Generally, reproductive cloning begins with the generation of embryo(s) through the procedure of SCNT as described above and it is transferred into the uterus of the animal or human as the case may be for gestation. Specifically, reproductive cloning in humans refers to the creation of a clonal human embryo, but instead of being used for experimental purposes, it would be implanted in a woman's uterus (following the same technique of implanting embryos resulting from In Vitro Fertilization) for gestation and brought to term as a new born child. Human cloning refers to the creation of either human embryos or human children that are genetically identical to their living or dead parents. Upon the successful cloning of embryo, to proceed to pregnancy and birth:

> The resulting blastocyst is transferred into the uterus of a female host; if it implants and the pregnancy

[18] Iroegbu, p. 639.

[19] Martín-Arribas and Díaz, 2015, 5.

> goes to term, the resulting individual will carry the same nuclear genetic material as the donor of the adult somatic cell. However, an animal created through this technique would not be a precise genetic copy of the source of its nuclear DNA because each clone derives a small amount of its DNA from the mitochondria of the egg (which lie outside the nucleus) rather than from the donor of cell nucleus. Thus, the clone would be genetically identical to the nucleus donor only if the egg came from the same donor or from her maternal line.[20]

In the light of the above, Judith Daar, Paula Amato, et al. opined that "reproductive cloning is the use of technologies, including SCNT, to create offspring with the shared genomic material of the original person.[21] The very first successful attempt of cloning a mammal was in 1997 when Ian Wilmut and his research team (scientists) cloned the famous 'Dolly the sheep' after a whopping 276 failures. In other words, to clone Dolly, the team of researchers led by Wilmut made used of 277 cloned embryos that resulted into thirteen pregnancies before just a single success was achieved. Four decades before the cloning of Dolly, scientists used same technique to clone tadpoles and frogs. This landmark achievement in cloning published in *Journal Nature,* astonished as well as perplexed the entire world. The reason for this is that it eloquently implied that with the successfully cloning of a mammal (a class to which humans being belong) humans can be technically and theoretically cloned too. But at this point, it is still very skeptical; yet:

> The response of most scientific and political leaders to the prospect of human cloning, indeed of Dr. Wilmut as well, was of immediate and strong condemnation. In the United States, the then President Clinton immediately banned federal financing of human cloning research and asked privately funded scientists to halt such work until the then newly formed National Bioethics Advisory Commission could review the troubling ethical and legal implications. The then Director-General of the World Health

[20] WHO 2004, No. 7.

[21] Daar, Amato, et al.2016, e1.

> Organization (WHO) characterized human cloning as "ethically unacceptable as it would violate some of the basic principles which govern medically assisted reproduction. These include respect for the dignity of the human being and the protection of the security of human genetic material. Around the world similar immediate condemnation was heard, as human cloning was called a violation of human rights and human dignity. Even before Wilmut's announcement, human cloning had been made illegal in nearly all countries in Europe and had been condemned by the Council of Europe.[22]

This immediate condemnation of the possible cloning of humans though not baseless, yet a blanket called for the total stoppage of research in human cloning at that nascent or bolding stage which may not be to the best interest of humanity. This assertion is justified by the fact that despite the fact that this incredible feat was overwhelmingly impugned:

> A few more cautious voices were heard, both suggesting some possible benefits from the use of human cloning in limited circumstances and questioning its too quick prohibition, but they were a clear minority. In the popular media, nightmare scenarios of laboratory mistakes resulting in monsters, the cloning of armies of Hitlers, the exploitative use of cloning for totalitarian ends as in Huxley's Brave New World, and the murderous replicas of the film Blade Runner, all fed the public controversy and uneasiness. A striking feature of these early responses was that their strength and intensity seemed to far outrun the arguments and reasons offered in support of them they seemed often to be "gut level" emotional reactions rather than considered reflections on the issues.[23]

[22] Council of Europe 1986.

[23] Dan W. Brock, Dan W. Brock, *Cloning Human Beings: An Assessment of the Ethical Issues Pro and Con Commissioned Pape*r, pdf. Retrieved, January, 2018, 4.

Consequently, unperturbed by the coldness and unpalatable sentiments of the public towards the announcement of the creation of Dolly, scientists never relented on their pursuit. So, immediately after Dolly, "a lamb was cloned from the mammary cells of an adult ewe, research groups announced that they had cloned mice, calves, and other animals by using differentiated somatic cells. In the cloning technique used to produce Dolly, the nucleus of a somatic cell of the ewe was transferred to a sheep oocyte from which the nucleus had been removed, and the cells were fused through electrofusion to produce offspring that shared the genome of the original ewe".[24]

It is pertinent to note that with the cloning of Dolly and the lamb, and probably other mammals, scientists came closer and not closest to cloning humans. This is because as at then, no primate has been successfully cloned. And man together with a few other higher animals belongs to the taxonomy of primate. The study of anthropology and evolution theories reveals that man is a progeny of monkeys and chimpanzee. Pursuant to this, any research that turns out successful on these our ancestral primates is closest to being successful too in humans. This is not just mere speculation, scientists frequently have carried out clinical tests of novel drugs and vaccines for humans on mammals and primates which by their taxonomy are most related to humans, before such medicines are administered to humans.

In lieu of the above, biotechnologists have never rescinded in their relentless and herculean quest to unravel the enigma of the mechanism of human life, health and disease through cloning. As per the restrictions imposed by the society on human cloning, these scientists use non-human models for human disease. So, "Research into the science of reproductive SCNT is progressing as investigators clone additional species by using the original and related methods. Other research is investigating techniques such as parthenogenesis, transference of mitochondrial DNA, chimeras, or interspecies SCNT-derived human embryos".[25]

Consequently, twenty years after the cloning of Dolly, barrier to cloning primates has been overcome with the milestone cloning of Zhong Zhong and Hua Hua. Zhonhua (two monkeys named after China where they were created), in January 2018. Dr Mu-ming Poo, and his colleagues working with the Chinese Academy of Sciences' Institute of Neuroscience,

[24] Daar, Amato, et al. e1.

[25] Ibid.

used SCNT to clone two identical monkeys. The excerpt below is an article that publicized this latest feat culled from the *Guardian News Online:*

> Two baby macaque monkeys have become the first primate clones to be produced using the same approach that gave rise to Dolly the sheep, researchers have revealed. Big eyed, fuzzy-furred and spindly-limbed, the macaques have been named Zhong Zhong and Hua Hua. Zhonghua is part of the official name for China, where the animals were born. Macaque monkey clones have previously been produced by splitting an embryo, similar to the way identical twins arise in nature. But the latest research makes use of a different technique known as somatic cell nuclear transfer (SCNT) – an approach that was used to produce Dolly the sheep in 1996.[26]

When Dolly the sheep- a mammal was cloned the world was terrified because it eloquently implied that the prospect of cloning humans is more certain. Now that twenty years after scientists have taken a step further to successfully clone not just mammals but primates, this unequal mind blowing achievement even more eloquently implies that the prospect of cloning humans is most certain. This is because it has brought scientists a step closest to cloning humans. However, the malaise that has been troubling the research community, political leaders, religious stakeholders as well as the general public is the safety and ethical issues surrounding all organisms (animals) both low and high that have been cloned through SCNT. The first is the highly probable nature of this technique that has culminated in its low success rate; the second is the precarious health conditions (high mortality or fatality rate) of all extant clones especially mammals that has culminated in their premature death. For instance, to create "Dolly," required 277 cloned embryos and thirteen pregnancies before a single success was achieved after 267 failed attempts and it died prematurely after few years. In the case of Zhong Zhong and Hua Hua, out of 127 eggs, only two produced live macaques births. In cloning these primates using SCNT, fetal cells rather than adult ones like those used to clone Dolly were the only ones that proved successful. Moreover:

[26] https//www.thegaurdian.com/science/2013/jun/02)Retrieved, 26th August, 2018.

> In all the species of mammals cloned so far – including mice, rabbits, pigs, cattle and sheep unpredictable genetic and epigenetic problems have arisen that have not only led to a high rate of abnormalities and prenatal death but have also created health problems for most of the animals born alive, problems that differ from one clone to another.[27]

Although the process of cloning is easy conceptually, it faces a number of technical difficulties and challenges. The technique for reproductive cloning is terribly inefficient in that the success rate is very small.[28] Arguably, reproductive SCNT has been inefficient in non-human species, with relatively few births reported in veterinary studies. It also has been associated with harmful complications in most mammalian species including high fetal and neonatal death rates and/or imprinting and developmental disorders.[29]

> Besides the poor and efficiency of the process, successfully cloned organisms usually do not live terribly long. "Dolly" lived only one-half of her expected life-span of twelve years (interestingly, she was cloned from a six year-old sheep), and around a third of the cloned bovine calves die prematurely. [30]

Furthermore, Marcum elaborates what is responsible for the precarious and high morbidity and fatality rate of clones:

> These problems may result from the enormous stress placed upon both the cell and nucleus during the cloning process. Enucleating an egg involves suctioning out its nucleus, which often removes more than the nucleus. The process may also remove the fluid filling the cytoplasm of the egg, which contains many important substances for directing the early stages of development. Biologists believe that disruption or removal of these

[27] Ibid.

[28] James, A. Marcum, 2005, "Cloning Facts and Fictions", in Kruschwitz, Robert B. ed. *Cloning, A Christian Reflection: A Series in Faith and Ethics*, USA: The Center for Christian Ethics Baylor University, p. 24.

[29] Daar, Amato, e1.

[30] Marcum, p. 24.

> substances leads to many of the cloning problems. Meanwhile, other problems connected with cloning may result from asking a mature or differentiated nucleus, which has been regulating cellular activity within a specific somatic or adult cell, suddenly to direct the development of an embryo. The genetic material of an adult cell is programmed to maintain the viability of that cell type only.[31]

Conscious of this debilitating nature of cloned organism, the fundamental question that begs for answer is, should humans be cloned? The question before was can humans be cloned? The latter question was answered with a resounding affirmation. However, to the question, should humans be cloned? The lead scientist that created Zhong Zhong and Hua Hua, Poo, has this to say:

> There is now no barrier for cloning primate species, thus cloning humans is closer to reality, However, our research purpose is entirely for producing non-human primate models for human diseases; we absolutely have no intention, and society will not permit, this work to be extended to humans." "This is so inefficient, so hazardous and unsafe, that I am not sure it is really justified, to be honest.[32]

The implicit and explicit fact saturated in Poo's voice is that there are no more barriers to cloning humans, however, scientists are not considering cloning humans at the moment because society has placed an embargo on it as a result of the fact that it is so inefficient, hazardous and unsafe. This implies that even if scientists are ready to clone humans today, society would crucify them on the pretext of safeguarding the dignity and integrity of the human person. Mindful of this drawback, they are continuing their onerous adventure into understanding the recess or secret to human disease using animals that are closest relatives of the human species. As scientists continue in their onerous effort to perfect the

[31] Ibid, pp. 24-25.

[32] Poo, Mu-ming, 2018, cited in Zhong Zhong and Hua Hua, http://m.dw.com/en/scientists-clone-monkeys-for-first-time-using-dolly-the-sheep-technique/a-42297505). Retrieved 25th January.

art and science of reproductive cloning via SCNT, using non-human paradigms, they are optimistic that every malaise associated to this bioengineering would be overcome. Basically, owing to the therapeutic values of cloning, we just ardently hope that someday all the pitfalls associated with cloning overcome and society may realise the positive value of cloning to improving human nature and condition denigrated by deleterious disease and other debilitating infirmities thereby upholding human dignity will lift the prevailing ban on human cloning.

Therapeutically, "some scientists want to use SCNT for basic research; they argue that it presents a unique method for studying genetic changes in cells derived from patients with conditions such as Parkinson's disease, Alzheimer's disease and diabetes".[33] In announcing to the whole world the latest milestones of cloning of Zhong Zhong and Hua Hua, Poo categorically and emphatically told AFP that it will immensely aid biomedical researchers by making it possible to clone genetically uniform monkeys for studying diseases and clinical trials. Currently, researchers in biomedical medicine use monkeys in research on cancer, brain diseases like Parkinson's, as well as immune disorders and these monkeys are bought in their numbers. According to him, for instance, in the United States alone, drug companies import 30,000 to 40,000 monkeys each year. Therefore, he maintained that cloned monkeys would reduce the number needed for drug tests. Granted this clarification, one may arguably hold that reproductive SCNT even when society blinded by the impulsive defence of human dignity has parochially construe it as having the prosecution of the philosophy of eugenics as its fundamental essence is nonetheless essentially therapeutically oriented. Apparently, another reason that justifies reproductive SCNT is that with the increasing need for these monkeys imported for research with time they may become endangered species. And this is not going down well with animal's rights activists. Moreover, governments spends huge fund to imports these primates.

Be that as it may, "Whether human reproductive SCNT will ever be undertaken will depend on such factors as the safety and efficacy of the procedure, presence or absence of laws or governmental regulation, perceptions of procreative rights, adherence to a voluntary moratorium against human cloning, consumer interest, and the intensity and extent of ethical objections".[34] Hence, it is a work in progress as scientists would

[33] WHO 2004, No. 14.

[34] Daar, Amato, et al. 2016: e1.

continue to experiment with non-human species as models for understanding human disease. Probably someday, when the cloning of these non-human models especially primates is perfected then trial cloning on humans may be permissible by the society.

Nevertheless, as the debate on whether or not reproductive cloning should be extended to humans continues unabated, scientists are working assiduously to improve the success rate and alleviate all manner of infirmities associated to organisms so far reproduced through SCNT. Meanwhile, those campaigning for inclusion of humans on the list of organisms to be cloned have advanced several other 'fundamental reasons' while humans should be cloned.

Naturalness in/of the artificiality of cloning

It might sound ironic or probably cynically trivial to note that cloning is not altogether an artificial art. Most profoundly, it might even sound ridiculous that hold that the science and art of cloning is not just natural but also trans-natural. These two apparent propositions are predicated on the empirical fact that ever before scientists and geneticists imagined the possibility of attempting cloning on plants and animals, and even humans (embryonic cloning), cloning has been occurring naturally in plants, animals and human natural reproductive process. An apt example to this effect in humans is the instances and phenomena of monozygotic twins otherwise known as identical twins. Ifeanyi Ani, gave credence to this truism when he argued that, "Cloning also occurs naturally in living organisms including humans. What is termed monozygotic twins or identical twins are clones of each other. The identical twins have the same genetic information due to the division of an embryo early in the development which produces two identical embryos that mature to identical twins".[35] Monozygotic twins have identical genome and this is never engineered by any artificial hands whatsoever, but a natural biological process of cell division both in organisms that reproduce sexually and asexually. This statement of fact in the strongest term was affirmed by the World Health Organization thus:

> Cloning happens in nature; it can occur in organisms that reproduce sexually and those that reproduce asexually. In sexual reproduction, clones are

[35] Ifeanyi Ani, "Genealogy and Genetics," in *West African Journal of Philosophical Studies* (WAJOPS), Vol. 13, ISSN 1595-255X, 2010, p. 86.

> created when a fertilized egg splits to produce identical (monozygous) twins with identical genomes. Most natural cloning occurs in those species that produce their descendants asexually, that is, without combining the male and female genetic material. Although many species produce clonal offspring in this fashion, Dolly, the lamb born in 1996 at a research institute in Scotland, was the first asexually produced mammalian clone.[36]

Arguably, one may deductively adduce that the very first impression that embryos could be cloned came from the perception (idea) of monozygotic twins. On the strength of this simple logic, Ani postulates that, "Embryo method of cloning resembles the natural twining method in that the embryo is divided into two or four identical cells, separated and placed in condition suitable for growth; usually a uterus. The twins, triplets or quadruplets thus formed have identical DNA".[37] From what we see in our society that is characteristic of monozygotic twins, triplets or quadruplets, as a result of their identical genome, they share or exhibit same intellectual and physical characteristics.

In another vein, taking a leap from plants, Ottuh gave credence to this when he factually asserted that "In nature, plants are found organisms capable of asexual reproduction, especially in certain plants and bacteria. All clones are genetically alike". [38] In this same line of logical commonsensical thinking, one may further argue that most biotechnological engineering in genomics and genetics mimics natural dynamisms inherent in the nature of organisms. For instance, embryology and stem cell technology creatively replicate the intrinsic power of self-regeneration of the human body.

The naturalness of the artificiality of cloning is such that it is built on and advances the natural order innate in the nature of organisms; and this accounts for why this paper considers it as not just natural but an trans-natural act and art. With the example of monozygotic twins, one may quickly ask those cynics and critics of cloning, if we marvel and relish twins as a gracious gift, why must we then inordinately frown when science replicates same gracious gift and even in an improved and

[36] World Health Organization 2004: No. 6.

[37] Ani, p. 86.

[38] Ottuh, p. 2.

amazing version on a platter? When nature replicates embryos either providentially (as believers in God would have us believe) or by chance (as the liberal minded and the scientifically inclined would rather hold) we marvel and relish it, but when humans replicate the same, even in an improved version we raise some moral eyebrow. This of course is a stoicist's disposition and disdain towards science and biocenology. This is an ultra-conservative aversion for humans' meddling with nature. This disposition sees any attempt by man to engineer a natural order as distortion and as such, expresses aversion for such. This kind of aversion is comparable to Africa's disposition towards twins before the coming the missionaries.

But the question is, is cloning actually a distortion? For advocates of cloning, on the contrary, it is an enhancement of the natural order and an express manifestation of the hyper-quality and transcendence of the human mind. Cloning is an enhancement that is even strategically planned to correct some inconsistences or anomalies inherent in the supposed natural order driven by blind chance. As established above, natural reproduction is a product of chance and as such it is awkwardly susceptible to congenital abnormalities. Existential realities have again and again overwhelmingly validated this fact. We are privy to several conjoined twins, abnormal formations of all degrees. No one dares to question this outrageous phenomenon. Yet, when biotechnologists make the slightest move to improve or eradicate these outrageous anomalies of the nature, even perceived harm would be used to discountenance their initiative.

Shouldn't scientific interventions be more relished and aspired for, than the supposed natural order of cloning? A caveat to this question would be, to what extent should cloning technology be allowed to infract on or deflect from the natural order of the reproductive processes of organisms. This question became expedient on the backdrop that in the attempt to replicate and more fundamentally to improve the innate abilities of embryos to splint or divide, cloning makes a fundamental departure from the natural order of things. To expatiate this given, the example of monozygotic twins is brought to the fore. Monozygotic twins, triplets quadruplets have mix linage because they are reproduced sexually, whereas clones organisms are biorecreated out of a single linage asexually. This fundamental departure from the natural order of reproduction has its merits and demerits alike. Having established this

factual biological reality let all concerned individuals continue to brainstorm on that question.

Conclusion

The foregoing expository analysis is empirico-inductive attempt towards a commonsense defense of (reproductive) cloning. Cloning simply defined is the scientist's photocopying or replication of the bit or part or entirety of an organism. Organisms replicated either in part or whole necessarily and essentially share same genetic template with the original stuck. Cloning since its first attempt by scientists has attracted formidable retribution and disapprobation from conservative minded scholars and other conservative members and institutions of the society. This paper through a commonsense approach has demonstrated the naturalness in the purported artificiality of cloning. It has also demonstrated the trans-naturalness of cloning subsisting in the reality that it enhances the natural order of organisms. The analysis reveals that ironically, cloning has been occurring naturally in plants, animals and humans in natural reproductive process. An apt example to this effect in humans is the instances and phenomena of monozygotic twins otherwise known as identical twins. Consequently, the paper deductively concludes that the contemptible and odious limitations with natural reproduction which is left to the mercy of chance necessitates and validates the scientist's ontological and trans-natural replication of organisms in therapeutic and reproductive cloning. Therefore commonsensically, cloning may be plausibly construed as humans' ontological furtherance of the natural possibilities of organisms as commonly exhibited inter alia, in the common natural phenomena of monozygotic twins.

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CONTENT COMPONENT OF FORMATION OF ENGLISH PROFESSIONAL AND TERMINOLOGICAL COMPETENCE OF FUTURE VETERINARIANS

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Abstract: *The article deals with the problem of content component of forming English professional and terminological competence of future veterinarians. The study was conducted on the basis of analysis of methodological literature, synthesis of theoretical data, practical experience and study of text materials and lexical units of textbooks in English in the professional direction of students of OL "Veterinary". The selection problem of lexical units in teaching English in the professional direction of future veterinarians is considered. An attempt to select lexical units on the basis of foreign experience of learning English is made. Selection of lexical and grammatical units in accordance with the proposed classification allows you to effectively build work on mastering English in a professional direction, paying attention to different categories of language material depending on its place and importance in professional communication.*

Keywords: *future veterinarians, content component, language material, professional and terminological competence.*

Introduction

The professional competencies of graduating students are a complex system of special knowledge and skills. There is a growing need for specialists who practically speak a foreign language, in particular, a high level of terminological competence is needed by future specialists in the veterinary field. Mastery of professionally oriented English by students of OL "Veterinary" is aimed at training future professionals to solve professional problems, participation in intercultural communication in a foreign language, which requires sufficient vocabulary of professional vocabulary, as well as the ability to operate with language material. In professional activities, professionals constantly have to come across a large number of professional terms that can be presented both in oral communication and in various sources of information: the Internet,

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professional magazines, books. And accordingly, in the educational space, mastering the terminological component of specific professional vocabulary is a priority. This makes it relevant to study the processes of formation and development of terminological knowledge of future specialists in veterinary medicine.

Literature Review

Scientific researches of L. Baranovska, V. Borshchovetska, D. Bobova, L. Viktorova, Z. Gyrych, N. Golub, G. Onufrienko, I. Drozdova are devoted to the research of the formation of professional and terminological competence of future specialists.

Analyzing the modern theory and practice of speech training of future professionals, we note that the problem of forming professional and terminological competence of students of OL "Veterinary" has not yet been the subject of a separate scientific study.

The purpose of our work

The purpose of the article is to characterize the concept of professional and terminological competence of future veterinarians and to outline the semantic aspect of its formation by means of English for professional purposes.

Materials and methods of research

The methods of our research are the analysis of methodical literature and synthesis of theoretical data and practical experience, analysis of text materials and lexical units of textbooks: "English. Handbook for students of biological and veterinary specialties" by authors A. Bezpalenko, O. Syrotin, T. Grabovska [1] , "English. Zoonotic diseases. Methodical recommendations" by authors T. Grabovska, Yu. Rozhkov[2], "English for Veterinarians: a textbook for training students of OL "Bachelor" in the specialty "Veterinary Medicine" by author O. Myshak[3], dictionaries: "Latin-Ukrainian-Russian-English dictionary of veterinary medical terms"

[1] A. Bezpalenko, A. Sirotin, T. Grabovska, *English language. Handbook for students of biological and zooveterinary specialties*, Kyiv, NULES Publishing Center of Ukraine, 2007, 170 p.

[2] T. Grabovska, Yu. Rozhkov, *Zoonotic diseases. Guidelines*, Rivne, Volyn charms, 2016, 96 p.

[3] O. Myshak, *English for Veterinarians: a textbook for the preparation of students of OS "Bachelor" in the specialty "Veterinary Medicine"*, Kyiv, Format, 2017, 230 p.

by O. Balalaeva and I. Vakulyk[4], Black's Veterinary Dictionary by B. Edward[5].

The definition of the professional and terminological competence

The criterion for the quality of training a high school graduate is professional competence. The International Department of Standards in Teaching and Education considers the concept of professional competence as the ability to perform activities, tasks or work in a qualified manner.

Under professional and terminological competence we mean the ability to use professional terms accurately and appropriately, knowledge of the logic of expressions and structure of formulations, acquired skills and abilities to construct correct sentences grammatically and own dialogue in situations of professional communication, based on experience gained in studying professional disciplines at higher education institution, while motivating themselves by compliance with the chosen profession and high results in professional activities and understanding that the key to success is the constant development of skills and self-development of the individual[6].

Principles of selection and systematization of language material in English language teaching

The analysis of the researched problem allows to state that terminological knowledge should be formed on general didactic principles (communicativeness, scientificity, systematicity, situationality, text correspondence, clarity, principle of connection of theory with practice, individual approach to students) and be specified by specific principles of teaching (interdisciplinary, modularity, creativity, individuality, focus on future professional activity)[7].

Terminological vocabulary is necessary for students primarily when reading special texts on the specialty in higher education in order to obtain

[4] O. Balalaeva, I. Vakulyk, *Latin-Ukrainian-Russian-English dictionary of veterinary medical terms,* Kyiv, Phytosocial Center, 2013, 348 p.

[5] B. Edward, *Black's Veterinary Dictionary*, London, Bloomsbury, 2015, 514 p.

[6] O. Syrotin, *Formation of professional and terminological competence by foreign language means at students of agribiological specialities.* Current issues of pedagogy, psychology and vocational education, vol. 2, no 2, 2016, p. 59.

[7] I. Vlasyuk, *Formation of professional-terminological competence of future economists,* Pedagogy and psychology of professional. Scientific and methodical journal, Lviv, 2012, no 1, p. 53.

professional information, to conduct a professionally oriented conversation or discussion with foreign experts, as well as when writing an annotation, abstract or message. Therefore, the teacher of English for special purposes needs to understand the main properties of terminological vocabulary, how to semantize its meaning in special texts, with which exercises to intensify its further use in oral and written speech[8].

It is obvious that the study of terminological vocabulary in the teaching of a foreign language for professional purposes will be the more successful and effective, the better the choice of foreign language professional material, which is involved in the educational process[9].

Selection and systematization of language material in English teaching is realized on the basis of assigning lexical and grammatical units of a certain context of a communicative task to four main categories: obligatory contextual words (Content Obligatory Vocabulary), compatible words (Content Compatible Vocabulary), phrases (Collocation), High Frequency Words[10].

As part of the study, the analysis and selection of lexical and grammatical English units in the field of veterinary medicine was carried out in accordance with the above categories on the basis of the adapted texts. The starting point of selection were the goals of mastering a foreign language by future veterinarians, i.e. the possession of language material by students at the exit, namely, detection of symptoms, disease diagnosis, treatment, presentation of research experience, recommendations for feeding, keeping and breeding animals, veterinary sanitary measures.

Obligatory words in the field of veterinary medicine include lexical units needed to understand the source material and solve communicative problems in the treatment of different species of animals: classification of diseases, body parts, symptoms, treatment and control.

Classification of diseases is represented by terminological units: 1) infectious diseases; 2) endocrine and metabolic diseases; 3) hematology, oncology and immunology; 4) diseases of the gastrointestinal tract; 5) dermatological diseases; 6) cardiac and respiratory diseases; 7) diseases

[8] O. Syrotin, *Formation of professional and terminological competence by foreign language means at students of agribiological specialities*. Current issues of pedagogy, psychology and vocational education, vol. 2, no 2, 2016, p. 60.

[9] Ibidem, p. 61.

[10] The British National Corpus, version 3 (BNC XML Edition), 2007. Distributed by Oxford University Computing Services on behalf of the BNC Consortium. URL: http: // www.natcorp.ox.ac.uk/

of the urinary tract; 8) neurological and musculoskeletal disorders; 9) diseases of the reproductive system; 10) ophthalmological diseases.

Disease names: anthrax, blue tongue (infectious catarrhal fever of sheep "blue tongue"), bird flu, bovine spongiform encephalopathy, brucellosis, cholera, cowpox, foot-and-mouth disease, fowl cholera, mastitis, rabies, rickettsiosis, ringworm, salmonellosis, sheep pox, swine dysentery, toxocarosis, tuberculosis, vasculitis, etc.

Body parts: abdomen, back, sternum, crop, head, hoof, jaw, mouth, muzzle, shoulder, tail, throat, trunk, udder; organs: gallbladder, heart, kidney, limb, liver, lung, spinal cord, spleen, stomach and others.

Symptoms: abortion, cough, diarrhea, disorder, pain, emaciation, fractures, hemorrhage, bleeding), high temperature, node, swelling, vomit, weight loss and others.

Treatment and control: administration, analytical study, eradication, clinical trials, disease control, medication, monitoring, observation, survey/surveying, prevention, quarantine, segregation, therapeutic, treatment, vaccination, etc.

The vocabulary of the veterinary field also includes compatible words, including numerals to indicate the number of animals, disease onset dates, duration, etc., the percentage of feed composition, also the names of drugs in the treatment of animals with drugs, geographical names to indicate the phenomenon of the disease in a particular region, outbreaks of infectious diseases[11].

Mastering professional terminology by students requires knowledge of the typical English veterinary terminology abbreviations, which is also explained by the growing need for international cooperation, in which intercultural communication of veterinary specialists is especially important for further development of society, support of science and technology.

Obligatory abbreviations in the field of veterinary medicine, the knowledge of which is necessary for students to understand professional texts, include a letter abbreviation, represented by four types: 1) simple abbreviations: E (encephalitis), R (rabies), C (cough), F (female), M (male); 2) double-digit abbreviations: AB (antibiotic), BP (blood pressure), BT (blood test); 3) three-digit abbreviations: DJD (Degenerative joint disease); FRV (Feline rhinotracheitis virus); FUS (Feline urological syndrome), ANS (autonomic nervous system), CVS (cardiovascular system), ARD (Acute

[11] Yu. Timkina, *English lexical and grammatical units of the "Veterinary" field.* Baltic Humanities Journal, Kaliningrad, PAAS Association, no 2 (19), 2019, pp. 62–65.

renal disease); 4) four-digit abbreviations: AIDS (Acquired immunodeficiency virus), TWBC (total white blood cells), AIHA (autoimmune hemolytic anemia).

Phrases: animal breeding, animal husbandry, cause disease, carrier host, productivity of livestock, farm animals, morbidity rate, preventive measures, sanitary measure, to take care of and others.

High frequency: prepositions (on, to the ..., of), complex prepositions (according to, in case of, in comparison with, in spite of, in view of), adverbs of measure and degree (much, few, little, too, so, almost), adverbs of action mode (well, fast, quickly, quietly) and others[12].

Conclusions

Thus, we considered only the first stage of formation of professional and terminological competence in students of OL "Veterinary", the purpose of which is the selection of lexical and grammatical units according to the given classification, which allows to build work on mastering professional English effectively, paying attention to different categories of language material depending on its place and importance in professional communication. Further research will focus on the principles of selection of professionally oriented texts taking into account the specifics of the veterinary specialty, which contributes to the formation of terminological competence, the presence of which will open students the opportunity to develop and achieve professional success.

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PASSIVE DEFENSE IN SCHOOLS IN BOTOŞANI COUNTY, AT THE BEGINNING OF WORLD WAR II

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Abstract: *The protection of the population and of the material values determines, during the war, the necessity of the establishment of special units of passive defense. The intervention units had as missions: timely prevention of the population about the approach of the enemy air attack; camouflage as well as possible the ground objectives for aircraft sightings; limiting the effects of enemy bombing; ensuring the lifting and care of wounded or gassed victims; removing unexploded bombs and defusing them; extinguishing or limiting large fires; lifting and removing large rubble; repairing buildings damaged by fire or bombing; raising camps for evacuees and victims or for sheltering materials.*

Keywords: *defense, war, mobilization, school, plan, training.*

Thematically, our study aimed to analyze passive defense in schools in Botoşani County at the beginning of World War II, in terms of population preparation. This research will analyze the participation of teachers and students in the preparations for the protection of the population at county level.

At the same time, the current realities in the organization of institutions in terms of passive defense will be mentioned, in the context created by the beginning of World War II where the security of local communities was visibly affected.

Our material is based mainly on original documents from the Botoşani County Archives Service, with the main funds under investigation being: the Fund of the prefecture of Botoşani, the fund of the Botoşani town Council, the fund of the Botoşani school inspectorate and the funds of certain schools located in Botoşani county.

The military lexicon defines passive defense as a component of the national defense system that materializes the participation of all the people in the defense of the country, summing up the measures taken

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throughout the territory to protect people and physical or spiritual assets against air attacks.[1]

The defense of the population, its material and spiritual heritage is a vital concern as the number and effectiveness of the means of destruction used by the opponent. At the level of schools in Botoşani county, passive defense is carried out by training the teaching staff, but also by carrying out numerous exercises that were carried out at local and county level.

Through circular order no. 206950/1938 issued by the Ministry of national Education - the national and territorial mobilization and organization Directorate, the school reviewer Botoşani[2] is informed that the ministry decides that the issue of organizing passive defense of national territory and educating the civilian population, to defend against air-chemical attacks in the event of war, should be included in the cultural circles.

The passive Defense Commission was composed, between the city authorities, of the Principals of the boys' and girls' schools and high schools, the managers of the factories, the police chief and the fire commander, the Pescarer Administration and the forest bypasses.

The presence of school leaders was sufficiently important, as in the passive defense teams were students who were actually involved in the digging of defense cuts.

The Law on the establishment and organization of the Ministry of Air and Marine, published in the Official Gazette No 266 and 281 of 1936, the Official Gazette No 105 of 1937 and the Regulation on passive defense against air attacks provided for:

A) the Ministry of the Air and Marine is the leading body for the anti-air defense of the territory.

(B) the preparation and execution of passive defense measures are the responsibility of the ministries, public and private services, official organizations and to a large extent the population itself.

According to order 49/15.11.1939 residence of Prut Land the M.O.N.T service and in accordance with the instructions No 4010/1938 of the Ministry of Air and Marine and Technical Instructions No 1700/1938 of the Ministry of Education Nationale - Passive Defense Service, the request

[1] Corneliu Postu, Florea Petrisor, Popescu Cornel, *The Romanian Army and the United Sea*, Military Publishing House, Bucharest, 2018, p. 114.

[2] Botoşani national Archives County Service, *Botoşani School Inspectorate Fund*, d.9/1937, f. 38.

to draw up the passive defense plan for each school local is sent to all schools in the county.[3] According to these provisions, each school institution was obliged to draw up a passive defense plan, with the necessary staff and equipment in mind, and with the aim of implementing the passive defense plan in the event of war by the passive defense group of that institution. A passive defense formation will be led by a head of passive defense and will comprise the service teams set out in the plan and charged with the execution of the security measures of that institution in the event of war. This group was organized by every public institution and provided the reception and transmission of alarm, lighting out, camouflage, accommodation of staff and important materials, gas detection and cartridge control of masks, rescue and hospitalization of victims, fire fighting, police and personnel control, spreading and evacuating, checking and controlling masks.

The passive defense works of a school institution will be: drawing up the passive defense plan, implementing the plan in time of peace through exercises, in which the activity of the passive defense group will be checked and the equipment necessary and the application of the pet plan to the war.

The defense plan included the following measures: organization of the passive defense group, equipping the teams with staff, the site schedule and the program of the passive defense group's activity, facilities for the institution and staff with passive defense material, the program of propaganda of knowledge and passive defense instructions, the numerical situation of the party's staff, the numerical situation of the passive defense material.[4]

The passive defense team's personnel were not supposed to be part of the army's staff. Each school had appointed a passive head of defense, chosen from the final staff, in principle the director of the institution. The head of passive defense remained responsible for the work to be carried out in peacetime, drawing up the passive defense plan for each site of the establishment and taking measures to implement it in case of mobilization. It will free up the staff needed for the teams and use of guard nests in primary and secondary schools. Each team was led by a team leader and with the necessary staff to perform the intended function.

[3] SJANBT, *Fund a Girls' High School 'Carmen Sylva' Botoşani*, d.4/1939, f.1.

[4] SJANBT, *Fund Botoşani School Inspectorate*, d.23/1938, f.41.

Each school shall transmit to school inspectorates or school inspectorates an interim report on passive defense activity. This included certain considerations as regards the passive defense plan (importance of the establishment in the locality, situation of the premises, etc.), the provision of equipment, budget appropriations, staff training and propaganda measures, difficulties encountered in drawing up the plan and certain proposals.

The school control bodies will supervise the execution of these provisions and will record all those found in the inspection register.

Order No. 441/6.02.1939 of the Ministry of national Education, the Directorate of mobilization stated that "the entire correspondence relating to the drawing up of the mobilization and passive defense works was of a secret nature and was part of the general plan of mobilization. These works will be stored in cupboards or iron houses, which will be safe. Instructions, orders, tables of actual and endowment will be sent to the subordinate organs only in the extract of the parts of interest".[5]

A special register shall be set up for the record of secret works in which the official to whom these works are to record all secret correspondence showing the record number, the date, the summary and the nature of the work. "The graphic plans, and any mobilization works, shall be carried out only in the office of the institution concerned. The inspection and verification of the offices of mobilization and passive defense shall be carried out only by the military and administrative bodies having special delegations."[6]

The passive defense plan of schools for the school year 1939-1940 sent by the Ministry of Education, with order No 5732 of 07.12.1939, provided for the preparation and organization of the passive defense works as stipulated in:

-Law on the organization of the nation and territory (Official Gazette No 96, Part I, of 7 August 1939, amended by I.D.R no. 3043 of 17 August 1939 communicated to all educational and cultural institutions by order 4485/DIN 19 Sep 1939);

-Law on territorial Anti-Air Defense (Official Gazette no. 55 Part I, 1939, submitted No. 1692/1939, to all inspectorates and revision, universities, academies and cultural institutions);

[5] Idem, d.11/1937, f.21.

[6] Ibidem, f.4.

-Passive Defense Regulation 1935, submitted with No. 1303/3.03.1938 to the Inspectorates, overhauls and university rectors;

-Special technical instructions No 1 drawn up by the Ministry of industry and Trade in collaboration with the Ministry of the Air and Marine (the headquarters of the land's anti-aircraft defense) relating to passive defense in industrial establishments submitted under No 1103/03.03.1938, to the school inspectorates (for extension to industrial schools) to the departments of schools where hospitals are organized;

-Special technical instructions No. 2;

- Order no. 2090/ 5.05.1938 regarding the compulsory introduction in Romanian and physico-chemical language textbooks of the instructions on training instructions in the port of the mask and the question of combat gas.[7]

The application of laws, regulations and provisions relating to passive defense shall be carried out by all educational and cultural institutions in the parts which are required for the completion of works such as: drawing up the passive defense plan including the 7 annexs provided for in technical instructions 1700 on the organization of passive defense in school instructions, the provision of protective materials to provide premises and persons who will actually work during war.

At the level of the schools in Botoşani county there were some teams dealing with the way activities involving passive defense were carried out: fire alarm and extinguishing team, police, control and discipline team, shelter team, victims rescue team, fire fighting team. According to the order 7281/1939 of the school revision of Botoşani [8] county, all schools had to present the passive defense plan and its composition.

The example is that of the boys' primary School no.1 Botoşani where the school council decided to take action in relation to passive defense by providing tools strictly necessary to help the injured and to put out the lights, by bringing school teaching staff and students into the teams prepared to act when needed, restoring the budget to complement those needed and training staff to make them aware of their duties. Thus there were 5 passive defense teams called and "4th centaur nests led by the school's manager (with a team leader in its composition) and six, seven or

[7] Ibidem, f.87.

[8] SJANBT, *Fund Botoşani County School Inspectorate*, d.23/1938, f.2.

eleven servants depending on the group.[9] At the boys' primary School no. 2 Botoşani, the school council is reporting to the Reviewer that "having enough room of 4 large classes and other large rooms can be used in time of war to become a hospital its destination being for this purpose. It is also noted that there is no budget for the procurement of materials and no special instructions for passive defense.[10] At School no. 3 "Rosetti" boys Botoşani, the organization of passive defense is accomplished by entying the teaching staff and the trainers to the necessary teams. According to the minutes submitted to the school reviewer, they prepared and trained on specific booklets, also taking part in the courses organized by the joint.11 The Board of School no.4 of boys Botoşani, informs that the school was theoretically prepared for an air attack, with the school having no basement and no shelter hangars.[12] The school no. 1 of girls Botoşani shows to the school reviewer that five service teams have been provided with the necessary tasks for the execution of safety measures and "the propaganda of passive defense knowledge and instruction will be displayed on the occasion of the school-organized seasons".[13] Primary School No 2 girls found that there is no shelter in the event of an air attack, but the management of the school acknowledges that, in case of an attack "children will be taken out of the school building and sheltered under some stupid trees that are about twice their height from the local area in accordance with the instructions received".[14]

According to "the picture of persons who are part of various passive defense teams from the girls High School Carmen Sylva Botoşani it included: 1) the alarm and panda team comprising the heads of Mr. Sabina Botez and Mrs. Manolescu tile team, being helped by 7 student guards; 2) the team to turn off lights--the heads of Mrs. Aspazia Chersin and Mr.-Mum Gustiuc Lyubovi helped by 4 student guards; 3) camouflage team - Valentina Mihailescu, Vera Ungureanu and Chae Feige Kruch helped by 3 students guards; 4) discipline maintenance team - Ana Horga, Elena ene, M. Ionescu, assisted by 2 trained guards; 5) equipment-guarding team of laboratory tools and archives- Elena Haralamb, Margareta Stamatin; The Health Service team - Victoria Vasiliu, Charlotte Sibi, Adela Petrovici,

[9] Idem, d.9/1938, f.3.
[10] Ibidem, f.5.
[11] Ibidem, f.12.
[12] Ibidem, f.15.
[13] Ibidem, f.21.
[14] Ibidem, f.24.

Felicia Bidnei, Helemina Gherasim, Maria Burlacu; 7) Head of teams-Margareta Stamatin, Elena Mihaescu assisted by all the staff.[15]

At Botoşani county level there were a total of 1325 guards in the lights alarm and extinguishing team, 1167 guards in the police, control and discipline team, 1186 guards in the shelter team, 1216 guards in the rescue team and 2086 guards in the fire-fighting team.[16] The total number of schools involved in the implementation of the passive training plan was around 219.

The implementation of a passive defense execution constituted by the Ministry of Education the mobilization Service involved the establishment of rules and a time of action, as follows:[17]

1) "from 11.30 o'clock - alarm. The passive defense groups will immediately take action according to the action plan drawn up on the basis of the instructions of the Ministry of national Education no. 1189/24.03.1938. When the alarm signal is given, any activity stops. All administrative staff, teachers or school staff, will enter existing or early-marked shelters.

2) at 12.10 o'clock the alarm will be silenced. The sheltered staff shall leave the shelters and the work of the establishment shall be brought into normal.

3) at 23 o'clock the night exercise alarm shall be given. The exterior and interior lighting shall be concealed so that no light is seen by the aviation. At this time, traffic on the streets and any activity stops.

4) at 23.05 o'clock the alarm will be silenced when the activity returns to normal".[18] After the exercise was completed, the head of the passive defense of the institution draws a conclusion, which he put forward to the respective country the next day.

According to the decision of the Ministry of national Education no. 220345/1938 it is specified that "the activity carried out by the teaching staff within the pre-military training is considered as an extra-school activity by the education control bodies and shall be taken into account both in inspections and in the various forward, completed or capacity examinations."[19]

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[15] Ibidem, f.9.

[16] Ibidem, f.286.

[17] SJANBT, *Fund Botoşani County School Inspectorate*, d.9/1937, f.2.

[18] Ibidem, f.14

[19] Ibidem, f.12

In a circular received from the General School Inspectorate, it is reported to the directors that "within school celebrations and cultural circles the issue of passive organization of the national territory and education of the civilian population for defense against air-chemical attacks in the event of war should be addressed."[20] It is also recommended to purchase "Aero Sport" magazine, edited by the Ministry of national Education - the Department of the organization and mobilization of the nation and territory, in which "Official articles related to the air hazard are regularly published and thus serve as teaching material both in passive defense training centers and at weekly passive defense time.[21]

In a circular addressed to schools under the order of the Minister of Education Nationale-Directorate of mobilization No 5196/5.10.1939, urgent measures were required for the improvement of existing basements and the improvement of shelters.[22]

The Education Ministry's circular order no. 516/1939 specified that all citizens between 7-60 years of age must participate in the passive defense works, which will be supervised by the control bodies and the command of the country's guard, as well as by the bodies of the Ministry of Air and Marine and the Ministry of Interior, providing for sanctions for anyone who does not execute, delay or sabotage the measures against air-chemical attacks.[23]

According to the Law on passive territorial defense[24], it was stipulated in one of its articles that the participation in the organization of the defense of the territory of all the valid inhabitants of the country obliged to participate in all the services necessary for the defense should be made mandatory as follows:

-participation in the work of two working days a year for a valid population of any sex between 16-55 years for the purpose of carrying out the work relating to the preparation of materials and installations of all kinds required by the territory to deal with the air hazard;

-participation in training 24 hours a year (2 hours a month) for the valid population of both sexes from the age of 7-60, in order to prepare

[20] Ibidem, f.12.

[21] Ibidem, f.17.

[22] Ibidem, f.36

[23] Ibidem f.53.

[24] Promulgated by Royal High Decree No 938/3 March 1939 and published in Official Gazette No 55, part 1/6 March 1939.

and learn with the best possible use of materials and installations of all kinds necessary for the defense of the territory;

-participation of all inhabitants from 16-55 years of age in services of general interest, decided by the authorities, throughout the country through mobilization work.

As for the purpose of learning the young people in schools, the weekly passive defense time was introduced into the school programs of any kind'.

According to order 5430/14.10.1939, of the mobilization Directorate and the Passive Defense Service, it was stipulated that the weekly hours of passive defense (24 legal hours) should be mandatory in all primary and secondary schools.

It also stated that the hours of passive defense will include the development of the subjects fixed in Technical Instructions No 1700/1938 but also practical applications such as:

- masked instructions and passage through the gas chamber at fire station;
- exercises to verify the implementation of the passive defense plan in educational establishments or other establishments;
- visit military and fire-fighting units;
- drawing up passive defense plans in school premises.

The time of weekly passive defense was given on the day of the guard (Saturday), and for undivided schools also on Saturday during the last hour of the program. The conferences and topics related to passive defense will be taught by the teaching staff of each school institution or by the graduates of the passive defense center of the Education Ministry.[25]

At the girls School Carmen Sylva in Botoşani, 5 weekly theoretical meetings were held, supported by professor Margareta Stamatin, a graduate of passive defense courses, where he attended the entire teaching, ad-tive staff, service staff and all school students. The practical part was supported by the school doctor, Victoria Vasiliu.

The school curriculum for the 24 hours provided for the support of both theoretical and practical subjects. The theoretical training provided a number of subjects such as:

- history of combat gas how the chemical weapon evolved from antiquity to the World War;

[25] Ibidem f.54.

- the air-chemical war in the future. Means of redress and defense;
- definition and clarification of combat gases from a tactical and physiological point of view;
- physical properties of combat gases;
- technical means of using combat gases both on the military and on the civilian population;
- physiological and chemical detection of combat gases. Description of wet and dry filter masks;
- description of insulating appliances and special suits;
- collective protection. Description of collective concrete houses and lairages;
- first aid to be given to the victims of air bombardment and their transportation to hospital formations;
- health organization for the civilian population and the medical assistance of the victims to the health groups;
- measures for extinguishing bombs. The classification and location of a start of fire;
- disinfection of gas infected terrain, cleaning of debris and lifting unexploded bombs.[26]

The practical and demonstration training for the handling and training of combat gas protective devices shall include:

- brief description of the mask according to the booklet "instruction on the use of the mask" located in each box;
- handling masks. Hold, protect, remove and tighten mask positions;
- handling the mask. All mask positions shall be discompound and the mask shall be executed as accurately as possible;
- handling masks. The correct monks will be placed and removed;
- handling of masks;
- handling masks. Protection position. The change of masks in the infected atmosphere;
- passing through the gas chamber to fire departments;
- Alarm exercises in the school with mask laid;
- exercises with gas research teams. Gas detection. Disinfection of the site;
- passive defense exercises. Individual digging work and familiar trenches will be carried out;

[26] Ibidem f.56-58.

- visit military and fire-fighting units;
- drawing up plans for passive defense of school premises.

The mobilizing office of the Prut county School Inspectorate in a circular, sent to secondary schools and county school inspectorates specified measures for those who were going to leave the service "don't enjoy mobilization for work"[27]. The mobilization and passive defense work was military in nature and was necessary in the event of partial concentration or mobilization.[28]

According to the Royal High decree, every state employee was forced to buy a mask against the fight gas. Its cost was 557 lei and could be purchased from the protection equipment factory, from the antigas company and from Sorogaz company in Bucharest.[29]

According to the passive defense working plan for 1939, to be executed by all school and cultural institutions, the following provisions were made:

-drawing up the passive defense plan comprising the 7 annexs referred to in Technical Instructions No 1700, relating to the organization of passive defense in school establishments;

-the equipment of protective materials to assure the premises and persons who will actually work during the war. These materials will be procured as a matter of urgency (in accordance with order No 5254/14 October 1939) from their own funds and are thus used only for the purpose for which they were procured;

-drawing up a passive defense budget; the procurement of masks against combat gases which was compulsory for all teaching, administrative and service personnel from any school or cultural institution, Under Ministerial Decision No 848 of M.O. 174/1938 and High Royal Decree No 267 of M.O.24/30 January 1939 and order No 3593/12 Sept 1939 of the Ministry of national Education;

-trenches and basements or shelters in accordance with order No 5196/5 October 1939;

-the camouflage of the school buildings will be made by plantations which, by their height, crown or coloring, may confuse air observers.

[27] Ibidem, f.58.
[28] Ibidem, f.79.
[29] Idem, d.9/1937,f 63.

The camouflage is a problem in passive defense, it will be done as follows: where buildings are embedded in the general tone of the environment there is no need to be painted in kaki or dark green, but also where these buildings are isolated from communes or cities and are painted in different tones of the environment, the coloring in the tone of that medium (kaki, green, dark gray, gray, brown, etc);

-in all school and cultural institutions, the picture of fighting gas will be displayed;

-in the curriculum of secondary schools, all students will be compulsorily questioned upon individual and collective protection, and in romanian language classes will be given as a theme of copying the national defense contempt and then the instructions of this reference are developed. This written work will also be signed by the parents of the pupils stating that they are aware of their contents;

-doctors of all school establishments and hygiene teachers will develop knowledge of combat gases and means of protection against them to pupils and teaching staff;

-in the curriculum of all schools, the weekly passive defense time must be entered according to address no 4466 or order no 5340/1939 at which all teaching staff must be employed

-under the passive defense plan, exercises announced and unannounced or dictated by the Ministry of the Air and Marine will be carried out through the command of the anti-air defense taking part all the staff and students. After each exercise, the head of the passive defense group will complete a double report on which one will be kept in the passive defense file and the other will be submitted to the office of the mobilization at the school inspectorate of the land.

-the program of the teaching cultural circles will include the issue of passive organization, conf. Order No 1100/20 March 1939;

-the propaganda plan of the Ministry of national Education provided for the opening of a passive defense exhibition between june 1 and august 30, where the pupils of all primary, secondary and professional schools would perform the hours of drawing, modeling or workshops. The works of lieutenant commander Andrei Ioan with the anti-air defense, of professor Popovici Mihail with the work “Gaz de fighting”, of colonel Solomonescu Mihail, with “protect yourself from gas”, magazine “Aero-sport” were also recommended to be consulted. And the "practical advice for defending the population" of the national Red cross society;

-The organization, control and coordination of the measures of passive air defense of the territory, within the educational and cultural

institutions will be executed through the direction of the mobilization within the Ministry of national Education.[30]

Trying to conclude, we can say that the organization of passive defense in schools in Botoşani County at the beginning of World War II was rather laborious. Although the amounts allocated were often insufficient, the measures taken have, for some time, covered the need to train pupils and teaching staff to carry out these exercises.

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[30] Ibidem, f.94

OCCUPATIONAL THERAPY AND ITS ROLE IN IMPROVING THE QUALITY OF LIFE

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Abstract: *In this paper I aim to demonstrate the role of occupational therapy on people with hemiplagia, by applying the significant theoretical elements in this field Latelly, the incidence of post-stroke hemiplagia has been increasing, and the authorities' interest in this category has increased.*

People who want to practise occupational therapy must find solutions related to their training and imagination, using the activity to help the patient to acquire new skills, improve their deficient skills, compensate for functional disabilities, thus promoting health and development of life's quality.

Keywords: *occupational therapy, stroke, hemiplegia, functional disabilities*

Human health's care includes three well-defined areas: prophylactic medicine, curative medicine and rehabilitative medicine - from reducing to eliminating the remaining functional deficiencies after an illness.[1].

Due to various reasons, the number of disabled and handicapped people worldwide is constantly increasing, exceeding 10% of the total population. The high volume of requests for medical and social assistance exceeds the economic possibilities of many countries, socio-economic reintegration and avoidance of dependency being a necessity in all aspects.

The concept of recovery is the prerogative of many medical specialties and refers to the fullest possible restoration of the lost functional capacity (congenital and acquired), through illness or accident. This concept aims in some cases to develop compensatory mechanisms that ensure the patient the possibility of self-service or work.

The complex recovery activity, which includes medical, social and professional measures, involves specialists in various fields: doctors, bioengineers, psychopedagogues, economists, physiotherapists. Among

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[1] T. Sbenghe, *Prophylactic, therapeutic and recovery kinetology*, Medical Publishing House, Bucharest, 1987.

the attributions of these specialists are also those related to the imagination and realization of some auxiliary technical devices, for people with different disabilities, in order to ensure their autonomy.

As a modern and interdisciplinary form, recovery, through its concerns for the individual and the ultimate goal, is achieved through teamwork of all specialists, through combined effort between the specialist (surgeon, neurologist, cardiologist, psychiatrist, pediatrician, recoverer, gerontologist), psychologist, speech therapist, occupational therapist, social worker, economist, lawyer, sociologist, prosthetist and orthotist, biotechnician, etc.

The activity of the occupational therapist begins in the reeducation center and sometimes ends at the home of the disabled person.

The change in physical condition after a period of inactivity attracts important changes in the patient's psyche. Loss of self-confidence is common, with the fear of losing its functional potential creating important psychic and behavioral manifestations. It is necessary to ask these patients in the direction of capturing interest and cooperation in their own healing. Performing actions or engaging in activities, involves the free choice of the patient, his skills and mental state also adapt to his current mental and physical capacity and possibility.

Life after a stroke:

Rehabilitation after a stroke involves not only recovering motor, sensitive, sensory or emotional dysfunctions, but also ensuring a family and social reintegration appropriate to the development of a normal life.

Certain perceptual disorders, quite common in patients with stroke, can make it difficult for the patient to recover, including:

- narrowing of the visual field on one side of the body (inability to see certain things unless the head turns in that direction).
- reflexes and diminished senses in the affected limbs (in some cases the patient does not feel his affected body parts).
- concentrating issues, confusion, retrograde or anterograde amnesia (the patient does not remember phone numbers, calendar dates, etc.).
- dyslexia (reading disorders), writing disorders.
- disorders related to daily activities (dressing, cooking, hygiene).

People with such disorders should avoid certain activities that could endanger his or her life or that of others (driving, handling machinery).

There are some useful recommendations for people with perceptual disorders, such as providing domestic comfort to protect the patient from possible injuries (proper lighting of rooms, avoid surfaces prone to physical injuries, proper furniture, etc.).

People who have suffered a stroke tend to perform certain activities more slowly or disorganized, especially when they seem unfamiliar. In these cases, anxiety and hesitation appear, which make social reintegration even more difficult. The support of family and friends is extremely important in these cases.

Carrying out the occupational therapy process

The application of the therapeutic plan consists in the development of the following distinct phases:

1. Orientation phase - in which the therapist explains to the subject the activity to be carried out together, the type of performance desired and describes or demonstrates their ways of practical achievement;
2. Development phase - during which the therapist leads the subject in the exploration and effective practice of the chosen activity;
3. The final phase - in which the therapist evaluates the performance obtained by the subject in the activity and establishes the future objectives.

It is recommended that the evaluation procedures be extended to the last two phases, presented above, in order to permanently verify the relevance of the pre-established objectives and the effectiveness of the treatment plan as a whole. [2].

The therapist's action is based on the conception, according to which the practical, voluntary (occupational) activities carried out by the subject, determine the development of the personality, which, in the end, leads to a better adaptation to the environment.

To achieve this general goal, the therapist designs certain intervention programs, carried out through work, play, and daily life activities, designed to challenge the subject to form or increase his performance in the sensory-motor, cognitive and psychosocial area.

[2] C.A. Trombly, *Occupational therapy for physical disfunction*, Third edition – Williams and Wilkins, Baltimore, Hong-Kong, London, Sidney, 1989.

The intervention, with the specific means of occupational therapy, pursues the following general objectives:

1) Developing, maintaining and recovering the level of functioning of each person as much as possible.

2) Compensation for functional deficiencies by taking over the functions affected by the valid components of the person.

3) Preventing the breakdown of certain body functions.

4) Introducing a state of health and confidence in the person's own strengths.

The intervention, organized in the mentioned directions, determines the formation in an individual of skills, aptitudes and capacities with the aim pursued. These changes affect the sensory-motor, cognitive or social components of the person.

The changes in the sensory-motor component refer to:

- sensory integration with emphasis on the development of sensitivity, the formation of kinesthetic perceptions, body schema, spatial location;
- the neuro-muscular area, which includes the realization of reflexes, muscle tone, the development of laterality, the cultivation of general and fine motor skills;
- control and coordination of movements, in general and of the articulatory movements involved in the use of the language in particular.

The cognitive component aims at the development of knowledge activities, as a whole, the activation of attention and memory, the formation of notions, the generalization of subject's learning.

The process of occupational therapy is very complex and aims to solve specific problems specific of the patient in order to help him achieve an optimal adaptation to his living environment and requires steps:

1. - assessment and interpretation of the subject's needs;
2. - intervention planning;
3. - selection and accommodation to used equipment;
4. - recording and appreciating the progress made.

Occupational therapy is based on the use of functional activities to achieve maximum adaptation of the body to its living environment.

The essence of occupational therapy is the active participation of the patient in activities in order to improve functional performance. The use of facilitation procedures is accepted by occupational therapy only insofar as

they are used to prepare the patient for a good participation in the therapeutic process [3].

This phase can be divided, in turn, into several distinct stages [4]:

A - choosing the objectives;

B - elaboration of the therapeutic plan;

C - implementation of the plan in practice.

The process of recovery through occupational therapy in people with special needs is a continuous process, which must be resumed constantly at different ages, depending on the specific needs of the individual, at various times in his life.

We consider that only by cyclical resumption of the process in question, we can contribute as therapists to establish a level of development of the disabled persons, as close as possible to normal [5].

The activities, within the process of occupational therapy, have the role of preparing the skills and abilities of the subject, in order to adapt to the requirements of the surrounding world. The level of accomplishment of an activity is measured by the performances achieved by the subject during its course.

The key issue, which arises before the therapist, is the decision to choose the type of activity that is most appropriate for a subject at some point.

The elements that the therapist must take into account in making a correct decision are related to the specific problems of the subject, the chronological age, the level of development of his skills, the expressed needs and desires, the characteristics of the social development environment and the possibilities of the recovery institution [6].

Occupational therapy includes two aspects:

1. Occupational therapy with the role of moral support and adaptation - for patients who require long hospital stays or sanatoriums. In this case the objectives can be:

[3] P. Ciocoi, *Occupational Therapy – Course,* Cluj-Napoca, 2009.

[4] D.V. Popovici, *Occupational Therapy, a central element in the process of therapy for the disabled*, Bucharest, Pro-Humanitate Publishing House, 1999.

[5] Idem, *Occupational Therapy, a central element in the process of therapy for the disabled*, Bucharest, Pro-Humanitate Publishing House, 1999.

[6] Ibidem.

- psychological and consist of: removing anxiety, stimulating interest and fostering social contacts, switching attention from illness to other concerns.

- physiological: favoring sleep as a result of a directed fatigue, preventing contractions, improving circulation and muscle tone, maintaining the correct posture, developing muscular endurance.

2. Occupational therapy with the role of functional restoration-recovery. In this case, the goal is to mentally and physically engage the sequela patient, so that through an activity to perform the necessary exercises to develop the lost function.

The objectives in this case are:

- increasing the amplitudes of coordination;
- increase in muscle strength and endurance;
- developing resistance to workload and vocational assessment.

This occupational therapy prepares the patient to return to his previous activity or contributes to directing him to another profession.

By field of interest is meant that in which occupational performance can be obtained, which means the capacity or ability of a person to carry out activities in social roles.

Occupational roles are those that the individual occupies in society: the role of student, employee, parent. It is the responsibility of the occupational therapy practitioner to understand which skill, which activity and which context are affected and which lead to the interruption of the individual's occupational performance. The occupational therapy practitioner registers the daily activities of the individual into 3 areas of performance, which we must take into account when examining each individual [7].

1. Usual activities: daily activities. These include: feeding, clothing, hygiene, while other actions are the basis of our existence in the social world: dress, behavior.

2. Work and productive activities: these activities are carried out for the person's own development, for his maintenance and intervention in the family and for inclusion. This category includes all activities: home, school, work. Work also involves an educational goal and the development of skills or vocations.

[7] Al. Popescu, *Definition and delimitation in occupational therapy and work therapy*, Medical Publishing House, Iași, 1976.

3. *Fun and recreation*: this field includes activities that recreate/cheer up and bring pleasure: sports games, music, social activities, art, culture, in which the subject participates with pleasure.

Occupational therapy, through its role in the recovery complex, has stood out as an indispensable complement to other services.

Specific occupational therapy addresses directly the functional deficit itself, the affected joint.

Non-specific occupational therapy addresses the whole body through various occupations, in order to educate it to participate in constraining the consequences of the functional deficit. For example, a hemiplegic will perform activities with both the paralyzed and the healthy part, thus increasing the performance of the whole body.

The French school also refers to the activities used in occupational therapy as "techniques", meaning gestures extracted from human practical occupations.[8]

Occupational therapy in strokes

Strokes are the most common neurological disorder that causes functional impairment in adults. Stroke is characterized by central motor neuron syndrome (CMNS) with hemiplegia contralateral to the brain injury and associated dysfunction - sensory, perceptual, communication, personality and intellect.

The vascular etiology of hemiplegia is a medical problem both in frequency and severity. Vascular etiology is expressed by cerebral haemorrhage (10% of cases) or ischemia-cerebral infarction (90% of cases) caused by cerebral atherosclerosis with thrombosis (92%) or by embolism (8%).

The curative therapy applied in the stroke ensures the survival of the cerebrovascular patient, and the neurorecovery will continue to address the sequelae of the stroke.

Occupational therapy ensures the functional completion of the movement. Occupational therapy involves a physical activity of improving motor skills. Therapeutic benefits can be expected only if the use of these means of treatment is early, progress is minimal when applying late.

[8] P. Ciocoi, *Occupational Therapy– Course,* Cluj-Napoca, 2009.

Evaluation from the point of view of occupational therapy

1. ***Motor function***

- assessment of muscle tone (degree of spasticity) **-** no muscle strength is tested
- assessment of joint mobility - the limitation due to spasticity will be differentiated from that caused by damage to the joint and periarticular structures
- for assessment of motor function recovery stage, synergies and associated reactions **-** Brunnstrom test
- evaluation of the postural mechanism by the Bobath method
- In the stage of restoring voluntary motility, the necessary selective movements for functional activities will be tested.

2. ***Sensitivity***

- Assessment of tactile, thermal and painful sensitivity
- Evaluation of proprioceptive sensitivity
- Assessment of stereognosis

3. ***Assessment of perceptual and cognitive abilities***

- Body Scheme (Neglect Syndrome)
- Visual perception
- Memory
- Attention, the ability to plan and organize actions
- Emotional affective state

4. ***Assessment of communication skills***

- Speaking
- Auditory perception
- Ability to understand language
- Writing and reading

5. ***Psychosocial assessment***

- The role of the patient in the family and society
- Professional history
- Existing family support
- Disability tolerance
- Motivation to participate in a recovery program

6. ***Occupational performance assessment***

- Identifying the occupational role
- Identifying the area of performance
- Ability to perform ADL, I-ADL
- Transfers and travel
- Ability to perform professional, recreational, community activities.

Therapeutic intervention

1. remedying cognitive and perceptual dysfunctions
2. recovery of maximum functional independence
3. social and professional reintegration

Ways of therapeutic approach

Elements of Kabat, Brunnstrom, Bobath sensory motor recovery methods or proprioceptive neuromuscular facilitation techniques will be used.

The Brunnstrom method of therapy for hemiplegic adults is based on the use of medullary reflexes and primitive brain reactions (in the flaccid phase) later using the development of synergies (synkinesis), global movements, coarse (spastic phase) and then by voluntary participation to give up synergies obtaining voluntary, fine and precise movements, with normal coordination. We train first the strong component of the synergy and then the weak one - resistance exercises for "breaking the synergy" - we work from proximal to distal (shoulder - hand), the upper limb flexion patterns return before the extension ones. The goal of Brunnstrom therapy is to facilitate progression by the stages of motor function recovery.

Stages of motor recovery - Brunnstrom classification

Stage I	UL – flaccid Hand - absent function LL – faccid
Stage II	UL - spasticity begins, synergies and associated reactions occur Hand - coarse grip, flexion of the fingers LL - spasticity begins, voluntary movement sketches appear
Stage III	UL - increased spasticity, synergies or their components can be executed Hand - coarse grip, hook like grip LL - maximum spasticity, flexion synergies, triple flexion during sitting and orthostatism are presented
Stage IV	UL - decreases spasticity, combined movements derived from synergies can be performed Hand - coarse grip, side forceps become possible, a small degree of extension of the fingers and movement of the thumb LL - sitting the knee flexion >90^{o}, dorsiflexion/foot drop with the heel resting on the floor is possible

Stage V	UL - synergies diminish, combined movements derived from synergies are possible Hand - palm grip, spherical and cylindrical objects can be caught and released LL - knee flexion and hip extension in orthostatism, ankle dorsiflexion with knee and hip extension
Stage VI	UL - absent spasticity except for rapid movements Hand - all types of tweezers are possible, individual finger movements, full voluntary extension LL - hip abduction from orthostatism, internal and external rotation combined with inversion and ankle eversion from sitting

Brunnstrom's principles can also be applied in occupational therapy. Controlled upper limb movements can be trained in daily functional activities. A number of daily activities use the synergies of the limbs: brushing teeth, taking food to the mouth, dressing / undressing, dusting, sweeping, etc. Training by and for ADL can begin in stages III-IV, when the patient will be taught to use synergies in various activities. The occurrence of voluntary movements will be encouraged by their inclusion into movement patterns (example: using the upper limb extension synergy to insert the injured upper limb on the sleeve of the garment). When the patient exceeds stage IV, the activities can be performed according to normal schemes. Complex activities such as gardening, washing and wiping dishes, food preparation can also be introduced.

Bobath's neuroevolutionary approach is based on the theory that spasticity is the consequence of releasing the gamma system from the control of the upper nervous centers and losing dynamic postural control due to the installation of abnormal reflex mechanisms.

The treatment aims to restore normal movement patterns by improving muscle tone, avoiding abnormal movement patterns and the development of compensatory movements.

Improving muscle tone is achieved by:

- Use of specific control points that decrease spasticity and facilitate active movements
- Proximal key points - at the neck, spine, shoulder, hip
- Distal key points - at the wrist, ankle, hand and foot toes

- The use of inhibitory reflex positions not passively, by placing the patient in such positions, but by movements from the inhibitory reflex positions.

Restoration of physiological postural alignment through therapeutic stimulation and self-control, and where necessary will be enhanced by external support - orthoses. Assistance equipment is only used when absolutely necessary, not to replace treatment and movements.

Neuroevolutionary therapy aims to increase awareness of the paralyzed side, improve sensory stimulation on the hemiplegic side, optimize the integration of both parts of the body.

ADL training

ADL recovery begins with self-care activities, from the simple ones (eating, brushing, combing) to the most complex ones (bathing, dressing). Subsequently, as the functional rehabilitation will be attempted, domestic activities will also be tried in order to regain independence at home, and then of social reintegration.

In all activities, the use of the affected hemibody in normal movement patterns will be emphasized.

Activities to improve strength and coordination in the shoulder and elbow:

- washing windows and mirrors
- dusting
- sweep
- washing and wipping dishes
- cleaning the table
- arranging food on shelves
- bed arrangement
- arranging clothes in the closet
- folding clothes
- ironing
- gardening
- hammering nails
- car polishing
- throwing the ball, throwing arrows at the target (darts)
- volley-ball

Activities to improve strength and hand coordination:

- cutting out paper figures
- crumpling a sheet of paper and spreading it
- fastening clothes with clothespins
- playing cards: shuffling them 3 times and dividing them
- choosing beans, lentils and putting them in a narrow-mouthed bottle
- opening a bottle of beer and emptying it
- rotating a pencil between the thumb and the other fingers, each one
- unscrewing / screwing some screws
- knotting / untying a string
- practicing handwriting
- ball game
- games with small pieces: backgammon, chess, puzzle, cards, dominoes, rummy
- embroidery, sewing, knitting, crocheting, macrame
- making boxes
- painting

In cases of severe impairment, the compensatory activity of the healthy hemibody will be involved. Appropriate support equipment will also be used.

Conclusions

1. Occupational therapy uses activities to increase and rehabilitate the physical and mental state of a person at a functional level necessary for daily living.

2. The directions of occupational therapy are oriented towards the recovery of physical locomotor dysfunctions, psycho-social dysfunctions, psycho-physical development.

3. In order to achieve the most efficient recovery of the various disabilities, recovery that is achieved through occupational therapy, a special role has the accurate and as direct as possible establishment of the objectives that both the therapist and the client propose.

4. Occupational therapy aims at returning the patient as soon as possible to the socio-economic life, in the best possible physical and mental state, to a functional and helpful activity for which he is able due to his remaining capacities.

5. The actions of occupational therapists are exercised in the following basic directions: stimulating responsibility in various life situations, forming skills of self-care and personal hygiene, striving for work skills, forming self-image and stimulating self-confidence, cultivating self-control and personal expressiveness, educating cognitive abilities, educating the ability to react to various life situations, training neuromuscular function, training sensory integration, supporting interpersonal relationships, educating the ability to act, depending on environmental constraints and resources.

6. Through work and occupation, any type of activity is carried out, more or less useful and with many possibilities to solve, and by selecting the activities, the aim is reached.

7. Occupational therapy is based on the use of functional activities to achieve maximum adaptation of the body to its living environment.

8. Occupational therapy is a profession that helps a person with a disability to gain their full potential for independence and productivity in their own life.

9. Occupational therapy is a health profession that contributes to the physical and emotional independence as well as to the well-being of the individual - a state that is achieved through the use of selected activities.

10. The purpose of occupational therapy is medical and then economical, following the therapeutic effect through work, activity. The most important goal is to restore mobility in all its aspects: joint amplitude, strength, muscular endurance, coordination and ability.

11. The role of the occupational therapist is based, in short, on the idea, according to which the practical, occupational, subject-based activities, determine the development of the personality, which, in the end, leads to a better adaptation to the environment.

In order to achieve this goal, the therapist designs certain intervention programs, carried out through work activities, in daily life, meant to develop at the subject the establishment or increase of his performances in the sensorimotor, cognitive and psychosocial sphere.

12. Occupational therapy aims to normalize the functions altered by the disorder, to raise the level of physical and moral health and to prepare the patient and the convalescent to resume their previous activity.

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