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# TOPOLOGY VERSUS TIPOLOGY

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**Abstract.** *Continuity and discontinuity coexist in modern scientific research, from concept to paradigm, from hypothesis to model, from lemma to theorem, from method to methodology, and it is from the integrated opposition of these two apparently distinct approaches that the very trans-, inter- and multidisciplinary nature actually results of an objective investigation with an innovative of original content. Identifying an international school which includes prestigious names of topologists (including several representatives of the Romanian mathematical school) represents a derivative issue of this paper, just as a short journey from the morphological analysis to the multivariate analysis brings into discussion a new method, i.e. Meron – Topological Multidimensional Analysis.*

**Keywords:** *topology, typology, continuous and discontinuous attitude, multidisciplinary research, multidimensional morpho-typological analysis, Romanian topology school.*

## 1. INTRODUCTION

*“There is nothing that we cannot understand if our spirit examines it closely; all these truths are innate in our spirit, as a king imprints his laws in the hearts of his subjects if he has the power to do so...”* – René Descartes to Mersenne, 15 April 1630.

An introductory premiss to this article is that a treatment in the absence of criticism, focusing on the concept maintained by Pangloss, the immortal character that Voltaire ridiculed in *Candide, or the Optimist*, a book published as early as 1759, according to whom “in this best of all worlds possible, everything is done to the best effect and purpose” [1], cannot constitute the essence of the specific approach in such a paper devoted to a universe of scientific research, characterized by the opposing tendencies of change and evolution in modern science, emphasizing here only continuity in topology, and discontinuity in typology.

An approach that is specific to trans-, inter- and multidisciplinary scientific research has been, and still is, inetrogative, involving a limited but well-selected number of questions, from the very onset of its descriptive or investigative approach, such as:

*Q1. How can we remain, throughout the course of an analysis, in continuity and discontinuity, simultaneously?*

*Q2. What does defining mean, and what does using a multidimensional morpho-typological analysis mean?*

*Q3. What about simultaneously ensuring a topological and typological character to the modern research?*

All three of the above questions are given some answers, or else conceptual or paradigmatic delimitations, in this

paper. Finally, a number of concluding remarks cannot be omitted, which refer to a fundamental principle of researches that go beyond the border of insulating unidisciplinarity, i.e. the principle of the *equilibrium of the trans-, inter- and multidisciplinary paradigms*, which is otherwise visible in the concept of space-time in modern physics, at first sight topological as space and typological as time, which would require, and expressly explain the acute need for similarities, in parallel with the need for major differences between topology and typology.

## 2. TOPOLOGY – MEANINGS, BRANCHES AND A BRIEF HISTORY

In the topological vision, mathematics becomes a continuum of change, which thus includes so much more than mere algebraic measuring, geometric drawing, many various mathematical analysis operations defined by signs or letters [2]. Studying elementary or general topology more and more obviously looks like studying a foreign language, involving a continuous process of learning more and more words, rather than looking like learning mathematics, which seems to gather here a huge amount of simple theorems, which tend to take over the role of language norms, governing the use of words. [3] Topological theory, a significant area of modern mathematics, is redefined as the mathematical science of change, applicable to an increasing number of complex phenomena and processes of reality.

The initial meaning of topology is related to studying deformation of space through a continuous transformation (which involves stretching, extension, yet no splits or gluing), or a predominantly regeometrized or spatialized continuity. Etymologically, the term *topology* is derived from ancient Greek (the nouns *topos* and *logos* have become place and study, or the study of the place), which was renamed, Latin-wise, *situs geometry* or *situs analysis*.

In a broader sense, topology brings together a set of rules that describe and explain the relationship between neighbouring points, the more or less intersecting or nearby lines and the adjacent polygons, determining the way all these outline a geometry that manages to keep their space properties when planes or multidimensional objects are subjected to continuous transformations.

Yet topology is clearly different from Euclidean geometry in the manner it considers the equivalences between spaces or objects. In Euclidean geometry, two objects were equivalent when and if they could be transformed into each other through isometrics – transformations that preserve the value of angles, lengths, areas and volumes.

Euclidean geometry does not include any congruence in the sense of stretching or bending spaces, etc. In topology, the study of the qualitative properties of certain objects turns them into topological spaces, which define the concept of invariant

placed under some kind of transformation (called a continuous map, and bringing together some properties of transformation – homeomorphism).

Topology meanings have multiplied permanently. In Geographic Information Systems (GIS), topology can be defined as: “*the science and mathematics of the relationships used to validate the geometry of vector entities, as well as a number of operations such as network and neighborhood analysis*”. [4].

Topology refers to an imposed structure, or one characterizing a set  $X$ , thus generating a topological space, through which it gains important properties in transformation processes, such as convergence, connectedness, compactness, continuity, etc. In this regard there coexist [5]:

1) algebraic topology, as a branch of mathematics which, in order to study topological spaces, puts to use tools taken from abstract algebra (e.g. homotopies, homologies etc.);

2) differential topology takes into account properties and structures (e.g. the smooth structure of a variety to be defined), and is closely related to differential geometry, and with the latter defines the geometric theory of differentiable manifolds;

3) geometric topology focuses primarily on low-dimensional manifolds (i.e. dimensions 2, 3 and 4), as well as their interaction with geometry, without excluding higher-dimensional topology (as part of geometric topology some seemingly distinct theories develop, as the case of theory of knots is deemed, etc.).

Topology was developed as a distinct field of investigation in the theory of geometry, as a result of the careful study of the concepts of space, dimension and transformation. [6] Robert Bruner considers topology as a modern version of classical geometry, defining it as a study of the various types of spaces, a type of modern geometry that is distinct through the kinds of transformations allowed prior to considering the change as permanent. Topology goes beyond projective geometry, or in a Renaissance-type of perspective, and its spiritual father was Gottfried Leibniz, who in the eighteenth century first imagined *situs geometry* (or geometry of place).

It was Leonhard Euler who first formulated and commented an application of modern topology, in 1736, when he published a paper on the solution of the *Königsberg bridge problem* entitled *Solutio problematis ad geometriam situs pertinentis* (The solution of a problem relating to the geometry of position). It was again Euler who initiated the famous formula for a polyhedron:

$$v - e + f = 2 \quad (1)$$

where  $v$  is the number of vertices of the polyhedron,  $e$  is the number of edges and  $f$  is the number of sides.

The real author of the *topological invariant* is Simon Antoine-Jean Lhuillier, who, in 1813, edited a scientific book on solids with holes (where  $g$  = the number of holes), where he provided a novel, uniquely innovative solution:

$$v - e + f = 2 - 2g \quad (2)$$

and he generated the first known result for an *invariant* [7].

The term *topology* was first used by Johann Benedict Listing in 1847, without however being fully used before

the first decades of the twentieth century (and it was also Listing who described the Möbius strip in 1861 (four years before Möbius).

The authors below, through their major contributions in the field of topology, are listed and thematically organized in relation to studying the following topological concepts:

a) connectivity of surfaces (Johann Benedict Listing, Bernhard Riemann, Camille Jordan, Enrico Betti, Poul Heegaard, Henri Poincaré, etc.);

b) the generalisation of the ideas of convergence (Bernard Bolzano, Georg Cantor, Karl Weierstrass, David Hilbert, Maurice Fréchet, Frigyes Riesz, Felix Hausdorff, etc.);

c) functional analysis (Jacob Bernoulli, Johann Bernoulli, Jacques Hadamard, Erhard Schmidt, Stefan Banach, Henri Poincaré. L. E. J. Brouwer, etc.).

In the mid-twentieth century, topology had already become a major branch of mathematics. The topology of an object became the property “that doesn’t change when you bend it or stretch it as long as you don’t break anything” [8]. Topological results, seemingly unreal, or closely resembling the *Möbius strip* (the continuum of a strip or band described by the model of a surface with only one side and one edge, having the mathematical property of not being orientable, originally discovered by August Ferdinand Möbius and Johann Benedict Listing in 1858, and later published at long intervals of time), or the *Klein bottle* (the three-dimensional equivalent of the Möbius strip, one-sided and without edges) extended the concept of topological frontier or limit into science trans-, inter- and multidisciplinary realm (the Möbius strip designated an area having a topological border, while Klein’s bottle had no border) [9].

The modern meanings of topology are always being extended and amplified, as shown in:

i) network topology (networks which contain only two-terminal devices, and where the circuit topology is an application of graph theory) or network topology configurations (depicted physically or logically);

ii) geospatial topology or the study or science of places with applications in earth science, geography, human geography, and geomorphology, etc.

A universal school of topology brings together the names of renowned mathematicians, conceptually structured above, to which we can also add other important names like Hans Freudenthal, Georghe David Birkhoff, Itiro Tamura, Oswald Veblen, Samuel Eilenberg, Vladimir Arnold, Yukio Matsumoto, Shigeyuki Morita, William Browder, Shigefumi Mori, etc. [7; 10].

What seems interesting, as far as Romanian mathematics is concerned, is that there appear the names of several major representatives of national mathematics, most of whom worked abroad (mainly after part of the mathematics school migrated to the US in the 1970s and the 1980s) over the past 50 years. he Romanian school of topology includes, every bit as naturally, the names of great academic mathematicians, from George Vrânceanu to Alexandru Ghika (founder of the Romanian School of functional analysis), up to Valentin Poénaru (since 1962 he has been living in France, and has worked at the University of Paris), to Mitrofan Ciobanu (born in Moldova), or Aristide Deleanu (since 1968 in US, Syracuse University of New York), or the younger Ciprian Manolescu (born in 1978, he is living in US, working with the University of Los Angeles) [10].

Poincaré's conjecture, which was enunciated for the first time by the French mathematician Henri Poincaré in 1904, states that if in a three-dimensional closed and infinite space (immersed in a four – dimensional space) all two - dimensional "circles" can be reduced topographically until they become a point, then this three-dimensional space is tantamount topologically (homeomorphically) to a three-dimensional "sphere". Russian mathematician Grigori Perelman's demonstration in 2002 (when he solved a problem that had preoccupied the specialists for nearly a century) was ranked first among the most important mathematical discoveries, in a ranking made by the prestigious journal *Science* on 22 December 2006, and is one of the most important victories for the science of topology [11].

Topologically means today more than the mutual placement of several items that remain in the same relationship no matter of the change in position, and implies either new significance for continuity, errors, scenario, space-time, and especially new connections like:

I. Topology and social, economical, spatial, or phenomenological interactions;

II. Topology and space continuity and mathematical physics and astronomy;

III. Topology and demography together against errors (e.g.: in 1970, preparing general census, United States Census Bureau used mathematical topology to reduce errors that appear on the map results etc.).

By focusing on ensuring a continuum, topology has extended its impact, and is gaining more and more space-time in almost all trans-, inter- and multidisciplinary fields. Modern topology, or that of the future, can certainly improve the trans-, inter- and multidisciplinary concepts, by means of the continuity of its analyses.

### 3. TYPOLOGY AS THE PERMANENT ADVERSITY BETWEEN TYPE AND ANTI-TYPE

Typology is the study of types. Typology is a composite measure that involves the classification of observations in terms of their attributes on multiple variables.

Such classification is usually done on a nominal scale in statistics. Typology is, at the same time, synonymous to a classification of the observations resulting from analyzing their attributes. The final result of typology is also called as taxonomy, and it is embodied in a set of categories or types.

The term etymologically derives also from a Greek word (*typos*) and signifies a matrix, a very simple morphological model, based on several possible combinations, frequently resulting from two or more variables (more rarely through from special methods), each variable being typically defined by a series of discrete values. Typology has a statistical substrate and mathematical dimensions of physical space, as in that most frequently cited example of the Cartesian coordinate system. Typology expresses in the most in-depth manner the discontinuum, or discontinuity in the space-time type of variable. Through a genuine taxonomic excess there coexist several types of typology (in summary, a typology of typologies), a kind of discontinuity in discontinuum, which is the multiplied

expression of an adversity of types and anti-types [12; 13; 14]:

a) philosophical typology (grouping based on the similarity of some traits);

b) statistical typology (a purely statistical concept, a complex design of scientific research);

c) anthropological typology (a notion derived from cultural division);

d) archaeological typology (classification of artifacts in relation to their characteristics);

e) linguistic typology (systematization and classification of languages with respect to their structural characteristics);

f) psychological typology (models or types of personality);

g) typology in theology (typology was frequently used in early Christian art, where type and antitype would be depicted in contrasting positions, and typology is also a theory of history, seeing the whole story of the Jewish and Christian peoples as shaped by God, with events within the story acting as symbols for later events) [15];

h) typology at the level of subdomains, or specific populations (examples: classification of farms, the Pavlov typology or the typology of individual differences, sociopolitical typology of political organizations, etc.).

The classical view of classification generates the common typology based on fundamental categories or types. Thus, in his *Dialogues*, Plato is the man who first introduced the philosophical approach centred on grouping objects based on their similar properties. Aristotle continued Plato's approach by analyzing differences through types, classes and variety (adversity and complementarity by type – the antitype is essential), drawing on a taxonomy that was subsequently applied in classifying living beings (by successive investigative techniques for shared properties, thus founding the distinction type – the antitype, and eventually generating the taxonomies in natural sciences).

The classical (or Aristotelian) view maintained that all the categories are distinct entities (type, class, variety), characterized by a set of common properties that define the necessary and sufficient conditions for membership, are clearly defined and mutually exclusive (type –antitype adversity) and define, in an aggregative and exhaustive manner, higher or superordinate categories.

There are multiple coexisting modern versions of the classical approach to typology, which emphasize certain aspects:

i) conceptual clustering (deriving from an attempt to explain how the distinctive type (cluster or entity) is generated by the formulating of the first conceptual description, and subsequently ensures classification according to descriptions resulting from scientific understanding and knowledge);

ii) prototype theory is based on the concept of prototype, although it essentially (though the necessary context and appropriate conditioning almost never occur in the real world, as in the logic and rationality of this theory) constitutes a basic element for human development, learning and research rely on learning about the research world and the reality via embodiment;

(iii) new urbanism theory of typology underlines that individual characteristics generate patterns or specific models, and relate elements hierarchically across physical scales (from small details or sub-systems to large systems);

(iv) modern statistical typology is based on ascending/descending classification and use the following ten steps and

many different statistical instruments [16; 17] and logical tools [18; 19; 20]:

- step 1: defining types of variables used (type – antitype for quantitative variables and dichotomized or binary variables, and qualitative levels and status for other variables);
- step 2: specific types and anti-types (defining case profile);
- step 3: aggregated types and anti-types (defining group profile);
- step 4: Euclidean (3) or chi-square distances (4) between types and anti-types (distances used between cases or groups):

$$dx,y = \sqrt{\sum_{j=1}^n (x_j - y_j)^2} \quad (3)$$

$$dx,y = \sqrt{\sum_{j=1}^n \frac{1}{(s_j)^2} (x_j - y_j)^2} \quad (4)$$

- step 5: predefined typology (defining the initial typology);
- step 6: statistical specificity derived from the characteristics of distances by groups;
- step 7: descriptive statistics for quantitative variables and summary statistics for qualitative active variables;
- step 8: final typology (description of resulting typology);
- step 9: statistical variance explained (summary of the amount of variance explained by the final typology);
- step 10: useful or applied hierarchical ascending/descending taxonomy or classification.

In the last quarter of a century [12], Velleman, Paul Wilkinson Leland heightened the in-depth critique of statistical typologization, which appeared as early as three quarters of a century ago, more precisely after 1945, when researcher and psychologist Stanley Smith Stevens basically invented the terms of scaling or nominal, ordinal, interval, and ratio typologies, in order to describe and rank the measurement scales used in taxonomies, in keeping with traditional statistical procedures [21; 22].

Through its impact on textbooks and the literature, Stevens's taxonomy influenced the statistical taxonomic reasoning of at least two successive generations. And, despite all the criticism of other statisticians, it still persists in some statistical manuals which naturally include typology or taxonomy. The major criticism levelled at the Stevens type of categorizations is based on the finding that the use of Nominal, Ordinal, Interval, and Ratio Typologies in the selection and recommendation of methods of statistical analysis is not appropriate because they do not describe the attributes of actual data that are essential for proper statistical analysis, and they can often be completely erroneous. Stevens's typologizations fail to provide a classification scheme suitable for modern methods of data analysis. So the following aspects represent real complex issues that are solved incorrectly, even in practical situations, through the Stevens scalings and categorizations – aspects that shape the following

classical tuye of criticism, which is actually valid to the present [23; 24]:

- 1) the issue of limiting the choice of the statistical methods that provide suitable invariances for the kind of scale practiced is particularly serious, or dangerous for the analysis of the data of the pre-typology;
- 2) the issue of an excessively strict approach to allow the application of the Stevens typologizations on the actual data;
- 3) the issue of the specific prohibitions from one scale to another for Stevens categorization leads to the degradation of data, especially the hierarchies and rankings, which ultimately contributes to unnecessarily resorting to non-parametric methods. The modern arguments challenging statistical typologization extend to other aspects found recently [25; 26]:
- 4) the need for multiplying the alternative taxonomies based on the diversification of the real data types;
- 5) the need to develop new procedures for multidimensional scaling to be used in the conversion of actual measurements;
- 6) the *a priori* lack of databases without errors by definition, parallel to capitalizing on the packages of specialized programs focused on clusters and clustering, etc.

But whatever may be said about statistical typologies, they retain their usefulness when those who use them do so with statistical discerning wisdom, and in appropriate trans-, inter- and multidisciplinary approaches, without considering them *old-fashioned* and *unsophisticated* [27].

As a consequence of the need for balance in typological analysis, there also appear General Morphological Analysis (GMA) and Multidimensional Morpho – Typological Analysis (MMTA). General Morphological Analysis (GMA) is simply “an ordered way of looking at things, within the final and true world image everything is related to everything, and nothing can be discarded a priori as being unimportant.” [28].

The most relevant example is Morphological Analysis (MA), which defines in architecture a complex discipline. MA studies the outer form and inner structure of organisms, entities (home, community, city), bring an approach to understand the studied objects and studying parts of a whole, the sub-systems of a system... MA is simultaneously topological and typological as follows: a) topological as availability between several elements that remain in the relationship regardless of changing position; b) typological whent it refers to configuring the house (form).

In statistics, econometrics, financial econometrics, data mining, any multidimensional analysis defines a data analysis process, which groups the data into two categories: data dimensions and measurements.

A. Data that provide a longitudinal cross-section:

The turnover or profits of a corporation for several years (a one-dimensional analysis defined by a data set)

B. Data that provide a cross-sectional dimension:

The turnover or profits of several corporations in one year (a one-unidimensional analysis defined by another data set).

C. Data that provide both a cross-section and a longitudinal section:

The turnover or profit of several corporations over several years (a two-dimensional analysis defined by a growing data set, or a data panel)

D. Let's try to imagine a data set of predictions (or forecasts) conducted a population of forecasters, and really get into the multidimensionality of the analysis, which is also the only really outset of big data).

MMTA operates with big data, and the chances to realize an objective analysis are increased significantly. Whether it is morphological or multi-dimensional, statistical analysis cannot however merge topology and typology, out of considerations of an insulating one-disciplinary nature.

Typology is also a study of object forms, but time destroys the form because the form is changing. Thus, the historical approach in the field of science (especially in biology) was always considered as an alternative to typology. Sergey Meyen (1987) proposed a general idea, i.e. that the typological and the historical approaches are mutually compatible if the form of an object is considered as a dynamic aspect. Then, the form is not destroyed, but rather created time [29]. This is an example of inter-, trans- and multi-disciplinarity, which enables a topology that connects topology to and typology (in a manner specific to understanding hyperspatial future, where the space–time variable is essential). The example does not however stop here, it rather extends to another method of classification, called meronomy or the study of common essence of united objects (designated as an archetype). Meyen proposed this new term *meron* for a class of similar parts, and thus meronomy becomes the classification of object or type parts. Objects or types are considered similar if they have common merons and thus Meyen generates the idea that typological and historical approaches are compatible if the form of an object is considered in dynamic aspect, the form being not destroyed, but created by time [29]. Temporal structure of an organism or a type is not less important than its spatial structure.

Better adequate to the reality than MMTA could be a new method based also on scenarios but using the new space – time concept, topological as space and typological as time, but still remain a multidimensional analysis method. Life scenarios in space – time could have a new type of analysis (global and even universal analysis) entitled as an awaited method [30]: Meron – Topological Multidimensional Analysis (M-TMA), as result of a multi-paradigm combining space continuity from topology with time discontinuity from meron typology.

Modern typology can be defined not only as the permanent adversity between type and anti-type. Modern typology essentially and analytically contributes to forming new concepts, beyond type and anti-type, and also goes to non-types, in keeping with a neutrosophic type of approach [31]. In other words, non-types will virtually influence the major extension of modern typology, and also, and to a similar extent, modern topology of the future... They both have an equal contribution, providing the ever more rapid multiplication of inter-, trans- and multidisciplinary research.

#### 4. SOME FINAL REMARKS

Topology and typology express the two fundamental aspects of the research [32], i.e. continuum and discontinuum, respectively, and it is only in conjunction that they allow getting analytic and synthetic knowledge, both overall and in-depth, of the of phenomena subject to any investigation of reality.

There is a proven necessity for multidisciplinary scientific knowledge of an increasingly unstable equilibrium, visibly defining for the progress of the complex systems of the social and economic type of. The two transdisciplinary approaches of the physical and mathematical type (focusing on topology, as an expression of the continuum), as well as statistical and biological type (with biological or meronic accents of taxonomization, and statistically typological ones, defining the discontinuum in a discrete manner) are a solution, by the complex paradigm that they can construct as a result of the simultaneity of their application, or the ambivalence of their interpretations based on their intrinsic logic of a continuum – discontinuum type.

A natural principle of economic and social equilibrium gradually developed arguments to demonstrate the possibility for topology, discretely combined with typology, even with major similarities and differences of vision, to bridge the gap between the transdisciplines of a physical–mathematic and statistic–biologic type, not only in biological and social systems, but also in the universe, and even the multiverse of scientific knowledge.

These final remarks lead to the idea of the necessity for new multidisciplinary methods in keeping with the new inter-, trans- and multidisciplinary concepts or paradigms, such as space-time, or even methods like M-TMA capable of ensuring both the continuity and the discontinuity of phenomena, populations, etc, and of forecasting scenarios that are closer to reality and the coexistence of the species...

Maintaining a perpetual investigation-directed status remains essential for knowledge of the topology–typology antinomy, and the researcher’s questions and critical spirit remain the solutions of modern academic training of an inter-, trans- and multi-disciplinary nature, in the context of the constantly valid and topical verse in *Gaudeamus igitur: Vivat membrum quodlibet;/ Vivant membra quaelibet; / Semper sint in flore!*

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# PLAGIARISM AND OTHER ACADEMIC DISHONESTY IN THE LIGHT OF FLORIDI'S INFORMATION ETHICS

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**Abstract.** *The aim of the paper is to raise awareness of the globally widespread issues, whose growth resulted in critical concern in regard to academic integrity and ethics, particularly in the age of the third industrial revolution. The purpose of this paper is to suggest possible solutions towards reducing plagiarism and other academic dishonesties in the light of Floridi's information ethics. To this end, experimental research method is employed to simulate key dimensions recognized as fundamental causes of the phenomena. The results show that moral agent negatively affects the whole infosphere and increases the level of entropy. Significant percent of plagiarism further correlates with the first and the most important moral principle given by Floridi. To satisfy other three principles, agent should take into account both, proactive and reactive strategies. The best moral action is the one that succeeds in satisfying all four laws simultaneously. Based on the findings introduced in the paper, the study provides recommendations towards academic honesty behaviour. The paper can contribute to both, academic institutions and business organizations.*

**Keywords:** *academic integrity, ethics, plagiarism, academic dishonesty, Floridi's information ethics*

## 1. INTRODUCTION

Academic dishonesty continues to attract considerable interest among academics nowadays, resulting in a globally widespread issue that create a thoughtful concern in respect of academic integrity and ethics [1, 2]. Ellahi et al. [2] in their recent research stand out that academic dishonesty have been under diligence for more than 70 years, yet with the third industrial revolution new forms of academic dishonesty have been emerged, which resulted in creating even greater challenge to deal with this phenomenon [2]. Academic dishonesty may be viewed from different perspectives [3], and is considered as the problem that contains various patterns including plagiarism, cheating, falsification, inappropriate collaboration and other dishonesties [4]. Among all, plagiarism is the most critical form that disregards academic integrity [1] and represents the problem that grows at high speed [5].

With that in mind, the paper seeks to find and suggest possible preventive solutions towards reducing plagiarism and other academic dishonesties, with the special reference to Floridi's information ethics. Taking into account that unethical behaviour during studying may further result in organizational unethical behaviour [6], the study contributes

to both academic institutions and business organizations in its intention to resolve this complex issue.

The paper is structured as follows. The literature review section provides fundamental issues with respect to the ethics phenomenon: its definition, classification and overview of the historical development, starting from Socrates and Platon to Aristotel, who is justly recognized as the founder of ethics. Also, this section unfolds ideas of other significant philosophers that dealt with this subject, yet given in an abbreviated form. Further, it exhibit background on information ethics with the particular emphasize on Floridi's information ethics' principles. The research method is then introduced with a detailed explanation of the procedure carried out in the course of verifying the hypotheses given in the paper. Thereafter, research results are shown, followed by discussion and concluding remarks sections.

## 2. LITERATURE REVIEW

*2.1. Ethics: definition, classification and historical development*

Ethics represents a system of moral principles that is closely related with general dilemmas of decisions people make and life they lead [7]. Ethics studies can be divided into three branches [8]:

1. Metaethics deals with the meaning and origin of ethical principles. It is further divided into i) *metaphysical* aspect, which answers on the question whether ethical principles exist independently of humanity, ii) *psychological* aspect, which examines what motivates us to ethical behaviour and iii) *linguistic* aspect that seeks key ethical terms.

2. Normative ethics attempts to define principle which can distinguish morally right from morally wrong behaviour. The "Golden Rule" [9] outlines right from wrong, and three main branches can be observed: i) *theories of virtue* that emphasize personal traits instead of a set of predefined rules, presuming that person with virtue will behave morally; ii) *deontological theories (theories of duty)*, presuming that persons should behave according to some objective duties we have (e.g. to ourselves, to others, to God) which should not be neglected if some gain can be obtained from neglecting such duty; iii) *teleological theories*, stating that morality of the action can be decided by its consequences, stating action as moral if it ends in more good than bad to the subject of the action (ethical egoism), more good than bad to everyone except the subject of the action (ethical altruism) and more good than bad to all (utilitarianism).

3. Applied ethics focuses on practical questions like pro-life or pro-choice views, genetic manipulation, ecological

ethics, artificial insemination, sexual morality or cyberspace ethics.

Historically, development of ethics for Western world began with the Sophists, followed by Socrates and his concept so called "eudaemonia", which may be perceived as philosophy that defines "luck" or actions towards well-being and prosperity. In other words, Socrates understands "luck" as the simultaneous desire that a person behaves in accordance with the right norms, resulting in an successful outcome and welfare. The moral doctrines of Socrates provide direction towards further development of Hellenic and Hellenistic philosophy of moral.

Further, Plato, Socrates's disciple continues work by considering the concept of Good (with capital G), observing it in two ways, i.e. as final objective and as a universal principle. He considers the universality of good, dealing with the metaphysics, and recognizes the moral intuition. Also, Plato examines innateness of human kindness as well as the role of the mind in assessment of morality acts. Plato discusses relations between ethics and society, and relations between ethics and aesthetics. He distinguishes difference between virtue and its end/consequence, making category of independent, metaphysical virtue and good.

Aristotel deals with the fundamental issue of good principle that leads to "eudaemonia", meaning perfect fulfilment of humans' nature, which can be linked to Maslow's self-actualization [10]. Aristotel looks into ethical principles moving between virtue and ultimate goal of the action. To acknowledge the establishment of virtues, it is necessary to review the theory that is based on the philosophy which takes into account virtue as a measure "mesotes" [11] between excess and deficiency. The theory became the leading one in explaining the virtues in Christian period. It has been argued that virtue is dependent of mind and cannot be viewed separately. Aristotel has analysed eleven virtues and finally concluded that extreme values of virtues imply flaws [12, 13]. Thus, a lack of courage leads to cowardice; while too much courage represents precipitance and violent recklessness. Subsequent contribution to this phenomenon has been given by Christian theologians, adding three basic Christian virtues: faith, hope and love.

Thomas Aquinas follows Aristotle's idea of good and evil as part of our psyche he called "practical wisdom" (*prudentia*) [14, 15]. Tomas Aquinas believed that there is an analogous fraction in human psyche, so called "synderesis", which provides an intuitive orientation in moral principles. According to Aquinas, "synderesis" was created by God when he created humans as rational beings, to be able to realize the spiritual world of moral truth. The subsequent examination has focused on human selfishness.

Thomas Hobbes [16] (seventeenth century) argued that the majority of human actions are based on selfishness, including positive intention to produce good deed, in order to get the feel of superior value, to acquire social recognition, or to use it in some other way. This viewpoint is called the psychological egoism. Also, it has been recognized that egoism is the basis for all actions towards superiority. Closely to this view is the aspect of psychological hedonism as well as psychological altruism, representing a set of believes that there is still some instinctive goodness as the main motor for actions, in addition to egoism and hedonism.

John Locke is loosely related to such ideas, creating philosophy of inalienable human rights and ethics around it [17], making moral foundation for Declaration of Independence and rights theories in ethics [18], based on four principles:

- Rights are the result of the natural order of things
- Rights are universal and cannot vary from country to country
- Rights are the same for all people regardless of gender, ethnicity and capabilities
- Rights are inalienable, meaning that it is not possible to renounce them voluntarily.

Theory of Immanuel Kant [19] tends to theories such as "Golden Rule", and at the same time is similar to other deontological theories. Kant's work largely relies on work of Grotius and Pufendorf. He recognizes that we have a moral obligation to both, ourselves and others, yet he considers that there is a fundamental principle of duty, from which all other duties are derived. This principle is called as categorical imperative that is based on four basic dimensions.

Centuries of development lead to new branch in the research. Advent of cyberspace imposed questions concerning ethics in that environment, and information ethic distinguished as main stream for research. It is seen as a generalization of environmental ethics by Dodig Crnkovic [20], who finds three main traits:

- Less anthropocentric concept of agent, including non-human (artificial) and distributed (networked) entities
- Less biologically biased concept of patient as a 'centre of ethical worth' in any form of existence.
- More inclusive conception of environment that encompasses both natural and artificial eco-systems.

## 2.2. Information ethics overview

Today, the theory of information ethics is more than twenty-three hundred years old. It has its roots in Aristotle's theory of understanding human nature and individual objects within it. In the 1940s and 1950s, philosopher and scientist Norbert Wiener grounded a base for today's informational understanding of the Universe and the role of humans, focusing on 'cybernetic' analysis of human nature and society, and perceiving human beings as information objects.

Based on his findings in the area of cybernetics, communication theory, and computing science Wiener created assumptions related to the information age [21]:

- The whole Universe including its objects and processes is made of matter/energy and information.
- All animals are information-processing beings which behavior depends centrally upon such processing ability
- In contrast to animals, humans have bodies that make the information processing ability in their central nervous systems especially sophisticated.

Following these assumptions, Wiener claimed that information is physical – it is exposed to laws of nature and can be measured in the light of science. By combining the knowledge from the domains of philosophy, physics, biology and information science, Wiener created philosophical foundations for the ethical field that is currently called information and computer ethics.

Wiener's considerations of Information were to a great extent linked to a concept, often referred to *Shannon Information*. In 1948, Wiener's student Claude Shannon published an article titled "*A Mathematical Theory of Communication*", which provided foundations for the theory of Information. He was often called a father of the Digital Age. Although almost all of the credits go to him, the development of Information Theory was the result of joint contributions made by many outstanding individuals, who later broadened his concepts and ideas [22].

In his paper "*The Mathematical Theory of Communication*", Shannon presented elements and steps of communication, considering information as a message or a set of messages that have to be sent via noisy channel from the information source to the information receiver. Before being transferred over the channel, the sender's messages is converted into signals. A receiver receives the signal, reconstructs it in the form of a message that was intended to be delivered. Finally, the message is delivered to a person or for whom it was originally created. Shannon also brought entropy – a key measure of information into the theory. Entropy reflects the amount of uncertainty that is involved in the value of a random variable [23].

By linking matter-energy concept and Shannon information phenomena, Wiener showed that every physical process emerges as a combination of matter and information and neither can exist without the other. In the period during the Second World War, together with several colleagues, Wiener made substantial achievements to cybernetics as an applied science. According to Wiener, this new science focused on computers and the enormous social and ethical implications of their use [24]. Soon after the end of the Second World War, he further investigated the matter of social and ethical issues of upcoming automatic age, what we nowadays refer to the second industrial revolution.

After Wiener's attempts to raise consciousness about ethical questions, there was no significant theoretical contribution to this field for more than a decade. The discussions related to the question of information ethics continued between the 1960s and 1970s by scientists who did not realize that Wiener had already done so much work in this area. Setting aside the contributions made by Wiener, the concept of "computer ethics" has been firstly introduced by Walter Maner. Maner, as well as Johnes considers this area of research as one that deals with issues that were caused by the progress of computer technology [25]. According to these authors, already existing ethical problems become even deeper. In her book, Johnson described similar issues to those discussed by Maner and she also referred to the application of the concept of utilitarianism and Kantism to tackle moral problems and issues [26].

The most influential definition of computer ethics in this area was given by James Moor in his article "*What Is Computer Ethics?*" The specificity of this theory is reflected in the fact that it is independent of any philosophy theories and adaptable for different approaches for solving ethical problems. Moor claimed that computers are universal tools, and that they can perform any operation that includes input, output, and logical operators. He stressed that there will be two stages of information revolution. The first phase is *technological introduction* that includes development and refinement of computers. In the second phase of

*technological permeation*, we noticed broad dispersion of technology in everyday human activities and social institutions [27].

Each of these definitions of computer ethics suggested that influence of computers and computer technologies not only boosted old problems, but also raised some new ethical problems that required new theoretical and practical approaches for grounding new ethical rules and policies. The use of information technology affected in invaluable measure the ethical dimensions of the information society. The combination of computer technology and the power of information finally produced Information ethics as a scientific discipline [27].

Information ethics opens some new possibilities, like reformulating Golden rule towards less anthropocentric form:

"Always behave in such manner to treat information, whether it resides in yourself or in other entity not as a mean to the end, but as the end itself".

That form puts greater challenge task in front of the agent of the ethical behaviour, and is impractical due to cyberspace which often distances agent of the action and consequence of its actions, puts actions into wide, complex system of interaction, introduces new entities like artificial intelligence agents etc. Other similar experiments in reformulation of classical principles in form appropriate for information entities did not result in significant advancement. One of the most successful approaches is Luciano Floridi's approach, which starts from the "infosphere" [28], our new environment comprised of all info-products, info-targets and info-resources, structures and processes providing information.

That environment is especially strengthened in last few decades due to the advent of information and communication technologies [29].

### 2.3. Luciano Floridi's principles of information ethics

Although the discussion related to the philosophy of information lasted from the end of World War II, Luciano Floridi is considered to be first or at least the most important, philosopher of the information ethic. Floridi argues that information can be considered in three ways that determine approach to information ethics. His approach turns out to be useful, as it enables recognizing the ethical relevance of information. Information can have crucial role as a resource that implies that individuals possess information. In the sense of information as resource, ethics can be described "*using the triple A*" availability, accessibility and accuracy of informational resources. Information becomes a product when it is reviewed, managed and used by agents - individuals or companies. During such a process information can have ethical impact, which implies the necessity for the ethical analysis. In the context of information as a product, information ethics is described using the terms such as accountability, liability, libel legislation, testimony, plagiarism, advertising, propaganda, and misinformation.

Since environment is made of information, third sense in which information can be subjected is information as target. A good example of this consideration of information is hacking, vandalism or security, piracy, intellectual property, open source, freedom of expression, censorship, filtering and contents control [31].

In Floridi's theory there are three fundamental concepts upon which the theory holds its ground: infosphere, moral agent and patient, ontology [32].

Driven by ICT revolution, which is impossible to deny, Floridi tends to carry out a general theory of the world based on the philosophy of information. He suggests that, one of the most important consequences of technological change is alighting the human from a pedestal among others, animate and inanimate, which have in common that - each in its own way - process information together and inhabit infosphere. It is a world of infor, where only semantic infor is human. In other words infosphere is sum of all informational entities and their relations [32].

Moral agent is an individual or an artificial creation, due to the fact that artificial structures can undoubtedly make information misuse. Floridi distinguishes those who take a moral act (agents) and those who suffer (enjoy) the effects of the act (the patients). Characteristics of the agent are interactivity, adaptability and autonomy [33].

Since information is observed as an entity, in considering information ethics, we must use the ontological approach, which means that any form of reality, have a right and possibility to exist and emerge in its own way in the nature [32]. Information Ethics is an ontocentric, patient-oriented, ecological macroethics [32].

Biocentric ethics is analysis of moral principle of ecosystem on the on the *intrinsic worthiness of life and the intrinsically negative value of suffering* [32]. The idea of this approach is to develop ethics in which patient can be human or any form of life, which well being has moral standing. Moreover, ethics principles must contribute to guiding the agents ethical decisions and behavior.

According to Floridi, current understanding of the information ethics in the sense of biocentrism must be replaced with the ontocentrism, suggesting that there is something more elemental than life, which he calls being, and something more fundamental than suffering, known as entropy [34]. In his consideration of the information, entropy addresses any means of destruction of informational objects. In creating ontological theory, the method of abstraction plays a critical role. "*Level of Abstraction (LoA)*" specifies that, for example, every object can be viewed differently by few people, which depend on their own interests and conceptual interfaces. Floridi defines LaA in the following way [36, p. 249]:

*"A LoA can now be defined as a finite but non-empty set of observables, which are expected to be the building blocks in a theory characterized by their very choice"*.

Following the elements of Information macroethics, it can be concluded that this theory is universal since it suggests that every being must be respected and have equal rights in the infosphere. From the biocentric perspective only alive entities are considered to be the center of moral claims. According to Floridi and his ontocentric theory, every form of being is also a body of information, thus information ethics is focused on it, and helps to overcome the limits grounded in the biological approach [35].

Floridi's belief is that every individual has obligations to be morally concerned not only with their own development but also with the well-being of the whole infosphere. Responsibilities of human moral agent to the infosphere are guided by four moral principles given by Floridi [30]:

1. Information entropy ought not to be caused in the infosphere (this is basic, most general principle Floridi identifies as the null principle)
2. Information entropy ought to be prevented in the infosphere
3. Information entropy ought to be removed from the infosphere
4. Information ought to be promoted by extending, improving, enriching and opening the infosphere that is by ensuring information quantity, quality, variety, security, ownership, privacy, pluralism and access. (This principle is most detailed and specific).

These principles lead an agent to make the appropriate decisions and actions that will affect infosphere and every informational entity involved. Moral agent is accountable for any mistake that can occur and can increase entropy, which will make him misunderstood IE moral laws. Floridi argues that every human moral agent have special role that is more important than roles of other moral agents. His theory provided framework that allowed us to address issues which we were unable to handle with the methodological frameworks proposed earlier [30].

### 3. RESEARCH METHOD

For the purpose of this paper we have used experiment as the most suitable research method to understand cause-and-effect processes by showing what result occurs when particular factors are manipulated. Manipulated or independent variables in our experimental research represent four dimensions we have recognized as key factors that urges plagiarism and other academic dishonesty. On the other side, we have measured the dependent variable, which in our study represents the percent of plagiarism as an effect of the simulation process.

The dimensions in the role of manipulated variables were created based on the broader literature review and based on the students' experience. To ensure the objective view on conceptualized independent variables, we have run pilot research by employing interviews with professors from various universities. Finally, independent variables consist of the following key dimensions referring to key factors affecting plagiarism and other academic dishonesty:

- immorality;
- lack of focus;
- lack of knowledge;
- combined immorality and dishonesty.

Key dimensions were constructed in four different scenarios, each of which simulates a corresponding dimension.

Scenario 1 was developed to simulate immorality by editing text from published paper (copy/paste) without citing the source. Scenario 2 attempts to imitate lack of focus. It contains reorganized text from the same source used for scenario 1, but without citing the source. Scenario 3 was created to manipulate third dimension, i.e. lack of knowledge in which all possible mistakes in referencing were made. Finally, scenario 4 implies simulation of combined immorality and dishonesty. This scenario was simulated by incorporating other's published research results showing as original one.

Further, four scenarios were examined using two different plagiarism software in order to understand plagiarism effects of each factor and at the same time to verify the consistency of the obtained results from different sources. The results are depicted hereafter.

#### 4. RESULTS AND DISSCUSSION

Table 1 shows results of experimental research using four different scenarios to verify percent of plagiarism employing two different software packages.

**Table 1.** The results of experimental research

Independent variable	Dependent variable – percent of plagiarism	
	Results from software 1	Results from software 2
Immorality	13%	11.90%
Lack of focus	8%	4.98%
Lack of knowledge	9%	5.02%
combined immorality and dishonesty	9%	5.02%

Based on the results depicted, simulation of immorality, i.e. plagiarism in documents [37] by editing copied published text without citing the source, has the highest percent of plagiarism (13%, 11.90%), followed by scenarios that relate to lack of knowledge and combined immorality and dishonesty (9%, 5.02%). However, manipulated variable with the lowest percent of plagiarism refers to lack of focus (8%, 4.98%).

In respect to Floridi's principles, it is clear that in every scenario presented, decisions made by moral agent affect the well-being of the infosphere and hence the informational entities involved. The contribution of moral agent negatively affects the whole infosphere and increases the level of entropy. The results show that every scenario contains significant percent of plagiarism, which correlates to the first and the most important moral principle given by Floridi. Breaking rule number 0, the null law, represents the worst scenario an informational agent can do, implying highest blame. In order to satisfy other three principles, agent should take into account both, proactive and reactive strategies. The best moral action is the one that succeeds in satisfying all four laws simultaneously.

According to the obtained results, the study provides several findings and implications that should be noted. First, it is evident that the results of independent variables differ in respect to dependent variable, i.e. in regard to plagiarism effects using two different sources for plagiarism detection. Such result implies that there is no consistency when verifying the plagiarism percentage using different software packages. Second, the results depict that immorality amounts the highest percent of plagiarism, comparing to other independent variables. In that respect we have put a question whether plagiarized original text has harder form of academic dishonesty than plagiarizing original research results? Our dilemma further implies that plagiarism software packages do not recognize the weights of plagiarism effects, which further implies development of smart technologies and robots that will support such issue more effectively. Although many software applications were designed to detect or to decrease plagiarism in academic works [38], our finding corresponds to the statement that plagiarism software packages are still in emerging phase, implying developments and improvements in years to come

[39]. McKeever [39] noted that there is no software which is created to differ academic honesty from academic dishonest behavior, leaving that judgment to subjective expertise of teachers / academics.

Further, it is evident that simulation of third scenario has a high percent of plagiarism, comparing to other manipulated variables, indicating that lack of knowledge and clarity of citing also contribute to academic dishonesty. It has been argued that some students do not know what plagiarism is [40]. Also, it has been found that if they are aware, there is no enough understanding at what point the usage of different sources passes into academic dishonesty [41, 42]. Roig and DeTommaso [43] found that students often do not make difference between plagiarized text and correctly paraphrasing. Similarly, Ting [44] in his recent research revealed that the main reason for students to skip citations in their assignments lie in the lack of knowledge on referencing conventions. This finding further implies development of strategic and tactical educational measures that will help students to understand cause-and-effects of this significant issue. Also, we are with the opinion that fundamentals principles should be made in respect to arising awareness of the plagiarism issue, by providing adequate education of how to properly use knowledge to reduce errors and at the same time to increase academic honest behaviour.

Finally, rapid growth of information that do not create value for stakeholders often result in difficulties to properly cite all sources, which may result in academic dishonesty without having real awareness of such outcome. Accordingly, we suggest a systematic review of existing approaches, principles, methodologies and tools that will prevent negative impact caused by the phenomenon of big data.

#### 5. CONCLUSION

Overall, we have some conclusion on morality of academic plagiarism. Also, we can also analyse academic publishing environment and common practice in the light of ethical theories and Floridi's information ethic.

Common practice of journals in academic publishing, especially those with high standings is to take over most author rights. So in a way, leading academic journals are using other people's work for promotion of their status.

Large number of journals offers their articles free of charge, in some form of Open Access. However, common practice among best publishing houses is to charge significant sums for downloading of the articles. Again, common practice is that not even a part of amount charged goes to:

- Article authors
- Article reviewers

Those parties invest most of the work related to the article production and dissemination, and journal holds better negotiation position because authors are often required to publish their ideas and articles, donating their work for free. The donation is in this case not "Pro bono civitatis", taking into account larger community does not directly benefits – they have to pay in order to read the findings, but mostly for the good of the journal owners controlling cash flows of the journal business.

So a question can be asked: Whether such practice “extends, improve, enrich and open the infosphere” (Floridi’s fourth law)? Whether leading journals management behave in a way that their behaviour should become a universal maxim, following ideas of Kant? Such behaviour maxim can be, maybe severely, formulated as “If you are in position to use non-proportionally large share other people’s work for gain of smaller part of community which was not directly involved in the creation of the value, use your position and obtain as much gain as possible without compensating directly creators of value”.

Also, we can ask a question if paradigms of academic publishing in late XX and early XXI century is in accordance with information ethics and ethics, and then in regard to plagiarism is it a cause of problem, or symptom and manifestation of deeper problem?

In regard to business world, employees with the highest moral values over the time become victims under the pressure to behave unethically, if organizational culture supports such behaviour. Accordingly, plagiarism should not be cured post-festum, but preventively, through adopting main institutional paradigms of academic publishing to principles of ethical theories, maybe at first with Floridi’s information ethics.

The phenomenon should be viewed holistically to understand all aspects that disturb academic honesty. To this end, the study provides a set of recommendations that should be taken into account for further development of academic honest behaviour: a) development of sophisticated technologies and robots that will be able to differentiate academic honesty from academic dishonest behaviour; b) development of strategic and tactical measures that will help students to understand cause-and-effects of academic dishonesty; c) development of fundamentals in regard to arising awareness of the plagiarism issue, by providing adequate education of how to properly use knowledge to reduce errors and at the same time to increase academic honest behaviour; d) a systematic review of existing approaches, principles, methodologies and tools that will prevent negative impact of big data that might cause academic dishonesty.

Future research should incorporate qualitative studies to create potential to obtain deep factors that influence academic dishonesty. Also, future research should involve perspectives of different stakeholders in order to further contribute to academic integrity, ethics and to academic society in the struggles with this globally widespread issue.

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# PLAGIARISM AS THE WORST EPIDEMIC ATTITUDE IN SCIENTIFIC RESEARCH

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**Abstract.** *The paper begins with the confrontation and parallel analysis of two completely opposite concepts: scientific research and plagiarism. The emphasis is on creativity and originality, from which the analysis of plagiarism is begun, and which are in fact the targets of scientific research in general. A brief history of the occurrence of plagiarism leads to a legitimate question: What led to this epidemic of plagiarism? The end of the article lists some possible solutions to prevent and, even it might sound like an overstatement, to eliminate plagiarism, as well as some necessary concluding remarks.*

**Keywords:** *plagiarism, original, scientific research, prevention epidemic of plagiarism, prevention and elimination of plagiarism, team plagiarism.*

## 1. INTRODUCTION

The first hypothesis of this article, nuanced through its specific self-ironic spirit, eliminates the prospect of elaboration focused on legislative excesses, refuting from the outset Bellman's theorem, which was actually invented by Lewis Carroll in 1896, according to which "what I tell you three times is true" [1], while denying any unacceptable argument that plagiarism was and remains a strictly one-disciplinary legislative or legal issue. The creativity or originality requirement, widely recognized in scientific research, as well as the publication of its results, will never be confused with a dogmatic, exclusive and rigid approach, subject to a subjectivity related to *Bellman's theorem*, but rather excel through its specific issues and its inter-, trans- and multi-disciplinary solutions. The same requirement will demand practical and methodological refinements, dynamically structured and standardized, facilitating the investigator's access to other prior original knowledge, correctly paraphrased or rigorously quoted, etc.

A total of four simple questions and a final corollary (*corollarium*) reconstituted the much needed primordial causes which inspired and informed these introducing lines, which, in their striking and inescapable association, managed, thanks to the austerity of the Latin language, to structure the approach of the investigation, and thus provide such the content of this *incipit* placed between the notions of research and plagiarism.

Q1. *Quid est veritas aut quid est scientia?*

Q2. *Quam ob causa tam gravis?*

Q3. *Cui prodest?*

Q4. *Docendo discimus?*

*Corollarium: Verba docent, exempla trahunt...*

The authors have rediscovered the viability of the meanings of these questions, and marked them in parallel with Carlo Cipolla's laws, dedicated to imbecility as a

euphemism for *stupidity*, lived or personally experienced from inside the phenomenon, and substituted, in the text of this perhaps too original article, for author of plagiarized papers, i.e. beneficiaries of the phenomenon of systematic plagiarism, the sources of which are to be found in both pre-academic and post-academic education, and in research and in practical knowledge, as well as after writing hundreds of reports of eligibility and peer-reviews for various magazines nowadays. The authors were, and are still aware of their membership to the universe of stupidity as defined by Cipolla, and also to the hard-to-limit space of plagiarism, even when their desire was to prevent and, even this can be an overstatement, to stamp out the latter. Carlo Cipolla's laws were conceived, and published in 1976 under the title *The Basic Laws of Human Stupidity*, in a quasi-unknown publishing house and printing works called Mad Millers. The book was subsequently republished in Italian in 1998 by Società Editrice Il Mulino of Bologna, and in 2014 it appeared in Romanian, translated by Miruna Fulgeanu, under the title *Legile fundamentale ale imbecilității umane (The fundamental laws of human imbecility)*, at Humanitas Publishing House, Bucharest. The authors have substituted the original wording *imbecile individuals* with *plagiarizing authors*, lowering the general horizon of Cipolla's regularities to research in economics, and to plagiarism [2]. Paraphrasing Cipolla, each question out of the previous set reaffirms the importance of several *key aspects* of plagiarism, succinctly described both in the title of this article, and below:

Q1. *Quid est veritas aut quid est scientia?* The juxtaposition or *parataxis* between truth and science revives the specific relativity of Carlo Cipolla's first law, according to which "the number [of authors plagiarized] is constantly and inevitably underestimated by everyone" [2; p.19]. This fact explains the phrase – and paradigm – *epidemic of plagiarism*.

Q2. *Quam ob causa tam gravis?* The emphasizing hint, arising from the excessive earnestness of the seriousness of plagiarism, which results from the superlative form *the worst epidemic attitude*, is reflected practically in Carlo Cipolla's remark: "the probability for a particular individual to become [a plagiarizing author] is independent of any other property of that person." [2 ; p. 24].

There is no structural variable, appertaining to the population of the researchers, which is independent of plagiarism, the contemporary phenomenon that rejects or fatally exposes an author and his/her article in the universe of modern scientific writing, irrespective of the way that trait is defined, by membership in a particular discipline, or through belonging to a certain science, as a study program or specialization, by placing it in a particular age group, or academic or research seniority group, in terms of either theoretical professions, or experience gained by the respective author in time, etc.



*Q3. Cui prodest?* Given the noted fact that in modern scientific research there is a prevalence of team papers, where individual attitude is aggregated and subjected to the team's desire rather than the idea of *team plagiarism*, Cipolla's third law finds an answer correlated with the team's principles in order to identify the "beneficiary" of plagiarism: a [plagiarizing author], or someone exposed to the accusation of plagiarism, "is a person who causes losses to another individual or group of individuals [to the team, who can be under the impression they have succeeded, which is actually false], and even suffer losses from his/her actions" at the end" [2; p. 38].

*Q4. Docendo discimus?* To the point, by *teaching others, we also learn*, and therefore a plagiarizing author is also subject the fourth law of the same Cipolla. The other authors of original articles "will always underestimate the negative influence" of plagiarists and "will always forget that, regardless of time, place or circumstance, having truck with and/or associating [with the latter] will prove certainly a big mistake." [2; p.58]. This fourth law anticipates the major negative impact of individual plagiarism in team papers, on oneself and one's co-authors.

*Verba docent, exempla trahunt...* induces the final corollary of the fifth Cipollian law, according with which the plagiarizing author is ultimately "the most dangerous type of author, even more dangerous than a criminal", which in fact he/she exceeds due to the disrespect manifested concretely in relation to the right to intellectual property, and implicitly with regard to the creativity or originality that should characterize scientific research. In much the same way as *mathema*, or etymological root of mathematics, also had, in its history, the usual sense of *repeating*, in many of his old translations, so *education can combat the plagiarist's stupidity*, in the meaning assigned by Carlo Cipolla, just as *ignorance can be improved with information*, and the creativity of research – with indicating the level of confidence in the originality of the method, of the model, instrument, the research results for the team as a whole, etc.

## 2. SCIENTIFIC RESEARCH AND PLAGIARISM – TWO COMPLETELY OPPOSITE CONCEPTS

Scientific research develops from the *hypothesis* (i.e. the assumption), passing through *apodeixis* (demonstration) to eventually become *theoria* or *theoretike* (i.e. the theory) [3]. Ever since the Aristotelian times, science (*episteme*) as the end result of an investigation, could be one of an applied type (*techné*), or theoretical (*theoria*), which reflects the duality of scientific research as a whole, still valid after nearly two and a half millennia from the Greek cultural miracle.

Scientific research appears when the resource to scientific methods, theories and hypotheses is *systematic, based on objectivity, reproducibility, demonstrability and exactness*.

**Table 1. Dictionary definitions of scientific research**

<p><i>Conducted in the manner of science or according to results of investigation by science: practicing or using thorough or systematic methods</i>  <b>- <a href="https://www.merriam-webster.com/dictionary/">https://www.merriam-webster.com/dictionary/</a></b></p>
<p><i>Application of scientific method to the investigation of relationships among natural phenomenon, or to solve a medical or technical problem.</i>  <b>- <a href="http://www.businessdictionary.com/definition/">http://www.businessdictionary.com/definition/</a></b></p>
<p><i>Research into questions posed by scientific theories and hypotheses (systematic investigation to establish facts) –</i>  <b><a href="http://www.thefreedictionary.com/">http://www.thefreedictionary.com/</a></b></p>
<p>Cognitive activity as a process of developing new scientific knowledge, characterized by objectivity, reproducibility, demonstrability, and exactness  <b>- <a href="http://encyclopedia2.thefreedictionary.com/">http://encyclopedia2.thefreedictionary.com/</a></b></p>

The defining aspects of scientific research that have been described above are capable of generating the creativity or originality that define its targets in solving a problem, either theoretical or practical. Basic applied research, and experimental development, as it appears, conceptualized in a modern manner and broadly renamed scientific research in the Frascati Manual, involve *creative activities, conducted systematically in order to increase the stock of knowledge and generate other completely new knowledge* [4].

In accordance with the above, scientific research is similar to the original or originality, and antinomian or opposite in relation to plagiarism. It was Thorstein Veblen who offered this conclusion as early as 1908, in *The evolution of the scientific standpoint*: "the result of serious research can be given by the merely fact that the number of questions rose to two, where before there was only one." [5].

The *original* (the research finalized by creative and innovative results) was coherently signified by a double negative in the *Oxford Advanced Learner's Dictionary*: "(it) is not a copy, nor is it dependent on other people's ideas," 2015 (available online la <http://www.oxfordlearnersdictionaries.com/definition/english/original>)

**Table 2. Dictionary definitions of the original**

<p><i>That from which a copy, reproduction or translation is made or a work composed firsthand.</i>  <b>- <a href="https://www.merriam-webster.com/dictionary/">https://www.merriam-webster.com/dictionary/</a></b></p>
<p><i>Not only new but the very first or one of a kind, implying 'genuine' but (unlike 'new') not necessarily 'unused,' and (unlike 'novel') not necessarily 'imaginative'.</i>  <b>- <a href="http://www.businessdictionary.com/definition/">http://www.businessdictionary.com/definition/</a></b></p>
<p><i>Not derived from something else; fresh and unusual or productive of new things or new ideas; inventive,</i>  <b>- <a href="http://www.thefreedictionary.com/">http://www.thefreedictionary.com/</a></b></p>
<p><i>An authentic, original text, as opposed to a copy or a work of fine art, as distinguished from a copy or forgery.</i>  <b>- <a href="http://encyclopedia2.thefreedictionary.com/">http://encyclopedia2.thefreedictionary.com/</a></b></p>

Plagiarism is defined in complete contradistinction to the idea of original research or creativity. To illustrate the point, here is a list of some significations and acceptations of plagiarism:

**Table 3. Dictionary definitions of plagiarism**

<p>The act of using another person's words or ideas without giving credit to that person. - <a href="https://www.merriam-webster.com/dictionary/">https://www.merriam-webster.com/dictionary/</a></p>
<p>Stealing of words and/or ideas of another person and presenting them as one's own or an academic and moral infringement, but not a legal one unless it amounts to a copyright violation. - <a href="http://www.businessdictionary.com/definition/">http://www.businessdictionary.com/definition/</a></p>
<p>The act or behavior of plagiarizing, especially a passage that is taken from the work of one person and reproduced in the work of another without attribution. - <a href="http://www.thefreedictionary.com/">http://www.thefreedictionary.com/</a></p>
<p>A form of violation of the rights of an author or inventor. It consists of the illegal use under one's name of another's scientific, literary, or musical work, invention, or rationalization proposal, in full or in part, without recognition of the source from which the material was drawn. - <a href="http://encyclopedia2.thefreedictionary.com/">http://encyclopedia2.thefreedictionary.com/</a></p>

If we analyze the term *plagiarism* etymologically, we find it has Latin origins, and many words derived from a common root converge to a set of similar meanings: *plagiarius* or “kidnapper, seducer, plunderer, one who kidnaps the child or slave of another”. Martial used the word *plagiaries* for the first time with the sense of *literary thief* (from *plagiare* or to kidnap or from *plagium* as equivalent for *kidnapping*, or even from *plaga* with the sense of *snare, hunting net* [6].

The modern, and most frequently used, meaning of *plagiarism* remains that of a piece of writing that has been copied from someone else and is presented as being your own work, piece of writing, written material, writing – the work of a writer.

Plagiarism, or copying (duplicating, reproducing, imitating) other texts, represents, in the practice of writing articles, papers or books, “a misappropriation of ideas, opinions, arguments, materials or texts from other authors, without citing them adequately” [7].

There coexist quite numerous premises that may be considered explanatory for the excessive development, or even the epidemic of plagiarism in the international literature [8; 9; 10; 11]:

a) public exposition or publishing of any given research and its results, which makes it accessible and comparable in content and form;

b) lack of profound awareness of the complexity of plagiarism, related to either the many factors/causes for the appearance of plagiarism, or the mismanagement of time devoted to the research, or some aspects of ethics and corruption in research funding, up to avoiding professional failure, or education obsessively focused on the wish to get success quickly, as well as the limited existence / the absence of a real academic tradition, and culminating with the pressure of completing, in a relatively short period of time, a certain research, or diminishing other contributions of mentors and some teammates on projects or research, etc.

c) the consistency and substance of legislation meant to identify, limit, prevent and lead to the gradual disappearance of plagiarism;

d) the standards and rules of scientific honesty, discretely defined in society, and realistically confirmed by the facts (influencing the whole academic system, as well as the research, editing and assessment system, as well as the promotion of values);

e) deep deficiencies of moral or educational principles.

In a society where intellectual property is treated in an absentee-like manner, or as nonexistent, a plagiarist considers himself/herself a victim, and less and less, or to no extent, a delinquent (e.g. communistic thinking, through absenteeism property, or the thinking in early capitalism, through the predatory cultural entrepreneurship attitude).

### 3. A BRIEF HISTORY OF PLAGIARISM

Modern and internationalized plagiarism has already had an active history of over three centuries old, though the first use of terminology is of the order of two millennia. In ancient times, the sense of *plagiarius*, but especially its clearly negative connotation, by the meaning of *robber* or keeper of stolen property, or one who helped people wanted by the law to hide, materialized once with the anathema that Martial threw at his rival Fidentius, who recited his works in public, assuming them as his own creation.

The major historical landmarks of plagiarism are summarized below [12; 13; 14]

1557 – *The Stationers Company* appears in London: it was founded with the purpose of defending copyright, printing and editing of manuscripts;

1601 – *plagiarism* appears in its meaning of literary theft in England, and is used in this sense by Ben Jonson;

1709 – Legally materialized on 10 April 1710: it is again in England that appears the first law intended for protection based on copyright status (a legal act that significantly encouraged creativity in education);

1716 – Using the term *plagiarism* in its broader sense tends to become the rule in language;

1755 – *plagiarism* and its exposure started to occur as dictionary terms;

1774 – It is equally in England that intellectual property was practically recognized, by the ruling of the House of Lords, pronounced in the case of *Donaldson v Beckett*;

1755 – The first definition of a *plagiarist* appears in Samuel Johnson's dictionary, as a “thief, stealing the thoughts and writings” of a real author and committing a “crime” or a “literary theft” from the intellectual property of another author;

1759 – The original and originality constituted the implicit source of discrimination authors (as well as publishers and printers), the good ones being original, having full respect for the law, and the bad ones were those who copied, or practiced a *sordid theft* or plagiarism;

1789 – The US Constitution takes on copyright (intellectual property) in Article I, Section 8, where the American Congress had the authority “to promote the progress of science and the arts, by securing, for limited periods, the exclusive right of the authors and inventors to their writings and discoveries” (Constitution of US, 1789).

The suspicion of plagiarism, investigating and declaring plagiarism are actually distinguished as completely different moments. There is even a three-pronged approach, which cumulatively emphasizes the conditionings in question, and distinctly outlines a modern legal conceptualization based on

three elements, necessary but also sufficient at the same time [15]:

1) *probative concreteness* or *materiality* (a type of substantiation proven by taking a text by another author once with the absence of his/her citation);

2) *intentionality* (the proven and visible intention to submit the text taken over, yet not cited as an own realization, which generates some property rights, or increases scientific prestige or recognition);

3) *the originality of the source taken over yet left uncited* (certified temporally by the previous publication of the plagiarized text, and other related confirmations).

#### 4. WHAT HAS LED TO THE CURRENT EPIDEMIC OF PLAGIARISM?

Copying in a system of education has become a growing impact with the development of the Internet.

Intellectual property was too much and too often violated by espionage and plagiarism. The history of post-war period and the sources of the researches place a greater impact and density of plagiarism in Eastern Europe, with greater influences from the former Soviet Union, due to a number of relative free-copying rights granted to that union.

The prestige necessary in some doctoral schools and the impact of political affiliation in the decades of communism, together with the prestige of science academies of the former socialist countries, also generated a significant amount of plagiarism.

The epidemic of plagiarism almost simultaneously generated the delicate problem of identifying the original, which was transformed from an internal investigation into a multiplied, and apparently internal approach, whose solutions were more often than not external.

There are specialized software packages designed to identify the percentage of the level of plagiarism in a scientific paper. The current solution in the field of doctoral schools, as well as MA and BA programmes, lies in the similarity ratio.

#### 5. SOME POSSIBLE SOLUTIONS TO PREVENT AND ELIMINATE PLAGIARISM

There are undoubtedly numerous varied prevention solutions, as well as far fewer alternatives for stamping out plagiarism. The first category includes mostly [16; 17]:

a) increasing the required time allocated to research, as well as scientific writing;

b) synthesis and re-synthesis, focusing on simplifying the texts (literature review by minimizing the historic landmarks in point of number, though not of importance);

c) proper citation, as well as adequately and carefully using the needed quotation marks, no less than a critical approach to citation;

d) fully ensuring the complexity of originality (reality researched – interdisciplinary; method – crossdisciplinarity; model – multidisciplinary; theory, conclusions, discussion, results – transdisciplinary);

e) mentioning and checking on the sources cited;

f) application of anti-plagiarism software (e.g. paraphrase);

g) compliance with scientific guidelines (publishers, magazines, conferences, etc.);

h) citing the sources in the tables / graphs (projects for BA students / MA students);

i) compliance with creativity and originality;

j) reprinting as revised editions.

The somewhat broader or ampler solutions are centred on the increasingly explicit need for a different kind of education, based on a permanently critical attitude in motivation, and focused on dialogue in teaching, and also on annulling the negative impact of competition in parallel with the expansion of education for social cooperation, against the backdrop of increasingly clear and necessarily holistic procedures required by the team (derived from abandoning isolating encyclopaedism and one-disciplinarity), and of inter-, trans-, cross- and multidisciplinary through thematic domain and creativity, and ending with a complex and compensative evaluation, which needs to be stimulating and balanced as against originality, etc.

#### 6. SOME FINAL REMARKS

This is a synthesis-oriented paper written by a team made up of three completely different authors, like a harmony of discordant thirds; an article which has been trying to find the final solution of non-contrariety, combining the structural attitude with the critical one that ranks ideas through their thematic impact, while also constantly avoiding ambiguities and redundant duplication of any kind, and appealing to the *goldean mean* of simplicity in language, and of usefulness at the concrete level of drafting.

Accurate and adequate application of existing European and international legislation, which allows punishment of plagiarism and plagiarists, is emerging as a definite urgency in parallel with the continuous improvement in the current legal framework, which should increasingly concern PhD students and coordinators of scientific papers, falsifying the security of the requirements and final theses, the more precise regulating of habilitation procedures and theses, etc.

Promptly achieving such an approach is something justified by the negative and very long term impact of plagiarism that failed to be sanctioned without delay in academic education and scientific research. In the legal cases dealing with copyright infringement, plagiarism accusations are increasingly based on partial theft, with the plagiarists- hurry being the main cause.

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# RESHAPING THE FUTURE OF COMMUNICATIONS IN LOCAL GOVERNMENT

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**Abstract:** *Understanding the role of communication that the contemporary local authorities establish in a modern society represents the basis for progress and development of local environments. Public relations of local governments and the improvement of communication with different target groups lead to the improvement of local environments. The focus of this thesis will be on the importance of public relations, i.e. on the importance they should have so as to lead to engaging the citizens more, as well as to answer the questions of how and how much the communication established by a local government influences foreign and domestic investments, both currently and in the future.*

**Keywords:** *communication, local government, public relations, the public*

## 1. INTRODUCTION

Products and services that suit everyone can be rarely found in this day and age, or rather, it is difficult to claim there is an organization that would choose to communicate in a manner which would satisfy all participants. That is why it is necessary to focus all communication onto its target audience. The concept of a target audience can be observed dually: as a group structure of informal origins or as a relatively independent social space, i.e. a fully-fledged zone, which is institutionally unlimited. The development of efficient communication includes identifying the target audience, setting the goals of communication, creating and designing communication, choosing channels of communication and determining a budget to be used for the purposes of communication [1]. It is desirable that the process of identifying the target audience should begin with a clear idea about what that audience might be potential buyers, current buyers, individuals, groups, certain groups of individuals with similar characteristics, etc. Determining a target audience is crucial for the decision-making process in regard to communication: what is to be said, where it will be said, how it is to be said and who it is to be said to. The desired public relations enable an organization to prepare a strategic document meant for the communication with one or more target audiences. The process of targeting an audience includes three phases:

- segmentation of the surroundings and the public, performed so as to form certain relatively homogenous segments of the public
- the selection of a target audience within the identified segment, which includes the assessment and selection of a group to communicate with

- defining the exact activities that fall under the practice of public relations and instruments to be used in communication [2].

## 2. TARGET AUDIENCES OF LOCAL GOVERNMENTS

Depending on whether the goal of a local government is to send a message, notify citizens on its territory about the activities that are to take place, attract investors, influence a change in legislation, or provide reports on their activities, its target audiences can be very diverse. It could even be said that all those audiences, which are typically targeted by some other economic organization, are simultaneously the audiences of local governments. Taking into account the number of functions performed by towns and municipalities, the list of target audiences is quite long:

- banks
- investors
- media
- other local governments
- ministries
- political parties
- primary schools and health centres
- churches
- trade unions
- non-government organizations
- customers
- suppliers
- employees of a local administration
- foreign local governments
- donors
- citizens [3].

The means of communication between the local administration and any of the listed audiences will influence the attitude of the citizens towards the government, the arrival of investments, the establishment of an international cooperation, changes in legislation benefitting the local government and everything in relation to improving the quality of life in the local community. Paying particular attention to each of the segments of the public may lead to successful development of communication strategies in local governments, as well as their progress. Taking into account the relatively small number of persons who work in the area of public relations in local governments, even after the office has already been formed, it cannot be said that each audience receives the necessary attention. This is exactly what leads to frequent misunderstandings between local governments and

their customers, potential investors, and even employees of a local administration.

### 3. INTERNAL COMMUNICATION IN LOCAL GOVERNMENTS

For a town and a municipality to function without disturbance, the internal communication of their employees plays one of the crucial roles. The synchronization of numerous activities inside a local government is a prerequisite to, for example, clear the snow off the streets, enable a regular water supply, provide energy stability and heating, allow preschools and health centres to function without issues, etc. Internal organization and internal communication play a particularly essential role in large local governments.

The success of strategic communication is largely dependent on internal communication, the level of compatibility of different groups within the organization, i.e. the unity of the organization. The unity of the organization is accomplished through successful socialization of its employees [4].

Therefore, it is clear to see that internal communication is of vital importance to every organization. Although many practitioners of public relations hold a position that establishing this type of communication is significantly more difficult than external communication, it is quite evident that putting a lot of effort into the communication within an organization is necessary. The instruments and the means used in internal communication nowadays are numerous thanks to the progress and development of modern technologies. Even though new technologies opened up numerous possibilities and means of communication, some local governments in Serbia still prefer to use the old-fashioned means of communication. Naturally, there are those local governments that use new and contemporary instruments of communication for internal communication almost exclusively.

The most frequent forms of internal communication, regardless if it is formal or informal, that can be found in the majority of local governments today, are:

- letters from the mayor or the chief of administration, sent to all employees or particular groups of employees
- notifications that most frequently appear on bulletin boards
- work reports
- bulletins from local governments
- electronic mail
- intranet
- large/small employee gatherings
- visits (as a form of informal communication usually performed by a chief of administration)
- employee trainings
- acknowledgements and employee rewards
- ceremonies [5].

### 4. EXTERNAL COMMUNICATION IN LOCAL GOVERNMENTS

How a town and a municipality are perceived by the public depends on the success of the external communication of a local government. Those local governments that recognized the importance of communication and public relations had more success in their activities, the political parties in those local environments won the elections (herein mentioned good communication does not neglect the achievement of numerous results that is one of the main prerequisites of winning an election), their economical development was faster compared to others and citizens rated the work of such local governments more favorably, considering them open, transparent and approachable. It is very important to differentiate between informing and communicating, given that these two terms tend to get confused fairly frequently in the practice of public relations in local governments. Informing represents a one-sided delivery of a message through a certain medium or intermediary to the receiver of such message. On the other hand, communication is a two-way process which aims to accomplish a change in attitude and knowledge of citizens in regard to certain social questions.

External communication of local governments is performed on an everyday basis and with all audiences, regardless of the number of audiences that the local government communicates with, and even on a daily basis, most cities and municipalities claim that their primary target audience is the citizenz [6]. The research conducted for the purposes of this paper looks at central authorities, foreign delegations (donors, representatives of the diplomatic corps) and investors. The communication between citizens and a municipal government is realized in different ways, such as: assemblies of citizens or public forums, which are the most direct means of communication, press releases, press conferences, by organizing special events, internet presentations of local authorities, new social media, promotional materials, campaigns, etc. Keeping in mind that the public in a local government is quite diversified, the communication with the public is most frequently realized through the means of electronic and print media or on the internet.

### 5. THE DEGREE OF CITIZENS' AWARENESS IN REGARD TO THE ROLE OF A LOCAL GOVERNMENT

Although the majority of local government employees estimates that their primary role is to keep the citizens informed on a local level, it appears that the majority of citizens is only partially acquainted with the role and function of a local administration [7]. Compared to earlier periods, this result shows significant progress, as there was an ingrained opinion that a local government is practically residue of past communist times. The reason for this can be found in the cultural, political and social heritage of our country. Local governments were, historically, mere administrative centres and supplements to central authorities and political parties for the most part of their existence.

It will take considerable time to change this misconception about local governments, and it is believed that a larger-scale campaign is required so as to acquaint citizens with their workings more closely. This is primarily because only active citizens who participate in creating a local budget, making decisions in relation to a local government, introducing ideas and suggesting solutions can be content citizens who will contribute to the development of local environments.

## 6. COMMUNICATION STRATEGIES OF LOCAL GOVERNMENTS

One of the basic assumptions relating to a successful public relations practice is a strategy of communication with the public. Communication strategies are designed with the intention of helping local governments to efficiently and effectively communicate with their audiences in order to achieve the primary goals of every town and municipality. While deciding on communication strategies, one should pay attention to several things so as to maintain the purpose of their existence. Strategy should include an introduction describing the reasons behind its creation, an overview of the current situation and a situational analysis, such as PEST or SWOT [8]. Aside from that, a good strategy includes clearly formulated goals of a local government and the identification of all stakeholders and target audiences.

The identification of goals and target audiences is followed by the process of defining messages for each of the target audiences, identifying communication methods and instruments, preparing action plans and, finally, deciding on a manner of evaluation so as to establish whether set goals have been achieved [9].

Even though the strategies of local governments are nothing new or unfamiliar, a small number of them has recognized the significance of having a strategic document in communication. Still, the largest number of municipalities has numerous well-developed strategies in different areas (economic development, sustainable development, rural development, etc.). The reason behind this lack of communication strategies can be explained by insufficient human capital in the public relations sector on a local level (whether it refers to a lack of employees, incompetence or a non-existent person or office that would work in public relations).

## 7. THE ACTIVITIES IN RELATION THE PUBLIC RELATIONS PRACTICE IN TOWNS AND MUNICIPALITIES

In a research conducted by the *Centre of Modern Skills in local Serbian governments* in 2009, when asked what the activities of employees in the public relations sector are, most respondents gave answers in relation to the preparation of press releases. Immediately after that, a press conference and the organization of special events ensued. According to the same research, the entire list of activities performed by the individuals or groups working in the public relations sector was rated in percentages as following:

- Preparing press releases **13**
- Organizing press conferences **11,2**

- Organizing special events **10,5**
- Website maintenance **9**
- Protocol **8,7**
- Consulting jobs in the management sector **8,2**
- Preparing promotional materials **8,1**
- Internal communication **7,9**
- Preparing bulletins and other informative materials **7,8**
- Press clipping **5,4**
- Planning and realizing campaigns **4**
- Other **2,5** [10]

In terms of instruments and techniques that the public relations experts in local governments use, press releases have an essential role. What is interesting is that, according to this research, social media does not appear on the list of activities. Generally speaking, the public relations issue in local governments keeps improving each year.

### 7.1. Media relations in local governments

The influence of mass-media is indisputable in the social life of a community. Just how much individuals are dependent on the media is perhaps best illustrated by a somewhat extreme attitude that what wasn't in the media didn't actually happen. Not only do they convey the message to the individual, but a lot of today's media creates stances. Speaking of the media in terms of local governments, these include newspapers, magazines, internet, radio and television. Acknowledging the significance and the role of the media, what happens in practice is that local governments frequently see the activities tied to media relations and public relations as interchangeable [10]. Be that as it may, media relations represent a gathering of activities within public relations, meant to establish and maintain mutually beneficial relations between an organization and representatives of various media outlets in a planned, organized and continuous manner. The primary goal of this function is to create positive publicity, as well as a specific form of communication with all target audiences of an organization.

### 7.2. Press conferences

It may be stated that a press conference is one of the more demanding techniques for establishing media relations. A press conference should include the following order of activities: choosing a date of occurrence, choosing the space in which the conference is to take place and its setup, compiling and updating a list of journalists, preparing the script of the conference, preparing questions and answers, inviting journalists, confirming the attendance of journalists, the rehearsal and the shoot [11].

The number and the frequency of press conferences in local governments in Serbia varies to such an extent that it is difficult to find the common denominator. Also, the reasons for organizing press conferences can be very diverse. For the purposes of this paper, a certain generalization had to be made in order to draw the following conclusions: press conferences are organized when the information that is to be

communicated pertains to all citizens of a certain local government or in cases of crises or extraordinary situations. Press conferences also serve the purpose of showing the local government which results have been achieved or the progress that's been made, as well as to see through the larger-scale activities that are in the works (such as infrastructural projects).

All local media is invited to a press conference. There is almost no discrimination among local media. Aside from that, an invitation to a press conference is often directed at media correspondents with national coverage. Most of the time, places in which press conferences are held are municipal buildings or city halls. The atmosphere at a press conference in a local government is usually friendly and not strictly formal, due to a years-long cooperation.

## 8. CONCLUSION

Local government communications are in constant evolution, with new problems arising. A commitment to share and learn is essential, which can be achieved by reshaping internal and external communications. Local governments should have a particular attention to enhancing the quality, effectiveness and impact of local government development cooperation to have a positive local impact on the strengthening of institutional capacities of local governments.

Experience shows that a much greater impact on reshaping the future of local government communication can be achieved when the communications involves a grouping of local governments, coordinated in a network or programme, with an agreed set of demand-driven public development objectives [12].

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# BEHAVIORAL INSIGHTS TO REDUCE PLAGIARISM AND DISHONESTY

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**Abstract.** *Could behavioral sciences help us to understand better what drives people to plagiarism and could help us to propose better anti-plagiarism policy? The aim of our paper is to provide an eclectic perspective that can contribute to a better understanding of issues related to plagiarism.*

*Keywords: dishonesty, plagiarism, behavioral economics*

## 1. INTRODUCTION

In recent years, Romania has been scrutinized by the scientific community as numerous plagiarism scandals appeared. Plagiarism was so pervasive that even a former Prime Minister<sup>1</sup> was accused (and convicted) of plagiarism. In response to such a situation, several Romanian researchers launched Integru – a service "which will investigate and expose cases of plagiarism and other academic misconduct in Romania. Each case will be accompanied online by commentaries from international – and independent – reviewers selected for their expertise in the relevant field" [1].

Several other protest actions were intended to be applied, such as boycotts and petitions [2]. However, it took years before the first nine accused individuals finally publicly renounced their academic titles<sup>2</sup>. Besides ethical issues, the case of plagiarism in Romania is an important issue given its detrimental impact on the education system.

Plagiarism is a widespread behavior, growing hand in hand with the increase of new technologies and easy access to information [3].

Therefore, in this contribution, our main question is if behavioral sciences could in any way help to better understand determinants of plagiarism and design better anti-plagiarism policies.

As far as we know, even if several papers have examined the contribution of behavioral sciences to a better understanding of dishonesty and misconduct, the plagiarism issue has not been considered explicitly from a behavioral viewpoint. Without denying the importance of other contributions to this ongoing debate, we want to add some behavioral stones. Let us caution the reader that our goal is neither an exhaustive review, nor an advocacy of behavioral solutions in lieu of other strategies. Rather, we provide some eclectic insights that can contribute to a better understanding and treatment of plagiarism issues.

The remainder of our contribution is organized as follows. The next section describes some behavioral insights that may enlighten some unexpected determinants of academic misconduct. Section 3 briefly describes the most common justifications of people accused of plagiarism. Section 4 concludes and addresses, in an eclectic way, the crucial issue of how behavioral sciences can contribute to the design of anti-plagiarism strategies and policies.

## 2. SOME UNEXPECTED DETERMINANTS OF PLAGIARISM

There are no criteria for prioritizing intensity and/or severity of plagiarism, as there is no ways for its prescription or to mitigate its impact [4].

According to a standard definition, plagiarism is the use of someone's materials (e.g., ideas, sentences, figures) without giving proper or appropriate credits to the original author [5]. At first glance, we can distinguish between unintentional and intentional plagiarism. In the following, we are only interested in discussing the later.

One very simple motive for plagiarism are status considerations. In Romania, academic titles were considered by some political figures as additional status markers. But in parallel, one other possible explanation is the one emphasized by a recent contribution by Buhai et al. which shows that standards to be promoted in the Romanian academic system are so unrealistically high that "academics of global acclaim, including Nobel Laureates, and the vast majority of John Bates Clark or Yrjö Jahnsson awardees, would not qualify for Economics professorships in Romanian universities" [6]. Faced with this problem, applicants reacted in innovative unethical ways to artificially increase their scientific production to meet the standards.

In this sense, plagiarism, like other expressions of dishonesty, could be easily explained by the traditional analysis *à la* Becker [7]. The extent of plagiarism is determined by the probability of being caught and the potential gain expected from that dishonest action. Nevertheless, this picture, even if it seems, and is, partially convincing, misses an important part of the problem regarding the reasons why people plagiarize. Therefore, additional behavioral explanations should be taken into account: when confronted to the possibility of plagiarizing, individuals balance between the self-interested benefits and the desire of maintaining a positive self-image [8].

In this comparison, several behavioral, contextual and unexpected determinants of plagiarism can intervene. These determinants can act as vicious nudges in the sense that they may create the conditions for plagiarism. According to the Merriam Webster dictionary, a nudge is supposed to "urge into action" [9]. Thaler and Sunstein popularized the concept

<sup>1</sup> <http://www.reuters.com/article/us-romania-ponta-idUSKBN0JU1N520141216>

<sup>2</sup> <https://english.pressone.ro/historical-moment-the-first-9-romanians-to-renounce-their-doctor-of-science/>

in the area of decision-making, by defining a nudge as "any aspect of the choice architecture that alters people's behavior in a predictable way without forbidding any options or significantly changing their economic incentives" [10]. In their conception, a nudge is ethically used to push individuals into a virtuous direction. However, the opposite can also be true: the context in which individuals evolve can push them in vice, i.e. plagiarism: individuals can be honest by nature, but circumstances may tempt them to plagiarize.

There are as many behavioral explanations as the number of possible biases in our brains. Cognitive biases are predictable errors in the ways that individuals interpret information and make decisions [11].

Let us review some of the behavioral determinants making plagiarism easy (neither exhaustive, nor mutually exclusive). For instance, social influence can be one of the determinants of plagiarism: descriptive (what I see) and injunctive (what I am told to do) social norms influence individuals [12]. Individuals conform to norms around them. Even if those norms are immoral, individuals can however stick to them. For instance, watching others plagiarizing and still being positively popularized by the social media and the society can lead the individual to plagiarize. Indeed, norms exist because those following them are expected to fulfil specific tasks and responsibilities. Therefore, individuals can adhere to collective immoral solutions when it is individually rational to adhere to such norms because they are acceptable by the society. In particular, norms can constitute focal points ("everybody plagiarizes"): a slippery slope effect intervenes with the gradual degradation of the social norms available to individuals.

Related to this effect, the depletion effect, according to Baumeister et al., is also a possible explanation: when individuals live in immorality times, in a society in which they are surrounded by immorality, they will maybe resist temptations of dishonesty and plagiarism as long as they can, but, at a certain point, they will not have enough will-power left to resist, because of overuse [13].

When looking at the characteristics of those who were discovered to plagiarize in Romania, one can notice that most individuals already benefitted from a high status in society (e.g. Prime Minister, Faculty Dean, etc.). Therefore, the reason to plagiarize was not to gain a social or a scientific rank, but not to lose one already acquired (by any means). In this case, two other behaviour effects could be evoked to explain the extent of plagiarism. One of them is the winner effect (the sense of entitlement) [14]. This effect is very simple: once someone feels entitled to a position, a job, a social rank, he/she feels like he deserves the following achievements. The fact that in the past the individual had several "winning" experiences (maybe by immoral and easy means) leads the individual to think that he/she is allowed to also expect this kind of easy future victories (seeking status to low-cost means). For individuals who were propelled to high-status political jobs by dishonesty, the idea of awarding to themselves some academic diplomas was natural.

Related to this situation is the loss aversion effect documented by Kahneman and Tversky [11]. Indeed, all things equal, individuals are more sensitive to losses than to equivalent sized gains: it is psychologically different to behave dishonestly to avoid a loss than to win a gain. If the considered individual believes that by plagiarizing he is

likely to conserve a certain position, he/she is likely to do so. Experimental evidence shows this effect: as documented by Grolleau et al., "the level of cheating is by far higher in the loss frame than in the gain frame under no monitoring. The fear of losses seems to lead to more dishonest behaviour than the lure of a gain" [15].

### 3. SOME COMMON JUSTIFICATIONS/ EXCUSES OF PLAGIARISTS

Simply speaking, individuals who plagiarize are able to justify it in very creative ways, and are able to rationalize their acts: they find good reasons to justify plagiarism, even by changing the immoral nature of plagiarism. Indeed, individuals accused of plagiarism frequently justify or rationalize ex post their behaviour by some non-mutually excuses/reasons: they deny any intention of stealing others' work and transfer the responsibility to others (e.g., PhD students, research assistants...). Moreover, they justify plagiarism as a victimless practice and pretend that other individuals are benefiting from their plagiarism.

Anand et al. build a table in which they list several reasons on how people rationalize dishonest behaviors [16]. We adapt some of them in Table 1 for the case of plagiarism.

**Table 1. How do people rationalize plagiarism (adapted from Anand et al. 2005)**

Strategy	Description
Denial of responsibility	No other available choice
Denial of injury	No one is harmed
Denial of victim	The other deserve it
Social selective comparison	Everybody is doing the same

In the same vein, Ariely listed a series of results that need to be taken into account when looking at plagiarism: indeed, plagiarism, as all other dishonest behaviors, will increase with the ability to rationalize, if there are conflicts of interests, if individuals have already committed immoral acts, if individuals watch others behaving dishonesty etc. [17].

Ayal et al. suggested a three-principle framework call REVISE intended to classify forces that affect dishonesty and put in practice forces as to encourage moral behavior [18]. We conjecture that this tool can be easily adapted in the context of plagiarism. The three principles are: reminding, visibility and self-engagement. The first principle, reminding, is built on "the effectiveness of subtle cues that increase the salience of morality and decrease people's ability to justify dishonesty". Legal authorities must issue very visible moral rules: reminders against plagiarism must be easy to understand, and use qualifications as "right" and "wrong", and must be continuously reminded. The second principle, visibility, "aims to restrict anonymity, prompt peer monitoring, and elicit responsible norms". In this sense, people committing plagiarism must be identified as out-group members and not as respected individuals, which will automatically give people the possibility to "distance themselves" from plagiarists. The third principle, self-engagement, "increases people's motivation to maintain a

positive self-perception as a moral person and helps bridge the gap between moral values and actual behaviour".

In another vein, Dinu et al. identified some historical and geographical aspects which generates a certain intensity or frequency of plagiarism: it relates to the appearance of objectivity, usually placed in the past and transferred from one generation to another as profound deficiency of some moral or educational principles (the communist thinking of lack of property and the early capitalism thinking of predatory cultural and entrepreneurial attitude) [4]. We believe this is linked to status problems as suggested earlier. In this case, several measures can be implemented, as described by Grolleau et al., in order to overcome the enhanced plagiarism problems: increasing the number of dimensions on which individuals compare as to avoid status races and the plagiarism solution to gain/conserves status; increasing the number of reference groups for a given dimension on which individuals compare as to allow individuals to benefit from several rankings [19]. As noted, "position seeking is deeply rooted in human nature and ignoring it can lead to flawed recommendations". Rather than fighting status seeking, the legal representatives should channel it "towards productive ends".

In the end, some of those mechanisms can offer policy-relevant tools to decrease plagiarism if easily adapted inside the legal systems, in complement to, or as a substitute of, traditional incentives and punishments, as they have the ability to switch behaviours into responsible directions.

#### 4. CONCLUSIONS: HOW TO DECREASE PLAGIARISM. SOME BEHAVIORALLY-MINDED SUGGESTIONS

We briefly suggest some behaviorally-guided suggestions: as behavioral determinants are at stake, we need to adapt the framing to which the individuals are exposed. Moral reminders, honour pledges and signature at the right time/place will reduce plagiarism [17]. We need to use social influence, such as injunctive social norms (if they are aligned with the anti-plagiarism objective), when there is discrepancy between descriptive, and injunctive social norms and use identity concerns (being a plagiarist or plagiarizing!) [20].

Our note is very short, and we need empirical evidence to test in the field the respective contributions and find an optima mix. Plagiarism is a complex issue, and many dimensions are not addressed here (e.g., self-plagiarism: Frey example).

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# VIRTUAL RESEARCH VERSUS VIRAL RESEARCH AND THE IMPORTANCE OF PARAPHRASING

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**Abstract.** *The emergence of the Internet and its later development caused virtualization of research, with search being conducted mainly by title, abstract, keywords, JEL codes, etc. Yet research is also viral, and the statement particularly refers to the impact of plagiarism and citation errors taken over with plagiarism. Inevitably, there appeared a conflict between viral research and virtual research. This conflict saw a first phase of amplification during the time when information technology developed. Naturally, the solution also came from technology, via the Internet and the anti-plagiarism software programs, and then there followed a phase of simplification. The conflict is not extinguished even today, when its most visible and most acute manifestation seems to be paraphrasing, which has also become the cause of plagiarism, and one of the easiest solutions to avoid it.*

**Keywords:** *virutal research, viral research, paraphrasing, plagiarism*

## 1. INTRODUCTION

Plagiarism, especially text-based plagiarism, or copying language from various sources, is one the main issues circumscribed by the ethics of knowledge. It typically affects students (mainly younger students), amounting to an evidently detrimental *publish or perish* attitude, but it can also affect well-established academics and researchers prompted by excessive competitive stress in the academic community and misplaced professional ambition, more often than not directly connected with promotion paranoia. Some other causes have been shown to be rampant competition among students while writing their dissertations or essays, sheer laziness, and even not properly using plagiarism detecting software by reviewers and editors of different scientific journals. The main source, as well as dissemination

path of text-based plagiarism, seems to be availability in, and publication through the electronic media. Also, one of the most direct causes of plagiarism is lack of education in the field among educational institutions and members of the academic community.

There is an Office of Research Integrity that describes plagiarism as “theft or misappropriation of intellectual property and the substantial unattributed textual copying of another's work. It does not include authorship or credit disputes. The theft or misappropriation of intellectual property includes the unauthorized use of ideas or unique methods obtained by a privileged communication, such as a grant or manuscript review. Substantial unattributed textual copying of another's work means the unattributed verbatim or nearly verbatim copying of sentences and paragraphs which materially mislead the ordinary reader regarding the contributions of the author.”

Both the borrowing ideas and borrowing texts (without giving due recognition to the actual or original authors) are censurable, though some people draw a distinction between *semantic reusing* vs. *textual reusing*, or *plagiarism of ideas* vs. *plagiarized text* [1], and even between *intentional* and *unintentional plagiarism*. On the other hand, there is *paraphrase*.

Paraphrasing is a pitfall or trap that young researchers can particularly be victims of. This is why their are advised to avoid paraphrasing or applying it as a result of some experience gained through reading. Paraphrasing is characteristic of, and has a higher frequency especially in such sections as: introduction, literature review, methodology, results and discussion, and only rarely occurs in the conclusions section. Hence, one of the specific terms of the range of themes and issues appertaining to plagiarism is, among other terms, paraphrasing.

**Table 1. Definition of *paraphrase* and *paraphrasing***

Source	Definition
DEX <a href="https://dexonline.ro/definitie/parafraza">https://dexonline.ro/definitie/parafraza</a>	Parafrazare = Acțiunea de a <i>parafraza</i> și rezultatul ei. (Paraphrasing, <i>paraphrase</i> = action of <i>paraphrasing</i> , and its outcome). A <i>parafraza</i> = A exprima prin alte cuvinte (și mai pe larg) conținutul unui text; a expune prin cuvinte proprii ideile unui text. (To <i>paraphrase</i> = To express the contents of a text by means of different words (and more extensively); to expound the ideas in a text in one's own words.)
As defined by an English monolingual dictionary (Oxford) <a href="https://en.oxforddictionaries.com/definition/paraphrase">https://en.oxforddictionaries.com/definition/paraphrase</a>	Verb – <i>Paraphrase</i> = Express the meaning of (something written or spoken) using different words, especially to achieve greater clarity Noun – <i>Paraphrase</i> = A rewording of something written or spoken

Source	Definition
As defined by a French monolingual dictionary (Larousse) <a href="http://www.larousse.fr/dictionnaires/francais/paraphraser/57994?q=paraphraser#57651">http://www.larousse.fr/dictionnaires/francais/paraphraser/57994?q=paraphraser#57651</a>	Paraphraser = Exprimer quelque chose sous une autre forme, en général plus longue, plus explicative. (To paraphrase = To express something in a different form, usually a longer and more explanatory one).

As far as paraphrasing is concerned, one can talk about a certain historical, synthetic and creative specificity. More recently, the timeliness of paraphrasing the text has become a fundamental requirement for selecting and publishing. Some contemporary accents can turn paraphrase, too, into a

seemingly original design and wording, yet only when in conjunction with promptness and timeliness, or the very recent character of the sources paraphrased, or the originality of the interpreting classical sources (that are apparently outdated), by means of paraphrase:

**Table 2. Semantic paradigm of plagiarism in research**

<b>Bibliography or references</b> = the list of sources used in conducting, developing and presenting the research	<b>Note/annotation</b> = something that explains or completes a text, an explanatory note	<b>To plagiarize/to self-plagiarize</b> = to defraud a research by copying, wholly or in part, the substance (including the form) of a work, omitting the correct and complete citation of the work and its author
<b>Citation/self-citation</b> = correct attributing of a written paper or book to an author (to oneself)	<b>Footnote</b> = a note containing bibliography or various explanations, placed at the bottom of the page	
<b>Quotation/self-quotation</b> = written text exactly reproduced from the source (one's own prior text).	<b>Plagiarist</b> = a person engaging in copying and stealing in the activity of research.	<b>Paraphrase</b> = a more extensive, or lengthier explanation of a text mentioned in the references, using one's own words
<b>Common knowledge</b> = common corpus of information and fundamental knowledge.	<b>Involuntary or unconscious plagiarist</b> = nonsensical or unacceptable notions.	<b>Intellectual property</b> = product of the human mind and of scientific research (ideas, etc.)
<b>Copyright</b> = form of protection guaranteed by law (for original papers/books and authors).	<b>Plagiarism</b> = the result of plagiarism, a paper appropriated by theft from another author.	<b>Incorrect wording of source</b> = fraudulent writing meant to mask a case of plagiarism.
<b>Public domain</b> = there are no restrictions on access / copying ideas.	<b>Self-plagiarism</b> = republishing of one's own research, wholly or in part, without citation.	<b>Appropriate use</b> = permitted use of the source, without infringing the original author's rights.

Source: Dinu, V., Săvoiu, G., Dabija, C.D., 2016. *A concepe, a redacta și a publica un articol științific. O abordare în contextul cercetării economice*, Editura A.S.E., București (*Conceiving, editing and publishing a scientific article. An approach related to the context of economic research*, A.S.E. Publishers, Bucharest), pp. 221-222

## 2. HABITS AND SKILLS THAT FAVOUR AVOIDING PLAGIARISM

Umberto Eco (2014) presents some basic rules concerning the proper citation of ideas taken from other sources:

- *The reasonable size and the non-contradictory content of citations;*
- *Making good use of the citations to support one's own research;*
- *The paper cited has critical hints and aspects;*
- *The author and the year are the essential elements of the direct citations in the text, using the original source language, while the citation comprises as few lines as possible;*

- *Ensuring superior fidelity between the original source and the newly worded text.* [2]

Avoiding plagiarism requires concerted action from the actors directly or indirectly involved in the scientific research approach in question:

- The author (researcher, teacher, student, PhD, etc.) is the subject of the scientific research action or approach, and assumes responsibility for the originality of his/her work;
- The academic community can expressly demand its members compliance with research ethics through concrete actions;
- Universities, publishing houses, and journals are interested in publishing original works and avoiding plagiarism scandals that can seriously affect their image;

- State authorities must ensure copyright compliance.

involved in conducting and encouraging scientific research.

In Table 3 are presented, in a synthetic manner, the main steps to be taken by the categories of actors

**Table 3. Necessary steps intended to prevent and combat plagiarism**

Party involved	Step to prevent plagiarism	Observations
The author (who is the main actor – as originator of the scientific paper)	Increasing the time devoted to research and writing a scientific paper;	In addition to preventing plagiarism, it improves the quality of scientific works.
	Compliance with the citation standards imposed by universities, journals, publishing houses, etc;	-
	Checking the sources quoted in the original texts;	It prevents erroneous citation, common in scientific papers or books.
	Using paraphrase only when absolutely necessary;	-
	Avoiding republishing papers/articles or partitioning more extensive research into smaller papers.	It avoids self-plagiarism.
The academic community	Sanctioning plagiarists Proposals to improve the legal framework on copyright and plagiarism	In this way, the academic community protects its public image and helps to prevent plagiarism.
Universities, publishing houses, journals and reviews	Imposition and enforcement of high standards concerning scientific quality of papers;	-
	Drafting and enforcing a set of standards regarding citation and ethics in scientific research	-
	Educating college students, undergraduates, postgraduates and doctoral students in preventing plagiarism	Cultivating honesty can significantly contribute to reducing the incidence of plagiarism in the coming years
	Implementing modern IT solutions meant to detect plagiarism.	Papers where cases of plagiarism are identified will not be sustained or published
State authorities	Creating a legal framework for: <ul style="list-style-type: none"> <li>- Protecting copyright;</li> <li>- Punishment of plagiarism;</li> <li>- Ranking of universities, publishing houses, journals</li> </ul>	-

Source: developed by the authors

### 3. RELATIONSHIP BETWEEN ORIGINALITY AND THE VALUE OF A SCIENTIFIC PAPER

Any approach to, or initiative in scientific research, including those in the economic field, must be characterized by originality. This requirement is fundamental, and recognized as such, and is in total opposition with plagiarism, since the essential purpose of research is to create the premises of research practice that can contribute to the overall progress of science. The authenticity of the scientific approach, its results, and its practical utility give real value to any type of scientific work.

The above considerations naturally beg the question, “What makes a work original?”. One possible answer can include the following elements:

- an innovative manner for implementing a number of methods;

- improvements to some methods, processes and models;
- designing and implementing new theories, methods, processes and models;
- contesting oldest scientific laws, and identifying new ones, etc.

*Common knowledge* (the common corpus, or common core of knowledge) – can only appear when coherently defining a common knowledge by the common corpus, or the specificity of a science. The latter must be widely accepted by researchers, since common knowledge does not involve intellectual property rights in terms of legislation [3].

*Citing and quoting in full compliance with the editorial guidelines specific to scientific publications* (and observing anti-plagiarism laws) – appropriate use of a guide for the publication of books, papers and articles by quoting the source and the author of

the paper/book that an idea (method, model, etc.) was taken from, in a correct and standardized manner [3].

#### 4. INSTITUTIONS SPECIALIZING IN IDENTIFYING AND PUNISHING PLAGIARISM AND SELF-PLAGIARISM

Among these authorities, the following should be mentioned for illustration purposes:

- ✓ The Romanian Copyright Office (ORDA)
- ✓ The National Ethics Council of Scientific Research, Technological Development and Innovation (CNE)

Uncertain plagiarism and controversial plagiarism (omitting citation of own works, from which the author took a significant part, or important passages, etc.) are analyzed by the above-mentioned institutions in terms of moral academic conduct and research conduct, dealing with the ensemble of public communication, publication, dissemination and scientific popularization of results in the form of books, papers, public lectures, etc.) [3].

Added to the main gist of the present contribution, there is a warning against the (sometimes voluntary) confusion frequently made between someone's work involving *synthesis* (aggregation etc.), *compilation* (including paraphrase), and, finally, downright *plagiarism*. There are still cases when the difference between a mere synthesis of scientific materials and results is made (as part of one of the sections of a larger scientific paper), a compilation of sources is made in order to 'stuff' a would-be research paper, and genuine plagiarism (mainly text-based plagiarism), is difficult to draw, mainly in those disciplines which are not recognized as 'hard sciences' – and the consequences of such confusion can be rather dire, both for the author(s) and the publication.

#### 5. CONCLUSIONS

It seems that, for the most part, avoiding plagiarism since the outset of a young scientist's career would mostly coincide with avoiding paraphrasing. Later, in the course of his/her career, the researcher must avoid paraphrasing of plagiarized texts, or plagiarism by paraphrasing...

A mature researcher's honest and creative career is naturally concluded with acquiring the ability to paraphrase, as a result of experience and constant, ample reading in the specific field he/she chose to serve. Hence one must conclude by stating that a thoroughly honest scientific author or responsible researcher should use his/her own speech/language in order to express (present, describe, aggregate or summarize) his/her own ideas, methods and results.

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# THE ISSUE OF PLAGIARISM: AN EQUATION WITH MANY UNKNOWN VARIABLES

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**Abstract.** *Using new technology nowadays has significantly increased the possibilities for information and using information. These possibilities are also widely used in conducting studies, and so there is a risk to take over certain texts, data, ideas, etc. without referring to the original source. cea străină. The issue of plagiarism has been studied and analyzed by many experts, in the literature, both in Romania and abroad. The legislation regulating this wide-scale phenomenon has often been modified, as it tried to answer accurately all the aspects arising from the concept of plagiarism. The main goal of the research presented in this paper is to suggest measures designed to prevent plagiarism in students' written work. Using the opinion questionnaire as an investigational tool, addressed to a sample of students from the university investigated, the results obtained were used to calculate descriptive statistics. The values calculated led to the need to identify preventive measures regarding plagiarism.*

**Keywords:** *plagiarism, research, questionnaire, opinion survey, preventive measures*

## 1. INTRODUCTION

Plagiarism is an issue of great vastness, which may represent the overall objective of a research based on an analysis, conducted at a national as well as international level, or else at an entity level, a group level, or a population selected that can be representative of the analysis and the formulation of solutions to interpretation of results.

In terms of Romanian national law, plagiarism is defined by the Law no. 204/2006 on good conduct in scientific research, technological development and innovation, as subsequently amended and supplemented, as being "presenting, in a written paper, or an oral communication, including the electronic form, of texts, phrases, ideas, demonstrations, data, hypotheses, theories, results or scientific methods excerpted from written works, including the electronic form, belonging to other authors without admitting it, and without referring to the original sources". [1]. The law is considered incomplete by some authors in the Romanian literature, so, in the modification by Government Ordinance no. 28/2011, there are voices that penalize "an element of plagiarism has been removed, namely the intentional element, the intention to submit the texts, expressions, ideas, etc., excerpted from other works, someone's personal creation" [2].

With reference to the issues of plagiarism, specialized foreign literature reveals that they can be grouped into two categories: obvious issues, and hidden issues. The first category refers to definitions, typology and criteria for

identification, and the second one focuses on literary creativity, originality and literary craftsmanship [3].

From the perspective of international law, a definition of the Office of Science and Technology Policy of the United States, which occurs in foreign literature, points to three distinct notions concerning the deviation from the rules of good conduct, which, strictly translated, describe "fabrication", "falsification" and "plagiarism" as follows:

"a. Fabrication is making up data or results, and recording or reporting them.

b. Falsification is manipulating research materials, equipment or processes, or changing or omitting research data or results, so they do not accurately represent the research record.

c. Plagiarism is the appropriation of ideas, processes, results or words of another person, without mentioning the respective source"[4]. Comparing the two definitions, the one in the national literature and the one in the foreign literature, one can notice that both disapprove of copying other people's creations and appropriating them as their own creation. Unlike the definition formulated by the Office of Science and Technology Policy of the United States, the Romanian lawmaker wants the citations or takeovers of information from different authors, to "mention the fact", on the one hand and, and, on the other hand, to "refer to the original sources". There is an obviously more complex formulation by the Romanian legislator in the definition of plagiarism.

The concept of plagiarism is also found in the "University Charter", a public document by which educational institutions, selects, among other themes approached, and based on the principle of autonomy, and adopts, in the spirit of the valid legislation, definitions, specific terminology and types of plagiarism, which, in the authors' view, are serious deviations from the rules of good conduct.

Considering the importance of the issue of plagiarism, and knowing it, at all levels of the education system, and all the more so in academia, it seems necessary to conduct a study at an entity level, which aims at direct observation of reality, using an opinion questionnaire in order to identify appropriate solutions to prevent, in particular, and to reduce, up to disappearance, plagiarism in general.

Taking into account this perspective, a survey was conducted among students at the University of Pitești, trying to identify the proportion of the frequency of citing a text from a publication they read, as well as the proportion of the use, in reports, of other sources in an unethical manner. It also aims to establish the frequency of the main causes that lead to taking over somebody else's ideas and and the proportion concerning the opinion of respondent students to the two types of plagiarism, in whole or in part.



## 2. THE METHODOLOGY OF THE RESEARCH

Starting from the usual state of knowledge of the general theory in the statistical literature, as well as numerous studies in this country and abroad, an empirical sociological research is conducted, using the method of the opinion poll, based on volunteerism technique having, as a specific instrument of collecting information, the questionnaire with five closed questions, where the first question has the role of distributing the respondents in a study program (bachelor and master degrees).

The opinion survey, based on the principle of rational and voluntary selection of sample units, was conducted on a group of 60 students who agreed to answer the questionnaire. The quota sampling technique [5] was not a chosen one, because volunteerism can provide the most honest, sincere, and accurate results. The identifying characteristics for each statistical unit will be thus established: “BA year I”, “BA year II”, “BA third-year”, (unfortunately without “MA year I or II” because their non-response was and still is obvious as well as the impact of the new status and disertation

contents). Distribution of the groups of students in relation to three identifying characteristics is made in keeping with the share or percentage of each group in total, according to the data in the table below.

**Table 1. Final distribution of the sample units in keeping with five identification characteristics**

Identification characteristic	Total	Share of group (%)
BA year I	24	40
BA year II	12	20
BA year III	24	40
Total	60	100

Source: Processing the real data centralized in the questionnaire.

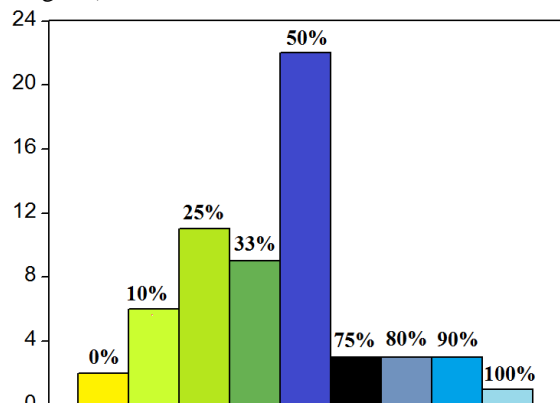
Simultaneous distribution of the statistical units of the sample, in keeping with the three identification characteristics, which answered all the questions in the questionnaire, and are summarized in Tables 2-5 below.

**Table 2. Distribution of the group units by quotas in keeping with answers to question no. 2**

Share of group (%)	Q2. To what extent in % do you quote a text from a publication read by you?									Total
	0	10	25	33	50	75	80	90	100	
40	2	4	7	3	5	0	0	2	1	24
20	0	2	1	4	5	0	0	0	0	12
40	0	0	3	2	12	3	3	1	0	24
100	2	6	11	9	22	3	3	3	1	60

Source: Calculation based on the data in the synoptic table.

Of all the respondents it can be noticed that as many as 22 respondents cited 50% of a text from a publication, and the distribution is rather normal than abnormal (asymmetrical histogram)

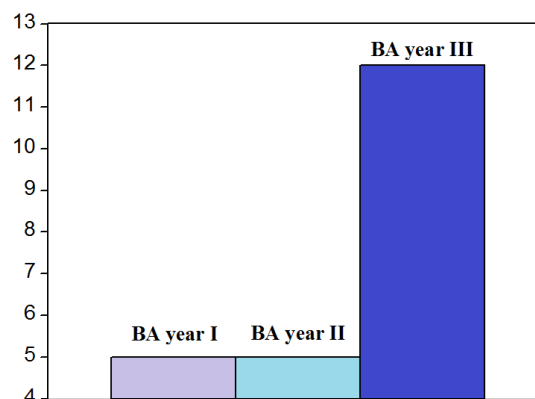


Source: Graph based on the last row of table 2.

Software used: EViews

**Figure 1. Distribution of the entire sample by quotas in keeping with answers to question no. 2**

As far as those who quote a text from a publication are concerned, most are students in the BA 3rd year program (12 respondents), who responded they quoted texts in a proportion of 50% (figure 2):



Source: Histogram based on the central column of table 2.

Software used: EViews

**Figure 2. Distribution of 22 units of the sample who responded they quoted texts in a proportion of 50%**

**Table 3. Distribution of the group units by quotas in keeping with answers to question no. 3**

Share of group (%)	Q3. Do you use other sources in the reports in an unethical manner?			Total
	100% (you take over the whole paper or its essential parts with no citation)	20-80% (you take over ideas in various texts and combine them)	0-20% (you rephrase, in own words, somebody else's ideas)	
40	0	20	4	24
20	2	10	0	12
40	0	21	3	24
100	2	51	7	60

Source: Calculation based on the data in the synoptic table

One can notice in the data in the table above that most respondents, in both study programs, take over ideas from various texts and combine them (51 respondents), and only 2 respondents in the second year BA study program responded

that they take over the full paper or its essential parts without citation, while 7 respondents, out of whom 4 in the 1st year BA program and 3 in the 3rd year of the same BA program said they wrote the ideas of other people in their own words.

**Table 4. Distribution of the group units by quotas in keeping with answers to question no. 4**

Share of group (%)	Q4. What is the main cause of the taking over other people's ideas?					Total
	a) lack of time	b) lack of practice in conceiving and writing a text	c) lack of expert knowledge	d) habit	e) other cause	
40	7	6	10	0	1	24
20	0	3	8	1	0	12
40	8	1	8	6	1	24
100	15	10	26	7	2	60

Source: Calculation based on the data in the synoptic table

Analyzing the data in the table above, the fact is apparent that most respondents (26 students), who were in the BA program in all three study years, take over the ideas of others from lack of expertise, and in sheer contrast, the fewer respondents (2 students), who were also in the first year BA and third year BA, take over the ideas of other people from

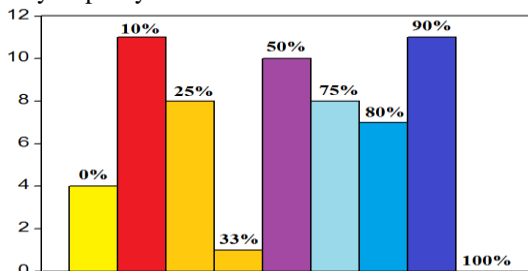
other causes. Lack of time, as the main reason for taking over the ideas of other people, was mentioned by 15 respondents, while, the lack of exercise in conceiving and drafting a text was mentioned as the main reason by 10 respondents, and 7 respondents motivated that habit was the main reason for taking over other people's ideas.

**Table 5 Distribution of the group units by quotas in keeping with answers to question no. 5**

Share of group (%)	Q5. What do you think is the proportion in % of your colleagues who plagiarize wholly or partly?									Total
	0	10	25	33	50	75	80	90	100	
40	2	6	4	1	2	3	2	4	0	24
20	0	2	0	0	2	1	3	4	0	12
40	2	3	4	0	6	4	2	3	0	24
100	4	11	8	1	10	8	7	11	0	60

Source: Calculation based on the data in the synoptic table

For question no. 5, two sets of answers, represented by 10% and 90%, belonged to 11 respondents (this 10/90 is another for for the classical Paretian equilibrium 20/80) and 10 respondents put the number of their peers who plagiarize wholly or partly to 50%:



Source: Histogram based on data of table 5.  
Software used: EViews

Figure 3. Distribution of the entire sample by quotas in keeping with answers to question no. 5

The data series had two modal values (10% and 90%) and another two similar submodal values (25% and 75%). Only one respondent said 33% of their peers plagiarize wholly or partly.

Based on cross-section data, observations were collected about a group of 60 students in the BA degree program, and analysed as homogeneous data for a potential econometric model. Analysis of the causes that can generate plagiarism can start from defining plagiarism in Romanian and foreign law, starting from the alleged causes which determine infringement to the rules of good conduct "in a written paper or oral communication, including electronic format", and can be translated into a functional relationship between answers to the questions 2 and 5 (a matrix of correlation),

with respect to plagiarism based on the honest declaration of the own errors and of the errors of others [6].

Based on the data collected, the descriptive statistics calculated for the real frequencies of the selected variables

had shown abnormality and heterogeneity of the population opinions in the table 6:

**Table 6 Descriptive statistical table of the real frequencies of the specific variables**

	QUESTION _NO_1	QUESTION _NO_2	QUESTION _NO_3	QUESTION _NO_4	QUESTION _NO_5
<b>Mean</b>	<b>12.00000</b>	<b>6.666667</b>	<b>20.00000</b>	<b>12.00000</b>	<b>6.666667</b>
Median	12.00000	3.000000	7.000000	10.00000	8.000000
Maximum	24.00000	23.00000	51.00000	26.00000	11.00000
Minimum	0.000000	1.000000	2.000000	2.000000	0.000000
<b>Std. Dev.</b>	<b>11.51086</b>	<b>7.035624</b>	<b>26.96294</b>	<b>9.137833</b>	<b>4.123106</b>
Skewness	0.000000	1.499689	0.679850	0.600039	-0.553587
Kurtosis	1.259416	4.256045	1.500000	2.202392	1.893815
Jarque-Bera	0.631173	3.965219	0.512348	0.432576	0.918555

Source: Calculations made by means of the EViews software with data from the synopsis of the questionnaires for the sample of 60 respondents.

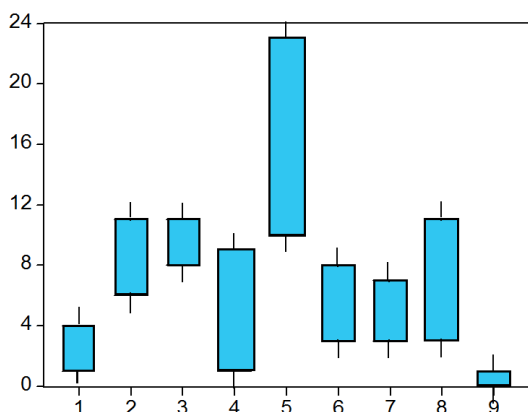
A matrix of correlation based on the R from coefficient of determination  $R^2$  (Rsquared) can offer different values in the closed interval between 0 and 1. The closer to 1 the value is, to more honesty in relation to oneself is equivalent to honesty in relation to the others, in the case of the investigation conducted in this paper.

**Table 7. Matrix of correlation for honesty**

	QUESTION _NO_2	QUESTION _NO_5
SER01	1.000000	0.323180
SER02	0.323180	1.000000

Software used: EViews

A major remark resulting from the confrontation of the honesty of students in declaring their own plagiarism, compared with assessing the others' plagiarism shows there is a weak correlation, below the opportunity to econometrically model, in a valuable and realistic manner, in accordance with what was reported in the questionnaires [7].



Source: Histogram based on data of table 5. Software used: EViews

**Figure 3. Distribution of the entire sample by quotas in keeping with answers to question no. 5**

The spread between the frequencies recorded for the variables defined by questions 2 and 5 is major in the central (modal, median and average) area, which highlights a much lower standard of honesty in personal and general position as to the topic of plagiarism. [8]

### 3. CONCLUSIONS

After evaluating the results of the data collected through the investigational instrument, the opinion questionnaire, the value of  $R = 0.32318$  between question 2 and question 5 (honesty with himself and honesty with others) and with a gap of more than half of the respondents placed in the central part of the distributions[9], there is a noticeable tendency to exaggerate speaking about others and in using false responses. It would be recommendable to better inform the students about using citation styles, as well as getting a more precise knowledge of legislation on the issue of plagiarism.

Although in the question no. 3 of the opinion questionnaire it was stated explicitly that using other sources means resorting to an unethical way, 85% of respondents admitted that, in writing their essays, they made use of ideas from various texts, which they combine, in a proportion of 20-80%, and 3% of the respondents confided that they take over full essays, or essential parts of them, with no citation, which means an alarming case in the complex issue of plagiarism at all levels of the study programs. A small percentage of the 12% falls within the category of those using sources in an ethical, and writing the ideas taken from various sources in their own words. The need is proved again to initiate measures on preventing plagiarism. A great help in this regard would be posting on the website of the institution of specific instructions, with many "models" to formulate the sentences or phrases, for each single section of the scientific paper [10], in accordance with current legislation regarding plagiarism, and for each single type of scientific paper. Such a measure has been undertaken by many UK universities, including the University of Manchester [11], which has an important research activity in the UK, producing graduates endowed with a globally superior training.

The results of the answers to the question that identifies the main causes leading to taking over other people's ideas do

not surprise by the fact that 43% of respondents recognized their lack of expertise as the main cause, and 25% their lack of time. These results reinforce the need of plagiarism prevention measures, through instruments that can be quickly accessed, that are effective and understandable by any student, regardless of the year of study attended. The proportion of the respondents who recognized their lack of practise in designing and drafting a text as the main cause was 17%, and the remaining 15% of students participating in the survey ticked habit and other unspecified causes as a primary cause, which confirms that there apperas not to be a tendency towards a phenomenon of intentional plagiarism.

In terms of the respondents' opinion to the proportion of their colleagues who plagiarize wholly or partly, the norm of honesty is not good in the entire sample in terms of plagiarism.

If the issue involved is considered from the perspective of the central tendency of the respondent statistical group, and given that it represents a statistically robust value, a critical condition was designed for 90% of those who quote a text from a publication they read, but the fact that their number represents only 5% of the sample does not generate a major problem in the sample. Another critical condition generated from the same perspective can be noticed with the respondents who ticked the main cause in taking the ideas of others, lack of exercise in designing and drafting a text, but which represents a share of only 17% of the statistical sample.

As a general conclusion resulting from the acceptance of the null hypothesis, there is the confirmation of the fact that the program and the study level do not influence citation and taking the ideas of others, which explains that it is not always the program and study level (the dependent variable) that can influence the issue of excessive citations, and therefore, the problem of plagiarism. So the fact is acknowledged that plagiarism can be met with in any educational program and at any level of study.

In the context of the national situation, where "the state to date of Romania's plagiameter" [12], conducted by the Group of the Association for Reform and Alternative University in Romania, based in Cluj-Napoca, presents a ranking of the total number of plagiarized papers identified, corresponding to a number of universities and research institutions, which does not however include the University of Pitești. That proves that solutions addressed in finding more accurate measures on the issue of plagiarism in that entity is limited to measures of a preventive order, which

will also implicitly determine a decrease in, and the disappearance of the probability of plagiarism of any kind.

The problem of plagiarism will not be likely to be solved unless the standard of honesty is improved at a national, institutional, and only and eventually then at an overall education level.

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# PLAGIARISM AND SCIENTIFIC INTEGRITY

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**Abstract.** *Plagiarism is an act of appropriation of a literary, artistic or scientific work as a personal creation, an act committed with (direct, indirect or exceeded) intention, and punishable by both the academic community for violation of scientific integrity, and the law. The type of misconduct as seen in the various forms and elements of plagiarism set in a bad light the individuals and the institutions that practice or tolerate it, and completely discredit themselves by loss of scientific integrity.*

**Keywords:** *plagiarism, scientific integrity, copyright, deontology*

## 1. INTRODUCTION

*Plagiarism*, this notion that is being much circulated today, captures the attention not only considering the BA students, MA students or PhD students, who are anonymous in the world of scientific research, but also the people who are already established in the respective fields through their results. There is no standard or widely accepted definition for this term, which is more and more often invoked today, and the notion of *plagiarism*. Historically, one can say that the premises of plagiarism arose somewhere in the remote past, maybe as early as the period of the Biblical Genesis, when people received, as a gift from God, the *word*. Thus, in relation to the Holy Gospel according to John the Apostle, any common reader can identify, in the beginning, “the word, with its unprecedented virtues of creating indivisible links between people, and setting the whole world in motion”, which belonged to God and was subsequently handed to people [1]. Undoubtedly the word was, and is, a priceless gift received by man, but as soon as it became the object of “intellectual theft”, involved in “the waiting room of corruption” and generating “high treason in the academic world”, through *plagiarism*, it was instrumental in setting to nought virtually all the qualities of those who did not use words correctly, and appropriated them, writing memorable formulations belonging to other people, without however also keeping the name of the author of those formulations. Nowadays, the notion of plagiarism can *grosso modo* translate as “appropriating the words of another person without remembering him/her as the author, which can take the form of ideas, texts, scientific, artistic and literary creations or works, considered as the property of an author, but in reality belonging to others, without the latter being mentioned or cited.

## 2. PLAGIARISM AND LACK OF SCIENTIFIC INTEGRITY

The literature identifies several definitions of *plagiarism*, and then we chose one that is frequently exploited in

Romania, according to which *plagiarism* consists in “the act through which someone appropriates a literary, artistic or scientific work, in whole or in part, and presents it as a personal creation”, and the author of this illegal act, “the plagiarist refers to the person who unlawfully appropriates the fruits of another’s work, claiming them as the result of his/her own activity” [2].

Another definition of plagiarism is that given by the Ethics Committee of the University of Bucharest [3], according to which “plagiarism is the act or activity through which someone appropriates, by copying, paraphrasing or summarizing without citation, the idea, concept, expression, text, diagram, music score, etc., either published or unpublished, belonging to another person, presenting them as his/her own, without mentioning explicitly the source he/she used”.

The Internet has added a new complex ground to the issue of plagiarism, which is placed in the depth of the education system, especially among high school and college students. In the mid-1990s, a number of websites have started offering paying documents, especially theses, essays and other papers for sale. These “diploma factories” generated a genuine market of papers for graduating students, where the mere acquisition of theses or dissertations was substituted for the normality and obligation of the graduates to write their own papers, and many of the final documents resulting from the sale, going by the name of graduating theses for the respective educational cycle or programme, prove a mediocre level of research, or are written to a minimum level of acceptance. An equally flagrant problem results from the ever increasing range of Internet websites that also provide students with research reports with the overt purpose of being copied. Some anecdotal evidence suggests that, while the ease of copying information from the Internet has not led to a dramatic increase in plagiarism among students, and later even among students who can be considered honest, those who have already cheated are likely to increase the use of electronic resources to continue this deception known as plagiarism of final graduation works, eventually buying the diploma, without however having the skills listed in the respective diplomas. [4; 5]

Some statistics stress that as many as 36% of students admit to having copied sentences or phrases from the Internet without exact reference to the source, 14% confess to have falsified the bibliography, and 7% confirm that they copied verbatim from another source without citing it, or they have handed graduation or final theses made by someone else.

Other statistics from the US (where there are the harshest measures against any specific or distinct academic plagiarism) describe much higher percentages [3], even in samples of a relatively reasonable scope, analyzed or

investigated in 2014 (Josephson Institute Center for Youth Ethics).

**Table 1. The overall structure, and the situation in several major areas, of academic plagiarism among US students**

Size of sample	Admitting to plagiarism (%)	Test cribbing (%)	Observations
24 000	58	64	Per total
of which:	56	-	Business School
	54	-	Engineering
	45	-	Law School

Source: [http://www.unibuc.ro/depts/limbi/literaturi\\_orientale/docs/2014/oct/16\\_09\\_46\\_47Ghid\\_impotriva\\_plagiatului.pdf](http://www.unibuc.ro/depts/limbi/literaturi_orientale/docs/2014/oct/16_09_46_47Ghid_impotriva_plagiatului.pdf). Accessed 2 November, 2016.

Plagiarism is more and more clearly equated to lack of scientific integrity, or gradual deterioration of academic integrity in research and educational system. Plagiarism includes both defining, intentional material elements, and a landmark of originality, to which all these elements must refer, at last jointly conducing to reducing or losing academic integrity and honesty when plagiarism is proved.

Generically, the material elements, as described in various conceptualizations, are represented by *the presentation of texts, phrases, expressions, ideas, demonstrations, data, hypotheses, theories, results or scientific methods excerpted from written works, including those in electronic form, produced by other authors, without mentioning it, and without referring to the original sources*, and the intentional element of plagiarism is represented by the intent demonstrated by the benefits obtained from the presentation of *texts, phrases, ideas, demonstrations, data, hypotheses, theories, results or scientific methods*, pretended to be personal creation, which were excerpted from other works, in fact the intellectual property of the latter (the original authors).

As far as the intentional element of plagiarism is concerned, it was one of the reasons why the current definition of plagiarism came under criticism, in the way plagiarism is regulated in Romania by Law no. 206/2004. Thus, some Romanian authors, including Marian Florescu, believe that the definition provided by Law no. 206/2004, in its original form, was more acceptable than the current definition that penalizes a material element [6].

With respect to the second element, it should be mentioned that according to nearly all the authors of articles or works on issues of plagiarism, plagiarism is punishable, whether it is falsely structured as *gross plagiarism* (or major plagiarism), or *involuntary plagiarism* (or minor plagiarism), the latter notion being otherwise hardly tenable (plagiarism remains essentially plagiarism). [7]

As stated above, the third element of plagiarism implies a landmark of originality, an earlier article, a paper, a book or a research that were creative and original, from which the plagiarized took over *texts, phrases, ideas, demonstrations, data, hypotheses, theories, results or scientific methods*. Analyzing this element, one must draw a clear distinction between some highly ironical statements by great cultural or moral personalities (e.g. Petre Țuțea, according to whom

“only God is original”, which basically taunted the evident lack of originality of some authors, and formulations of the type “*If you steal from one author, it’s plagiarism; if you steal from many, it’s research*” [Wilson Mizner], [on line] available at: <http://www.thefreedictionary.com/plagiarism>, which actually represents, in a descriptive manner, the so-called mosaic plagiarism, rather than a joke addressed to the certainly negative impact of plagiarism in general. Creativity and originality occur in a small number of individuals, but this does not imply the need to borrow originality, and can never exonerate the perpetrator. A theft, be it a literary one, remains a theft, and the thief, once proved and convicted as such, will certainly have a criminal record. However, at the level of case law (see Decision) it was stated statutorily that a work, book or paper that *is not predominantly original, innovative, creative and fundamental, but just a compilation, cannot be considered the source of plagiarism*. Originality is presumed, so it is up to the individual accused of plagiarism, to prove that the work that was allegedly affected by plagiarism is not original.

Referring to the forms of plagiarism, the literature identifies multiple forms or types of concrete manifestation of plagiarism, of which these three of major importance are prevalent [3]:

- a) *plagiarism by absence of citation;*
- b) *plagiarism by inadequate paraphrasing;*
- c) *plagiarism by inadequately synthesizing the text.*

*Plagiarism by the absence of citation* is the most obvious form of plagiarism, and represents the taking over of a text from the work of another author, which is not in the public domain, without accurately or vaguely citing the work/paper/book and the author. Also in this category is taking over fragments of different works, without mentioning the sources, and organizing them into a new book that makes sense.

A vague citation is a poor attempt at avoiding plagiarism, being neither accepted nor advisable, because it leads to superficiality in writing or wording, and denies the reader the possibility of identifying the original work, or the point in the of work from which the quotation was extracted. Typically, citation is made in the text, or in the final references, relative to the position in the article, paper or book. Starting from the need for excessively detailing, the citation can also be structured through footnotes or the bibliography.

*Plagiarism by inadequate paraphrasing* occurs when several words or their order in the sentence are changed, keeping both the ideas and the logical argument of the author plagiarized, whose name is however kept unsaid, or in other words unquoted.

Regarding *plagiarism by inadequately synthesizing the text*, one can note that it has elements similar to paraphrasing, whereas it describes a summary made by the author of the plagiarism, being is more condensed than paraphrasing. In this case, too, the ideas and the plagiarized author’s line of argument are preserved, without the author being cited.

Robert Coravu adds to these forms of plagiarism *qualified plagiarism, perpetrated plagiarism and self-plagiarism*. In fact, only *qualified plagiarism* (where the author presents a paper written by someone else as his/her own work) is as practically new form, as the other two are very much like

paraphrasing and plagiarism proper (the author is the same in the original article and the plagiarized one. The terminology also uses the term *multiple publication* (in fact, another type of *self-plagiarism*), marking a fraud in literary publication or scientific research whereby an author uses substantial parts of his/her own works without giving appropriate references (the case can be illustrated by publishing the same article in several journals or reviews, or adding small passages to an already published paper). *Criptomnesia* is another form of self-plagiarism, which occurs when an author believes he/she had an original idea but, in reality, the idea had come to him/her from the memory of an experience read, or which he/she forgot [8].

### 3. PLAGIARISM AND COPYRIGHT

Although no one can say that the existence of plagiarism directly depends on the existence of a copyright, because one can also talk about plagiarism in the case of a work for which no-one has any copyright, however a real connivance with such a right should be admitted in most cases.

However, the idea is retained that the copyright is not a prerequisite for defining plagiarism. The term "copyright" was first used in a treaty by Jules Renouard, in his „*Traité des droits d'auteur dans la littérature, les sciences et les beaux arts*”, published in 1838. In the literature there are several opinions concerning the definition of copyright. Copyright consists in all the prerogatives enjoyed by the authors, referring to works created. In Romania copyright is regulated and protected by the provisions of Law no. 8/1996 on copyright and related rights. According to Art. 1 of that law, *copyright of a literary, artistic or scientific work, as well as for other works of intellectual creation, is closely connected with the author and has attributes of a moral and patrimonial nature, and the the holders of the rights recognized and presented in the law may request the courts or other competent bodies, as appropriate, recognition of their rights and their infringement, and can claim indemnification for damages.*

According to the provisions in Art. 12 of the same law, *the author of a work has the exclusive property right to decide whether, how and when to use his/her work, including the consent to use of the work by others.* If the authorship of the work is acquired unlawfully, through plagiarism, the plagiarist will be able to acquire inclusively, again unlawfully, the property right for the work, thus causing material injury to the author. In this case, the legislature was forthright and, according to the provisions in Art. 141 of Law no. 8/1996, the act of a person who unlawfully appropriates, in whole or in part, the work of another author and presents it as his/her own intellectual creation, is an offense punishable by imprisonment from 6 months to 3 years, or the payment of a fine. It can thus be concluded that, under the provisions of Article 141 of Law no. 8/1996, plagiarism represents an offense and is punishable as such, although the law does not contain an express reference to the notion of plagiarism, and the sanction refers to infringement of the author's moral right to the authorship of the work. The provisions of Article 141 of Law no. 8/1996 apply when the rights of authorship are violated, for any type of work protected by copyright, whereas the provisions of Art. 4 of Law no. 206/2004 are useful strictly as far as the works

created in the process of scientific research, technological development and innovation are concerned.

In accordance with Article 295 of the new Code of Criminal Procedure, *the initiation of criminal proceedings shall be made only upon the complaint of the damaged party (...).*

### 4. PLAGIARISM VERSUS SCIENTIFIC INTEGRITY

Considering the opposite relationship between plagiarism and scientific integrity, this section is precisely intended to delineate some final remarks. Plagiarism remains one of the forms of immoral conduct in the drafting and publication of scientific papers, and one of the factors which are seriously in breach of, and especially damage, academic and scientific integrity.

Plagiarism is also one of the clearest, frequent and serious forms of unethical conduct in the writing and publication of research or academic papers. The analysis of the modalities envisioned and designed to combat and sanction plagiarism implicitly constitutes an analysis of scientific or academic integrity, in terms of protection. Regarding scientific or academic integrity, in the usual sense of the term, it implies impartiality, probity, moral values, respect for principles.

Given that integrity is conceptualized as a virtue, or as an attribute of human character, one will not be able to talk about accurately or completely transposing integrity from the usual plane to the scientific or academic plane; nevertheless, there is a very strong determination in this relationship, as the latter imposes observing a set of specific standards of scientific or scholarly honesty.

The *Code of ethics and professional deontology of the research and development staff* provides one of the principles governing the activity of research and development (the principle of integrity), regulated and governed by Art. 5 letter d), according to which the research and development staff shall exert their activity with honesty, fairness and collegial spirit, fully in line with the other ethical principles, without any external interference. According to Art. 6 letter e) of the above-mentioned Code, the fundamental principles underlying the activities of research and development covered by the previous article, are added the obligatory rules of conduct established by other laws applicable nationally or internationally, concerning respect for property in general, and for intellectual property in particular, and in Art. 7 of the same act, para. 1, it is stated that *observation of professional standards is an obligation and a guarantee of good conduct of the research and development staff*, and Art 2, letter e establishes that *professional standards exclude plagiarizing results or publications.* This code, however, has issues that are not covered yet, and it needs to be reviewed because there are international regulations in the field that should be implemented in Romania, because eventually there will be unique criteria world-wide that will define good conduct and scientific integrity. Steps were taken as early as 2007, when it was proposed, in the First World Conference on Research Integrity, organized by the European Science Foundation and Office of Research Integrity in the United States, that an international conduct code be developed, focusing on ensuring integrity.

In Romania, the main sanctions provided by law (under Law no. 206/2004, as amended by Law no. 398/2006) are:

- removal of the person / persons in question from the project / publication team;
- changing the project manager;
- withdrawing the capacity of a doctoral supervisor and / or the habilitation certificate;
- withdrawing the PhD title;
- withdrawing the academic title or research degree, or demotion;
- removal from the leadership position in the institution of research and development;
- disciplinary termination of the employment contract;
- prohibiting access to the public funds intended for research and development, for a specified period;
- suspension, for a period of time between 1 and 10 years, of the right of entry to a competition for senior positions, or a senior position, a leadership, guiding and control position, or as a member of an examination committee;
- removal of the person / persons concerned from the team working on a project;
- stopping the financing of the project;
- stopping the financing of the project, with mandatory return of funds.

For BA students, and MA and doctoral students the following penalties are provided: written warning, expulsion, and other sanctions provided in the Charter of the University (according to university autonomy), which are established by the Ethics Committee, and applied by the Dean or the Rector within 30 days.

The undeniable cases of complete plagiarism will be punishable by termination of employment or expulsion, and will apply only after inappropriate scientific conduct was ascertained by the committees of inquiry and investigation specially constituted, on the proposal of the ethics committee, in successive stages, that is through inquiry and investigation. The major conclusion resulting from this article would be that between the concept of *plagiarism* and the concept of *scientific integrity* and there is strong opposition, in the sense that the existence of the latter involves combating the phenomenon called "plagiarism".

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# BOOK REVIEW

Dinu V., Săvoiu G. and Dabija D.-C. (2016). *A concepe, a redacta și a publica un articol științific. O abordare în contextul cercetării științifice* [Conceiving, Writing and Publishing a Scientific Paper. An approach in the context of economic research], București, Editura ASE

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The structure of the book comprises five chapters, each of which addresses fundamental aspects concerning scientific research and the publication of its results:

Chapter I (authored by Gheorghe SĂVOIU) – *Economic research and communicating its results in the general context of scientific research*

Chapter II (authored by Vasile DINU) – *Structure of, and optimization of citation in a scientific paper*

Chapter III (authored by Vasile DINU) – *Writing a scientific article*

Chapter IV (authored by Gheorghe SĂVOIU) – *Plagiarism, anti-plagiarism legislation and research ethics*

Chapter V (authored by Dan-Cristian DABIJA) – *Publishing a paper in the field of economic sciences*

One can identify several categories of users, as well as the situations where the information in this book can be particularly useful.

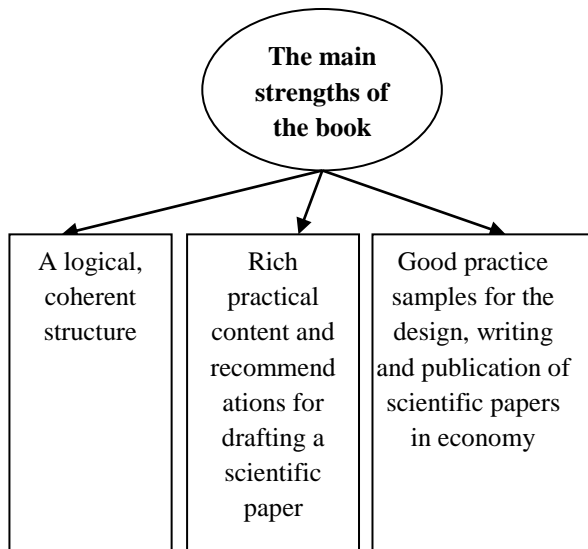
a) For students in economics, who aim to develop the themes / projects involving a practical approach, and their dissertations.

b) To MA students, who aim to acquire the skills needed in basic scientific research, and for the elaboration of their dissertations.

c) For doctoral students, who aim to develop their PhD drafts, the related scientific articles, and the PhD thesis in experimental research;

d) For teachers and scientists, helping them to design, draft and publish their scientific articles in the field of economics.

The main strengths of this book are summarized in Fig. 1



**Fig. 1 – The main strengths of the book**

**Chapter 1 – *Economic research and communicating its results in the general context of scientific research*** is an introductory, and yet essential chapter, because the authors address the elements necessary for knowing the environment of scientific research (insisting on the peculiarities of

research in economics), including the steps of scientific research and categories of scientific papers.

The stages of scientific research are defined as follows:

- I. The preliminary stage, or observation (which brings together unites the preparatory stages of research);
- II. The stage of formulating the hypothesis (investigation proper);
- III. The stage of tests and experiments (validating / invalidating the hypotheses);
- IV. The stage of predictions (which shows the finality of the research for it to be put to best use).

The four main categories of scientific materials referred to are:

- a). Pre-doctoral and doctoral students' scientific papers, as well as postdoctoral professorial papers: graduation papers, dissertations, PhD theses, habilitation dissertations.
- b). Papers or scientific publications related to education and discipline-related teaching research: project proposals, grants and research contracts, studies, articles, papers, textbooks, university courses, books, essays and monographs, etc.
- c). Academic papers or publications meant to popularize scientific aspects in a classical manner: project proposals, grants and research contracts, final research reports, studies, papers, articles, treatises, academic courses, dictionaries, encyclopedias, etc.
- d). Modern scientific papers and publications referring to the results of research: scientific papers that exploit new technologies exemplified in e-books, international databases, virtual encyclopedias, etc.

**Chapter 2 – Structure of, and optimization of citation in a scientific paper** presents the basic requirements of writing a scientific article.

A scientific paper or article must contain:

- pre-text elements (title, author / authors, abstract, keywords, JEL classification);
- textual elements (introduction, the main body of the paper, conclusions);
- post-text elements (bibliography / references, annexes).

These structural elements are described in detail and illustrated, as the authors include both recommendations on organization, logic, style and expression, and certain rules that can represent a strategy to optimize the citation, so as to increase the visibility of scientific work.

**Chapter 3 – Writing a scientific article** presents a number of issues to be considered in writing and formulating any scientific paper or article. Compliance with these basic rules ensures, on the one hand, a successful form of the paper, and, on the other hand, helps to eliminate the risks of plagiarism. Writing a scientific article essentially requires the author to know: the academic style of writing, the methodology of scientific research, and who are the readers it addresses.

The scientific style used in writing a paper or article should facilitate the correct understanding of the text by the readers. In this chapter the principles are presented that have to be taken into account by the author in writing a scientific article in the field of economics.

Citing and writing the literature references or bibliography is an important part of writing a paper since the relevance of

the works consulted by the author is publicly recognized. Common practice has imposed several variants of bibliography writing, two of which are detailed in this book: the author-number system, and the author-date system (or the Harvard system). In this chapter concrete examples are presented of how to write the citations, thus increasing its usefulness to researchers.

**Chapter 4 – Plagiarism, anti-plagiarism legislation and research ethics** starts from conceptual delimitations concerning the original work and plagiarism, and presents a number of issues concerning the legislation designed to combat plagiarism, and the typological diversity of plagiarism. Since it is generally preferable to prevent problems appearing, the paper presents a series of recommendations meant to prevent and avoid plagiarism. Any discussion of plagiarism cannot exclude the people involved. Thus one can distinguish the plagiarist, the author whose work was plagiarized, and the accomplice to plagiarism or the promotant of plagiarism. In this chapter are also presented the main types of plagiarism, so the paper is useful to both those who write scientific articles, and the reviewers.

**Chapter 5 – Publishing a paper in the field of economic sciences** starts from the evaluation of scientific performance in the economics academia. The evaluation criteria generally guide the behaviour of academics and researchers who are trying to fulfill the standards of performance in current assessments and with a view to get professional promotion. One of the main evaluation criteria is represented by the scientific research conducted and the papers published. Any human activity has a quantitative and a qualitative side. The evaluation criteria should favour the qualitative side of scientific research. Promoting quantity instead of quality can generate "production" of papers having little scientific value, or even plagiarized papers.

This chapter guides researchers wishing to publish a scientific article in the economic field by presenting:

- the main international databases that index journals in the field of economics;
- key aspects concerning the scientific profile of a journal;
- publishers and publishing groups in the field of economic sciences;
- relevant criteria in choosing economics journals.

## Conclusions

The results of scientific research are widely disseminated for both the public and the scientific community, essentially through being published in the scientific literature. Technological developments in the domain of communication of information have caused an increased importance of scientific papers or articles in disseminating research results to the detriment of their publication in books. When envisioning and preparing the publication of a scientific paper a number of basic rules must be respected, which concern, on the one hand, the style of writing, and, on the other hand, the ethics of research.

In the current context, where academia is marked by scandals of plagiarism, the paper presented is characterized by both utility and uniqueness, and represents a genuine

guide for researchers. The paper is useful to both young researchers (doctoral students, MA students, and BA students), and academics.

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