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The Theory of Incorrect Reasoning in the Linguistic Philosophy of the Seventeenth Century

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Abstract

The paper aims to investigate the mechanisms of incorrect and misleading reasoning described first by the Port-Royal authors and then by Locke in his *Essay on human understanding*. The analysis was conducted with particular reference to argumentative fallacies - which are widespread today in information and communication policies - and to the abuse of words, i.e., when the speaker uses a word by changing its meaning to suit his purposes. These strategies are used to influence people's behaviour and forge public opinion in ways advantageous to political power systems; identifying and explaining these strategies is one of the crucial tasks of critical thought today.

Keywords: Manipulation, Rhetoric, Political Communication, Fallacies

Introduction

One of the most representative works of 17th-century European linguistic thought is Antoin Arnauld and Pierre Nicole's *Logique* (1662). Springing from the Cartesian milieu of Port Royal Abbey, the text is a compilation and redevelopment of a set of themes and models: the parallelism between thought and language; language considered as an imperfect code - i.e., a communication tool that tends to evade the users' control -; and an admonition against possible abuses of language stemming from its vulnerability to all sorts of degenerations and fallacies (Auroux, 1993).

These last two points in particular pertain to a general position we call "communication scepticism" (Taylor, 1992, p. 42-45), which the *Logique* interprets and asserts. It entails a problematic conception of communication, viewed as an interactive process disturbed by various factors that make it a questionable and risky business with often-uncertain and contradictory results. In fact, it is rare, if not impossible, to find two human beings who use the same words and syntax to express the exact same things. In many cases, the semantic indeterminacy of words leads to misunderstanding, incomprehension and confusion, because each person has his own cultural frame of reference and his own private linguistic repertoire, which reflects his unique and irreducible identity. The problem is made all the more acute and pressing by the persuasive force that words can unleash - in other words, the effects

that words can have on our lives. The authors of the *Logique* rightly included an analysis of the power of words in a more general reflection on language and its role in the construction – and the disruption – of social ties. This reflection involves analysis of persuasive mechanisms and techniques at both the cognitive level, in terms of how words condition our expectations and beliefs, and the pragmatic level, when they influence our behaviour (Meyer, 2004, p. 115-24).

The question seems even more pertinent today if we consider the fact that the reasons put forward in support of a message intended to persuade determine the quality of the persuasion itself. More and more often we find that in public discourse, the reasons brought to bear to convince the listener regarding a given opinion – and to induce him to act in a given way – are qualitatively distorted. One example is the deceptive manipulation that distorts the listener's view of the world to induce him to pursue the manipulator's objective under the illusion that it is his own. In such cases, the manipulator makes use of argumentative fallacies, or arguments which, although incorrect, seem psychologically persuasive: they are psychological as well as linguistic in nature, and are generally expressed in a spirit of contradiction, or in exasperating discussion¹.

This matter is common terrain to both logic and rhetoric, identified and described in the foundational work on the art of speaking, Aristotle's *Rhetoric*, to which Arnauld and Nicole repeatedly refer. Aristotle had written that both dialectic and rhetoric deal with the problem of clearly distinguishing "the real from the apparent means of persuasion" (*Rhet* 1355b), and thus have the common purpose of not confusing apparent syllogism with actual syllogism. For rhetoric, the means of distinguishing between the two types of manipulation - which tend to overlap in common usage, while they should in fact be carefully distinguished from one another – depends on the hermeneutical function which, along with persuasion, is its characteristic element (Reboul, 1991, p. 23-24).

The theory of argumentative fallacies

Arnauld and Nicole's work contains extensive and detailed examples of fallacies with which we may seek to win disputes by flustering our adversary, or by bringing listeners over to our side with reasoning and argumentation that varies from the captious and irrelevant to the incorrect and untruthful. These two chapters are central to understanding the overall purpose of the *Logique*: to construct a treatise that gives men the tenets of the most perfect form of communication possible. This work can thus be considered a true treatise on rhetoric and the sociology of communication. These incorrect forms of argument are important to study, given that the traps they lay can be better avoided once they are clearly understood. The Port-Royal authors' critical examination is worth pondering even today, since the fallacies

¹ There is ample, well-developed literature on fallacious argumentation; for this work we kept in mind two texts in particular now considered classics: Hamblin (1970) and Copi & Cohen (1964, p. 167-215).

they identified are still widely used in public discourse, tainting its credibility and usefulness. Consider, for example, the cases of the *Non causa pro causa* argument, and of “faulty generalisation”.

The first of these entails confusing something that is not the cause for the cause, or asserting that one thing causes another without sufficient reason. For example, the assertion that the increase in acid rain is due to the expansion of the “hole in the ozone layer” is unacceptable, because while it is true that acid rain is increasing, and it is also true that the “hole in the ozone layer” is expanding, acid rain is the result of industrial emissions, which are also responsible for the hole in the ozone layer – which does not mean that the hole in the ozone layer is the cause of acid rain. The fallacy can also take the form known as *post hoc ergo propter hoc*, in which one takes for granted that a causal relationship corresponds to a temporal relationship, without giving any element of proof and actually pretending that the two types of relationships are interchangeable. “After which” is taken to mean “due to which” – for example, “Demades declared that the policy of Demosthenes was the cause of all the troubles, because it was followed by the war” (*Rhet.* 1401b).

The second example, faulty generalisation, entails a pseudo-inductive reasoning that uses one of the fundamental types of arguments identified by Aristotle, the example, considered typical of deliberative rhetoric and based on inductive inference, which in itself is one of the most frequently-used forms of reasoning on which much scientific research is based. In this case, however, it is unacceptable, because it draws a general rule from a single case, or from an inappropriate number of elements taken into consideration, so the conclusion claimed as general is in fact completely baseless – like, for example, if I were to claim that psychiatrists are inept and untrustworthy because I have known three of them and all three were terrible. This type of fallacious reasoning underlies prejudice and racism, as in the tragic case that occurred in Rome in 2007, when a Rom raped and killed an Italian woman, triggering a political and media campaign calling for the expulsion of Rom people, at least those who had recently immigrated. In this manner we sanction a principle of collective responsibility, in clear violation of one of the cornerstones of western civilisation, i.e. that responsibility is always personal, and if an individual commits a crime, he alone must answer for it, and not all those who pertain to his same ethnic group.

Also worthy of note is the discussion regarding the deceptive argumentative techniques of *ignoratio elenchi* and *petitio principii*. The first strategy consists of ignoring the question or the argumentation, attributing things to the adversary that are far removed from his actual opinion, or responding to an adversary’s criticism with an argument that is not pertinent. This argumentative technique is sometimes called a “red herring,” in reference to an old practice among hunters of using the odour of herring to pull their rivals’ dogs off the trail of the targeted prey. It falls within the sphere of what is known as distraction strategy, with which the speaker aims to shift

the audience's attention from the question at hand and the cogency of the reasoning expressed to elements that are irrelevant to the given context.

In the second strategy, the speaker introduces as a given in the premise of his argumentation the very thing he intends to demonstrate; in other words, something controversial is presented as if it were already settled and accepted. We have an example of this in Woody Allen's 1973 film *Love and War*, when a priest, justifying the existence of God, asserts that "It follows: God created the universe, then God exists." Or another, in which "a bank asks Mr. Smith to name a person who can guarantee for him; Smith names his friend Jones, and when the bank asks him for credentials on Jones' trustworthiness, he responds that he himself can guarantee for his friend" (Hamblin, 1970, p. 40). For Arnauld and Nicole, this means of argumentation is contrary to true reason, because in all reasoning, what serves as proof must be clearer and better known than what one wants to prove.

Petitio principii is not, in essence, an error of logic, since a declaration is always the logical consequence of itself. But it is an inadequate reasoning from the practical point of view, because by limiting itself to repeating what was already said in introducing the premise, it offers no informative contribution to the discussion (Rigotti, 2005). It may seem strange that the *petitio principii* is considered a fallacy of relevance, given that the conclusion is certainly relevant for the purposes of its reliability. But in this case we must distinguish between the act of enunciating a conclusion and the act of producing evidence relevant to the purposes of that conclusion, in the awareness that the former is not automatically equivalent to the latter.

Incorret use of words

Another manipulative technique (in the negative sense of the term) on which the authors of the *Logique* focus – in this case shifting their attention from *inventio* to *elocutio* – is the abuse of words that concerns all of those instances in which the speaker uses a word, changing its meaning based on expediency, but the listeners are unaware of this change; or, as in the case of euphemism (Prato, 2019), speaks of ignominious acts without portraying their horror, but rather depicting them as more pleasant than nefarious. Hence, in contemporary political language, systemic bombardments of villages are defined as "peacemaking operations," the destruction of cultivated fields and the forced relocation of villagers are called "border corrections," and the indiscriminate killing of civilians is called "elimination of unreliable elements" (Orwell, 1946, p. 179).

This propaganda operation is possible because, beyond the main idea considered to be their proper meaning, words also present other ideas that can be defined as supplementary, to which we often pay no attention, even though a listener's response may be greatly influenced by them. Some of these ancillary ideas are attached to words based on widespread, consolidated use, while others are linked to words solely by the individual act of someone who exploits them. This second category, which gives

rise to “dishonest words,” is the one that can cause damage, because it serves an exclusively subjective purpose that does not respect the preconditions for the establishment of signs. The question of the incorrect and mendacious use of words was very important for Arnauld and Nicole, who shared a belief in the principle expressed in Cicero’s *De oratore*, according to which if one speaks well, one also thinks well (Manetti, 1987, p. 202).

The theme is of great interest because deceitful manipulation inevitably leads to disinformation: playing with words, we can manipulate facts and, at the end of the chain, collective memory as a whole. The negative consequences of the distorted use of language are significant, given its bearing on the possibility of both the free circulation of ideas and the promotion of social communication. Systems of power have always needed to control the use of words and their distribution within instruments of information in order to attain control over opinions and orient them in the desired direction. Journalistic communication has often appropriated this need, in many cases becoming a prisoner of the language of power, to the point that its style has become increasingly similar to that of governing figures, and editorials, both in the printed press and in television formats, often sound like political speeches.

We can take an example from the annals of Italian political-judicial news: the case of attorney Mackenzie Donald David Mills, dealt with by the Court of Cassation in February 2010. Mills, who managed numerous foreign companies within the Fininvest group, had been accused of the very serious crime of judicial corruption in complicity with Silvio Berlusconi: the ex-premier was said to have bribed Mills with a payment of 600 thousand dollars to silence his testimony in the All Iberian and Italian Finance Police kickbacks trials in which he was an indited figure. The court confirmed the prosecution’s argument, holding the English attorney responsible for the crime of corruption, and sentenced him in the initial trial and at the appeal to four years and six months in prison. In February 2010, the Court of Cassation confirmed the existence of the crime, but declared it statute-barred. News reports at the time, both in the press and the most-watched television newscasts, repeatedly stated that Mills had been acquitted and that his acquittal meant that Berlusconi would no longer have to present himself in court to defend himself, given that if there is no corrupted person, there can be no corrupter either. Clearly, there was deceptive manipulation of the language used to report the events, which considered the two terms “acquittal” and “statute-barred” as if they were interchangeable, when in fact the only thing they have in common is that the accused is not punished in the end, while they are radically different in every other way. An acquittal recognises that the person did not commit the crime, while in a statue-barred case, the existence of the crime is certain, but the time within which the punishment could be applied has lapsed, as it is maintained that after a significant length of time has passed, the State no longer has an interest in punishing that specific act. In other words, the statute of limitations implies as a logical and juridical premise that the crime involving both corrupted and corrupter does exist. This illicit use of the word “acquittal” gives rise to an untruthful narration

that aims to manipulate and falsify news – and ultimately history - , exploiting communications' capacity to create what we call reality (Watzlawick, 1976, p. 7).

So, the narration of events is never a neutral operation: depending on the words we use to construct it, we can elicit very different reactions from a part of our target audience, as is demonstrated by Loftus' 1979 research. In the experiment in question, a group of people was first shown a film of an automobile accident, and then divided into two groups; the first group was asked at what speed the cars were traveling when they "collided," while the second was asked at what speed the cars were traveling when they "smashed". The second group indicated a speed far faster than that reported by the first group. Later, the same participants were asked if they had noticed broken glass at the scene of the accident (there was none visible in the film), and twice the percentage of the second group, as opposed to the first group, indicated that they had. Thus, the use of these two different words in formulating the question stimulated different memories.

Language and reason in Locke

It was natural – and even foreseeable – that the *Logique's* ideas on incorrect reasoning would be welcomed and echoed in the linguistic philosophy of the Enlightenment and modern liberalism, particularly in Locke, one of the most emblematic authors of this line of inquiry. His *Essay on human understanding* (1690) is not only a key text in the debate on the arbitrariness of linguistic signs that distinguished Enlightenment philosophy¹, but also has the merit of having revisited and enriched the theory of argumentative fallacies. Reprising the central ideas of Aristotelian rhetoric, Locke identified other types of fallacies that later found widespread recognition in the critical literature: *ad hominem*, *ad verecundiam* and *ad ignorantiam* arguments, which fall into the category of informal fallacies of relevance because the premises of their syllogism present elements that prove to be irrelevant to justifying their conclusion.

Argumentum ad hominem makes reference to the character or qualities of a person - or the category to which a person belongs - to discredit that person's argument: we refute George's claim that the use of seatbelts is necessary by saying that George is a hypocrite and an adroit liar, ignoring the fact that what George says may be valid regardless of what we think of him. *Argumentum ad hominem* can also take the form of the *tu quoque* when, to demolish an opponent's argument, we underscore the fact that what he says is in contradiction with his own behaviour, or with the circumstances in which he finds himself: we contest Paul's assertion that smoking is bad for one's health by noting that he himself is a smoker. This is an incorrect strategy, because the fact that Paul does not "practice what he preaches" is not in itself a pertinent reason to deny the soundness of his argument.

¹ On Locke's theory of language and its centrality to Enlightenment linguistic philosophy see esp. Formigari (1988) and Yolton (1985).

The flip side of *ad hominem* reasoning is *ad verecundiam* argumentation: the expression means “(appealing) to modesty”, and exploits the common, widespread fear of questioning a source considered important and authoritative. The speaker who uses this type of fallacy aims to pressure the listener by asserting the validity of his or her argument solely by referring to what a powerful or influential person, like the Pope or the President, has said, e.g. when one maintains that embryos are already living beings, with no technical proof, accepting the view based solely on the Church’s prestige and authority. Schopenhauer (1830-31, p. 37) considered this argumentative strategy to be one of the most commonly used to win a dispute, given its capacity to inhibit the listener’s critical judgment. Its efficacy is demonstrated by the fact that speakers often go as far as to falsify or invent an argument from an authoritative source when one is not already available, confident that listeners will not have or take the opportunity to verify what they say. Again in this case, the elements brought into the discussion are not pertinent; rather than being used to discredit the adversary’s argument, as in *ad hominem* fallacy, they reinforce the idea that an argument is valid solely because it is recognized as such by a certain tradition, social custom or source considered important. The strategy thus breaks one of the fundamental rules of free discussion and debate, i.e. respect for one’s opponent and the admissibility of different points of view; attention is once again shifted from the soundness of the reasoning to elements extraneous to the argument. And we should be aware of the consequences of such methods: the balance between *ethos*, *logos* and *pathos* on which Aristotle based the validity of deliberative speech (*Rhet.* 1358a, 1355a) is radically compromised, as is its quality, because the argument tends increasingly to slide towards forms of dogmatic reasoning.

Lack of consideration and respect for one’s opponent is also an element of the *ad ignorantiam* fallacy, which entails asserting that the adversary should accept the proposed argument if he is unable to counter it with another valid one, putting the onus of proof on him. Hence, if there is no definitive proof in favour of a given argument, one concludes that the argument is false, or vice-versa. Here again, the conclusion is illegitimate, because it does not follow from the premise, as, for example, when one asserts that if we have no certain proof that GMOs are harmful to health and to the environment, we can thus maintain that they are not harmful. This approach was opportunely defined as *dogmatismo ad ignorantiam*, since rather than seeking proof to justify our conclusions, or otherwise deferring judgment, we defend the argument *a priori*.

In addition to these fallacies of relevance identified by Locke, we have another that bears the name *argumentum ad populum*: in this case, the truth or falseness of an argument is held to be confirmed not by the fact that an authoritative individual or institution has made it – as in *ad verecundiam* fallacy –, but that an immense group of people believe it to be so, without considering that the truthfulness of a statement does not depend in the slightest on who or how many people believe it. For example, when the more conservative side of the political class maintains that the Fascists must

have achieved some positive results given the widespread consensus they attained among the populace at the time, they make precisely this type of error: the non-validity of the inference is proven by the fact that the conclusion can be false even if the premise remains true.

Locke was also well aware of the problem of the deliberate misconstruction of language found in cases of opaqueness or intentional incorrectness: grandiloquent words like “grace,” “glory” and “wisdom” are used without any connection to determined ideas, or – particularly in debates over controversial subjects – the same words (generally the most important ones, those that buttress the entire line of argumentation) are used once for a particular order of ideas, and other times with a completely different meaning.

Conclusion

The negative consequences of the distorted use of language are significant, given that they make the free circulation of ideas and the promotion of social communications impossible. Locke and the Port-Royal authors thus felt the need to suggest a normalising ideal to regulate our debate and discussion, one that could on one hand introduce procedures of control into parliamentary debate and public speech, and on the other, stimulate the general public to use critical thinking, reawakening our capacity to reason and reflect without biases or erroneous knee-jerk reactions. They understood the educational value of critical thinking, the only thing that makes man capable of mindfully using that most powerful epistemological and political tool: language. We should therefore continue the research that they thought was so important.

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The Succession of Heat and Mass Driven Natural Convection Regimes Along a Vertical Impermeable Wall

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Abstract

This paper presents the analysis of the natural convection process that takes place near a vertical plane wall embedded in a constant temperature and linearly mass stratified fluid (the Prandtl number and the Smith number are smaller than 1.0, while the Lewis number is greater than 1.0). The wall has a constant temperature, while the flux of a certain constituent is constant at this boundary. The scale analysis and the finite differences method are used as techniques of work. The scale analysis proves the existence, at equilibrium, of heat and/or mass driven convection regimes along the wall. The finite differences method is used solve the governing equations and to verify the scale analysis results using two particular parameters sets.

Keywords: natural convection, constant mass flux, scale analysis, finite differences method

1. Introduction

The analysis of the natural convection process along a vertical plane wall is a classical problem that was taken into consideration along the past decades in applications of a specific or general character (Armfield, Patterson & Lin, 2007; Lin, Armfield & Patterson, 2008; Mongruel, Cloitre and Allain, 1996; Neagu, 2018, 2021; Patterson, Lei, Armfield & Lin, 2009; Saha, Patterson and Lei, 2010; Saha, Brown & Gu, 2012).

This research analysis refers to a vertical plane wall that have a constant temperature and that registers a constant flux of a certain constituent at it. The environment is air ($Pr = 0.72$ in this paper) while the Lewis number is greater than 1.0 ($Le \geq 1$) and the Smith number is smaller than 1.0 ($Sch < 1$). The environment is mass stratified, while its temperature is constant.

The scale analysis is performed and the results are verified by solving the governing equations using the finite differences method for two particular parameters sets:

$Ra=5000$, $N=1$, $Le=1$, $Pr=0,72$, $S_c=0.08$ and $Ra=5000$, $N=5$, $Le=2$, $Pr=0,72$, $S_c=0.04$.

2. Mathematical Formulation

Figure 1 presents the vertical plane wall and the x-y system of co-ordinates associated to it in dimensional (Fig. 1a) and in dimensionless (Fig. 1b) representations.

The temperature at the wall is T_w , while the environment has a constant temperature, T_∞ . The mass flux of a certain constituent, m_w , is constant at the wall, while the environment registers a concentration of the constituent of

$$C_{\infty,x} = C_{\infty,0} + s_c \cdot x.$$

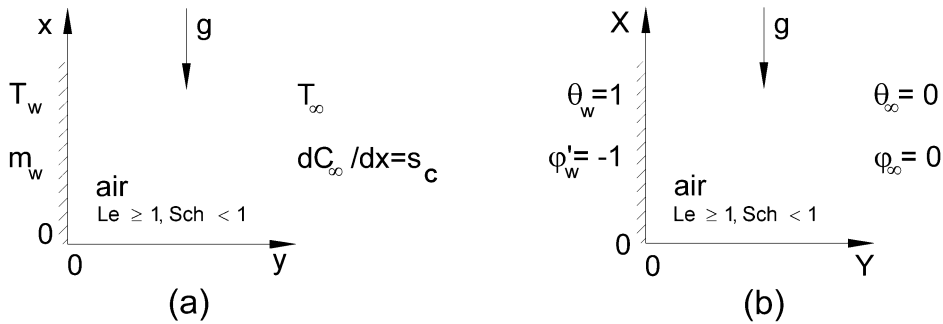


Fig. 1. (a) The dimensional problem; (b) the dimensionless problem.

2018):

$$\frac{\partial v}{\partial x} + \frac{\partial u}{\partial y} = 0; \quad (1)$$

$$\frac{\partial u}{\partial t} + u \cdot \frac{\partial u}{\partial y} + v \cdot \frac{\partial u}{\partial x} = -\frac{\partial p}{\partial y} + \nu \left(\frac{\partial^2 u}{\partial x^2} + \frac{\partial^2 u}{\partial y^2} \right); \quad (2)$$

$$\frac{\partial v}{\partial t} + u \cdot \frac{\partial v}{\partial y} + v \cdot \frac{\partial v}{\partial x} = -\frac{\partial p}{\partial x} + \nu \left(\frac{\partial^2 v}{\partial x^2} + \frac{\partial^2 v}{\partial y^2} \right) + g\beta_t T + g\beta_c C; \quad (3)$$

$$\frac{\partial T}{\partial t} + u \cdot \frac{\partial T}{\partial y} + v \cdot \frac{\partial T}{\partial x} = \alpha \left(\frac{\partial^2 T}{\partial x^2} + \frac{\partial^2 T}{\partial y^2} \right); \quad (4)$$

$$\frac{\partial C}{\partial t} + \mathbf{u} \cdot \frac{\partial C}{\partial \mathbf{y}} + \mathbf{v} \cdot \frac{\partial C}{\partial \mathbf{x}} + \mathbf{v} \cdot \mathbf{s}_c = D \left(\frac{\partial^2 C}{\partial \mathbf{x}^2} + \frac{\partial^2 C}{\partial \mathbf{y}^2} \right), \quad (5)$$

and the boundary conditions (Neagu, 2018):

$$\mathbf{u} = \mathbf{v} = 0, \quad T = T_w, \quad \frac{\partial C}{\partial \mathbf{y}} = -\Gamma_w \quad \text{at } \mathbf{y} = 0; \quad (6)$$

$$\mathbf{v} = 0, \quad T = T_\infty, \quad C = C_{\infty, \mathbf{x}} \quad \text{as } \mathbf{y} \rightarrow \infty; \quad (7)$$

$$\mathbf{v} = 0, \quad T = T_\infty, \quad C = C_{\infty, 0} \quad \text{at } \mathbf{x} = 0; \quad (8)$$

$$\frac{\partial^2 \mathbf{u}}{\partial \mathbf{x}^2} = \frac{\partial^2 \mathbf{v}}{\partial \mathbf{x}^2} = \frac{\partial^2 T}{\partial \mathbf{x}^2} = \frac{\partial^2 C}{\partial \mathbf{x}^2} = 0 \quad \text{at } \mathbf{x} = h, \quad (9)$$

define the point of start of the scale analysis.

3. Scale Analysis

This analysis follows the same pattern used before in the scientific literature (Bejan 1995; Neagu, 2018, 2021) for a better correlation, comprehension of the research characteristics and following the evolution of the natural convection regime that develops along the boundary: the initial state (section 3.1), the heat driven convection (HDC) regime (section 3.2) and the mass driven convection (MDC) regime (section 3.3).

3.1. The Initial State

Because this section is similar to the results of previous analysis, only the most significant results will be mentioned here (Neagu, 2018):

the boundary layer thickness of the temperature field:

$$\delta_T \sim \alpha^{1/2} \cdot t^{1/2}; \quad (10)$$

the boundary layer thickness of the concentration field:

$$\delta_C \sim D^{1/2} \cdot t^{1/2}; \quad (11)$$

the heat driven convection regimes that exists at the beginning at each point along the wall will be replaced by a mass driven convection regime only if the equilibrium time of the regime is bigger than the transition time, t_{trz} :

$$t_{trz} \sim L^2 \cdot (N^2 D)^{-1}; \quad (12)$$

the inequality $s_c > \partial C / \partial \mathbf{x}$, that is valid at the beginning at each point of the wall, ceases to be valid if the equilibrium time of the regime is bigger than t_s :

$$t_s \sim \frac{s_C^2 X^2}{\Gamma_w^2 D}. \quad (13)$$

3.2. The Heat Driven Convection Regime

If $Pr < 1$ and $Le \geq 1$, Saha, Patterson and Lei (2010) prove that the order of magnitude of the vertical velocity is:

$$v_T \sim \frac{g\beta_t t}{1+Pr} \Delta T. \quad (14)$$

Invoking the equilibrium between the horizontal diffusion and the vertical convection of heat, the temperature equilibrium time, boundary layer thickness and vertical velocity orders of magnitude are (Neagu, 2018):

$$(t_{ech,T})_T \sim \frac{L^2}{\alpha} \left[\frac{X(1+Pr)}{Ra \cdot Pr} \right]^{1/2}; \quad (15)$$

$$(\delta_{ech,T})_T \sim L \cdot \left[\frac{X(1+Pr)}{Ra \cdot Pr} \right]^{1/4}; \quad (16)$$

$$V_T \sim \left(\frac{X \cdot Ra \cdot Pr}{1+Pr} \right)^{1/2}. \quad (17)$$

a. *Scale analysis of the concentration field in the HDC regime*

b. In this case, the velocity order of magnitude for the concentration field is v_T .

c. Two situations appear:

d. if in the left side of equation (5) $v \cdot \partial C / \partial x \geq v \cdot s_C$, then the equilibrium between the horizontal diffusion of the constituent and the vertical convection of it gives us the equilibrium time of the concentration field:

$$(t_{ech,C})_T \sim \frac{L^2}{D} \left[\frac{XPr(1+Pr)}{Sch^2 \cdot Ra} \right]^{1/2}. \quad (18)$$

Further, using equation (11), the boundary layer thickness order of magnitude becomes:

$$(\delta_{ech,C})_T \sim L \left[\frac{XPr(1+Pr)}{Sch^2 \cdot Ra} \right]^{1/4}. \quad (19)$$

The equilibrium time of the concentration field, $(t_{ech,C})_T$, is bigger than the transition time, t_{trz} , if:

$$X > X_{\text{trz},C} = \frac{\text{Sch}^2}{N^4} \frac{\text{Ra}}{\text{Pr}(1 + \text{Pr})} \quad (20)$$

b. if, in equation (5), $v \cdot \partial C / \partial x < v \cdot s_c$, then the concentration equilibrium time and boundary layer thickness are:

$$(t_{\text{ech},Sc})_T \sim \frac{L^2}{D} \frac{\text{Pr}(1 + \text{Pr})}{S_c^2 \cdot \text{Sch}^2 \cdot \text{Ra} \cdot X}; \quad (21)$$

$$(\delta_{\text{ech},Sc})_T \sim L \left[\frac{\text{Pr}(1 + \text{Pr})}{\text{Ra} \cdot X \cdot S_c^2 \cdot \text{Sch}^2} \right]^{1/2}. \quad (22)$$

The equilibrium time $(t_{\text{ech},Sc})_T$ is compared to t_{trz} and t_s :

b1) the equilibrium time $(t_{\text{ech},Sc})_T$ is bigger than the transition time, t_{trz} , if:

$$X > X_{\text{trz},Sc} = \frac{N^2 \text{Pr}(1 + \text{Pr})}{S_c^2 \text{Sch}^2 \text{Ra}}; \quad (23)$$

b2) the inequality $(t_{\text{ech},Sc})_T < t_s$ is restricted to the following domain:

$$X \geq X_{S,T} = \left[\frac{\text{Pr}(1 + \text{Pr})}{S_c^4 \cdot \text{Sch}^2 \cdot \text{Ra}} \right]^{1/3}. \quad (24)$$

1. The analysis of the results presented above reveals that there are only two possibilities:

2. a HDC regime along the wall if $X_{\text{trz},Sc} < X_{S,T} < X_{\text{trz},C}$ (figure 2 (a)) or

$$\frac{\text{Ra} \cdot S_c \cdot \text{Sch}^2}{\text{Pr}(1 + \text{Pr}) \cdot N^3} \geq 1 \quad (25)$$

a HDC regime in the $[0, X_{\text{trz},C}]$ domain and a MDC regime in the $[X_{\text{trz},C}, \infty)$ domain (see figure 2 (b)) if $\text{Ra} \cdot S_c \cdot \text{Sch}^2 / [N^3 \text{Pr}(1 + \text{Pr})] < 1$.

3.3. The Mass Driven Convection Regime

The vertical velocity order of magnitude was derived by Lin, Armfield and Patterson (2008):

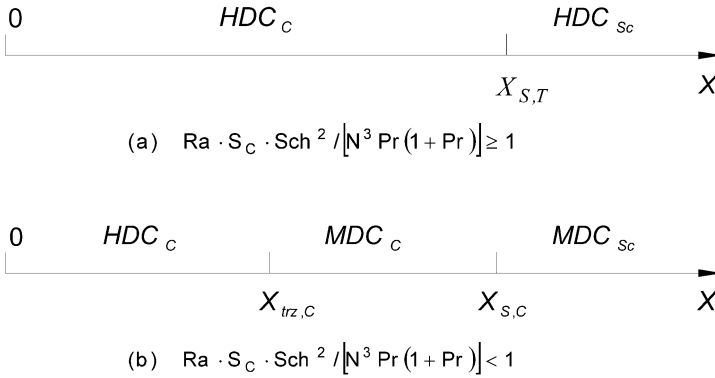


Fig. 2. The heat and mass driven natural convection regimes sequence. (a) $Ra \cdot S_C \cdot Sch^2 / [N^3 Pr(1 + Pr)] \geq 1$; (b) $Ra \cdot S_C \cdot Sch^2 / [N^3 Pr(1 + Pr)] < 1$.

$$v = g\beta_C \Gamma_w D^{1/2} t^{3/2} (1 - \sqrt{Sch}). \quad (26)$$

3.3.1. MDC_{Sc} Regime.

In this case, the equilibrium between the horizontal diffusion and the vertical convection of the constituent requires: $v \cdot s_c \sim D \left(\frac{\partial^2 C}{\partial y^2} \right)$ or $v \cdot s_c \sim D \frac{\Gamma_w}{D^{1/2} t^{1/2}}$. Replacing v from equation (26), the concentration equilibrium time and the boundary layer thickness are:

$$(t_{ech,Sc})_c \sim L^2 / D / [Ra \cdot N \cdot S_C \cdot Le \cdot Sch (1 - \sqrt{Sch})]^{1/2}; \quad (27)$$

$$(\delta_{ech,Sc})_c \sim L / [Ra \cdot N \cdot S_C \cdot Le \cdot Sch (1 - \sqrt{Sch})]^{1/4}. \quad (28)$$

At equilibrium, the vertical velocity order of magnitude scales as:

$$V_{Sc} \sim [Ra \cdot N \cdot Sch \cdot (1 - \sqrt{Sch}) / (Le \cdot Sch)^3]^{1/4}. \quad (29)$$

The inequality $(t_{ech,Sc})_c < t_s$ or

$$X > X_{S,C} = 1 / [Ra \cdot N \cdot S_C^5 \cdot Le \cdot Sch \cdot (1 - \sqrt{Sch})]^{1/4} \quad (30)$$

defines the X co-ordinate that separates the MDC_C and the MDC_{Sc} regimes in the figure 2(b).

Scale analysis of the temperature field in the MDC_{Sc} regime. The equilibrium state requires:

$$\left(v_c \frac{\delta_v}{\delta_T} \right) \cdot \frac{\partial T}{\partial x} \sim \alpha \cdot \frac{\partial^2 T}{\partial y^2} \quad \text{or} \quad \left(v_c \frac{\sqrt{\text{Sch}} \cdot \delta_c}{\delta_T} \right) \cdot \frac{\Delta T}{x} \sim \alpha \frac{\Delta T}{\delta_T^2}.$$

Using the equation (10) and the equation (29), the equilibrium temperature boundary layer thickness order of magnitude is:

$$(\delta_{\text{ech},T})_{\text{Sc}} \sim L \cdot (\text{Le} \cdot X \cdot S_C). \quad (31)$$

3.3.2. MDC_C Regime

The equilibrium between the horizontal diffusion and the vertical convection requires

$$v_c \cdot \frac{\partial C}{\partial x} \sim D \left(\frac{\partial^2 C}{\partial y^2} \right) \quad \text{or} \quad v_c \cdot \frac{1}{x} \sim D \frac{1}{\delta_C^2}.$$

Replacing the equations (11) and (29), the equilibrium time and the concentration boundary layer thickness become:

$$(t_{\text{ech},C})_C \sim L^2 / D / [\text{Ra} \cdot N \cdot \text{Le} \cdot \text{Sch} (1 - \sqrt{\text{Sch}})]^{2/5}; \quad (32)$$

$$(\delta_{\text{ech},C})_C \sim L / [\text{Ra} \cdot N \cdot \text{Le} \cdot \text{Sch} (1 - \sqrt{\text{Sch}})]^{1/5}, \quad (33)$$

while the vertical velocity scales as:

$$v_c \sim [\text{Ra} \cdot N \cdot \text{Sch} \cdot (1 - \sqrt{\text{Sch}})]^{2/5} (X/\text{Le})^{3/5}. \quad (34)$$

Scale analysis of the temperature field in the MDC_C regime.

The equilibrium between the thermal horizontal diffusion and the vertical thermal convection requires

$$v_c \left(\frac{\delta_v}{\delta_T} \right) \cdot \frac{\partial T}{\partial x} \sim \alpha \left(\frac{\partial^2 T}{\partial y^2} \right) \quad \text{or} \quad v_c \frac{\sqrt{\text{Sch}} \cdot \delta_c}{\delta_T} \cdot \frac{\Delta T}{x} \sim \alpha \frac{\Delta T}{\delta_T^2}.$$

The temperature boundary layer thickness scales as:

$$(\delta_{\text{ech},T})_C \sim L \left[\frac{X \cdot \text{Le}^4}{\text{Ra} \cdot N \cdot \text{Sch} (1 - \sqrt{\text{Sch}})} \right]^{1/5}. \quad (35)$$

The validity of the scale analysis requires the following set of conditions:

if $\text{Ra} \cdot S_C \cdot \text{Sch}^2 / [N^3 \text{Pr}(1 + \text{Pr})] \geq 1$, the imposed conditions: $(\delta_{\text{ech},T})_T \ll x$, $(\delta_{\text{ech},C})_T \ll x$ and

$(\delta_{\text{ech},Sc})_T \ll x$ at $X = X_{S,T}$, leads us to the inequality: $S_C \ll \sqrt{\text{Pr}}$.

if $Ra \cdot S_C \cdot Sch^2 / [N^3 Pr(1+Pr)] < 1$, then the requirements: $(\delta_{ech,T})_T \ll x$ for $X = X_{tr,z,C}$; $(\delta_{ech,C})_C \ll x$, $(\delta_{ech,T})_C \ll x$, $(\delta_{ech,Sc})_C \ll x$ and $(\delta_{ech,T})_{Sc} \ll x$ for $X = X_{S,C}$ lead us to the requirement: $S_C \ll 1/Le$.

Further, the scale analysis results of section 3 will be verified using the finite differences method for two particular parameters sets.

4. Numerical Modeling

The stream function formulation of the velocity field, $U = -\partial\Psi/\partial X$, $V = \partial\Psi/\partial Y$, and the vorticity definition, $\zeta = \partial V/\partial Y - \partial U/\partial X$, define the dimensionless form of the governing equations

$$\zeta = \left(\frac{\partial^2 \Psi}{\partial Y^2} + \frac{\partial^2 \Psi}{\partial X^2} \right); \quad (36)$$

$$\frac{\partial \zeta}{\partial \tau} + U \frac{\partial \zeta}{\partial Y} + V \frac{\partial \zeta}{\partial X} = Pr \cdot \left(\frac{\partial^2 \zeta}{\partial Y^2} + \frac{\partial^2 \zeta}{\partial X^2} \right) + Ra \cdot Pr \cdot \left(\frac{\partial \theta}{\partial Y} + N \frac{\partial \varphi}{\partial Y} \right); \quad (37)$$

$$\frac{\partial \theta}{\partial \tau} + U \frac{\partial \theta}{\partial Y} + V \frac{\partial \theta}{\partial X} = \frac{\partial^2 \theta}{\partial Y^2} + \frac{\partial^2 \theta}{\partial X^2}; \quad (38)$$

$$\frac{\partial \varphi}{\partial \tau} + U \frac{\partial \varphi}{\partial Y} + V \frac{\partial \varphi}{\partial X} + VS_C = \frac{1}{Le} \left(\frac{\partial^2 \varphi}{\partial Y^2} + \frac{\partial^2 \varphi}{\partial X^2} \right). \quad (39)$$

The boundary conditions take the following form:

$$\Psi = \frac{\partial \Psi}{\partial Y} = 0, \quad \frac{\partial \varphi}{\partial Y} = -1, \quad \theta = 1 \quad \text{at } Y = 0; \quad (40)$$

$$\frac{\partial \Psi}{\partial Y} = 0, \quad \zeta = 0, \quad \theta = \varphi = 0 \quad \text{as } Y = L; \quad (41)$$

$$\Psi = 0, \quad \zeta = 0, \quad \theta = \varphi = 0 \quad \text{at } X = 0; \quad (42)$$

$$\frac{\partial^2 \Psi}{\partial X^2} = \frac{\partial^3 \Psi}{\partial X^3} = \frac{\partial^2 \theta}{\partial X^2} = \frac{\partial^2 \varphi}{\partial X^2} = 0 \quad \text{at } X = H. \quad (43)$$

The conservation equations (36)–(39) with the boundary conditions (40)–(43) were solved using the finite differences method. A software was built by Neagu (2018) using a higher order hybrid scheme (Tennehill, Anderson & Pletcher, 1997) through an iterative process: at each time step, equation (36) was solved iteratively till the relative error of Ψ , at each point of the grid, became less than 10^{-6} . The iterative process stopped when the relative errors of θ , φ and ζ became less than 10^{-6} at each

grid point.

5. Results and Discussions

Two particular parameter sets are used to run the program explained above:

The $Ra=5000, N=1, Le=1, Pr=0.72, S_C=0.08$ parameters set is the example chosen to exemplify the $Ra \cdot S_C \cdot Sch^2 / [Pr(1+Pr) \cdot N^3] \geq 1$ case. The results of section 2 of this analysis tell us that a HDC (heat driven convection) regime is present, at equilibrium, along the vertical wall. Equation (24) indicates that the HDC_C ($\partial C / \partial X \geq S_C$) and the HDC_{Sc} ($\partial C / \partial X < S_C$) regimes are separated at the $X_{S,T} = 2.32$ abscissas. A computational dimensionless domain of 0.6×6.0 was discretised uniformly using a 61×301 grid for a sufficient accuracy.

The results for this particular parameters set are present by Fig. 3. It shows the temperature (Figure 3(a)), concentration (Figure 3(b)), stream function (Figure 3(c)) and $\partial C / \partial X$ (Figure 3(d)) fields. The concentration field (Figure 3(b)) is not greater than $1/N=1.0$ and this is an indication that HDC regime is encountered along the entire wall. The $\partial C / \partial X$ field of Fig. 3(d) exceed 0.0 ($\partial c / \partial x > s_c$) if $x \geq 1.8$ a value close to the $X_{S,T}$ value indicated by equation (24).

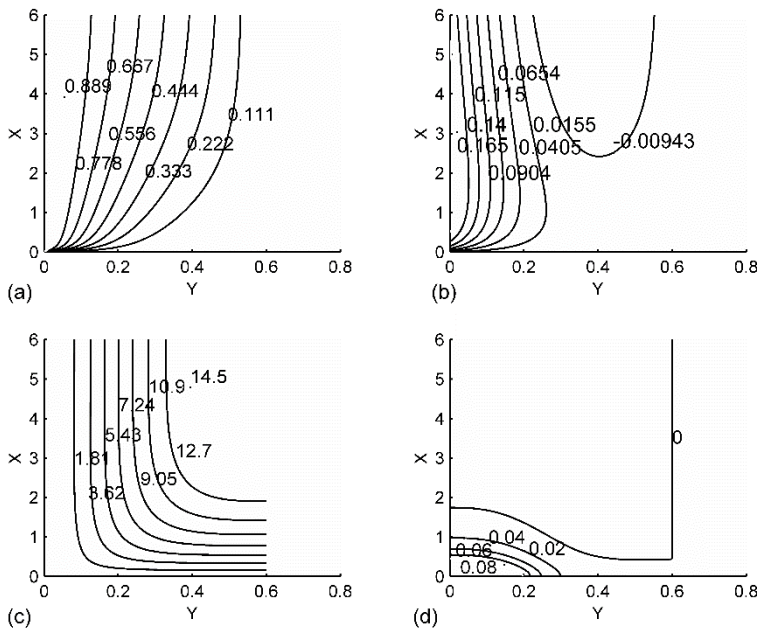


Fig. 3. The dimensionless temperature (a), concentration (b), stream function (c) and $\partial\phi/\partial x$ (d) fields for $Ra=5000, N=1, Le=1, Pr=0.72$ and $S_C=0.08$.

In the HDC_C region, three sections present the temperature (Figure 4(a)), the

concentration (Figure 4(b)) and the vertical velocity (Figure 4(c)) plots for three abscissa: 0.5; 1.0 and 1.5. The scaled plots (Fig. 4(d)-Fig. 4(f)), realised using the equations (16), (17) and (19), collapse indicating the validity of the scale analysis.

Similarly, in the HDC_{Sc} region three abscissa: 3, 4 and 5, are chosen and their temperature (Figure 5(a)), concentration (Figure 5(b)) and vertical velocity (Figure 5(c)) plots are presented. Their scaled plots: (Figure 5(d), Figure 5(e) and Figure 5(f)), are realised using the equations (16), (17) and (22). The figures 3, 4 and 5 prove the validity of the scale analysis for the $Ra \cdot S_c \cdot Sch^2 / [Pr(1 + Pr) \cdot N^3] \geq 1$ case.

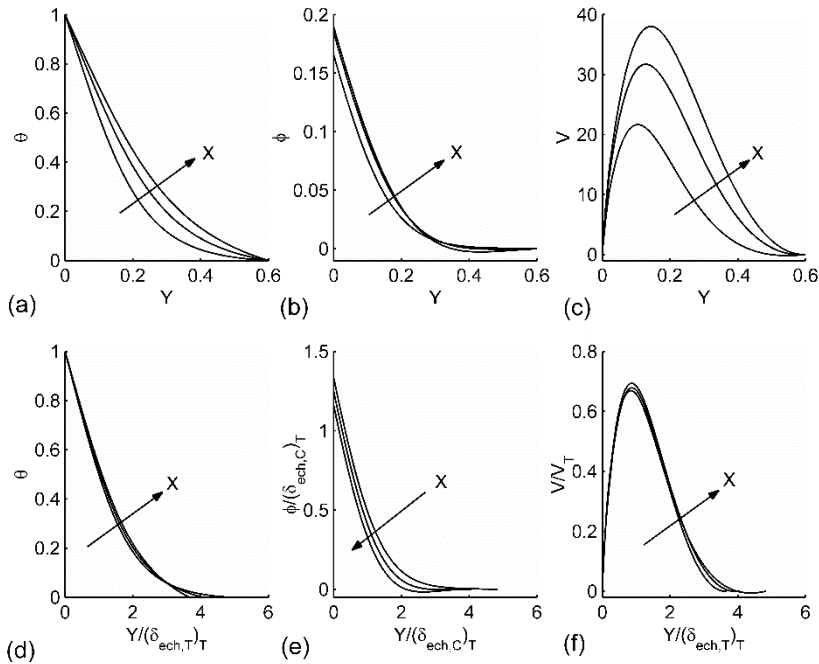


Fig. 4. The (a) θ , (b) ϕ and (c) V variations as a function of Y and the scaled (d) temperature, (e) concentration and (f) vertical velocity plots for the abscissa: 0.5, 1.0 and 1.5.

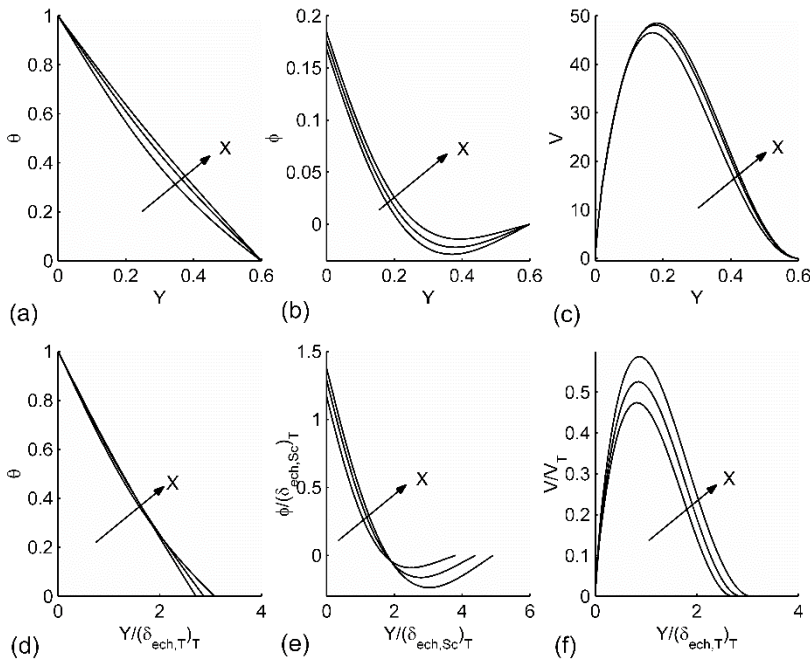


Fig. 5. The (a) θ , (b) ϕ and (c) V variations as a function of Y and the scaled (d) temperature, (e) concentration and (f) vertical velocity plots for the abscissa: 3, 4 and 5.

The parameters set: $Ra = 5000$, $N = 5$, $Le = 2$, $Pr = 0,72$, $S_c = 0,04$, is used to exemplify the $Ra \cdot S_c \cdot Sch^{4/3} / [Pr(1 + Pr) \cdot N^3] < 1$ case.

Figure 2(b) indicates that we should encounter, at equilibrium, a heat driven convection regime (HDC_C) in the $X < X_{tr,z,C}$ region, a MDC_C regime in the $[X_{tr,z,C} - X_{S,C}]$ region and a MDC_{Sc} regime in the $X > X_{S,C}$ region. Equation (20) indicates $X_{tr,z,C} = 3.34$, while equation (30) indicates $X_{S,C} = 7.73$. A uniform grid of 61×451 points on a domain of 0.6×9.0 was used.

The results of the numerical modeling are presented by Figure 6. The θ (Figure 6(a)), $\phi/(1/N)$ (Figure 6(b)), Ψ (Figure 6(c)) and $\partial\phi/\partial X$ (Figure 6(d)) contour plots reveal the following aspects: at the boundary, the concentration field exceeds $1/N = 1/5$ if $x > 1.6$, while $\partial\phi/\partial X > 0.0$ at $X > 7.5$; these values are close to the scale analysis results. Each of the figures 7, 8 and 9 presents the plots and the scaled plots for three sections performed in the three regime regions emphasized above: HDC_C , MDC_C and MDC_{Sc} .

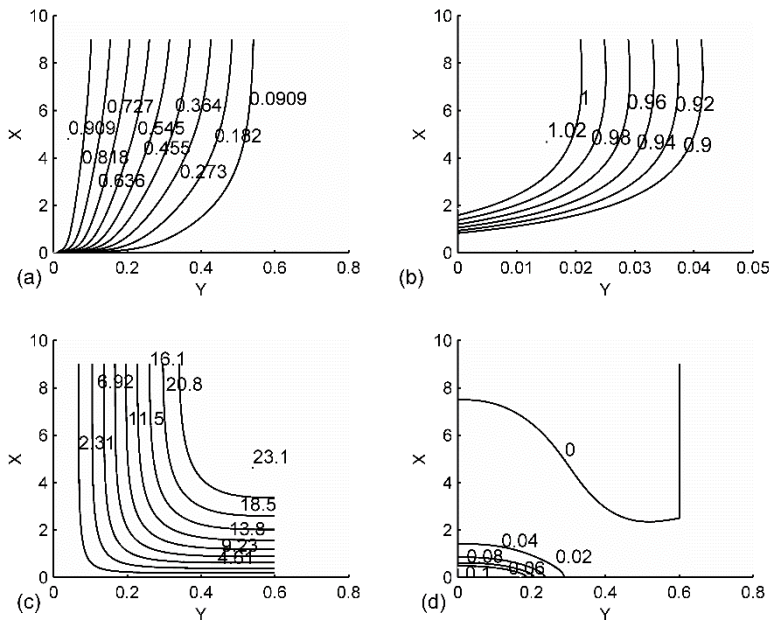


Fig. 6. The θ (a), $\varphi/(1/N)$ (b), Ψ (c) and $\partial\varphi/\partial x$ (d) fields for $Ra=5000$, $N=5$, $Le=1$, $Pr=0.72$ and $S_c=0.04$.

Figure 7(a), Figure 7(b) and Figure 7(c) presents the temperature, concentration and the vertical velocity plots for the abscissa: 0.5, 1.0 and 1.5, while Figure 7(d), Figure 7(e) and Figure 7(f) presents their scaled plots using the equations (16), (17) and (19).

Figure 8(a), Figure 8(b) and Figure 8(c) presents the temperature, concentration and the vertical velocity plots in the sections made at the abscissa: 4.0, 5.0 and 6.0, while Figures 8(d), (e) and (f) shows their scaled plots realised using the equation (33), (34), (35).

Similarly, Figures 9(a), (b) and (c) shows the temperature, concentration and vertical

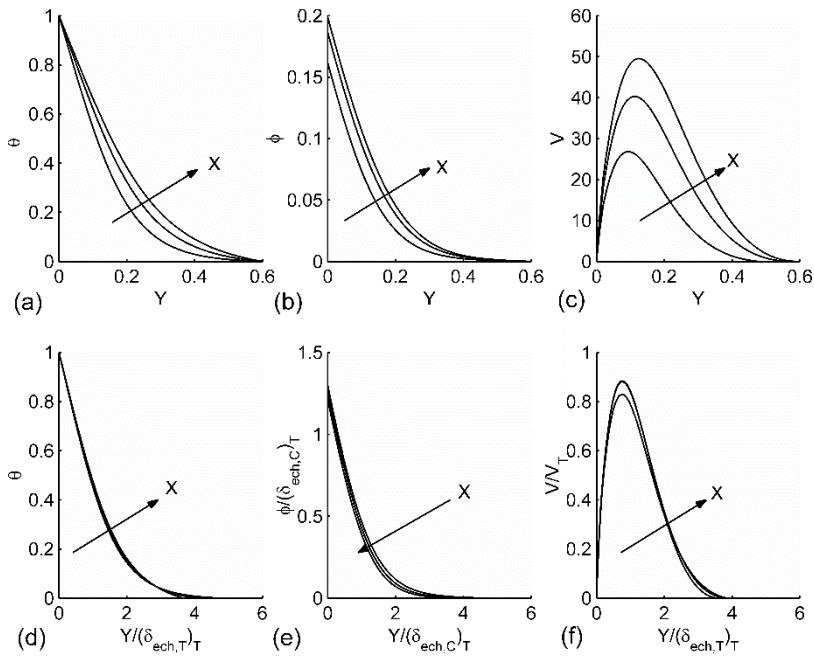


Fig. 7. The (a) θ , (b) ϕ and (c) V variations as a function of Y and the scaled (d) temperature, (e) concentration and (f) vertical velocity plots for the abscissa: 0.5, 1.0 and 1.5.

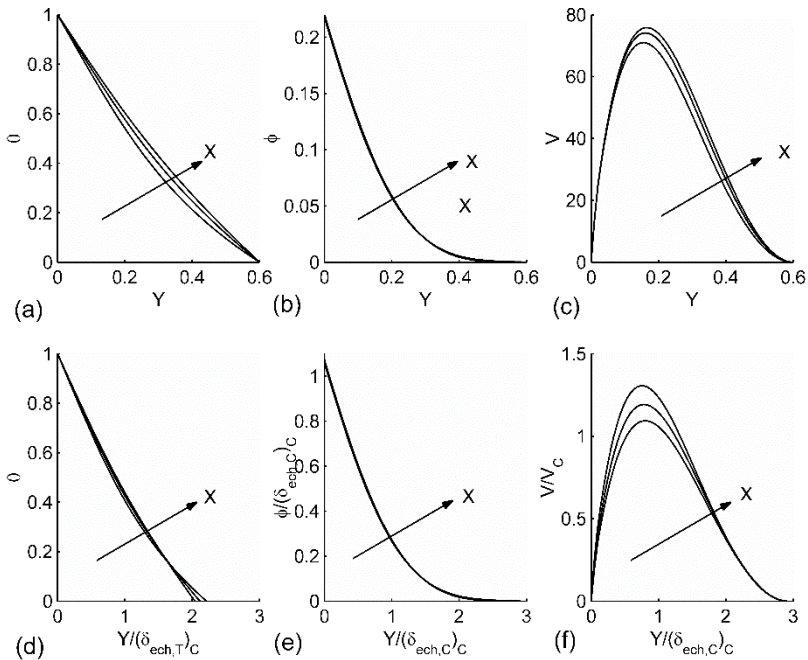


Fig. 8. The (a) θ , (b) ϕ and (c) V variations as a function of Y and the scaled (d) temperature, (e) concentration and (f) vertical velocity plots for the abscissa: 4.0, 5.0 and 6.0.

velocity plots for two abscissa: 8.0 and 9.0. Figure 9(d), Figure 9(e) and Figure 9(f) shows their scaled plots realised using the equations (28), (29) ad (31).

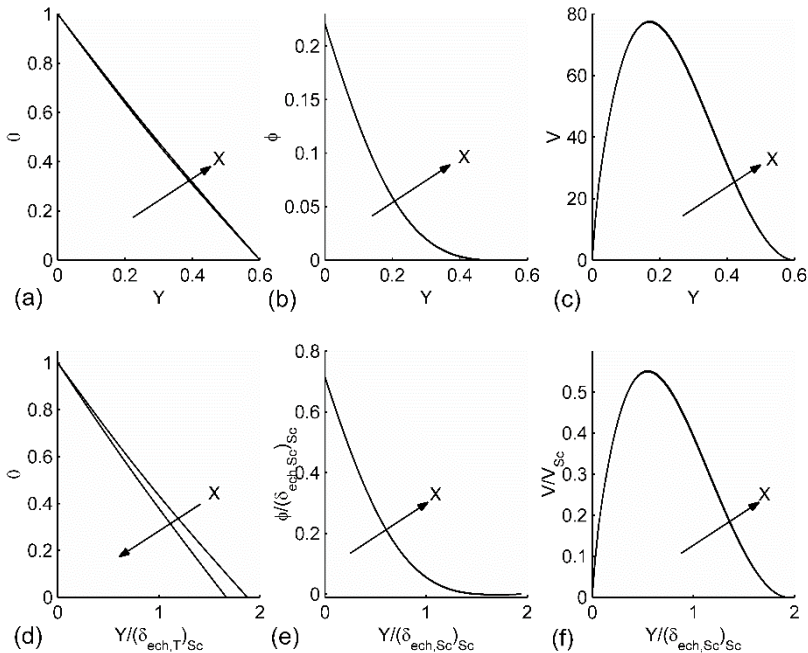


Fig. 9. The (a) θ , (b) ϕ and (c) V variations as a function of Y and the scaled (d) temperature, (e) concentration and (f) vertical velocity plots for the abscissa: 8.0 and 9.0.

The collapse of the scaled plots of Figures 7, 8 and 9 proves the validity of the scaled analysis results for the $Ra \cdot Sc \cdot Sch^2 / [N^3 Pr(1 + Pr)] < 1$ case.

6. Conclusions

The natural convection process developed in the boundary layer of a vertical plane wall continues to be the subject of new discoveries. If the temperature and the heat flux of a certain constituent are constant at the wall, then a constant temperature and a linearly mass stratified environment ($Pr < 1, Le \geq 1, Sch < 1$) imposes special features on the natural convection process. Depending on the process parameters, we can encounter:

a heat driven convection regime along the wall if $Ra \cdot Sc \cdot Sch^2 / [N^3 Pr(1 + Pr)] \geq 1$;

a succession of heat and mass driven convection regimes if

$$Ra \cdot S_C \cdot Sch^2 / [N^3 Pr(1 + Pr)] < 1.$$

This result is similar to the results found by previous scientific works:

for $Pr < 1$, $Le \geq 1$, $Sch \geq 1$ case the coefficient that separates the two possibilities (HDC and HDC-MDC) is $Ra \cdot S_C \cdot Sch^{4/3} / [N^3 Pr(1 + Pr)]$, (Neagu, 2021);

for $Pr \geq 1$, $Le \geq 1$ case, the coefficient is $Ra \cdot \gamma^2 \cdot S_C \cdot Le^{4/3} / N^3$, where $\gamma = 1 - (1 + Pr^{1/2})^{-1}$, (Neagu, 2018).

These results open the gate for further scientific paths:

a closer analysis of the way in which the non-dimensionalisation process is realised for these particular cases.

a closer analysis of the implications that these results could have on the stability management of the natural convection process.

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Appendix

Nomenclature

C	dimensional concentration of the dissolved species
D	diffusion coefficient of the species
g	gravitational acceleration
k	thermal conductivity of the fluid
h	height of the computational domain
H	dimensionless height of the computational domain
HDC	heat driven convection regime
L	characteristic length
Le	Lewis number, (α/D)
m_w	constant mass flux at the wall
MDC	mass driven convection regime
N	buoyancy ratio, $[\beta_c(m_w L/D)]/[\beta_t(T_w - T_{\infty,0})]$
p	the environment pressure
Pr	Prandtl number, ν/α
Ra	Rayleigh number, $[g\beta_t(T_w - T_{\infty,0})L^3/\alpha\nu]$
sc	environment mass stratification parameter, $(dC_{\infty,x}/dx)$
Sc	non-dimensional mass stratification parameter, $[s_c/(m_w L/D)]$
Sch	Smith number, ν/D
t	dimensional time
t_s	time when the $\nu \cdot \partial C/\partial x$ term becomes dominant in the left hand side of Eq. (5)
t_{trz}	dimensional time when the transition to a mass driven convection regime takes place
T	dimensional temperature
T_w	constant temperature at the wall
u,v	dimensional velocity components
U,V	dimensionless velocity components, uL/α , vL/α
x,y	dimensional Cartesian coordinates
X,Y	non-dimensional Cartesian coordinates, x/L , y/L
$()_C$	value defined in a mass driven convection regime where $\partial C/\partial x \geq s_c$
$()_{sc}$	value defined in a mass driven convection regime where $\partial C/\partial x < s_c$
$()_T$	value defined in a heat driven convection regime

Greek symbols

α	thermal diffusivity
β_T	the coefficients of volumetric expansion with temperature, $(-1/\rho)(\partial\rho/\partial T)_p$

β_c	the coefficients of volumetric expansion with concentration, $(-1/\rho)(\partial\rho/\partial C)_p$
Γ_w	dimensional concentration gradient at the wall, (m_w/D)
δ	boundary-layer thickness
δ_c	boundary-layer thickness of the concentration field
φ	non-dimensional concentration of the dissolved species, $[(C - C_{\infty,x})/(m_w L/D)]$
ν	kinematic viscosity
θ	non-dimensional temperature, $[(T - T_\infty)/(T_w - T_\infty)]$
ρ	fluid density
τ	non-dimensional time, $\tau = t\alpha/L^2$
ψ	dimensional stream function
Ψ	non-dimensional stream function, ψ/α
ζ	dimensionless vorticity

Subscripts

0	reference value
∞	condition at infinity
T	related to the temperature field
ech	equilibrium state
Sc	the $V \cdot S_c$ term is dominant in the left side of Eq. (5)
C	the $V \cdot \partial\varphi/\partial X$ term is dominant in the left hand side of Eq. (5)
v	Related to the velocity field
x	evaluated at abscissa x

Errors in Making Indirect Questions in the Interlanguage of Students at the Faculty of Food Technology

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Abstract

In this paper, the author attempts to identify the most common errors that occur in the interlanguage of students at the Faculty of Food Technology when formulating indirect questions in English language. According to Processability theory (PT), language is acquired in a predictable way, in six stages, the last stage being acquiring word order in subordinate clauses, i.e. cancelling inversion. Since interlanguage presents a dynamic language system that retains some features of the first language or generalizes the second language rules in speech or writing, the origin of errors can be found in mother tongue or in the misapplication of the rules when adopting a second language. Although PT is not concerned with the errors made by the second language learners, this paper will try to identify the origin of errors that appear in the students' interlanguage and the acquisition of the last stage, i.e. the word order in subordinate clauses. In that way, it will be determined whether the errors (inter- or intralingual) made by the students prevent them from acquiring the last stage of PT.

Keywords: developmental stages, interlanguage, Processability Theory, interlingual errors, intralingual errors

1. Introduction

The starting point of the second language research is the analysis of the learner's interlanguage which changes during the different stages of development. Research in the field of second language learning and acquisition cover a wide range of problems and approaches to the language learning itself. Different analyses of the learner's interlanguage bring new insights into the interlanguage development and contribute to its understanding. This paper attempts to shed a light on the interlanguage development by analyzing the most common errors when making indirect questions. Furthermore, the development of the interlanguage can be observed by following the six developmental stages proposed by Pienemann (1998) and described within the Processability theory (PT). The last stage in the development of the interlanguage is the subordinate clause procedure, i.e. cancelling inversion in indirect questions. Based

on the corpus of fifty written exams, this paper will determine the most common errors made by the students of food technology, as well as check whether they have reached the last developmental stage in second language learning.

2. Error analysis

The basic assumption which happens in the head of a second language learner is the existence of the so-called interlanguage. This term can be described as a set of rules by which a learner is governed in the linguistic production of a second language. Selinker (1972) defines interlanguage as a cognitive gap that exists between the mother tongue and the language to be learnt. That is why interlanguage contains the rules taken from both languages, i.e. the mother tongue and the second language, but there are also rules that do not correspond to either language. This approach refutes the behaviourist theories, according to which learners solely rely on their mother tongue when learning a second language. However, this does not mean that the mother tongue is completely excluded from learning a second language, which is also observable from the errors made by the second language learners, since they can be divided into inter- and intralingual. Error analysis was the first serious attempt in the analysis of the learner's interlanguage with the aim of determining how the learners acquire their second language. It peaked in the 1960s and 1970s. Counting and classifying errors can be contributed to the work of Corder (1967) who even developed an error analysis methodology. At the very beginning, error analysis was concerned with the question whether the errors made by the second language learners were the result of the first language (L1) transfer or the creative constructions that reveal the specific rules created by the learners which are very similar to those made by the children when acquiring their mother tongue. The presence of errors reflecting the first language structures was considered the evidence of transfer, i.e. an interlingual error, whereas the presence of errors similar to those that occur when acquiring the first language was considered an intralingual error.

According to Scovel (2015) intralingual errors can be explained as:

“...the confusion a language learner experiences when confronting patterns within the structure of a newly acquired language, irrespective of how the target language patterns might contrast with the learner's mother tongue” (Scovel, 2001: p. 51)

There are different ways of classifying errors. According to causes or sources of errors Richards (1970) distinguishes three types of errors:

Interference errors which occur as a result of the use of the elements of one language when speaking another and they can be observed in morphology, syntax, vocabulary and pronunciation. An example of such an error might be when a German learner of English as a second language says *I go not* because it corresponds to a German sentence *Ich gehe nicht*.

Intralingual errors which reflect the general characteristics of rule learning such as faulty generalization, incomplete application of the rule or a failure when applying the corresponding rule. Intralingual errors can be further divided into overgeneralization errors that are made when a learner creates a deviant structure based on other structures in the target language (*he can sings* instead of *He can sing* or *he sings*), then ignorance of rule restrictions (when learners apply the rules to wrong contexts, e.g. *He made me to rest*) incomplete rule application, opposite to overgeneralization, according to James (1998) (a failure to fully develop a structure, e. g. *You like to sing?* instead of interrogative word order *Do you like to sing?*) and false concepts hypothesized (when the learner does not fully understand a distinction in the target language, e.g. *One day it was happened*). According to Kaweera (2013) exploiting redundancy can also be counted as an intralingual error which happens when learners repeat words or phrases unnecessary (e.g. *I repeated it again*)

Developmental errors which arise when the learner attempts to create hypotheses about the target language on the basis of limited experience.

However, the most authors distinguish among transfer errors (or interference errors according to Richards) and intralingual errors. Since it is not simple to differentiate between transfer and intralingual errors, Dulay and Burt (1974) classified the errors into: developmental, interference and unique errors. Developmental errors are similar to those that happen when acquiring the first language (e.g. *he not eat*). Interference errors reflect the first language structure, e.g. *the man skinny* and unique errors which do not belong to either category.

According to Bhela (1999 in Kaweera, 2013), the source of the interference errors can be found in the word for word translation strategy or thinking in the mother tongue language. Furthermore, interference errors (Kaweera, 2013) can be divided into L1 lexical interference (e.g. *I play a computer*), syntactic interference (e.g. *have many trees in the university*) and discourse interference (not using paragraph structure in writing).

Corder (1967) emphasizes the importance of errors for three reasons: first of all, errors show how much the learner has learnt so far and what remains to be learnt. Secondly, errors show insight into the way the language is learnt or acquired and finally they reveal the strategies the learners use when discovering the language. However, error analysis was criticized for many reasons. Firstly, it failed to show how learners progress in language learning over time. Secondly, it provided a static insight in second language acquisition. Finally, it only gained insight into what learners do and it failed to show what strategies learners use when they find a certain phrase or a structure too difficult. On the other hand, error analysis contributed to the second language acquisition to a great extent. It helped the behaviourist and mentalist debates to collect empirical evidence pointing out to the fact that sources of learner's errors cannot only be ascribed to interference and showing that error making is a standard

procedure in language learning. Although error analysis was popular in the 1970s, it is still applied when describing the learner's interlanguage.

European Framework of Reference for Languages (CEFL) still describes requirements for grammatical accuracy with a constant emphasis on the number and a type of errors neglecting thus the development of grammar (Pallotti, 2010).

3. Processability theory (PT)

Since it was eventually discovered that the use of error analysis does not provide the full image of language acquisition, considering that the learners' language is observed as a collection of errors, and studying those errors does not explain the method by which learners acquire language skills over time. This was the reason why researchers recognised the need to study the learners' language as a whole, in order to explain the interlanguage that the learners create in various stages of development. The Processability Theory (PT), which is based on the cognitive approach to the acquisition of a second language, attempts to explain the way in which learners who are learning a second language are reforming their understanding of interlanguage structures, so those would conform to the structures of the other language. According to PT, the learners who are learning a second language are able to reform, i.e., process the structures of the other language using the method and according to the order which is appropriate for their current stage of development. Therefore, the Processability Theory is concerned with research into the stages of development, by emphasizing the fact that language develops in a regular and predictable way, and it is possible to determine the developmental path for the acquisition of any language. Processability Theory is ascribed to Manfred Pienemann (1998) and it was created as a response to the deficiencies of the theories that preceded it (multidimensional model, strategies approach, the teachability hypothesis, and the predictive framework), which were also concerned with the sequence of acquisition of a second language. The basics of the Processability Theory are presented in the multidimensional model which was created as part of the ZISA project (German *Zweitspracherwerb Italienischer und Spanischer Arbeiter*). The ZISA research was based on the acquisition of the word order in the German language for 45 adult native speakers of Italian, Spanish, and Portuguese languages, and it explains the stages of acquisition of German as a second language. The stages indicate implicational scaling, i.e., the acquisition of rules at a certain stage necessitates the acquisition of the rules from the previous stages (Meisel, Clahsen, and Pienemann, 1981). Up until now, PT has been applied not only to the German language, but to many other languages as well. In most cases it was English (e.g., Fetter 1996; Mansoury and Duffy, 2005; Ellis, 2008; Sakai, 2008), then Swedish (Philipsson, 2007; Hakansson and Norrby, 2010), Japanese (Kawaguchi, 2005), French (Bartning, 2000; Devaele and Veronique, 2001), and many other languages, including Serbian (Medojević, 2009). The topic of this paper is the developmental path for the acquisition of the English language, with the focus on the final developmental stage, i.e. acquiring word order of a subordinate

clause with the aim of determining if the mentioned developmental stage was acquired (English morphology and syntax develops in six stages presented in Table 1). For the purpose of corpus analysis, in his research Pienemann uses emergence analysis, which is defined as the first systematic use of a structure and the beginning of the process of acquisition of a certain structure (Pienemann, 1998). In order to determine if a certain structure has emerged in the interlanguage, it is necessary to separate systematic productivity from formulae. Productivity is measured by the number of tokens and the systematic use of lexical/morphological variations of those tokens. According to Pienemann (1998), one productive token in four contexts is evidence of emergence, while Mansouri (2005 in Dyson, 2010) requires at least two lexical and morphological contrasts, and Zhang (2004 in Dyson, 2010) uses the minimum of four tokens with lexical variations in at least two. While analysing the acquisition of syntax, i.e., the word order in the Japanese language, Kawaguchi (2005) analysed the position of the lexical verb in a sentence, and required one token as the evidence of emergence. This paper also required one token, but considering that emergence is defined as the beginning in the process of the acquisition of a certain structure, the accuracy requirement is set at 80%. Considering the fact that even the native speakers cannot use fully accurate structures, the accuracy requirement is usually set at 80-90% (Ellis, 1994). Vainikka and Young-Sholten (in Pallotti, 2007) consider a particular structure acquired if it is accurately applied in 60% of cases, Ellis (1998 in Pallotti, 2007) requires a 75% accuracy, Andersen (1978 in Pallotti, 2007) 80% and Dulay and Burt (1974) require an accuracy of 90% in order to consider a particular structure acquired.

As stated above, a large amount of research confirms the postulates of the Processability Theory. However, several deficiencies have also been detected for the mentioned theory. For example, Pienemann (1998) emphasizes the importance of emergence of a certain structure, but fails to explain what happens after the emergence, i.e., when is it possible to determine that a certain structure has actually been acquired (Mellow, 1996). This hypothesis is also partially supported by Hulstijn (2015), who believes that future interlanguage research should focus on more than just the first indicators for the acquisition of a certain structure (emergence), it should also focus on the entire developmental path of a certain structure, i.e., it should provide the overview of a certain structure, from its first emergence until it is fully acquired.

Considering the objections directed at the emergence criterion, and taking into account that it represents only the beginning of the acquisition process, in this paper we used the criterion according to which the final developmental stage was acquired if it was used in 80 or more percent of the cases.

Considering that Pienemann (1998) applied the Processability Theory exclusively on speech production, Jordan (2004) believes that the area of application of the Processability Theory is limited, because it does not take into account other tasks like

grammatical evaluation tests and grammatical tasks, which is also mentioned by Pallotti (2007), who considers that these should also be included in the analysis by the use of the emergence criterion, because the aim is to collect a large corpus, in order to create a detailed analysis of the learners' interlanguage. For that reason, the Processability Theory was also applied to the written mode. However, in order to present the full image of the learners' language, future research could include both spoken and written production.

Table 1. Developmental stages for English morphology and syntax (Pienemann, 2005b, p. 24)

Stage	Processing Procedure	L2 process	Morphology	Syntax
6	Subordinate clause procedure	Main and subordinate clause		Cancel inversion
5	Sentence procedure	Inter-phrasal agreement	Subject-verb agreement (3rd person singular -s)	Do2nd, Aux2nd
4	Verb phrase procedure	Inter-phrasal agreement	Tense agreement	Y/N inversion Copula inversion
3	Noun phrase procedure	Phrasal information	Noun phrase agreement (Negation+Verb) Plural	Adverb fronting/ Do- fronting
2	Category procedure	Lexical morphology Possessive pronouns		Canonical word order
1	Word/lemma	Noun procedure	Invariant forms	Single constituents

4. Methodology

For corpus analysis, two written activities were administered to fifty 2nd year students of the faculty of food technology. In the first activity, the students were asked to translate ten sentences from Croatian into the English language. The sentences had to be translated using the indirect question word order. In the second activity, which consisted of five sentences, the students were asked to correct five incorrect sentences. Again, they had to pay attention to word order in indirect questions. This type of exercise was administered to students to check whether they use the word order in indirect questions correctly, i.e. if they use the word order of a normal positive sentence, which means cancelling the inversion. Taking into account that the students have learnt English for 14 years, the aim of this research was to check whether the last developmental stage, according to PT, was acquired. As previously explained, the accuracy requirement is set at 80%, i.e. last developmental stage will

be considered acquired if the students used indirect word order correctly in 80% of cases. Furthermore, the source of errors will be determined, so as to check whether the most errors appear because of the interference with the mother tongue or if they are intralingual which happen because of overgeneralization, ignorance of rule restrictions, incomplete rule application or wrong concepts hypothesized.

5. Results

The results of this research were attained from the corpus which consisted of 10 sentences in the first activity. They had to be translated from Croatian into English. Next activity was aimed at checking whether they students are able to correct grammatically incorrect sentences. Since the activities were administered to fifty students, the accuracy percentage was calculated for each sentence in the activity 1 (Table 2) and the activity 2 (Table 3). As can be seen from Table 2, the students were the least successful in translating the fifth sentence since they used the wrong word order. They were quite successful when translating the first two and the last sentence. The possible explanation is that they often hear these sentences, especially the first one, so they memorize it as chunks. However, the accuracy criterion was not met, so it can be claimed that they did not acquire the last developmental stage.

As far as the second activity is concerned (Table 3), we can see that they were even less successful. They struggled with correcting the fourth sentence. They did not notice that the word order was wrong, so we can reach the same conclusion: they failed to correct the indirect questions and the last developmental stage was not acquired. Altogether, they made errors in 65% of cases, the accuracy percentage being only 35% (Table 4).

Table 2. Accuracy percentage of translated indirect questions

Activity 1		
sentence no.	correct sentence in English	% accuracy
1	Sorry, could you tell me where the bus station is?	40%
2	I would like to know when this restaurant is closing.	44%
3	I would like to know how much this ring costs.	36%
4	Could you tell me if your friend lives in London?	32%
5	Could you tell me why he was late for the meeting?	18%
6	I wonder why she is unhappy.	34%
7	Could you tell me if she had breakfast before she went to school?	36%
8	Could you tell me when this lecture is going to end?	26%
9	Could you tell me if he wrote his homework?	28%
10	I wonder why he hasn't passed any of his exams.	54%

Table 3. Accuracy percentage of error correction

Activity 2		
Sentence no.	Incorrect indirect question	% accuracy
1	Can you tell me why is he unhappy?	34%
2	Can you tell me where has Lucy been?	18%
3	Do you know where is the post office?	64%
4	I'd like to know how long have you lived here?	10%
5	I'd like to know how much do you earn?	16%

Table 4. Percentage of correct and incorrect sentences in the Activity 1

Activity 1	
Correct sentences (%)	Incorrect sentences (%)
174 (500) 35%	326 (500) 65%

Next, the focus was on the types of errors made by the students. As we can see (Tables 5 and 6), the students mostly used wrong word order. This is a typical interlingual error, since they directly translate the sentences from their mother tongue, thus cancelling the inversion. Other types of errors were classified as intralingual ones, since the students hypothesized false concepts (e.g. *I wonder why he wasn't pass any of his exams*), applied incomplete rules (e.g. *I wonder how much does this ring cost*) or overgeneralized the rules (e.g. *Could you tell me had she had breakfast before she went to school*). The other errors that they made were due to the sentences they did not translate or verbs they omitted. Finally, the errors were divided into two main categories, intra- and interlingual (23 which were not translated were excluded from the analysis). As Table 6 shows, interlingual errors prevail, because the students are influenced by their mother tongue and translate the sentences directly, thus, ignoring the indirect question word order.

Table 5. Type of error

Type of error – Activity 1						
wrong word order (%)	false concepts hypothesized (%)	incomplete rule application (%)	overgeneralization (%)	subject-verb agreement (%)	verb - missing (%)	sentence not finished (%)
149 (500) 30%	43 (500) 9%	70 (500) 14%	27 (500) 2%	12 (500) 2%	2 (500) 0,4%	23 (500) 5%

Table 6. Source of error

Source of error	
Interlingual (%)	Intralingual (%)
158 (303)	145 (303)
52%	48%

6. Conclusion

The aim of this paper was to check if the students managed to acquire the last developmental stage according to the Processability Theory, to detect the most common errors and determine their sources. After corpus analysis, the following conclusions were drawn: students did not acquire the last developmental stage, since they managed to translate correctly only 35% of all sentences. Furthermore, they are far away from acquiring this stage (the required accuracy percentage was set at 80%). As for future studies, it would be interesting to check whether the students acquired the previous developmental stage, where they are supposed to put the auxiliaries to the second position. The starting point for this research was the fact that the students have been learning English for 14 years, so that is why the focus was on the last developmental stage. But being aware that they are not even close to the acquisition of the last stage on their developmental path of the English syntax, the teachers could adjust their teaching to the students' current developmental stage. That way they would not require from students more than they are able to process and learn. Since PT was criticized because it focused only on the speech production, this paper was applied to the written mode. The results would be more consistent if the PT was applied to oral production, so it would be interesting and useful to do it in future. Furthermore, most errors the students made were due to the incorrect word order, because the students use the same word order as in their mother tongue, i.e. they do not cancel the inversion in indirect questions. The source of the errors comes from the interference with their mother tongue, so these errors are classified as interlingual. In order to prevent these types of errors, the students could be taught to memorize words as chunks, which might prevent them from the interference with their mother tongue and then another research could be conducted to check whether the students still make the same errors or they made progress. Understanding the types of errors the students make could be very useful to the teachers because once the errors are detected, the teachers can gain insight into the difficulties the students are confronted with while learning and can help them to progress in learning. Furthermore, it could contribute to accurate and precise teaching and thus be a great help to teachers.

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Educational Film Experiment at Workplaces: Can Sex-Role Attitudes and Work and Life Balance Capabilities Related to Maternity Be Treated?

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Abstract

In order to understand the impact of educational videos on the sex-role attitudes and perceptions of maternity at workplaces, an experimental research design was selected. Our survey data originates from a randomized control trial of 262 employees across Estonian organisations. After using a randomization method to select five companies from Estonian company TOP 100 ranking, an equal size control and treatment groups within these companies were randomly selected. Employees of the control group were treated with a 20-minute educational film which was designed originally for highschool students for treating a traditional male-breadwinner type of sex-role attitudes. Research goal was to explore whether an educational film as a teaching tool could be also used in organisations to affect sex role attitudes and challenges of work and life balance with focus on maternity at workplaces. Survey data collection was arranged in companies by randomly splitting the employees into treatment and control groups, and they were guided through the experiment via written instructions and HR specialist support. For data analysis, author used descriptive analysis to measure the differences between the control and treatment group by analysing employees' responses to 20 individual statements in Likert scale, with a focus on sex-role attitudes and maternity challenges questions. More specifically, author compared the differences between control and treatment group as well as the gender differences across the two groups (i.e whether an educational film had a greater affect to one over the other sex). This experiment suggests which topics in educational videos could positively affect sex-role attitudes and perceptions of maternity at workplace. The article also makes suggestions how context supporting training tools can be used together with educational videos at workplaces.

Keywords: work-life balance capabilities, maternal wall, attitudinal change, randomized control trial, traditional sex-roles

Introduction

The research brings forth that balancing work and family life is a significant challenge for women and that having small children tends to be the biggest obstacle in a woman's career. The research substantiates the fact that building a career is easier for men and the glass ceiling as well as the maternal wall has an effect on women's careers.

Work-life balance refers to the ability of every individual, regardless of gender, to coordinate work and family obligations successfully. Work, in this context, refers to paid labor performed outside the home (Wheatley, 2012).

Studies have found that, when parents manage to balance family and working life, they are more satisfied with their life, which positively impacts their mental and physical health (Haar, Russo, Suñe, & Ollier-Malaterre, 2014).

Although half of the working-age population worldwide consists of women, men have considerably more entries to management positions and more effortless access to higher levels of organisations (Eagly et al. 1992).

Women who strive for leadership positions are often confronted with a "glass ceiling" – various invisible barriers that their male colleagues do not meet – blocking them from top management positions. The class ceiling metaphor has inspired many researchers to explore the reasons behind the phenomenon (Ryan and Haslam, 2005, 2007 and Bruckmiller and Branscombe, 2010).

As the motherhood barrier is deemed one of the most important factors hindering women's careers (Williams 2004), it is important to focus on mothers unequal distribution of child care responsibilities and discrimination at workplace, in order to improve their access to labour market and reduce the existing and potential childbirth-related and other obstacles on the career path to reach leadership positions.

There is an understanding that the quality of work and life balance depends on a combination of family member mutual agreements on sharing care, labour market and government childcare policies.

The EU Work-life Balance (WLB) Directive aims to improve families' access to family leave and flexible work arrangements. The WLB directive has entered into European Union law and must now be adopted by Member States by 2nd of August in 2022.

The Work-life Balance Directive introduces a set of legislative actions designed to modernise the existing EU legal and policy frameworks, with the aims of better supporting a work-life balance for parents and carers, encouraging a more equal sharing of parental leave between men and women, and addressing women's underrepresentation in the labour market. Measures under the directive include

introduction of paternity leave; transferability option of parental leave between parents; introduction of carer leave; extension of flexible working arrangements for carers and working parents of children up to eight years old.

In this article, the work-life balance is conceptualised as the results of the capability to make choices between work life and family life. The paper will implement experimental design at workplaces to measure impact of educational video on the attitudes of workers of traditional and egalitarian sex roles and on perception of maternity-career at workplaces.

As underlined, our theoretical underpinnings rely on premises of the capabilities approach (Kremer 2006, Kurowska 2016, Lauri et al 2019). In general, we see that a certain mix of legal and economic constraints with conversion factor can bring along good outcomes in terms of equal capabilities of fathers and mothers to proceed with childcare and dual careers. It is also indicated by Lauri et al (2019) that certain policy mixes measuring legal and economic constraints produce different outputs (capabilities) in different institutional settings.

This research paper will focus on treating this “conversion factor” social norms i.e attitudes concerning appropriate role of mothers and fathers at work place and (in this paper called “traditional and egalitarian sex roles”) and perceptions of being mother at work place (in this paper called “maternity for career fit”).

In order to understand the impact of educational videos on the sex-role attitudes and perceptions of maternity at workplaces, an experimental research design was selected. Our survey data originate from a randomized control trial (RCT) of 262 employees of Estonian organisations. After using a randomization method to select five companies from Estonian company TOP 100 ranking and then randomly selecting equal size control and treatment group within these companies. Survey data collection was arranged in companies by randomly splitting the employees into treatment and control groups.

Employees of the treatment group were treated with a 20-minutes lasting educational film, which was designed originally for high school students for treating a traditional male-breadwinner type of sex-role attitudes.

The article will have the following structure: firstly, in-scope theoretical approaches are explained, secondly, research design and methodology is explained and thirdly, the author outlines the results and includes relevant discussion. As final part, the author will outline some practical suggestions how to make impact on traditional sex roles and maternity for career at workplaces.

Theoretical framework

There is a continued and increasing interest in sex roles (sometimes used gender roles) cultural developments and its measurements, being originally an area of focus

for social psychology, now extended to education, leadership, management and organizational behaviour. It is interesting to note that most of the measures developed are meant to measure parental roles or related parental sex role issues (shared care, work and life balance) and not developed for young generations with no children. This is the research gap to be filled as the parental roles are developed during the later stage in adult lives, while sex roles “roll out” in other areas first.

One of the most comprehensive sex-roles measurement guides was published 30 years ago by C.A. Beere (1990) as her "Gender Roles: A Handbook of Test and Measures" was written based on extensive research including findings across 7000 journal articles in the field and over 1400+ different "measures."

One of the more recent sex roles measurement analyses and research was delivered by John Walter 13 years ago, where in his doctoral dissertation he stated (Walter, 2018) that social developments create the need to phrase sex roles items differently than back in 1970s and 1980s where for example the childcare and careers of mothers and fathers had a different meaning years back than today.

Before starting this research, the author of this article poses a general question: can sex role attitudes be changed at all? There appears to be a “chicken and egg situation”- do formal institutions make cultural (including social norms) changes happen or vice-versa, do culture norms (i.e appropriate behaviours, attitudes about sex roles) drive the changes in government policies?

Sex-roles can be defined as attitudes and behaviours which are prescribed and assigned by a society to men and women on the basis of gender (Bartley, Blanton, & Gillard, 2005:72). Diekman & Goodfriend (2006) indicate that sex-role attitudes are prescriptive while gender roles are descriptive beliefs about gender characteristics and differences. In any terms, the author of this article understands that sex roles express how women and men should behave and the different tasks and roles they are expected to perform. And in many cases, terms sex -roles and gender roles are used interchangeably.

There are many studies which argue that formal institutional changes make informal institutional changes happen. In addition to social structural developments, the institutional context can also influence gender role attitudes, and cultural norms can have an effect on the formulation, institutionalization and efficacy of work-family policies (Budig, Misra, & Boeckmann, 2012). Family policies likely influence gender role attitudes by signaling what is defined as appropriate behavior and by shaping the choices which are available to individuals (Jakobsson & Kotsadam, 2010).

The author of this research believes that the effects of institutions and government policies are difficult to subtract from the effect of cultural preferences and individual attitudes towards sex roles (see Figure 1). We cannot make a difference in society by changing legal and economic constraints only, but instead should focus on “conversion factors” of gendered attitudes and social norms. It is widespread

understanding that sex roles are most impacted in early age, but this research explores whether sex role attitudes and perception of maternity fit for career at workplaces could also be affected later in life by using educational videos.

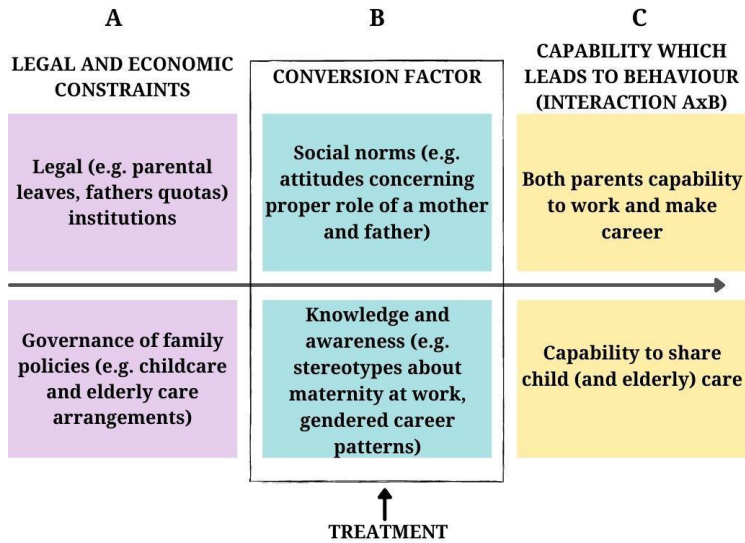


Figure 1: Theoretical model of the approach (modified from Lauri et al. 2019)

It is known that women, once becoming mothers, face many challenges. The glass ceiling phenomenon partially explains the minor proportion of young women in leadership positions. The glass ceiling theory represents an invisible barrier that blocks the advancement of women's careers more easily than men's. (Simpson & Altman 2000). One of its major causes is that women are stereotypically ascribed feminine traits that are deemed inappropriate for a management context and thus lead to less favourable evaluations of women's performances and suitability as career promotions.

The gender (sex role) has an impact on a manager's evaluation and even high proficiency, or great success does not secure women from negative evaluation. Additionally, there's an understanding about leadership styles "fit" for female managers, which contributes to female employee's likelihood of promotion to leadership positions. (Eagly et al. 1992, 2001).

Even though the glass ceiling marks an invisible barrier on the career ladders of all women, the motherhood barrier is a part of the glass ceiling that symbolises an invisible barrier on the career ladders of women with children (Williams 2014, 16). In 2007, Shelley Correll and Stephen Benard wrote an article based on a thorough research that caused quite a stir, proving that if a woman has a child, the likelihood of her finding work decreases by 79%; the likelihood of her getting a promotion is 50% lower compared to women with no children; and that the initial wage offer made to

her is significantly lower, not only compared to the wage offers made to men but also to the wage offers made to women without children. Williams (2014) states that the women interested in building their careers have begun to knowingly evade the possibilities for the prejudice arising from the motherhood barrier.

Researchers Eagly and Karau (2002), proposed the role congruence theory, which described that even though women follow the same career tracks as men, men get promotion opportunities (Eagly & Karau, 2002). This gender inequality that is perceived puts women in a disadvantage because they are less favorable compared to men. These findings suggest that high perceptions of gender inequality or role incongruity in the workplace make it harder for women to succeed.

There is an understanding that the quality of work and life balance depend on a combination of parents balancing the professional and family lives, labour market and government childcare policies.

In the studies conducted so far, three separate problems are differentiated for the motherhood barrier: the parental leave and competence, children and career – the efficiency of work, and the balance of work and family life.

Several studies (Correll & Benard 2005, Correll & Shelley 2007) have proved that for the employer, motherhood determines, by default, a lower level of competence, desire to dedicate to work, and thus the work-related capability of a woman (Correll & Ridgeway 2003, 29). The difference between perceiving the competence of a “mother” and a classic “good employee” is even bigger than the difference between perceiving the comparable competencies of a woman and a man, as the cultural stereotype of a “good mother” is even more different from the cultural stereotype of a “good employee” – she is significantly less competent. Based on the lower competence, it is assumed that a woman with children will contribute less and make less effort, thus being less efficient (Correll & Ridgeway 2004, 684–686).

To prove their competence, mothers have to work significantly harder than others do in their professional lives, constantly demonstrating the completion of duties above their abilities. Each throwback is seen as a direct consequence of the employee’s motherhood and the resulting low efficiency of work, which makes the career efforts of women with children very complicated (Correll & Bernard 2005, 1302).

Glass describes (2004) that even though modern employers have increasingly begun to offer their employees opportunities for flexible working time, studies show that taking advantage of the opportunity for the flexible organisation of working time is often also perceived as punishment in a way. If mothers take advantage of the opportunities for flexible working time, their colleagues will begin to increasingly associate them with the traits and stereotypes of a parent, which is immediately accompanied by the above-mentioned prejudices regarding competence and lower efficiency. As a result, a woman with children using the option of flexible working time

will actually have to work more than by simply sitting in an office for a regulated working time (Glass 2004, 372–375).

Methodology

Sampling and data collection. The research survey data originate from a randomized control trial (RCT) of 262 employees across five randomly selected Estonian organisations. The five organisations were selected after using a computerized randomisation method, a random allocation of Excel list of top 100 Estonian companies. This list of 100 Estonian companies is created every year by the leading Estonian daily newspaper „Äripäev.” It is developed based on growth indicators in 2019/ 2018 as of sales revenue, operating profit, and return on investment. In order to qualify, companies need to have been active in 2020 and have a minimum annual sales revenue of 18.8 million euros.

All randomly selected companies were contacted by the researcher. One company declined due to Covid -19 challenging times and a new company was selected by computerized randomisation method. With help of HR directors in selected five organizations, equal size control and treatment group within these companies were randomly selected and instructed respectively.

Research was carried out during the months of May to June in 2021. Due to Covid-19 restrictions, online channels (Zoom, Microsoft Teams, companies' internal conference channels) were used to provide instructions and experiment tools (educational video). Survey instrument itself was available online as the preferred method for companies and respondents. For one of the organisations (production company), a group viewing for educational film was organised in a factory conference room and surveys were filled in individually in paper as respondents had no access to online channels.

Demographic characteristics. Table 1 and 2 display demographic characteristics of our study. In general, the employees were divided in three different age groups: 20-30, 31-40, and 41+ years old. Across all respondents, 50 employees were between 20-30 year old, 81 were 31-40 year old, and the highest number of employees, 131, were over 41 years old. Out of all respondents, 75 were male (0=male), and 187 were female (1=female) (see table 2). Furthermore, in our data set we had some background characteristics that were categorical and ordered in the following way indicating one's level of education acquired: 1= Master's Degree, 2=Bachelor's Degree, 3= High School Degree, 4= Vocational Education, 5= Unfinished Higher Education, 6= Basic Education. As table 2 shows, most respondents are highly educated, with 63% of respondents having at least a bachelor's degree or above.

As tables 3-6 show, while there are some differences in age distribution across the control and treatment group, there are no statistically significant differences across demographic and background characteristics of the control and treatment group, which indicates that our randomization method was successful.

Table 1: Age distribution of employees

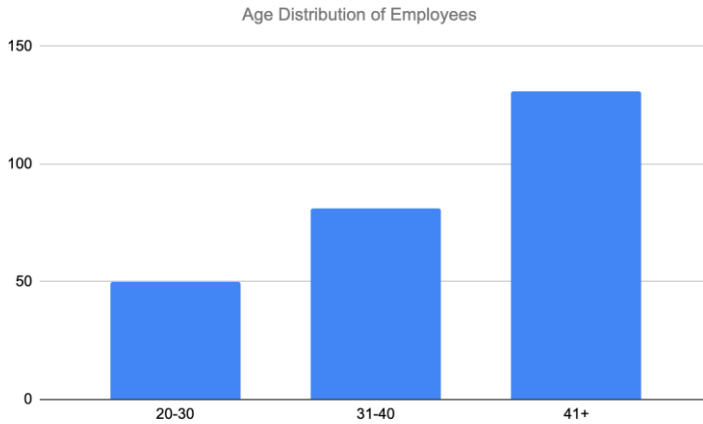


Table 2: Other demographic characteristics of employees

Statistic	N	Mean	St.D ev	Min	Pctl (25)	Pctl (75)	Max
Gender	2 6 2	0.714	0.45 3	0	0	1	1
Educati onLevel	2 6 2	2.508	1.40 3	1	1	3	6

Table 3: Age distribution of control group

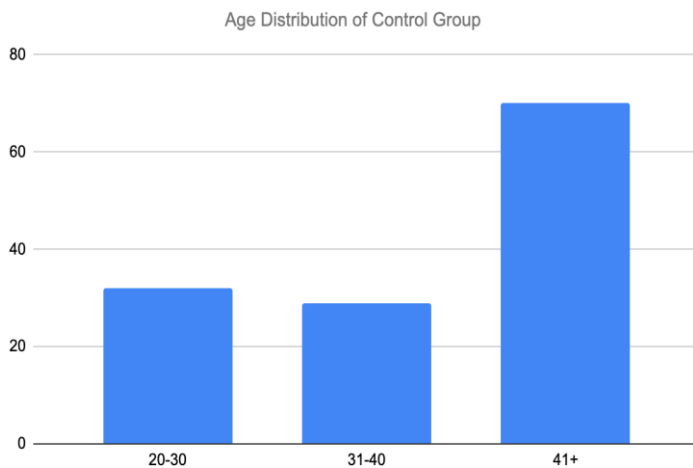


Table 4: Other demographic characteristics of control group

<i>Statistic</i>	<i>N</i>	<i>Mean</i>	<i>St.Dev</i>	<i>Min</i>	<i>Pctl (25)</i>	<i>Pctl (75)</i>	<i>Max</i>
<i>Gender</i>	262	0.695	0.462	0	0	1	1
<i>EducationalLevel</i>	262	2.718	1.526	1	2	4	6

Table 5: Age distribution of treatment group

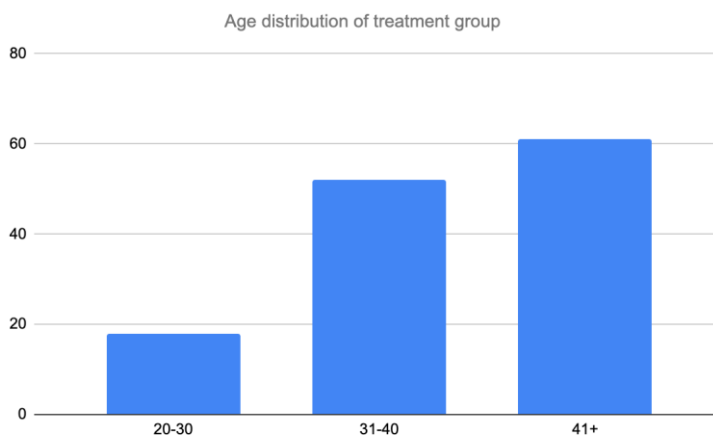


Table 6: Other demographic characteristics of treatment group

<i>Statistic</i>	<i>N</i>	<i>Mean</i>	<i>St.Dev</i>	<i>Min</i>	<i>Pctl (25)</i>	<i>Pctl (75)</i>	<i>Max</i>
<i>Gender</i>	262	0.733	0.444	0	0	1	1
<i>EducationalLevel</i>	262	2.298	1.238	1	1	3	6

Methodology. For this research, the author was to measure the differences between the control and treatment group by analysing employees' responses to 20 individual statements on a Likert scale, with a focus on sex-role attitudes and maternity/ career

challenges questions. More specifically, the author's goal was to find out whether an education film has impact on:

The general differences between control and treatment group

The gender differences across the two groups (i.e. whether an educational film had a greater effect to one over the other gender).

Analyses methods. For data analysis, the author has used descriptive analysis, such as minimums, maximums, means and standard deviations to analyze data points from a 6 point Likert scale, which is one of the most broadly used methods for scaling responses in survey studies. The author has also included percentile calculations to understand how respondents' perceptions spread across the spectrum.

3 The design of the treatment and survey instrument

Before filling out the survey, employees in the treatment group were shown a 20-minute-long educational film, produced by Kuukulgur Company, Estonia, and delivered by well-known Estonian actors. For script writing, the author of the article was one of the members of the research group to provide background research about challenges in the area of parental challenges of WLB.

The educational film consists of 8 short sketches of a family of full-time working mother (data analytics specialist), full-time working father (works for logistics as specialist), and how they balance their work and life as parents of two children (toddler and a schoolgirl) while also taking care of the sick grandfather. More specifically, sketches include the usual situations of working parents, addressing the following topics:

Challenges on work and life balance due to long working hours and no options for flexible working hours. Effect on both parents, but more on mothers.

Challenges on taking care of the elderly members at home. Possibilities for asking help.

Pressure on working mothers to be perfect at work as well taking care of the family as the main care provider.

Discrimination at work, questions about family status (about number of children) at job interview and limited possibility to plan flexible working hours as a working mother.

Children at workplace meetings, options for public childcare.

Shared care responsibilities between mother and father, mother's responsibility to take care of family while working full time, mother's "free time" is taking care of family.

Right to get paid leave for childcare and ask for help from the municipal government for elderly care.

The educational video has a “happy ending” as the family furthers themselves, makes arrangements in their life (better shared care of children), the elderly family member has a role in daily home chores, mother’s employer understands that having family does not make mother a less efficient employee, and flexible working hours and place does not inhibit work results.

To strengthen the effect of the educational video, the treatment also includes a guiding question after every sketch (such as “Do you think that children benefit when both parents share care equally” etc.) to make a higher cognitive affect towards more egalitarian sex-roles and maternity perceptions at work place.

These educational video series were originally produced as educational tool for high-school children (15 years+) to be used in the classrooms, to make impact on their attitudes of sex-roles development and provide tools how to balance work and life in the future. In schools, educational videos are accompanied by teacher lectures and case study analyses.

The survey instrument. The author used a 6-point Likert scale, which is one of the most common methods to measure a wide range of perceptions, motivations, and intentions. To ensure that the overall likert scale can be treated interval level, an evenly spaced standardized response categories were utilized: 1-totally disagree, 2 - disagree; 3-slightly disagree; 4-slightly agree; 5-agree; 6- totally agree.

The survey instrument consisted of two parts including a total of 20 statements. First part consisted of 10 statements related to traditional and more egalitarian sex roles (Adapted from Walter doctoral dissertation 2018), and the second part consisted of 10 statements related to maternity fit to career (statements were composed by the author based on relevant research concepts in that area).

Survey part 1. Statements to assess employees` attitudes towards traditional and more egalitarian sex roles. Walter (2018) divides the new structure of sex roles, as he has stated that sex roles measurement in 21st century needs to be approached differently as the meaning of parenting, family care and work and life balance are continuously changing. His research states that there are two latent variables: traditional sex roles (originally traditional male- breadwinner concept) and modern sex roles (known also as an egalitarian caregiver concept).

FULMW A full-time working mother can normally establish just as close a relationship with her small child as a mother who doesn’t work. (egalitarian caregiver)

BOTHFUL The best way to organize family and work life is for both partners to work full-time and to look after the home and children equally. (egalitarian caregiver)

CHLSUF A small child is bound to suffer if his or her mother goes out to work. (reverse scale) (male breadwinner)

MBREAD It is much better for everyone concerned if the man goes out to work and the woman stays at home and looks after the house and children. (later used in survey in reverse scale)(male breadwinner)

CHLBEN A child actually benefits if his or her mother has a job rather than just concentrating on the home. (egalitarian caregiver)

BOTHPART The best way to organize family and work life is for both partners to work part-time and to look after the home and children equally. (reverse scale) (male breadwinner)

FULDBAD A father who works full-time cannot care for his children properly. (reverse scale) (male breadwinner)

WRKMHOME Even if both parents work full-time, it is still better if the mother has main responsibility for looking after the home and children. (reverse scale) (male breadwinner)

FULDW A full-time working father can normally establish just as close a relationship with his small child as a father who doesn't work. (egalitarian caregiver)

ROLECHA A man can be responsible for looking after the home and children just as well while the woman works full-time. (egalitarian caregiver)

Survey part 2. Statements to assess employees' attitudes towards maternity fit for career were constructed by the author of the article and based on research literature on "maternal wall," "glass ceiling theories" and "gendered career paths" due to the author's work in doctoral dissertation.

WLB1 A woman has to cope perfectly with both her mother role and the role as the best employee, at the same time. (role congruity theory)

WLB2 It is easier for men to pursue a career than women. (gendered career paths)

WLB3 The presence of children affects women's careers more than men's. (gendered career paths)

WLB4 A woman who is pregnant or has small children is not in a position of responsibility because she cannot be fully committed to work. (maternal wall)

WLB5 A woman who is pregnant or has small children is less effective at work as she prioritizes children over work. (maternal wall)

WLB6 A woman who is pregnant or has small children is less competent at work. (perceived loss of professional competence while being a mother)

WLB7 Companies prefer men in leadership positions. (gendered career paths)

WLB8 Organising work and life balance is the mother's responsibility. (work and life balance challenges)

WLB9 Finding work and life balance is mostly a problem for women. (work and life balance challenges)

WLB10 Taking children to work reduces work efficiency. (work and life balance challenges)

Please note that this survey instrument consists of additional 10 statements related to institutional practices to regulate work and life balance, Covid-19 impact on parental roles and care. These statements were not analysed and presented in this article due to the scope of this study.

Results and Discussion

The author of the article compares the differences between control and treatment group as well as the gender differences across the two groups (i.e whether an educational film had a greater affect to one over the other sex).

The author presents the results and discussion in two parts:

1) Sex role attitudes

2) Attitudes to maternity fit for career and WLB challenges

In both parts, the general differences between control and treatment group as well as the gender differences across the two groups results are presented.

Results and discussion on sex-role attitudes: On average, employees in the treatment group were slightly more favourable towards modern sex roles when compared to employees in the control group (see tables 7-12).

Table 7. Descriptives of the Sex-Role Attitudes: Control Group

<i>Statistic</i>	<i>N</i>	<i>Mean</i>	<i>St.Dev</i>	<i>Min</i>	<i>Pctl (25)</i>	<i>Pctl (75)</i>	<i>Max</i>
<i>FULMW</i>	131	4.443	1.484	1	3	6	6
<i>BOTHFUL</i>	131	4.947	1.159	2	4	6	6
<i>CHLSUF</i>	131	3.603	1.597	1	2	5	6
<i>MBREAD</i>	131	2.519	1.454	1	1	4	6
<i>CHLBEN</i>	131	4.489	1.321	1	4	6	6
<i>BOTHPART</i>	131	4.344	1.518	1	3	6	6
<i>FULDBAD</i>	131	2.122	1.436	1	1	3	6
<i>WRKMHOME</i>	131	2.153	1.406	1	1	3	6

<i>FULDW</i>	131	4.237	1.493	1	3	6	6
<i>ROLECHA</i>	131	5.084	1.151	1	4.5	6	6

Table 8. Descriptives of the Sex-Role Attitudes: Control Group (Male)

<i>Statistic</i>	<i>N</i>	<i>Mean</i>	<i>St.Dev</i>	<i>Min</i>	<i>Pctl (25)</i>	<i>Pctl (75)</i>	<i>Max</i>
<i>FULMW</i>	40	4.100	1.464	1	3	5	6
<i>BOTHFUL</i>	40	4.750	1.149	1	4	6	6
<i>CHLSUF</i>	40	3.525	1.450	1	2	4.25	6
<i>MBREAD</i>	40	2.800	1.436	1	2	4	5
<i>CHLBEN</i>	40	4.250	1.171	1	3.75	5	6
<i>BOTHPART</i>	40	3.975	1.476	1	3	5	6
<i>FULDBAD</i>	40	2.275	1.485	1	1	3	6
<i>WRKMHOME</i>	40	2.375	1.390	1	1	3	6
<i>FULDW</i>	40	3.950	1.319	1	3	5	6
<i>ROLECHA</i>	40	4.875	1.305	1	4	6	6

Table 9. Descriptives of the Sex-Role Attitudes: Control Group (Female)

<i>Statistic</i>	<i>N</i>	<i>Mean</i>	<i>St.Dev</i>	<i>Min</i>	<i>Pctl (25)</i>	<i>Pctl (75)</i>	<i>Max</i>
<i>FULMW</i>	91	4.593	1.476	1	3	5	6
<i>BOTHFUL</i>	91	5.033	1.159	1	4	6	6
<i>CHLSUF</i>	91	3.637	1.663	1	2	4.25	6
<i>MBREAD</i>	91	2.396	1.452	1	2	4	5
<i>CHLBEN</i>	91	4.593	1.374	1	3.75	5	6
<i>BOTHPART</i>	91	4.505	1.516	1	3	5	6
<i>FULDBAD</i>	91	2.055	1.417	1	1	3	6
<i>WRKMHOME</i>	91	2.055	1.409	1	1	3	6

<i>FULDW</i>	91	4.363	1.553	1	3	5	6
<i>ROLECHA</i>	91	5.176	1.071	1	4	6	6

Table 10. Descriptives of the Sex-Role Attitudes: Treatment Group

<i>Statistic</i>	<i>N</i>	<i>Mean</i>	<i>St.Dev</i>	<i>Min</i>	<i>Pctl (25)</i>	<i>Pctl (75)</i>	<i>Max</i>
<i>FULMW</i>	131	4.702	1.275	1	4	6	6
<i>BOTHFUL</i>	131	5.260	0.973	1	5	6	6
<i>CHLSUF</i>	131	3.336	1.634	1	2	4	6
<i>MBREAD</i>	131	1.931	1.083	1	1	2.5	6
<i>CHLBEN</i>	131	4.763	1.288	1	4	6	6
<i>BOTHPART</i>	131	4.321	1.515	1	3	6	6
<i>FULDBAD</i>	131	1.939	1.357	1	1	2	6
<i>WRKMHOME</i>	131	1.626	0.979	1	1	2	5
<i>FULDW</i>	131	4.534	1.459	1	3.5	6	6
<i>ROLECHA</i>	131	5.382	0.932	2	5	6	6

Table 11. Descriptives of the Sex-Role Attitudes: Treatment Group (Male)

<i>Statistic</i>	<i>N</i>	<i>Mean</i>	<i>St.Dev</i>	<i>Min</i>	<i>Pctl (25)</i>	<i>Pctl (75)</i>	<i>Max</i>
<i>FULMW</i>	35	4.286	1.619	1	3	6	6
<i>BOTHFUL</i>	35	5.114	1.255	1	5	6	6
<i>CHLSUF</i>	35	3.457	1.853	1	2	5	6
<i>MBREAD</i>	35	1.857	1.033	1	1	2	4
<i>CHLBEN</i>	35	4.629	1.477	1	4	6	6
<i>BOTHPART</i>	35	4.257	1.669	1	3	6	6
<i>FULDBAD</i>	35	1.771	1.416	1	1	2	6
<i>WRKMHOME</i>	35	1.571	0.948	1	1	2	4

<i>FULDW</i>	35	4.171	1.855	1	2.5	6	6
<i>ROLECHA</i>	35	5.200	1.052	2	5	6	6

Table 12. Descriptives of the Sex-Role Attitudes: Treatment Group (Female)

<i>Statistic</i>	<i>N</i>	<i>Mean</i>	<i>St.Dev</i>	<i>Min</i>	<i>Pctl (25)</i>	<i>Pctl (75)</i>	<i>Max</i>
<i>FULMW</i>	96	4.854	1.095	2	4	6	6
<i>BOTHFUL</i>	96	5.313	0.850	3	5	6	6
<i>CHLSUF</i>	96	3.292	1.555	1	2	4	6
<i>MBREAD</i>	96	1.958	1.104	1	1	3	4
<i>CHLBEN</i>	96	4.813	1.217	1	4	6	6
<i>BOTHPART</i>	96	4.344	1.464	1	3	6	6
<i>FULDBAD</i>	96	2.000	1.338	1	1	3	6
<i>WRKMHOME</i>	96	1.646	0.995	1	1	2	6
<i>FULDW</i>	96	4.667	1.270	1	4	6	6
<i>ROLECHA</i>	96	5.448	0.881	2	5	6	6

On average, statements, which the educational film seemed to have the most (positive) impact on, were **the most fundamental statements** around traditional (breadwinner) sex roles:

(MBREAD) It is much better for everyone concerned if the man goes out to work and the woman stays at home and looks after the house and children. (later used in survey in reverse scale) (male breadwinner)

(WRKMHOME) Even if both parents work full-time, it is still better if the mother has the main responsibility for looking after the home and children. (reverse scale) (male breadwinner)

While comparing responses to statements related to traditional sex-role attitudes across male and female respondents, the more significant change between the treatment and control group was driven by the changes in men's perceptions, suggesting that the educational videos may have more impact on men's perceptions compared to that of women's when it comes to modernising traditional (male breadwinner) sex role attitudes.

Results on maternity career fit. The differences between the treatment and control group results were less notable in responses to maternity fit for career statements compared to those of traditional sex-role attitudes (see tables 13-18).

Table 13. Descriptives of the Maternity Career Fit (WLB) Attitudes: Control Group

<i>Statistic</i>	<i>N</i>	<i>Mean</i>	<i>St.Dev</i>	<i>Min</i>	<i>Pctl (25)</i>	<i>Pctl (75)</i>	<i>Max</i>
WLB1	131	3.153	1.778	1	2	5	6
WLB2	131	4.084	1.504	1	3	5	6
WLB3	131	4.496	1.361	1	4	6	6
WLB4	131	2.328	1.372	1	1	3	5
WLB5	131	2.481	1.332	1	1	3	6
WLB6	131	1.595	1.051	1	1	2	6
WLB7	131	3.954	1.397	1	3	5	6
WLB8	131	2.916	1.669	1	1	4	6
WLB9	131	3.290	1.605	1	2	5	6
WLB10	131	3.763	1.538	1	3	5	6

Table 14. Descriptives of the Maternity Career Fit (WLB) Attitudes: Control Group (Male only)

<i>Statistic</i>	<i>N</i>	<i>Mean</i>	<i>St.Dev</i>	<i>Min</i>	<i>Pctl (25)</i>	<i>Pctl (75)</i>	<i>Max</i>
WLB1	40	2.825	1.448	1	2	4	6
WLB2	40	3.500	1.414	1	2	5	6
WLB3	40	3.775	1.561	1	2.75	5	6
WLB4	40	2.675	1.474	1	1.75	4	5
WLB5	40	2.925	1.509	1	2	4	6
WLB6	40	1.900	1.236	1	1	2	6
WLB7	40	3.450	1.260	1	3	4	6
WLB8	40	2.325	1.509	1	1	3	6

WLB9	40	2.450	1.176	1	1	3	6
WLB10	40	4.050	1.413	1	3	5	6

Table 15. Descriptives of the Maternity Career Fit (WLB) Attitudes: Control Group (Female only)

<i>Statistic</i>	<i>N</i>	<i>Mean</i>	<i>St.Dev</i>	<i>Min</i>	<i>Pctl (25)</i>	<i>Pctl (75)</i>	<i>Max</i>
WLB1	91	3.297	1.894	1	1	5	6
WLB2	91	4.341	1.477	1	4	5	6
WLB3	91	4.813	1.134	1	4	6	6
WLB4	91	2.176	1.305	1	1	3	5
WLB5	91	2.286	1.204	1	1	3	6
WLB6	91	1.462	0.935	1	1	2	6
WLB7	91	4.176	1.403	1	3	5	6
WLB8	91	3.176	1.677	1	1	4	6
WLB9	91	3.659	1.634	1	3	5	6
WLB10	91	3.637	1.581	1	3	5	6

Table 16. Descriptives of the Maternity Career Fit (WLB) Attitudes: Treatment Group

<i>Statistic</i>	<i>N</i>	<i>Mean</i>	<i>St.Dev</i>	<i>Min</i>	<i>Pctl (25)</i>	<i>Pctl (75)</i>	<i>Max</i>
WLB1	131	2.695	1.441	1	1.5	4	6
WLB2	131	4.153	1.501	1	3.5	5	6
WLB3	131	4.351	1.392	1	4	5	6
WLB4	131	1.901	1.059	1	1	2	5
WLB5	131	2.153	1.180	1	1	3	5
WLB6	131	1.160	0.461	1	1	1	4
WLB7	131	4.053	1.377	1	4	5	6
WLB8	131	2.527	1.679	1	1	4	6

WLB9	131	3.473	1.720	1	2	5	6
WLB10	131	3.237	1.488	1	2	5	6

Table 17. Descriptives of the Maternity Career Fit (WLB) Attitudes: Treatment Group (Male only)

<i>Statistic</i>	<i>N</i>	<i>Mean</i>	<i>St.Dev</i>	<i>Min</i>	<i>Pctl (25)</i>	<i>Pctl (75)</i>	<i>Max</i>
WLB1	35	2.457	1.268	1	1	3.5	5
WLB2	35	3.143	1.574	1	2	5	6
WLB3	35	3.829	1.599	1	3	5	6
WLB4	35	1.971	1.200	1	1	2	5
WLB5	35	2.400	1.333	1	1	3.5	5
WLB6	35	1.143	0.550	1	1	1	4
WLB7	35	3.000	1.572	1	1	4	6
WLB8	35	1.657	1.027	1	1	2	4
WLB9	35	2.114	1.568	1	1	3	6
WLB10	35	3.686	1.641	1	2	5	6

Table 18. Descriptives of the Maternity Career Fit (WLB) Attitudes: Treatment Group (Female only)

<i>Statistic</i>	<i>N</i>	<i>Mean</i>	<i>St.Dev</i>	<i>Min</i>	<i>Pctl (25)</i>	<i>Pctl (75)</i>	<i>Max</i>
WLB1	96	2.781	1.495	1	2	4	6
WLB2	96	4.521	1.298	1	4	5	6
WLB3	96	4.542	1.264	1	4	5	6
WLB4	96	1.875	1.008	1	1	2	5
WLB5	96	2.063	1.113	1	1	3	5
WLB6	96	1.167	0.427	1	1	1	3
WLB7	96	4.438	1.074	1	4	5	6
WLB8	96	2.844	1.761	1	1	4.25	6

WLB9	96	3.969	1.497	1	3	5	6
WLB10	96	3.073	1.401	1	2	4	6

The statements regarding maternity in which the educational film had the bigger impact on (see tables 13-18) were as follows:

(WLB1) A woman has to cope perfectly with both her mother role and the role as the best employee, at the same time. (role congruity theory)

(WLB4) A woman who is pregnant or has small children is not in a position of responsibility because she cannot be fully committed to work. (maternal wall)

(WLB6) A woman who is pregnant or has small children is less competent at work. (perceived loss of professional competence while being a mother)

While comparing responses to maternity related statements across genders (see tables 14-15 and 17-18), interestingly, educational video had larger impact on men for statements that were rooted from the traditional sex role of the mother/caregiver:

(WLB4) A woman who is pregnant or has small children is not in a position of responsibility because she cannot be fully committed to work. (maternal wall)

(WLB6) A woman who is pregnant or has small children is less competent at work. (perceived loss of professional competence while being a mother)

(WLB8) Organising work and life balance is the mother's responsibility. (work and life balance challenges)

However, for statements that were driven from challenges in work and life balance, an educational video had larger effect on women:

(WLB1) A woman has to cope perfectly with both her mother role and the role as the best employee, at the same time. (role congruity theory)

(WLB10) Taking children to work reduces work efficiency. (work and life balance challenges)

Interestingly, there were also statements where the educational video had minimal to no impact at all (i.e. same results in the treatment and control group), insinuating the existence of common and deeply rooted beliefs across genders:

(WLB 2) It is easier for men to pursue a career than women.

(WLB 3) The presence of children affects women's careers more than men's.

This analysis suggests that the educational video can serve a different purpose based on gender. While for men it is mainly about awareness- that is, changing their deeply

rooted pre-existing attitudes about traditional sex roles, for women it is more about encouragement towards embodying modern sex roles.

For women, it is most important to provide them confidence and show different ways to make it work. For men, it is important to challenge their pre-existing perceptions of traditional sex roles through open communication and awareness-based content. Finding that there were some statements that were not affected by the educational video (i.e. some deeply rooted attitudes), further supports the importance of connecting the right content with the right channels. Therefore, it is essential to understand the areas that can be influenced through the educational video, and as a result tailor the content accordingly.

Conclusions

This article discusses whether sex-role attitudes can be changed only evolutionary (i.e. over time naturally) or they can be treated by educational videos? The theoretical premises lie to the founding of capabilities building approach (Kurowska 2016, Laur et al. 2019), which explains the success of the family policies in supporting the work-life balance by prevailing attitudes about the "proper" sex-roles in the society. For various outcomes of work-life balance (e.g. gender wage gap, caregiving time gap) family policies interact with attitudinal factors.

This article highlights the importance of three areas when it comes to changing sex role attitudes in the workplace: it is about content of educational videos, channel of delivery, and audience.

This analysis of this article informs us about the "content" area, more specifically outlining topics that can be most effective when using educational videos to positively affect sex-role attitudes and perceptions of work and life balance capabilities with focus on maternity. Furthermore, it not only highlights the importance of content itself, but also the significance of tailoring the content to the right target audience (women vs. men). It serves as a good groundwork for future analysis to further gain insights on how to change perceptions of sex-role attitudes and work and life capabilities in the workplace.

To achieve the objectives of this specific research analysis, the educational video was shown in isolation without any other educational tools (lecture, case study analyses, discussion on topics), and in many areas we can see small changes in sex role attitudes. Surprisingly, the research results show that men are more subject to change their views on originally very traditional attitudes on sex roles.

It is clear that educational video (or series of videos with regular repetition) is an impactful educational tool, as research in many ways discusses the so-called "multimedia principle". Providing words with pictures, images, or other graphics enhances learning relative to materials that include only words or, as in most work

places, sex roles and family challenges are not talked at all openly and in meaningful ways.

The author of the article will outline the following recommendations how the impact of educational videos on sex-roles attitudes can be strengthened.

The mechanism of change can be persuasive communication that includes several channels of communication. There are different levels of communication effort processes (engagement level of the audience) where persuasion can bring along attitudinal change.

Practice from schools suggests that the act of watching a video where an instructor/ employer performs a task has been shown to increase the confidence of students in believing they could also perform the same task. The trustworthiness of the presenter is essential, as facilitating changes starts with trust of the change agent.

It is about role models in society and those closer to workplace who introduce modern sex roles. It starts with employer attitude towards employees with families, and understanding of work and life balance both in legal as well as human perspective. Additionally, the employer should be open for honest and meaningful discussions on balancing work and family life with his/ her employees.

The effect of education (educational videos) can be strengthened by combining educational videos with case study analysis and real-life scenario discussions.

Supervisor and colleague support is important for the actual implementation of workplace policies and for managing work and personal life. It is important to note that in many cases, emotional support explains more variance in work-life conflict than work-family benefits.

Research findings and real-life case studies suggest that instrumental support (education, regulations) in the workplace is solely not enough to achieve a successful work-life balance. Instead, we need a supportive working environment, that is a family-friendly organisational culture, diversity, acceptance and inclusion of all employees, as well as individual recognition and approach, complementing the instrumental support efforts.

Limitations. The main limitation of this study is originating mainly from the scope of data analysis. For this research, the author measured the differences between the control and treatment group as well as dissimilarities across genders by using descriptive analysis. Attitudes on traditional and modern sex roles and maternity fit for career could be also analysed based on different age groups, educational background, and household types. The analysis methodology can also be expanded to further understand the rationale behind self-reporting of scales of attitudes and whether people behave differently in a socially sensitive environment. All of these areas can be further explored in future studies.

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Love for Death: Comparative Approach of the Two Surrealist Works

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Abstract

Love for death – that is what many readers discover in the vital energy of the Surrealist movement. For the Surrealists the (sexual) Desire/Pleasure should be victorious over a morality that has developed over centuries. It represents the beauty of a utopian war fought by man, who, this time, the Surrealists thought, was fighting for his own life. This is precisely the Surrealist poetics, which can be found in the suddenness of the instincts, the brutality of sex and the violence of bodies that look for each other. Furthermore, it seems that for the Surrealists life encompasses death as well and death is but a form of existence. As with Charles Baudelaire, death is regarded as a new dynamic of the body, another metamorphosis – that of the decomposition. Human beings are immersed in the fatal truth of matter: 1. Creation-birth-living-existence; 2 Effacement-destruction-death-extinction. In these Surrealist works death is represented in a number of forms: in the physical aspect (the skeleton) and in the spiritual dimension (the phantom). The good is embodied in God and the angel, whereas the evil is embodied in the devil and the demons, even though it can also be found in the figure of the monster, vampire, ghost, etc. ¹

Keywords: surrealism, love, death

Introduction

Comparative approach of the Surrealist works *Nouvelles Hébrides (New Hebrides)* by Robert Desnos and *Connaissance de la Mort (Knowledge of Death)* by Roger Vitrac

I have always dreamt of a man who lived his death.
R. Vitrac (*Connaissance de la mort*, p. 121).

In both writers we find a great number of titles that explicitly point to the theme of death.

¹ *Nouvelles Hébrides (New Hebrides)* by Robert Desnos and *Connaissance de la Mort (Knowledge of Death)* by Roger Vitrac

These are some of Desnos's works:

Pénalités de l'enfer ou Nouvelles Hébrides, Deuil pour deuil, Pamphlet contre la mort, Épitaphe pour Apollinaire, Comme une main à l'instant de la mort, Le vendredi du crime, Le suicidé de nuit, Mourir, Le mort qui parle, Funérailles, Savez-vous la nouvelle ? Garcia Lorca va mourir, Suicidés, Fantôme, Le cimetière, Naissance du monstre, Andromède en proie du monstre, Meurtre.

(The Punishment of Hell or the New Hebrides, Mourning for Mourning, Pamphlet against Death, An Epitaph for Apollinaire, Like a Hand at the Moment of Death, The Friday of the Crime, The Night Suicide, Dying, The Talking Dead, Funeral, Have you heard the news?, Garcia Lorca is going to die, The Suicides, The Phantom, The Cemetery, The Birth of the Monster, Andromeda Kidnapped by the Monster, Murder).

Here are a number of titles by Vitrac:

Cruautés de la nuit, Connaissance de la mort, La Lanterne noire, Posthume, Le suicidé fameux.

(Night Cruelties, The Knowledge of Death, The Black Lantern, Posthumous, The Famous Suicide).

Moreover, in Vitrac's works several characters are metonymic or analogical representations of death: the suicide, the vampire, the monster, the leper, the murderer, the butcher, the poisoner, the Devil, the diabolical, the decomposed corpse, the shadow, the ghost, the fatally wounded, the hanged, the sick, the man in agony, etc.

Desnos is a harbinger of eroticism and this is an eroticism that can be found in barbarism and Desnos became its ardent disciple.

"Aragon and Vitrac have a fundamentally different relationship to death, since they aim at revealing an otherworldly world which would sustain the individual adventure". Thierry Aubert, *Le surréaliste et la mort* Paris, L'Age d'homme, Bibliothèque Mélusine, 2001, p. 172).

With regard to this matter, Vitrac and Desnos seem to have a different viewpoint. The physical perfection of man as propagated by the Renaissance cannot be any more at the center of attention. In Vitrac one finds the cadaverous beauty and the dynamics of decomposition. That is one of the reasons – among the many – why Baudelaire has been often considered as one of the forerunners of Surrealism.

«[...] soyez d'abord attentifs au visage du pendu qui, en passant par toutes les couleurs du désespoir, signale les gammes de la décomposition. Vert d'envie, rire jaune, rouge de colère, bleu de frayeur, blanc d'épouvante, violet de froid, vous êtes les pavillons annonciateurs de l'armée des mouches, des vers et des nécrophages de toutes sortes.» (Roger Vitrac, *CM*, p.67)

"[...] pay attention first to the face of the hanged man, which, passing through all colors of despair, signals the whole range of decomposition. Green for envy, yellow for laughter, red for anger, blue for fear, white for terror, purple for the cold, you are the vanguard of the army of flies, worms, and scavengers of all sorts." (Roger Vitrac, *Connaissnace de la Mort (CM)*, p. 67)

With the exception of the literature of the fantastic, death has traditionally justified the disappearance of the character, but in Vitrac's work it is at this juncture that its unlucky existence and adventure begins. Desnos, on the other hand, remains indifferent to the cadaverous condition: "The corpse of our poor friend crawled in the shadows". (Robert Desnos, *Nouvelles Hébrides (NH)*, p. 61) In his work the possible degradation of the body is unthinkable. If in his works we find the character saying: "I am dead", that does not signify that he will be metamorphosed or turned into part of landscape. In *New Hebrides* we see the subject "death" wandering through Paris, making frenetic love to Miss Flowers or pursuing the cynical overthrow. Death does not prevent Desnos from normally following his adventure. On the other hand, he "gives" a definite death to characters that do not seem to follow the same laws: "Let us leave, - said Miss Flowers. They are dead, they are certainly dead" (NH, p. 53) or "The king is dead ... I am the queen". (NH, p. 55).

If Desnos the character engages in an adventure with life, Patrick, the protagonist of *Connaissance de la Mort*, tries his best to forsake life. In this work the couple is self-isolated in a dark room and lives a life of full solitude. Even the journeys they undertake do not allow them to engage with other, living, human beings. Patrick gradually loses his partner and creates an imaginary girl, whom he tries to murder and whom he describes at the end as the feminine ideal. The self of Vitrac finds its death and he commits the murder within a dark room, which resembles his own self and can serve as an allegorical form of the grave: "[...] to build a house in which I would have lived with no sun, with no atmosphere." (Roger Vitrac, CM, p. 147)

On the contrary, Desnos's hero dies and lives his love in the streets and under the lanterns of Paris. His two protagonists are in danger of being swallowed by the explosion of the streets behind Notre Dame. If between life and death Vitrac favors the latter, Desnos insists in the futility of both. Being left alone, after the death of his friends, he prophesizes his future glory:

«Enfin j'allais savoir à quoi m'en tenir. Vie ou suicide, l'un et l'autre sont inutiles. Pile ou face. Je jetai la pièce en air [...] Il m'atteignit au sommet de l'occiput et dispersa ma poussière sur les vingt-trois littorals de dix-sept continents avec un bruit formidable reproduisant exactement cette syllabe : « BING! » (Robert Desnos, *NH*, p. 108)

"I was finally about to know where I was to grab hold to. Life or suicide, both are futile. Head or tails. I threw the coin up in the air. [...] It hit me on my nape and dispersed my dust over twenty-three shores of seventeen continents with a tremendous noise, which reproduced this exact syllable: 'BING'". (Robert Desnos, *NH*, p. 108)

Desnos repeatedly portrays the crowd in his works, even though at the same time he affirms: "I am alone only when I am in the middle of the crowd". (NH, p. 49) He is in quest for solitude only because solitude grants him romantic intimacy: "Miss Flowers and I remained alone in the dark night of unlit Place de la Concorde". (NH, p. 52) "When the two fires, after coming into contact with one another, die for want of fuel, there is not any trace left of man or animal, living or dead. That is how I met Miss Flowers". (NH, p. 90)

The protagonist in Desnos's work struggles to take revenge on his friends. Love and friendship are key sentiments in this work. Patrick, in his dramatic and romantic solitude prefers to engage in conversations with legendary or imaginary people, with mythical beings, or with the reader. This choice, which is an attempt at securing trustworthiness, as the author himself suggests, is nothing but a sign of solitude. It might be argued that the act of writing springs from solitude or a state of isolation, as might happen when we are sleeping, when we are dreaming, or when we are dead.

The reader is missing during the writing process and the only reader who is present is the author himself. The reader can "listen" to the voice of the author, but the author will never be able to listen to the voice of the reader. This situation can be conceived of as a sad monologue:

" [Moi, dit le lecteur, qui prétend qu'on ne bat pas une femme, même avec une fleur, cette femme-là, je l'aurais..."

-Tais-toi. » (Roger Vitrac, *CM*, p. 146)

" As for me, - says the reader, who claims that a woman is never beaten, even if only with a flower, that woman, I would have ..."

Silence." (Roger Vitrac, *CM*, p. 146)

While the author is unique, the reader is unidentifiable and is multiplied indefinitely in time and space. The paradox is also present in the word "reader", which used in the singular and generalizes the experience of reading. Vitrac tries to defend his solitude at the same time that he imposes a model of solitude, one which transposes him into the eighteenth century. The two following examples juxtapose the real landscape with the wished-for or dreamt landscape. Through the outer voices and noises, the real world (passers-by, people working at the yard) encroaches upon the inner world of the author and this world is not the material reality of his apartment but rather his psychical state, through the dream and the account of that dream.

«Ma solitude, dès lors, ne fut guère troublée que par la voix des fumistes et des charpentiers, trop souvent suspendus à une échelle de corde au-dessus de la cour, et par le bruit des pas des locataires qui se perdaient dans l'ombre vernie de l'escalier. » (Roger Vitrac, *CM*, p.75)

“My solitude, since then, had been scarcely troubled, except for the voice of steeplejacks and carpenters, who were often hanging on a rope ladder at the yard, or by the noise of tenants who were swallowed by the varnished shadow of the staircase”. (Roger Vitrac, *CM*, p.75)

The first example portrays the present, which the author depreciates when compared to an unreachable and idyllic past:

«Je m’explique aujourd’hui le goût que les hommes du XVIII^e siècle avaient de la solitude.» (Roger Vitrac, *CM*, p.65)

“Today I can provide an explanation of the taste that eighteenth century people had for solitude”. (Roger Vitrac, *CM*, p.65)

On the other hand, Desnos does not seem to have a fondness for solitude: “Without lovers, without friends, without war, I fell asleep”. (Robert Desnos, *NH*, p. 61). He lives in a big house, which, in *Nouvelles Hébrides*, he describes as a “miracle”, which is an ideally Surrealist abode near the railroad and which he shares with his friends. On the other hand, Patrick in Vitrac’s work, prompted by solitude, wavers between suicide and attempted assassination. Whichever alternative he chooses, that will only lead to another form solitude – that of death. In the following fragment the fundamentally individual experience is expressed by the desire for isolation:

«[...] Pythagore selon qui l’immortalité résiderait dans l’éternité de la mémoire, n’est-il pas possible, qu’au même instant, le flot des émotions n’affecte si violemment la chair que pour l’accompagner dans la solitude définitive et l’y aider au travail de putréfaction ? » (Roger Vitrac, *CM*, p.67)

« [...] according to Pythagoras immortality would reside in the eternity of memory; isn’t it possible that, at the same moment, the wave of emotions attack so violently the flesh in order to accompany it into the definite solitude and assisting it in the process of putrefaction?” (Roger Vitrac, *CM*, p.67)

The sanctification of death one finds in Vitrac is not that of heaven and hell. It is not a spiritual sublimation either but represents a challenge that arises because of the murderous violence and its sadist nature: “Gilles de Rais who, in his research work, sought to acquire knowledge on death by means of the exploration of bodies”. (Roger Vitrac, *CM*, p.127) Gilles de Rais was suspected of kidnapping and murdering, as records show, from 140 to several hundred children, mainly male. He was imprisoned and charged with murder, sodomy and of invoking demons. An ecclesiastical court found him guilty of heresy. Vitrac sees his hero in the burning fire of paradise. What the author calls “paradise” here is in fact the paradise of suffering, that is, hell, which the author seeks to honor: “You, Gilles, who shine brightly among the vases and helmets of your paradise”. (Roger Vitrac, *CM*, p. 120) The designation “paradise” is symbolical and represents an attempt at overthrowing the values. The immortality for Vitrac is made possible in works and in memory, as he insisted in the above

passage on Pythagoras as well as the following one: "It has to do with your power, Gilles, your wealth, your immortality". (Roger Vitrac, CM, p. 122)

Desnos supports the same idea as well:

« Aragon me dit : Notre corps détermine dans l'air une matrice éternelle. La trace de vos gestes est invisible mais immortelle dans l'espace. » (Robert Desnos, *NH*, p.83)

"Aragon tells me: Our body establishes an eternal matrix in the air. The trace of your actions is invisible but immortal in space". (Robert Desnos, *NH*, p.83)

Connaissances de la mort and *Nouvelles Hebrides* testify to a provocative and militant atheism, even though the inclusion of certain mythical or folkloric figures gives a different twist to this vision of death.

Freedom from the Outlook of Education Policy Documents

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Abstract

The political culture of a country relies on the values its community shares. Freedom, being one of the main values of democracy, is sometimes misunderstood, misinterpreted and as a result, misused. On one hand, the young generation of a country is the source for a future stable democratic culture. On the other, nearly all societies make use of education to communicate not only knowledge necessary for the maintenance of the social structure, but values as well. The education of a country can be initially understood from policymaking. Education policy is best mirrored in the main official education policy documents after being formulated within a certain socio-political discourse. Within such a context, it was considered important to analyze the education policy documents in Albania in attempts to understand how one of the main democratic values, *freedom* is reflected in these official documents. In analyzing policy documents, I have conducted content analysis to understand if freedom as a value is reflected in them or not? And, in case it is found in these documents, how it is portrayed there. This quest is important to understand how freedom is formally envisioned for youngsters which receive formal education.

Keywords: freedom, democracy, education policy, document analysis

Introduction

Education is an agent of society and at the same time, it is influenced by social, historical, and political factors. This means that it is constructed historically and politically. It is considered “a deliberate effort to ensure the acquisition of certain preferred cultural elements by youth” (Brickman, 1963, p. 213). It is connected to the cultural and social characteristics of the community. In a democracy, many values are in interplay. And education seems to play a variety of functions. It can embrace various perspectives or can be “a composite of fairly consistent values” (Brickman, 1963, p. 214). Education has implications with pedagogy which is considered “*a moral and political practice*” (Giroux, 2016, p. 357) because there exists a power relation in what is being taught to students in terms of versions of community, civic life, representations of themselves, others and the surrounding environment.

In education, policymaking is essential as policy “is political: it is about the power to determine what is done” (Bell & Stevenson, 2006, p. 9). Policy formation in education has expressive and instrumental functions. It provides guidelines about the educational system and is expressed in *aims* and *goals*. Aims in education that are explicitly proclaimed are defined as intrinsic, whereas extrinsic aims are the ones directed by ideology, industry, etc. reflecting corresponding values in practice into schools (Barrow, 2002). Leading values and policy selection are done through filters. Broadly speaking, elements like history, political culture, formal structure, informal processes and relations, values, and guiding key actors influence education policymaking (Marshall, Mitchell, & Wirt, 1986, p. 376). Education policy is essential as it is formulated in the socio-political discourse, it is influenced by national and regional factors, and it is translated into educational institutions in the form of the curriculum and activities. Within such a context, it was considered important to analyze the education policy documents in Albania in attempts to understand how one of the main democratic values, *freedom* is reflected in these official documents. Freedom is one of the main values of democracy. However, it is mostly misunderstood, misinterpreted and as a result, misused. In analyzing policy documents, we try to understand if freedom as a value is reflected in them or not? And, in case it is found in these documents, how it is portrayed there. This quest is important to understand how freedom is formally envisioned for youngsters which receive formal education.

How to Understand Freedom?

There exists a complexity of thoughts on determining what freedom is. This is the result of how philosophers and scholars perceived freedom. Sometimes freedom is exchanged with liberty. Initially, we can distinguish between its two main forms: *negative and positive liberty* (Berlin, 1969). These two forms of liberty are distinguished from each other because of the source of limitation. Negative liberty emphasizes the lack of this limitation. Positive liberty, on the other hand, is the management of self, achievement of rationality, reasoning, self-control, and self-actualization.

Freedom varies into many forms: individual/collective freedom, freedom of thought, consciousness, political freedom (Rawls, 1971, 1999, p. 180). Individual freedom has to do with the possibility of the individual expressing his own will. In contrast, collective freedom rests on the enjoyment of the ethnic, cultural, and religious community that one belongs to. Freedom of thought is the right of personal opinions over varieties of topics from religion, politics, to morality. This is connected to freedom of speech which is one's ability to express ideas and thoughts on such topics. Freedom of choice is another type of freedom that indicates the possibility to be able to choose whatever the individual prefers without the enforcement of external powers (Berlin, 2002, p. 103).

Other perspectives to consider freedom vary from the ones that refer to the main conditions of survival to intellectual, social and political freedom (Roshwald, 2000, pp. 20-21). Such examples are *freedom from fear* that is related to personal security and *freedom from want* that ensures individuals' prosperity (Roshwald, 2000, p. 14). For some freedom is imagination (Greene M., 1988). This can be a form of expression of talent and creativity as well.

Another perspective to view liberty or freedom is that of "freedom from" and "freedom to" (Fromm, 2001, p. 27). In the first case, individuals are free from subordination, obedience, and insecurity. The second form is consistent with the idea of positive freedom. It enables individuals to be self-responsible, self-realized, self-fulfilled, active participants, critical thinkers, and spontaneous. Positive liberty rests in rationality and responsibility for speech and actions. Freedom can be understood from two perspectives exterior and interior (Dewey, 1938, p. 26). This means that freedom is either the absence of outside restrictions or it is a form of freedom understood as freedom of thinking, judgment, reasoning, reflection, and freedom of want. So, this makes us understand that freedom can be limited by both internal factors like irrationality, vices, weaknesses, imperfections, addictions on one hand and external authority like the police, army, state, and so on.

Nevertheless, these freedoms recognized for the individual are not necessarily irrational in themselves because freedom should be limited in case it damages others (Mill, 1859/1991). Rationally, freedom is restricted when the general interest comes into play (Rawls, 1971, 1999, p. 186). Damage here is not necessarily physical, but emotional and verbal as well.

Methodology

This research is guided by the following research question:

R.Q. How is the value of freedom reflected in education policy documents and what is the position these documents have of freedom?

The research question is directed by three objectives:

To identify the aspects (types) of freedom found in policy documents.

To find if these aspects are referred to directly or indirectly.

To evaluate the general understanding of freedom found in these documents.

To answer the main research question, the author used content analysis. Content analysis is a method of research that enquires written text (Neuendorf, 2002), pictures, or even messages to make further interpretations (Krippendorff, 2004). This method is not definitively defined as quantitative but can be used as a qualitative one at the same time (Cardno, 2018, p. 633). It has qualitative features because we can organize certain categories, find connections between them and give meaning to what is being intended (Kracauer, 1952-1953). While using content analysis, there are

some steps to follow. The first one is *unitizing* and it deals with the identification of the key terms to be searched for. Coding deals with the identification of the terms to search and the related words, phrases that correspond to a certain code. Sampling refers to the units of analysis, which in this case are Albanian education policy documents.

The chosen documents are representative of the education policy. For this study, the researcher analyzed the following documents: The Law on Pre-university Education, which has the highest rank in legislation (On Pre-University Education System in the Republic of Albania, 2012); the Curricular Frame, which defines the curriculum in general aims and competence (The Curricula Framework of the Pre-University Education of the Republic of Albania, 2014), the Strategy of the Pre-university Education 2014-2020 (Eurydice, 2019) projects developments in education and The Curricular Manual for Social Sciences sets out which standards are to be reached by students in social sciences (IZHA, 2010).

When we think of freedom in legislation, in general, it has been addressed documents like in the Constitution of the Republic of Albania and the Law on Youth. Firstly, Article 3 of the constitution refers to this value as a guaranteed one (Albania Constitution, 2016). Other forms of freedoms are articulated as well: freedom of expression (Article 10, Article 22), access to information (Article 22), freedom of consciousness (Article 24), collective freedom for minorities to express their cultural, ethnic characteristics (Article 20), freedom of means of communication (Article 36); freedom cannot be invaded (Article 42) and freedom of assembly (Article 47, 50). In the same way, the Law on Youth (Law Nr.75/2019 on Youth, 2019) defends the rights of the young citizens (15-29 years old) and freedom of initiative (Article 4).

The main tool used in this study is NVivo, computer software that uses visuals, documents, and analyses them based on some pre-established themes and then demonstrates them in charts or maps (<https://www.qsrinternational.com/nvivo-qualitative-data-analysis-software/home>, 2020). Normally, when we use such computer software and apply a code list, it ensures the reliability of the method (DeBell, 2013).

The code list for this research was built before performing computer coding. The coding list for freedom was produced based on the literature on freedom. Primarily, the author identified the direct references to freedom like *liberty*, *freedom*, *freedom of thought*, *freedom of choice*, *collective freedom*, *freedom of expression*, etc. Other keywords which were related to freedom through mind development like rational self-fulfillment, argumentation, exploration, critical thinking, or other types of freedom were inserted under indirect terms. A more detailed list with *keywords* related to the freedom found in the literature review is presented in the table below.

List 1. Keywords found from the literature

Freedom	
Direct Term	Indirect Terms
Negative/Positive Freedom	Negative
Liberty	lack of external enforcement
Freedom of thought, mind , feeling, sentiment	will is not limited
Intellectual freedom	F. of Mind/ Positive
Freedom of expression, speech, opinion, discussion, debate, writing, and the press	<u>Independence</u>
Freedom of action	self-fulfillment
Freedom of assembly, Liberty of assembly	self-control
Freedom of choice, selection	self-management
Freedom from fear	being your own master
Individual freedom, personal freedom	self-fulfillment
Collective freedom	independence in observation
Freedom from want	independent thinking, reasoning
Personal liberties	<u>Refinement</u>
	reflection and argumentation
	exploration
	intellectual initiative
	foresight of consequences, ingenuity of adaptation
	expand and refine knowledge
	stimulate imagination
	deliberation
	developing one's capacities
	improving skills
	<u>Critical thinking</u>
	stimulating reflection, critical thinking, reflection judicious
	invention
	argumentation, questioning
	<u>Creativity</u>
	F. of Expression
	exchange of ideas
	expression of identity, ethnicity, culture, language (collective)
	giving information
	F. of Action
	conduct life as one wishes
	unite without force
	self-government
	autonomy
	F. of Choice
	choosing your way

The list above directed the search through NVivo in education policy documents. Each word, phrase, or sentence referring directly or indirectly to freedom was processed under some main themes. At the same time, during the research, the author noticed some other forms of reference for freedom. The coding list was prepared both in English and Albanian. List 2 contains a more comprehensive list of all the terms found in policy documents and how they were grouped under main themes.

List 2. Comprehensive List of Key Terms

Freedom Key Terms	Inferred terms
Freedom Freedom/Independence/competence of thought, opinion, mind, Freedom of feeling, sentiment opinion Intellectual freedom Freedom of discussion, writing, press free to change ideas Freedom of expression, communicates freely Freedom of action, free initiative Freedom of assembly Freedom of choice Collective freedom Freedom from fear Free market	Mind/ Positive Independence/ evaluates/ selects/ analyzes/ criticizes/, information independently approaches independently independent thinking, reasoning argument, approach Self-control, self-management manages emotions, stress, information, projects respects communication rules self-esteem self-fulfillment/self-development self-assessment Refinement receive, expand, refine, specialization of knowledge, competencies, value, attitude does research stimulation of imagination intellectual, ethical, individual development (explore, analyze, evaluate, develops judgment) developing one`s capacities improving skills stimulating reflection questioning, imagination Critical thinking, reasoning, analyzing, reflecting, attitude, approach, evaluation (questions, classifies), views, considers critically different perspectives Freedom -Expression gives, exchanges information, brings objective opinion, argument describes, expresses thought, interprets, point of view, explains, describes, trigger giving personal ideas, ask questions debates, discuss, communicate(freely) constructive dialogue, is invited in dialogue Freedom of Action/Positive Autonomy, decentralization Efficient, education management acts responsibly towards himself, others, society works, acts independently, participates independent search takes decisions responsibly initiative (right to be chosen) free to sit Freedom of choice Optional

	Choose opinion Individual/collective Instill/ express identity, ethnicity, culture, language Classes conducted in mother tongue
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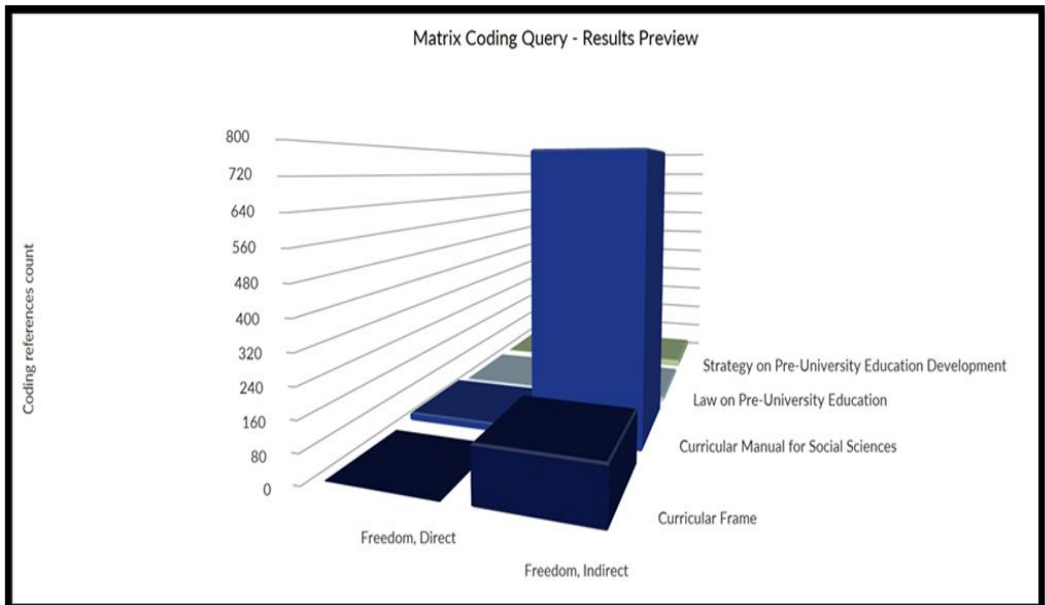
After the procession, all the references were grouped under 11 codes (in NVivo), as presented below under freedom.

<i>Freedom</i>	
<i>Freedom Direct</i> <i>Freedom Direct Action</i> <i>Freedom Direct Choice</i> <i>Freedom Direct Expression</i> <i>Freedom Direct Mind</i>	<i>Freedom Indirect</i> <i>Freedom Indirect Action</i> <i>Freedom Indirect Choice</i> <i>Freedom Indirect Collective</i> <i>Freedom Indirect Expression</i> <i>Freedom Indirect Mind</i>

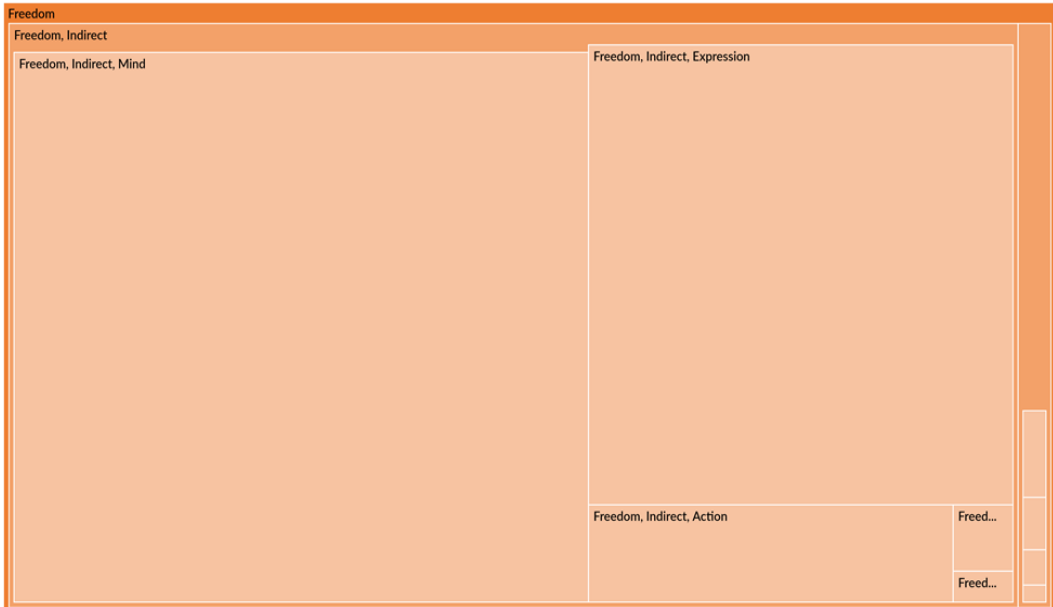
Results

The main objectives of this research were as follows:

1. To identify the aspects (types) of freedom found in policy documents.
2. To find if these aspects are referred to directly or indirectly.
3. To evaluate the general understanding of freedom found in these documents

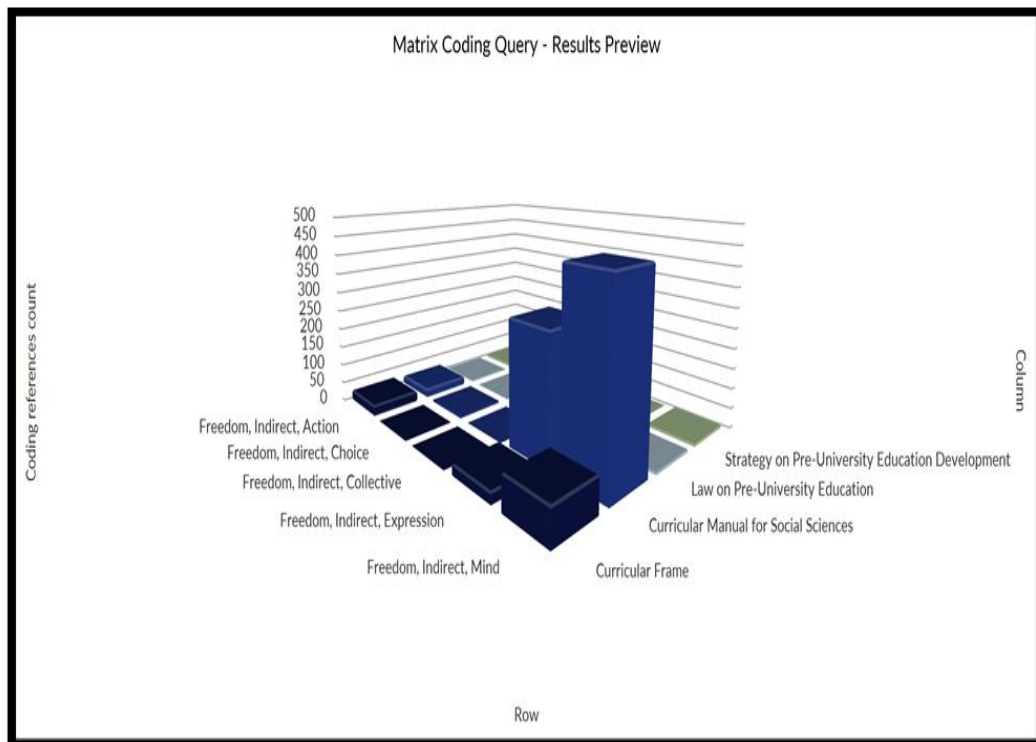


In the matrix coding query above, **freedom is coded more in its indirect version** and found mostly in the curricular manual for social sciences followed by the curricular frame.



Freedom Indirect

In this hierarchy chart, we can mostly examine the space given to freedom in its indirect form, the hierarchy, and the forms of freedom referred to in policy documents. Most of the codes connect to freedom coded as *freedom indirect* and understood as that of the mind. The indirect forms of freedom found here are freedom of the mind, freedom of expression, freedom of action, freedom of choice, and collective freedom. What we can infer is that in policy documents freedom is expressed in an indirect version and mostly it is understood as freedom of the mind and less as collective freedom.



Freedom Indirect (Types and reference count)

The matrix coding above gives the coding reference count for the different types of freedom coded in their indirect version. Additionally, we can observe the documents where they have been found.

The most coded type is freedom of the mind (indirect) followed by that of expression.

The forms of freedom addressed in the policy document are all relating to the positive forms of freedom which consist mostly in self-development, refinement, self-control. Nothing from the documents has been coded as a negative version of freedom, in forms such as lack of external enforcement and limitation of the will as found from the examination of the literature. A more detailed portrayal is given as below:

Freedom indirect: The indirect forms of freedom found here are: freedom of the mind, freedom of expression, freedom of action, freedom of choice, and collective freedom.

Freedom, Indirect, Mind ranges on topics terms like generation, development of new ideas; expansion of knowledge; independent approach and processing of knowledge; informed citizens; independent planning and fulfillment of tasks; critical stance to knowledge; effective use of information; analysis, evaluation of information; development of self-responsibility; responsible use of information; development of

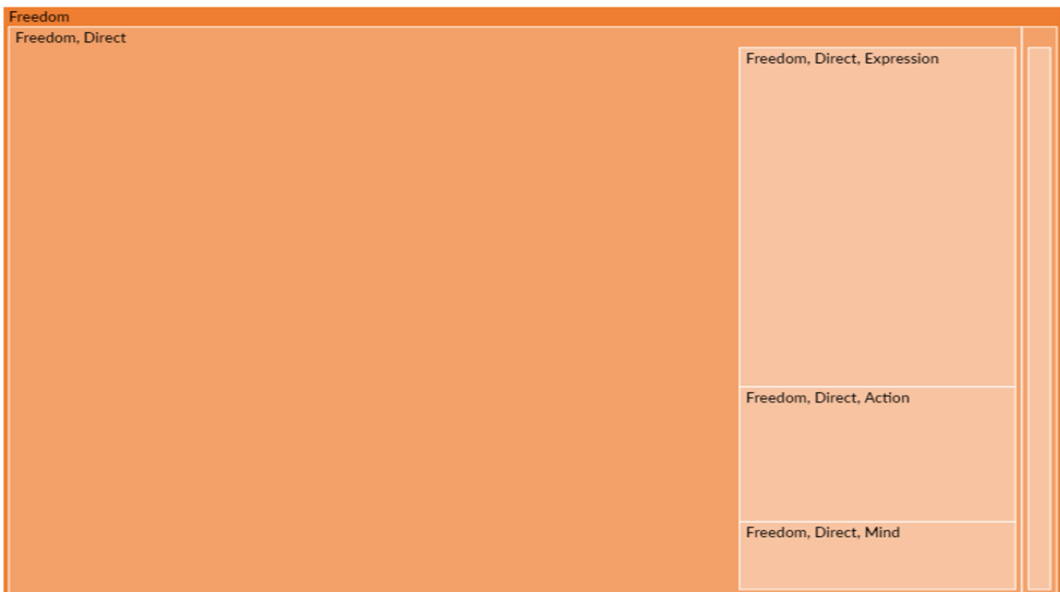
creative competence; evaluation and self-evaluation; management of emotion, stress; responsibility; critical and creative thinking; development of awareness; self-esteem; intellectual development.

Freedom, Indirect, expression is found through the competence of communication; effective communication; communication through symbols, signs, etc.; constructive, creative dialogue; respect for communication rules; respect for ethics in communication; communicate ideas; develop the ability to ask questions; communication abilities; express a personal opinion in speaking, writing; to express, debate, discuss, describe a variety of issues concerning the individual and the society (law, discrimination); to interpret, to share information; to express ideas with civility, etc.

Freedom, Indirect, Action is coded through management of new situations; independent decision-making; works, acts independently; active and responsible participation, civic participation; take initiatives; manage projects; inclusiveness; participation in decision making in school; development of initiative; decentralization, etc.

Freedom, Indirect, Choice is represented through making responsible choices; choosing to agree with opinion; elective curricula; a program that enables students to get involved where they desire; students can choose their school, etc.

Freedom, Indirect, Collective is given through one central theme: cultivates personal, social, national identity and culture.



Freedom direct

This hierarchy chart presents forms of direct freedom with the related types. Education policy documents refer to the direct form of freedom, specifically more to freedom of expression, followed by freedom of action and lastly freedom of the mind. This hierarchy demonstrates that in the education policy documents there has been a more direct reference to freedom of expression compared to the other types.

Freedom, direct, is addressed more like freedom of expression, followed by freedom of action and lastly freedom of the mind with examples like to communicate, to express, to write freely, students are free to change their opinions, etc.

Freedom Indirect

Most of the codes connect to freedom coded as *freedom indirect* and understood as that of the mind. The indirect forms of freedom found here are freedom of the mind, freedom of expression, freedom of action, freedom of choice, and collective freedom. What we can infer is that in policy documents freedom is expressed in an indirect version and mostly it is understood as freedom of the mind and less as collective freedom.

The forms of freedom addressed in the policy document are all related to the positive forms of freedom which consists mostly of self-development, refinement, self-control. Nothing from the documents has been coded as a negative version of freedom, in forms such as lack of external enforcement and limitation of the will as found from the examination of the literature. A more detailed portrayal is given as below:

Freedom indirect: The indirect forms of freedom found here are: freedom of the mind, freedom of expression, freedom of action, freedom of choice, and collective freedom.

Freedom, Indirect, Mind ranges on topics terms like generation, development of new ideas; expansion of knowledge; independent approach and processing of knowledge; informed citizens; independent planning and fulfillment of tasks; critical stance to knowledge; effective use of information; analysis, evaluation of information; development of self-responsibility; responsible use of information; development of creative competence; evaluation and self-evaluation; management of emotion, stress; responsibility; critical and creative thinking; development of awareness; self-esteem; intellectual development. These can be summarized under the umbrella of independent thinking, refinement, critical, creative thinking.

Freedom, Indirect, expression is found through the competence of communication; effective communication; communication through symbols, signs, etc.; constructive, creative dialogue; respect for communication rules; respect for ethics in communication; communicate ideas; develop the ability to ask questions; communication abilities; express a personal opinion in speaking, writing; to express, debate, discuss, describe a variety of issues concerning the individual and the society (law, discrimination); to interpret, to share information; to express ideas with civility,

etc. Freedom of expression (indirectly) ranges from the expression of ideas to constructive and creative communication (ethics, civility).

Freedom, Indirect, Action is coded through management of new situations; independent decision-making; works, acts independently; active and responsible participation, civic participation; take initiatives; manage projects; inclusiveness; participation in decision making in school; development of initiative; decentralization, etc. Issues related to freedom indirect vary from independence in action to responsible action.

Freedom, Indirect, Choice is represented through making responsible choices; choosing to agree with opinion; elective curricula; a program that enables students to get involved where they desire; students can choose their school, etc. Freedom of choice is given not only as the freedom to choose but as making a responsible choice as well.

Freedom, Indirect, Collective is given through one central theme: cultivates personal, social, national identity and culture.

Freedom direct

Education policy documents refer to the direct form of freedom, specifically more to freedom of expression, followed by freedom of action and lastly freedom of the mind. Freedom, direct, is addressed more like freedom of expression, followed by freedom of action and lastly freedom of the mind with examples like to communicate, to express, to write freely, students are free to change their opinions, etc.

All these findings can be summarized in the following list.

Table X. List of key notions extracted from policy documents

Freedom	
Direct	Indirect
to communicate, to express, to write freely, students are free to change their opinions	Freedom, Mind Self-development, independent thinking, refinement, critical, creative thinking, observation, evaluation Freedom, Expression expression of ideas, to constructive and creative communication (ethics, civility). Freedom, Action vary from independence in action to responsible action. Freedom, Choice given not only as the freedom to choose but as making informed, responsible choices as well Freedom, Collective cultivates personal, social, national identity and culture.

Discussion

These results are important in understanding what is formally prepared in education policy documents for the young generations. As concerns the value of freedom, these documents refer to both forms: direct and indirect. The research resulted in no cases where freedom was represented in its negative form. This means no forms of freedom that refer to lack of external enforcement or limitation of the will were detected from the documents. This result suggests that education policy views freedom only in positive versions expressed in the refinement of knowledge, critical and creative development, self-control, informed decision-making, constructive dialoguing. More than external lack of limitation, freedom is internal development. Freedom is, firstly: self-development, refinement of knowledge, creative and critical thinking, independent thought, observation, evaluation. Then, freedom means: not simply freedom to act, but responsible action taking; not simply freedom to choose, but informed decision-making; and not solely freedom to speak, debate but constructive debating as well. These findings are only an initial step because freedom here is only found in theory. To further understand how freedom and types of freedom are applied in education, more research can focus on the direct implementation of education policy documents as concerns freedom.

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The Repetitive Behavior Scale-Revised: Independent Validation in Children with Autism Spectrum Disorders and a Control Group in Albania

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Abstract

Background: A key feature of autism is restricted repetitive behavior (RRB). Despite the significance of RRBs, little is known about their phenomenology, assessment, and treatment. **Objective:** Validation of the Albanian version of the RBS-R in an independent sample of ASD children. **Method:** In order to validate the RBS-R in an independent sample, a survey was conducted in Albania at National Center of Childrens' Rehabilitation including 30 children with autism spectrum disorders (ASD) and a control group of 30 children without ASD. **Results:** Factor analyses produced a five-factor solution that was both clinically meaningful and statistically sound, namely: Ritualistic/Sameness Behavior, Stereotypic Behavior, Self-Injurious Behavior, Compulsive Behavior and Restricted Interests. Measures of internal consistency were good for this five-subscale solution. The effects of baseline characteristics (age and gender) were examined. Cronbach's alpha was used to measure internal consistency. The alpha values for the five subscales, ranged from 0.72 (Stereotypic) to 0.85 (Ritualistic/ Sameness Behavior). All values are within or above the acceptable range for research purposes. **Conclusion:** The Albanian version of RBS-R appears to have sound psychometric characteristics and can be used to differentiate various types of repetitive behaviors.

Keywords: Autism, Repetitive behavior, Stereotypies, Assessment, Rating scale

Introduction

In recent years, much of the work on the features of autism has focused on core social and communication deficits of the disorder, rather on restricted and repetitive behavior, which is also a core feature (Lewis & Bodfish, 1998; Rutter, 1996).

In order to address more complex RRBs observed in people with autism Bodfish and colleagues expanded the original RBS to include more complex RRBs by adding items assessing ritualized behaviors, insistence on sameness, and restricted interests. This

resulted in the current 43-item RBS-R. Items are rated on a four-point Likert scale ranging from (0) "behavior does not occur" to (3) "behavior occurs and is a severe problem," and raters are asked to refer to the previous month when completing the scale. The items of the RBS-R have been conceptually grouped (i.e., based on clinical experience) into six subscales. These include: (a) Stereotyped Behavior (movements with no obvious purpose that are repeated in a similar manner); (b) Self-injurious Behavior (actions that cause or have the potential to cause redness, bruising, or other injury to the body); (c) Compulsive Behavior (behavior that is repeated and performed according to a rule or involves things being done "just so"); (d) Ritualistic Behavior (performing activities of daily living in a similar manner); (e) Sameness Behavior (resistance to change, insisting that things stay the same); and (f) Restricted Behavior (limited range of focus, interest, or activity).

The objective of the present study was to assess the factor structure and some psychometric characteristics of the RBS-R in an independent sample of children with autism spectrum disorders and a control group of children without ASD in Albania. It was hypothesized that the six-factor structure of the RBS-R would be confirmed via exploratory factor analysis.

Method

Participants

The participants in the factor analytic study of the RBS-R were 30 children with autism spectrum disorders (ASD) at National Center of Childrens' Rehabilitation in Tirana, Albania and a control group of 30 children without ASD matched for age and gender in order to assess the effects of subject variables on repetitive behavior.

Instrument

Translational validity was undertaken to ascertain whether the content of the questionnaire was appropriate and relevant to the study purpose. All questionnaires were completed by the same interviewer, thus, eliminating the interviewer's bias.

Data Analysis

The analyses was carried out on the whole sample using the software SPSS 16.0. Mean scores were calculated for both cohorts and compared. A p-value <0.05 indicated statistical significance. Normality of distribution was tested and data of a significant nature had non-parametric tests conducted. To evaluate the internal consistency of the measures Cronbach's alphas were calculated for each of the RBS-R subscales and full scale, for the first and second measurement. To examine the construct validity of the RBS-R, exploratory factor analysis was performed first. A principal component extraction was used, after which the number of factors was determined by both eigenvalues (>1) and the scree test.

Results

Age ranged from 3 years to 9 years with a mean of 15.34 (SD = 9.60; median = 13.0). Ratio of gender was 2:1, males/females, for both ASD children and Control group.

There were 20 males (67%) and 10 females (33%).

The comparison of means between ASD and Control for the RBS-R in the beginning of the study yielded significant difference between them for all subscales and full scales highlighting the substantial occurrence of repetitive behavior among ASD children compared to the controls. (Table 1).

Table 1. Comparison of Means between ASD and Control for the RBS-R in the beginning of the study

Subscale	ASD	Control	t	P
	Mean (SD)	Mean (SD)		
Stereotypic	7.8 (6.4)	2.1 (3.3)	-5.4	<0.01
Self-Injurious	4.8 (7.5)	0.7 (2.1)	-4.6	<0.01
Compulsive	9.5 (8.2)	2.6 (4.7)	-5.5	<0.01
Ritualistic	7.5 (5.8)	2.0 (3.6)	-8.5	<0.01
Sameness	14.9 (9.2)	2.5 (5.3)	-6.4	<0.01
Restricted Interests	6.3 (4.7)	1.5 (2.7)	-6.6	<0.01
Total score	50.8 (41.8)	11.4 (21.6)	-4.4	<0.01

Factor Analysis of the RBS-R

The rate of endorsement was calculated on the basis of dichotomous (present/not present) data, which were created by collapsing severity ratings 1 through 3. None of the items were eliminated; the frequency of endorsement ranged from 13.3% (item 13: "Inserts finger or object") to 66.7% (item 40: "videotapes"). Table 2.

Exploratory factor analysis using the inter-item correlation matrix from the 43 items of the RBS-R. 12 eigenvalues were extracted accounting for 81.6% of the total variance.

5 eigenvalues were retained accounting for 59.3% of the total variance.

The number of factors to retain was guided by: (a) the scree plot method (b) eigenvalues above 1.0 (c) interpretability.

The extraction method was Principal Component Analysis.

The number of factors to retain was guided by: (a) the scree plot method (b) eigenvalues above 1.0, and (d) interpretability. Solutions between two and six-factors were evaluated using these criteria. Items were adopted as loading on a given factor if (a) they loaded 0.35 or higher on that factor. Examination of the factor solutions indicated that either a four-or five factor solution could be adopted.

The five-factor solution with promax rotation was chosen as most appropriate for this sample due to interpretable factors. In comparing this five-factor solution with original six subscales, the main difference is that the five-factor solution collapsed the original Ritualistic Behavior and Sameness Behavior subscales into one (“Ritualistic/Sameness”) subscale.

Ritualistic Behavior means “performing activities of daily living in a similar matter,” and Sameness Behavior means “resistance to change, insisting that things stay the same.” It makes clinical sense that performing a ritual is strongly related to a need for sameness and consistency, as the present factor analysis indicates. Although the original Ritualistic Behavior subscale is oriented more towards activities and the Sameness Behavior subscale includes more references to specific objects, they share the construct of the need for invariance in both activities and in the environment.

Another important difference emerged by the present study in regard to Restricted Interests subscale. One of this subscale’s four items did not load on one-factor, one item (item 41: Attached to object) resolved onto “Ritualistic/Sameness” subscale.

Given the small sample size the subscales encompass the minimum set of three items to consider loading on a factor. The subscales meet the minimum standards in terms of factorial structure.

The mean factor loadings for factors I through V were 0.71, 0.69, 0.66, 0.61 and 0.62, respectively.

Table 2. Frequency of endorsement

	Frequency endorsement	of %
Stereotypy Subscale		
Body movements	25	41.7
Head movements	28	46.7
Finger movements	32	53.3
Locomotion	36	60.0
Object usage	21	35.0
Sensory	31	51.7
Self-Injurious Subscale		
Hits w/ body	17	28.3
Hits against surface	14	23.3
Hits w/ object	11	18.3
Bites self	17	28.3
Pulls hair/skin	9	15.0
Rubs/scratches	8	13.3
Inserts finger/object	8	13.3
Picks skin	14	23.3
Compulsive Subscale		
Ordering	38	63.3
Completeness	25	41.7
Washing	19	31.7
Checking	28	46.7

Counting	27	45.0
Hoarding	27	45.0
Repeating	26	43.3
Needs to touch/tap	17	28.3
Ritualistic Subscale		
Eating/mealtime	26	43.3
Sleeping/bedtime	25	41.7
Self care routine	31	51.7
Transportation routine	34	56.7
Play/leisure routine	28	46.7
Communication	31	51.7
Sameness Subscale		
Placement of objects	26	43.3
No new places	31	51.7
No interruption	31	51.7
Walks certain way	16	26.7
Sits certain place	11	18.3
Appearance/behavior of others	32	53.3
Uses certain door	22	36.7
Videotapes	40	66.7
Difficult transitions	32	53.3
Insists on routine	30	50.0
Insists on time	32	53.3
Restricted Subscale		
Preoccupation with subject	36	60.0
Attached to object	25	41.7
Preoccupied with part of object	25	41.7
Preoccupation with movement	34	56.7

Table 3. Five-factor principal components analysis

	Factors				
	1	2	3	4	5
Stereotypy Subscale					
Head movements			.596		
Finger movements			.757		
Object usage			.727		
Sensory			.595		
Self-Injurious Subscale					
Hits w/ body		.805			
Hits against surface		.722			
Hits w/ object		.707			
Rubs/scratches		.830			
Inserts finger/object		.392			
Compulsive Subscale					
Completeness					.484
Checking					.647
Hoarding					.626
Repeating					.588
Needs to touch/tap					.767
Ritualistic/ Sameness					

Sleeping/bedtime	.683	
Self care routine	.763	
Transportation routine	.763	
Play/leisure routine	.658	
Communication	.716	
Placement of objects	.728	
Appearance/behavior of others	.682	
Videotapes	.682	
Difficult transitions	.708	
Insists on routine	.812	
Insists on time	.695	
Restricted Subscale		
Preoccupied with part of object		.530
Preoccupation with movement		.690

Item-total Correlations

Subscale scores were calculated by taking the integer weightings (0 –3) scored by the interviewer and totaling them for all items in the subscale. As a way of validating the five-factor structure, item-total correlations were calculated. Each of the remaining 27 items on the RBS-R was correlated with the subscale scores (item-deleted) of Ritualistic/Sameness Behavior, Self-injurious Behavior, Stereotypic Behavior, Compulsive Behavior, and Restricted Interests. All items correlated most highly with their hypothesized subscale (Table 3). The mean item-total correlation for Ritualistic/Sameness Behavior was 0.74 (range from 0.64 to 0.84); for Self-injurious Behavior, 0.62 (range from 0.42 to 0.83); for Stereotypic Behavior, 0.63 (range from 0.53 to 0.80); for Compulsive Behavior, 0.69 (range from 0.45 to 0.85); and for Restricted Interests, 0.78 (range from 0.73 to 0.84). The RBS-R items are highly correlated to their own hypothesized subscales and moderately correlated to other subscales.

Internal Consistency

Cronbach's alpha was used to measure internal consistency, which is the extent to which an item is correlated with the remaining items from its subscale. The alpha values for the five subscales, listed in Table 4, ranged from 0.72 (Stereotypic) to 0.85 (Ritualistic/ Sameness Behavior). All values are within or above the acceptable range for research purposes.

Table 4: Internal Consistency and Item-scale correlation of RBS-R (n = 60)

Scale	Coefficient alpha	Item-scale correlation	P value (2-tailed)
Stereotypic	0.72	0.55 - 0.80	<0.01
Self-Injurious	0.81	0.42 - 0.83	<0.01
Compulsive	0.80	0.45 - 0.85	<0.01
Ritualistic / Sameness	0.85	0.64 - 0.84	<0.01
Restricted Interests	0.70	0.73 - 0.84	<0.01

Whole scale 0.92 ----

Reliability/stability over time

The analysis of responses between the test and the retest was conducted using Spearman non-parametric statistical test to compute the correlations between subscales of the first and second measurement. Correlation coefficients (*rho*) ranged from 0.94 – 0.99. The Wilcoxon non-parametric statistical test was used for the full scale to determine whether there were any significant differences between the responses at each time point: P value for ASD was 0.98 and for Control was 0.87.

The high correlation between the scores at the two time points along with non significant differences in the P values at the level of 0.05 in the responses to the items between the two tests indicates the instrument is stable over time.

Effects of Subject Characteristics on RBS-R Scores

In an effort to evaluate the effect of subject characteristics: (a) the age was split age (0 through 5 years, 6 through 9 years) (b) gender (male, female), for both ASD children and Control.

Gender. A trend ($p < 0.05$) for a gender effect was found on the stereotypic subscale, with males showing higher levels of occurrence than females. Table 5.

Age. There is no significant trend for age for the six subscales and for the total score.

Table 5. The effect of gender

Subscale	Male	Female	t	P
	Mean (SD)	Mean (SD)		
Stereotypic	9 (6)	5.4 (6.1)	-2.2	0.04
Self-Injurious	5.4 (7.9)	3.8 (6.3)	-1.4	0.2
Compulsive	8.7 (8.3)	11.2 (7.7)	1.2	0.2
Ritualistic	7.2 (5.7)	8.1 (6.3)	0.7	0.5
Sameness	13.5 (9.4)	15.9 (8.3)	0.7	0.5
Restricted Interests	6.3 (4.8)	6.4 (4.7)	0.1	0.9
Total score	50 (42.1)	50.8 (39.4)	0.06	0.9

Discussion

As far as could be determined, this is the first study in print to determine the subscale structure of the RBS-R through factor analysis in Albania. Although the results do not fully support Bodfish and colleagues' conceptually-derived six-subscale structure, the solutions are quite similar overall. The current study has a disadvantage of a relatively small sample size over Bodfish's principal components analysis. Hence, the five-factor solution is likely to be more stable and reproducible than the original six subscale approach, although this will need to be addressed through subsequent research.

The psychometric characteristics of the 5-subscale version of the RBS-R appear to be sound. The finding that the RBS-R can be used to differentiate various types of repetitive behaviors is an important step in the study of autism in Albania. Autism is a very complex, heterogeneous disorder, and the RBS-R may be particularly useful in identifying subgroups that may have prognostic or diagnostic utility. In addition, the RBS-R may be a useful tool in the assessment of treatment effects. The current findings also suggest that the expression of RRB in autism may be modulated by a multitude of subject characteristics, and these relationships require further study. It is clear that repetitive behavior is highly correlated with the overall severity of autism, which provides further evidence for their clinical significance.

Although the study of repetitive behavior is in its infancy relative to the study of the social and communication domains in autism in Albania, the validation of the RBS-R provides an important step towards their future study.

Overall, the five-subscale, 27-item scoring method for the RBS-R appeared to have sound psychometric characteristics. The RBS-R may be used in the assessment of treatment effects and the course of the illness.

Cronbach's alphas for all of the subscales were satisfactorily high. However, the restricted interests factor is a weakness of this subscale and more research is needed in the future to avoid any kind of bias arising from small sample size and from the language of the questionnaire.

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SQL Injection Attacks: Its Types and Ways to Prevent Them

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Abstract

One of the serious security threats for organizations is SQL Injection Attacks. If an application accepts parameters as input, it can be vulnerable to injection attacks. SQL query statements can be used and manipulated to attack different systems. We have described in detail specific types of SQL injection Attacks in this article. It is principal to know more in-depth SQL Injection Attacks to detect and prevent them. There are many different effective and efficient techniques. Our proposal system is a modified approach based on other papers to detect and prevent these attacks.

Keywords: Web Application Security, SQL Injection Attacks, Database

Introduction

Nowadays, many businesses and organizations have a higher degree of user interaction, so they have chosen web applications to manage users' requests. Web applications interact with a database to supply correct data and manage them easily. However, attackers can manipulate or store data in databases without the permission of the user. Consequently, web applications are vulnerable to SQL injection attacks. [3][5]

Attackers can delete data from the database, can access confidential data e.g. passwords and in this way can access user accounts, change their private data and even deny access to their accounts. So they have unlimited access to the database. SQL injection is a threat to the personal data of the user. It can damage the database or even bring its unavailability. [2][7][8]

We can mention different types of attacks e.g. tautology-based SQLIA, Stored Procedures, Union Query, Piggy-Backed Query, etc.

SQL query statement depends on the contents of the input field inserted by the user of the application. Attackers can input data to modify the typical behavior of SQL statements. Input parameters concatenate with the query. If the query executes, it can bring in the corruption of the data in the database. Different papers and experiments have shown that one of the primary solutions to these problems is validation filtering of data inserted into the system. If the user is not allowed to insert some special characters (used often from attackers), the number of attacks can be reduced. We mention different forms of attacks, but developers face new vulnerabilities every day, so it is essential to find and create new tools to detect them.[4][6]

Security of the software is one of the most essential, external qualities of software, but developers are more focused on just complete functional requirements. These can lead to many attacks in the implemented software.[5]

Programmers should program software thinking about the security of the software, the potential attacks, and mechanisms to detect and prevent them. Because of the different types of SQL injection problems, researchers have proposed many approaches to solve them. [2]

Related Works

[3] is proposed an input-based analysis approach to automatically detect and prevent SQLIA. This approach has two phases: input categorization and input verifier. In the first phase, it defines the input domain in four specific types of data e.g., Keywords, Numbers, Special Chars, Alphabets. Usage of some categories in the SQL query statement cannot cause the SQLIA. Nevertheless, some other types of input data can be potential vulnerabilities and can cause SQLIA. The input verifier is designed to identify inputs that can cause attacks.

[1] is proposed a technique to detect SQL injection attacks. It consists of two phases. In the first phase, the lexicon contained by most of the SQL commands and logical operators is created, and the tokenization process split the input query statement into different tokens. Validation is the second phase and is realized with a comparison between the lexicon's contents and tokens. If one of the tokens mache to any other words in the lexicon file, it is an attempt to SQLIA.

Types of SQLIA

A. Tautology

Tautology is a statement or declaration that is always true. Attacks based on it use its logic since it is always true in any case. The main purpose of attackers is to obtain sensitive data. To obtain them the condition contained in the request, addressed to the database must be true so the data can be accessed. Attackers return the request addressed to the database in tautology, in this way it will be true enabling the retrieval of sensitive data from the database. This type of attack avoids the validation and

verification of requests coming to the database. Examples of tautology are as follows:
[1][2][9]

```
SELECT Address FROM Clients WHERE client_username= 'Anna'  
OR 'c'= 'c' AND client_password= '' OR 2=2;
```

```
SELECT Employee_salary FROM Employees WHERE employee_name= ''  
OR '1'= '1' -- AND employee_password= 'jane123' ;
```

B. Piggy-backed Queries

The main purpose of this attack is to execute commands remotely or to carry out denial of service attacks.

How is this attack performed?

In an exact original query are placed some malicious additional SQL statements which are intended to make the database malfunction. This attack does not modify the original query statement as tautology-based attacks but after the SQL request which is accompanied by a semicolon, additional statements are placed. The correct query statement is initially set to access the database while the additional queries are placed in such a way that since the database receives the original request it also receives these additional requests, as if they were part of the original statement so it executes them together. This attack can be used to execute commands remotely such as adding, modifying, accessing data in the table of the database, and executing the respective procedures of storing or retrieving data. Often the execution of these attacks can be used to perform DoS since the connection to the database and to one of its specific tables is realized with the correct query statement and the execution of additional statements causes the database to malfunction. This attack causes DoS so the data stored in the database table where the attack took place cannot be accessed. An example of this attack is shown below [1][4][2]

```
SELECT Orders FROM Client_Orders WHERE id_client_order = 'user1' ;  
DELETE Client_Orders ;
```

This example shows how after a correct SQL statement at the beginning of statement, is added an additional malicious statement. The database to which this request was sent thinks that it is the same SQL statement but separated by a semicolon into two commands. The first statement sends a request to the database to receive the order from the table of customer orders where the id of the customer who has executed the order is user1. Then the second malicious statement after the connection with the Customer Order table has been made, requires that the entire Client_Orders table be deleted. This would cause a DoS since when other users will try accessing this table they cannot access it since its data has been deleted from this attack.

C. Union Query

In most cases, the main purpose of attacks is to access data with sensitive content. Union-based SQL injection attack unlike piggy which placed additional malicious statement after the semicolon, joins a SQL statement which is valid with a statement which aims to obtain additional data through the use of SQL statement UNION. This type of attack organized according to the UNION structure can get additional data from the same table which is accessed by a valid statement but also from other tables in the database. Examples of this attack are presented below: [1] [4] [9] [10]

```
SELECT admin_name FROM Admin WHERE admin_username= " UNION  
SELECT admin_password FROM Admin WHERE admin_username = 'Jimmy'  
AND admin_password= 'Jimmy123' ";
```

In the first example is selected the admin name from the Admin table where the admin_username is equal to enter the UNION keyword which is accompanied by a command which takes the password from the Admin table where the admin username is Jimmy and is accompanied by -- and the rest after it looks like comment and not taken into consideration. So in addition to the statement that took the name of the admin it also are taken very sensitive data like: the password of this admin.

```
SELECT * FROM Clients WHERE Id_Client= 'Sara1' UNION SELECT  
Credit_Card_Number FROM Credit_Cards WHERE Id_Client= 'Sara1'  
-- AND password= " ;
```

In the second case, everything is selected from the clients where Id_Client is equal to Sara1 so far the statement is valid then it is accompanied by the keyword UNION and the statement after it selects Credit_Card_Number from the Credit_Cards table where Id_Client is equal to Sara1 and associate -- which means that the rest of the statement looks like a comment and is not examined.

In this case, not only all the Client data with username Sara are taken but also Sara's credit card number from the Credit Card table is taken. In this case, are accessed 2 different tables and the most sensitive Client data of Sara are taken.

D. Validating User Input

One of the main causes of vulnerabilities that make these attacks successfully achieve their purpose is the fact that the input data is not properly verified and they do not pay proper attention to avoid these vulnerabilities from the programming phase. At the beginning it should be seen if the data has the format, the right length, acceptable value, and after it is validated then it can be used later to access the database. But the fact that this validation is not performed properly and the data are not examined if they are valid made the attackers get the data from the database quite easily as mentioned in the attacks above. The main reason that this validation is not performed properly is the fact that Software Engineers do not have the proper knowledge and approach regarding software security. [1][11]

E. Inferential SQLi

This attack is otherwise known as a blind attack because initially the attacker sends a SQL query statement to the database to operate in such way that attackers can examine how the database responds based on their inputs. This attack takes a long time to complete as the data cannot be retrieved by the attacker, and for him to reconstruct the attack correctly he must consider how the database and application respond toward the input. [1]

There are 2 types of these attacks:

1. Blind Boolean Injection
2. Blind Time attacks.

Blind Boolean Injection, this technique sends SQL query to the database which is logically incorrectly written which forces it to return a completely different response based on True or False Boolean values. This way the database returns an error message. By receiving this error message the attackers try to find out what data they can inject or what SQL statement they should send to the database since they receive information from the error message such as: data in the database, type of database, its structure, tables located in it etc. This type of attack is slower than other attacks since the attackers do not have the necessary information to attack directly. They must first send invalid statements not to receive information directly but to receive error messages from the database. [7][10]

Blind time attack, this type of attack sends a statement to the database and forces it to return a response after a certain time. A True response means that the query was executed successfully or False otherwise executed or not depends on the response time towards the attacker. This type of attack is a slower attack and the larger the database the slower the attack is. If the time that website responds is faster, it means the website is not vulnerable otherwise it is. Example of this attack is shown below:

```
SELECT * FROM Clients WHERE client_id=1- IF(MID(VERSION(),1,1)= '5',  
SLEEP(15),0) SELECT * FROM Credit_Cards WHERE client_id=1-SLEEP(15);
```

With these examples, if the sleep time is 15 the database version used is 5.x. [9]
[12][10]

Proposed Approach

[1] is proposed a technique to detect SQL injection attacks. It consists of two phases. In the first phase, the tokenization process split the input query statement into different tokens. All strings before symbols like white space, single quotes, double dashes, question marks, sharp signs, etc are called tokens and are stored in an array.

The second step is validation. Validation is the process of comparison of these tokens with reserved words stored in a file(lexicon). The lexicon contains most of the

commands used in SQL injection attacks and some logical operators, such as: alter, drop, delete, or, if, etc. If one of the tokens matches with any other words in the lexicon, it is an attempt to SQLIA. [1]

According to the above approach, if the user input (may be used to express names) is identical to one of the words in the lexicon file, the system will detect it as an SQL injection and generate a false alarm. So, our proposal approach modifies this algorithm to increase the accuracy of SQL injection detection.

In our proposal approach, processes of tokenization and validation are the same as the above approach, but we have proposed a third process.

The third step can be executed, only if one of the tokens in the SQL query statement matches with any other words in the lexicon. Otherwise, there is not a SQL injection attack.

The third step is the process of analyzing only user input (not all SQL query statements). The process of analyzing user input means searching if user input contains symbols like single quotes, double dashes, sharp signs, etc. These symbols can be written in a file and can be read during the analysis of the user input process. If user input contains one of these symbols, there is an attempt to SQL injection attack.

It means that only if the user input contains tokens the same as the words in the lexicon and also contains symbols like single quotes, double dashes, sharp signs, etc it is an SQL injection.

The third process is presented with a light blue color in Figure 1 and explained in more detail in Figure 2.

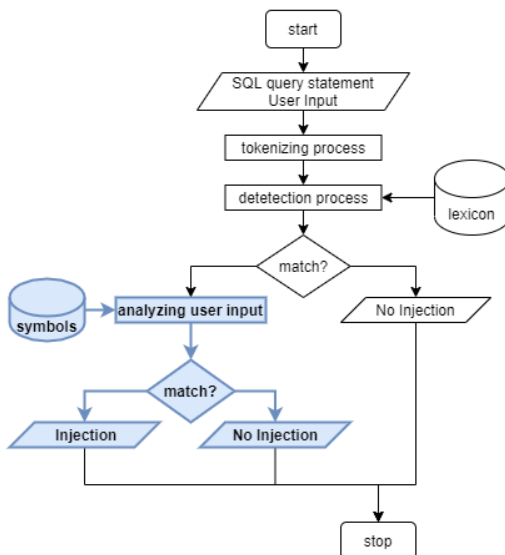


Fig. 1. Flow Of Modified Approach[1]

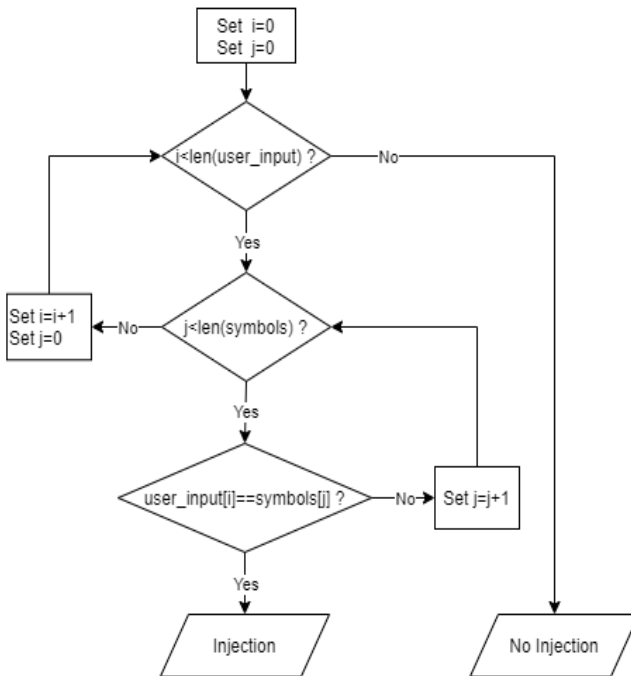


Fig. 2. Analyzing User Input Algorithm

The algorithm in Figure 2 shows the process of analyzing user input. We can access each letter of user input by supposing it as a vector of chars. Furthermore, all symbols can be read from the file and written in a vector to access them easily.

Experiment

In this section, the system tested 3 SQL query statements to cover all branches of the algorithm.

Input = Ann

Sql Statement = `Select*from student where username='Ann'`

Select*from	student	where	username=	Ann
-------------	---------	-------	-----------	-----

Fig. 2. Query Statement and tokening result

In the above example, tokens in the SQL statement don't match with one of the words in the lexicon, so it is not an injection.

Input = Or

Sql Statement = `Select *from student where username='Or'`

Select*from	student	where	username=	Or
-------------	---------	-------	-----------	----

Fig. 3. Query Statement and tokening result

In the second example, the system detects Or operator, but the input doesn't contain symbols. So, this is not an injection.

Input = Ann' Or '' = '

Sql Statement = Select * from student where username='Ann' Or '' = ''

Select*	from	student	where	username=	Ann	Or	=
---------	------	---------	-------	-----------	-----	----	---

Fig. 4. Query Statement and tokening result

Or operator detection and the user input contains single quotes. The system detects that it is an injection.

Conclusions and Future Works

Our approach is a modification of the existing systems. The upper tests are indicators that it prevents most of the usual injection attacks. The probability of attacks can be reduced by filtering the input from the user, so attackers can't access the database. We can upgrade the above approach in advance and can consider the following point: If the input can contain symbols like single quotes, we can improve the system to detect that is an injection only if the number of single quotes is divided by two.

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Effectiveness of Psychosocial Service in Educating down Children, with Individual Education Programs

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Abstract

Down Syndrome, Trisomy 21 or Mongolism is a specific genetic mutation in which a person possesses an extra chromosome on the 21st pair of chromosomes. Down syndrome is a chromosomal disorder that is associated with delayed physical, intellectual, and linguistic development (Cumella, S and Heslam, S.2014). We wanted to evaluate and argue the effectiveness of psychosocial services in training and rehabilitating Down children through psycho-educational programs, therapies and scientific methods. For the realization of the study, semi-structured interviews with actors and factors that have access to Down children were used. Focus group with specialists in the field who create the multidisciplinary group. Direct vertical grid observation with children constituting the study sample. Treatment with Individual Education Plans of Down children trained them in several areas: The mental age of the child M.I assessed by the SONER test, increased as: (2017-2018- 2.6 years); in the year (2018-2019- 4.8 years old), in the year (2019-2020- 6.6 years old). Child M.I was trained in the following areas: Language training: PEI-35%; PEI-2-50%; PEI-62%; Cognitive acquisition: PEI -1- 30%; PEI-2-40%; PEI-2-60%; Social skills: PEI-1-35%; PEI-2-50%; PEI-3- 60%; The untreated E.E child had the following parameters: Cognitive training: 2017-76%; 2020- 57%. Language training-2017-85%; 2020-75%; Social education- 2017-87%; 2020-78%; Child E.E, untreated with PEI, in 2017 had a mental age of 2.6 years; in 2020 her mental age was 3.2 years. Psychoeducational programs accelerate the psychosocial and psychophysical development of children with Down Syndrome. Treatment and rehabilitation of children with Down Syndrome, with therapy and professional programs, is difficult but not impossible. Psychological treatment of Down children with Individual Education Programs (PEI) argued the acceleration of the mental progress of this target group.

Keywords: Syndrome, Down, programs, methods, psychological service, training, therapy.

Introduction

Down syndrome is one of the most common genetic abnormalities encountered at birth. In other words, this syndrome is not a disease but a genetic condition, something with which the child was born, which is present in the fetus from the moment of conception. This disorder is caused by the presence of one more chromosome, where chromosomes are those units that take care of our characteristics, such as eye color, hair that we inherit from our parents (McEvoy, J, Treacy, B and Quigley, J . 2017)

This syndrome was first described in 1866 by John Langdon Down, but not until 1959, when Lejeune reported that children with Down syndrome had one more chromosome in pair 21 (i.e. not 2 but 3 chromosomes in this pair). There are three types of chromosomal abnormalities: a. Free trisomy 21 (94% of cases), b. Down syndrome with translocation 3-4% of cases. (Patti, P, Amble, K and Flory, M. 2010)

Down syndrome occurs in about 1 in approximately every 700 live births. The incidence of the disorder increases significantly in the offspring of women over 35 years of age. For example, the prevalence of the disorder in the offspring of women under the age of 30 is less than 1 in 1000, while its incidence in the offspring of women over the age of 40 can range from about 1 in 100 to 1 in 30 births. Women who have had a child with the syndrome Down have a 1 percent risk of having a second child with this disorder. (McMaugh, PJ, Wiese, MY and Stancliffe, RJ. 2017)

Screening tests using ultrasound and blood tests that the disorder can be confirmed using amniocentesis or chorionic villus sampling. In these diagnostic tests, fetal cell samples are taken from the amniotic fluid or from the mother's placenta and analyzed for the presence of the abnormal chromosome. Because these procedures are invasive, they are associated with an increased risk of miscarriage. (N. Natalia. 2012)

Non-invasive prenatal testing (NIPT) is also available for early detection of Down syndrome. During pregnancy, a small number of fetal cells enter the mother's bloodstream. (Patti, P, Amble, K and Flory, M 2010). Maternal blood samples collected after the 10th week of pregnancy can be analyzed using specially generated fragments of DNA (deoxyribonucleic acid), known as probes, that are capable of recognizing and binding to DNA of the fetus carrying the extra chromosome associated with trisomy 21. Because the probes are labeled with a molecular marker (e.g., a fluorescent or radioactive molecule), fetal cells carrying the extra chromosome can be easily detected in laboratory tests. (Patricia.C.Winders, 2017)

II Literature

Is Down Syndrome Hereditary?

Translocation Down Syndrome is the only form transmitted from parent to child. Risk factors: If the father is a carrier, the risk is 3%. Studies show that the age of the father over 45-50 or more and the age of the mother over 35 affect the birth of a child with

Down syndrome. If the mother is a carrier, the risk is 10-15%. Down syndrome is a condition in which a person is born with an extra copy of chromosome 21. People with Down syndrome can have physical problems as well as intellectual disabilities. Every person born with Down syndrome is different. (Tenenbaum, A, Chavkin, M, Wexler, ID, Korem, M and Merrick, J. 2012)

People with the syndrome may also have other health problems. They may have dementia. They may have hearing problems and problems with the intestines, eyes, thyroid and skeleton. The chance of having a baby with Down syndrome increases as a woman gets older. Down Syndrome cannot be cured. Early treatment programs can help improve skills. (Piazza, VE, Floyd, FJ, Mailick, MR and Greenberg, JS. 2014). They may include speech, physical, occupational and / or educational therapies. With support and treatment, many people with Down syndrome live happy and productive lives

Prenatal diagnosis

Mothers over the age of 35 need to undergo several tests such as: Triple test & quad test. Double test combined with echo during week 11-13. Amniocentesis. Blood tests and ultrasound tests during the first trimester of pregnancy. (Thorsen, AT and Davidsen, EM. 2013). Blood tests provide information about abnormalities that may indicate Down syndrome in the blood. Ultrasound checks the baby for fluid form behind the neck, this can detect abnormalities including Down syndrome. Blood tests during the second trimester of pregnancy. This test looks for signs of abnormalities in the mother's blood. (Laney, Dawn2008)

Integrated tests This type of test takes the results of blood tests during the first and second trimesters and makes a risk assessment for Down syndrome. None of these tests manage to diagnose Down syndrome, they can only show the percentage of risk that the baby has to be born with this syndrome. But even if the results come back positive you can still have a healthy baby. The only way to diagnose Down syndrome before the baby is born is with the help of diagnostic tests. Motorcycle development. The main areas of motor development are: Awareness of the body. Awareness of space. Equilibrium. Rhythm and control of movements. Rhythm and control of movements. (Kåhlin, I, Kjellberg, A and Hagberg, JE 2016)

Development of language and speaking skills. Age of onset of speech in Down children. From 1-2 years about 13.88% of children. After 2 years about 20.83% of children. After 3 years about 25.00% of children. After 4 years about 16.66% of children. After 5 years about 16.66% of children. After 6 years about 6.94% of children.

Behavioral and Social Expressions of Down Children.

Down children's physical development is slow, but so is intellectual development. Approximately one-third of children born with Down Syndrome have heart defects, most of which can now be corrected with surgery. Adults with this syndrome are

prone to arteriosclerosis, which can lead to heart disease. Digestive system problems are also very common. (Davies, J and Morgan, H 2010)

Vision problems are very high in people with Down Syndrome, such as: blurred vision, myopia or hyperopia, cataract formation, etc. People with Down Syndrome are also prone to recurrent ear infections, and often have hearing loss or diminution caused by fluid buildup in the inner ear. Often they have speech impediments due to the enlargement of the tongue (as an organ). Many individuals who have Down Syndrome have the same changes in the brain as those individuals who have Alzheimer's disease. (Foley, S 2013)

This is not to say that all cases of Down Syndrome show clinical signs of Alzheimer's disease. There is a chance that 25% of individuals with Down Syndrome who are over the age of 35, develop Alzheimer's disease. Also, they risk 5 to 20 times more than the other population to develop leukemia. Some individuals with Down Syndrome may also have a condition called neck instability, this is due to the poor connection of the two upper neck vertebrae. This condition makes these individuals more prone to neck injuries if they participate in activities that involve neck movement. (M, Silverman, W, Tycko, B, Whitten, M and Wisniewski, T. 2015)

III Methodology

To meet the goals of the study, a multidisciplinary working group composed of experts in various fields was set up to focus on specific problems of particular interest to children with DS. The group included psychologists, physiotherapists, pediatricians, speech therapists, social workers, parents of children with Down Syndrome, support teachers, etc.

The multidisciplinary group addressed the cognitive development problem of the Down children involved in the study; examined heart disorders, behavioral disorders; language, hearing and sight problems; sleep and breathing problems; obesity, metabolic and musculoskeletal problems; immune system disorders; dental and oral health.

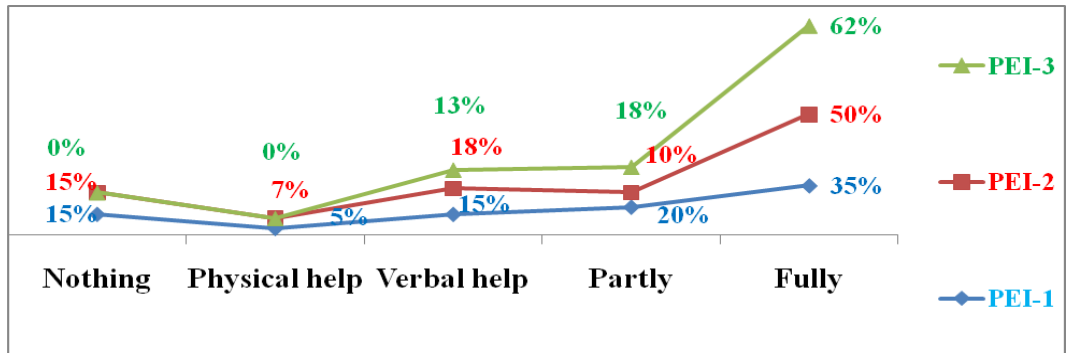
The multidisciplinary team focused on the design and implementation of Individual Education Plans (IEPs) for the training and integration of DS children in inclusive education institutions.

The members of the multidisciplinary group, during the period 2017-2019 cooperated for the treatment of Down children by meeting in daily and weekly consultations. During the period of the pandemic, their collaboration on the implementation of the PEI for the rehabilitation of Down children was done online. Questionnaires were used, as well as semi-structured interviews.

IV Results

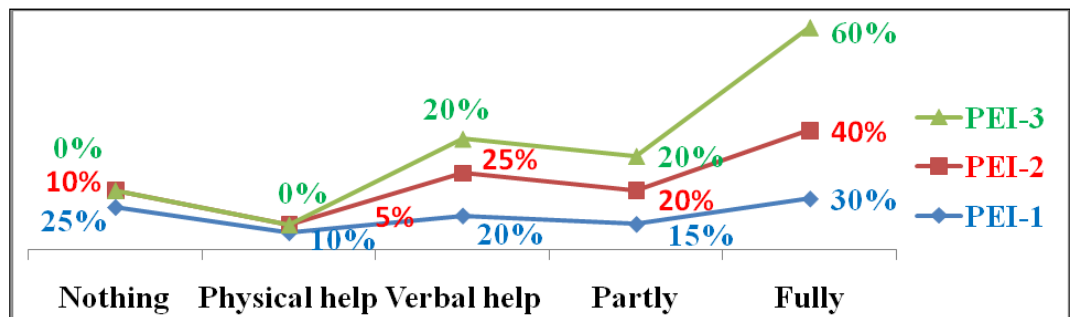
The achievements of Down children through the application of the Individual Education Plans included in the study are presented graphically as follows:

Figure 1. Down B.S child's achievements in the field of language training.



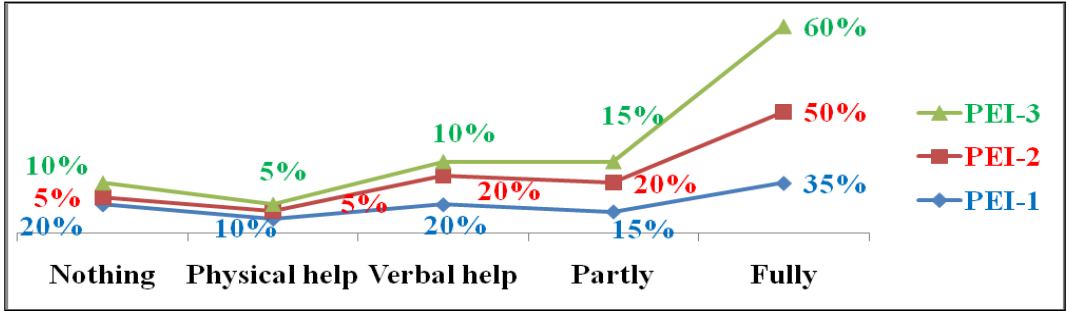
The findings of the rubric. After the application of the individual education program (PEI-1) the child's education increased by 35%. After the application of (PEI-2) it was achieved that the child communicates 50% fully. At the end of the PEI-3 individual education program, the child's communication skills increased by 62%

Figure 2. Cognitive training of M.I



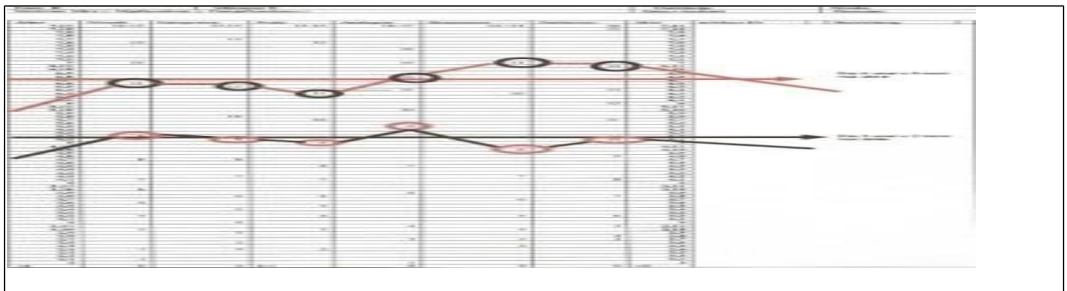
The graphic presentation shows that the M.I child develops cognitively progressively in direct proportion to the application of individual education programs (PEI-1 + 2 + 3). Finding this rubric at the full level is: (PEI-1-30% / PEI-2-40%, PEI-3-60%).

Figure 3. The social training of M.I



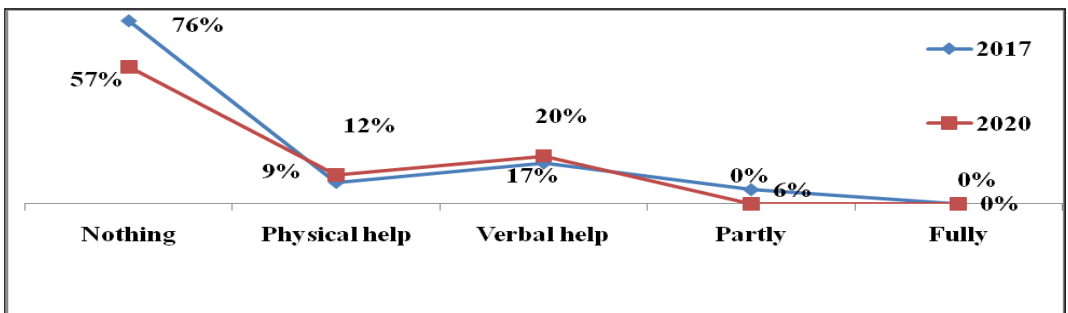
The rubric finding is: Social literacy has improved 35% after the application of PEI-1, 50% after the application of PEI-2 and 60% after the application of PEI-3

Figure 4. Graphic representation of the mental age of the child M.I.



Graphical representation of the mental age of Assessment realized by means of the SONER test. Child M.I. in the year (2017-2018- 2.6 years old); in the year (2018-2019- 4.8 years), in the year (2019- 2020- 6.6years)

Figure 5. Child cognitive training Down E.E.



Graphical presentation of the cognitive training of the child E.E of the control group shows that in 2017 cognitive training is 76% at the level at all. In 2020 the cognitive training of the child E.E, untrained with programs, results 57% at the level at all.

Figure 6. Language training of the child E.E, not exercised with Individual Education Plans (PEI)

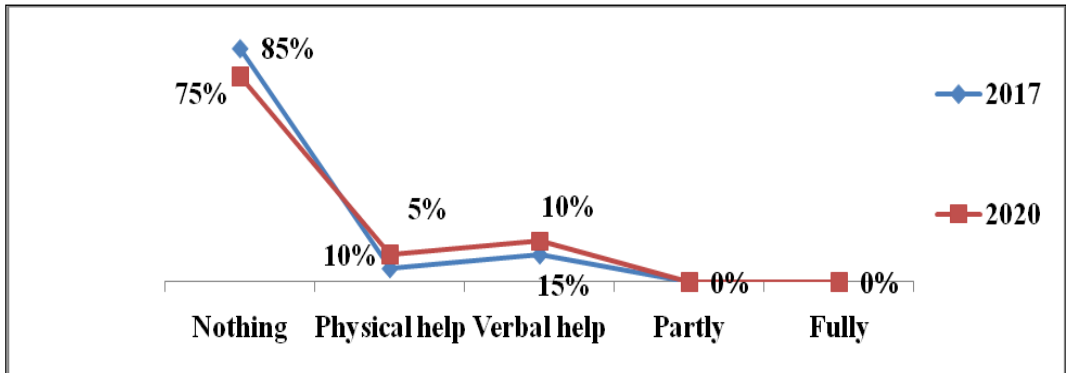
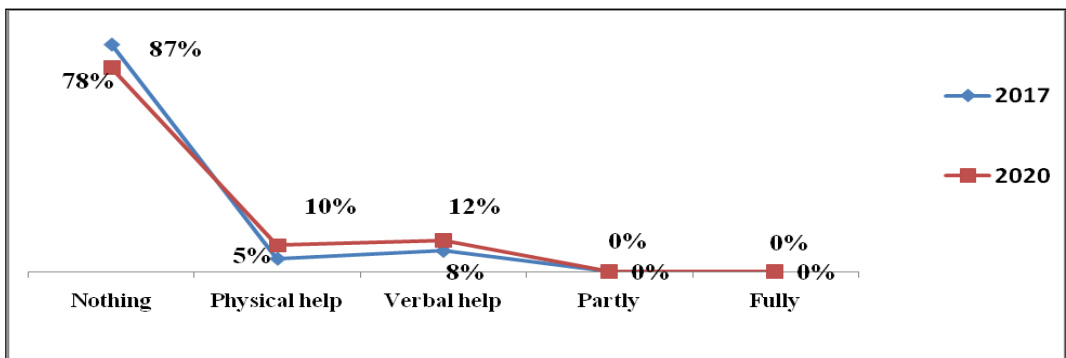


Figure 6 shows that the language training of the child E.E of the control group in 2017, is 85% at the level at all. In 2020, the language training of the E.E child, not trained in programs, results in 75% at the level at all

Figure 7. Social education of the child Down E.E.



The graphic presentation of the social training of the child E.E of the control group shows that in 2017 the social training is 87% at the level at all. In 2020, the social training of the E.E child, unskilled with programs, results 78% at the level at all, 0% at the partially levels and 0% at the fully level.

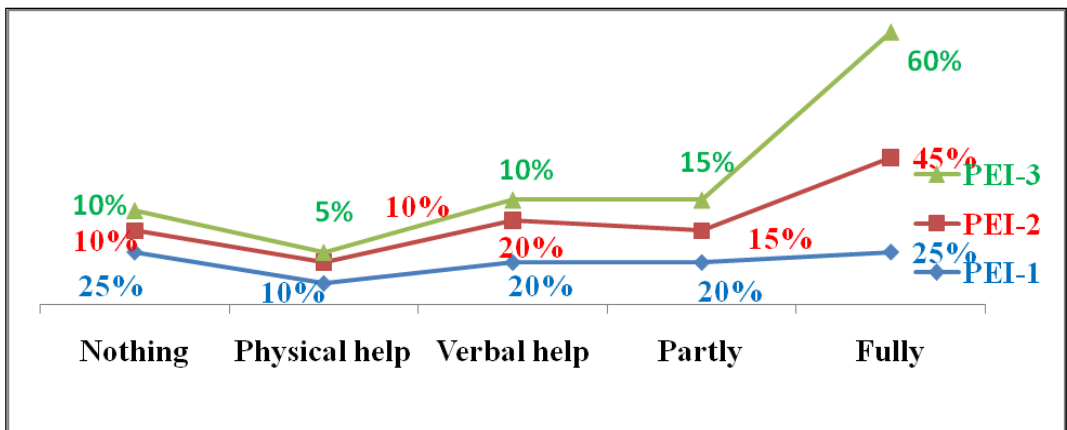
Figure 8. Presentation of the mental age of E.E.

In 2017, the mental age of E.E was 2.5 years; In 2020, E.E.'s mental age increased by 6 months, so it was 3.1 years old.

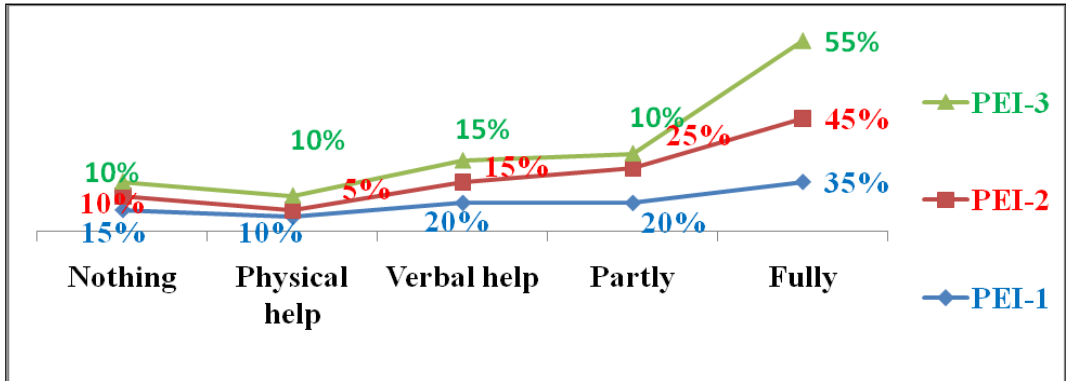


PEI-I (2017-2018); PEI-II (2018-2019); PEI-III (2019-2020). Individual Education Programs applied during the three phases of the study.

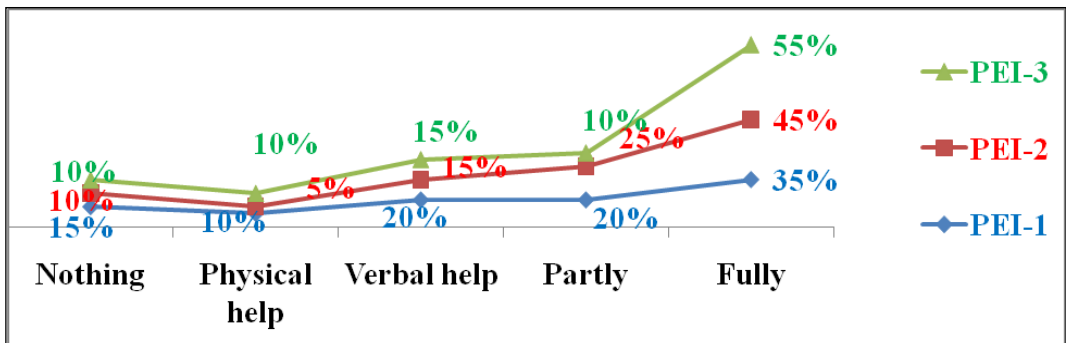
Figure 9. Cognitive training. Outcomes of child K.R with Down Syndrome.



The graphic presentation shows that the K.R child develops cognitively progressively in direct proportion to the application of individual education programs (PEI-1 + 2 + 3). Finding this rubric at the full level is: (PEI-1-25%), (PEI-2-45%) (PEI-3-60%)

Figure 10. Child language training of the child K.R.

The findings of the rubric. After the application of the individual education program (PEI-1) the child's education increased by 35%. After the application of (PEI-2) it was achieved that the child communicates 45% fully. At the end of the PEI-3 individual education program, the child's communication skills increased by 75%.

Figure 11. Social training of the child K.R.

The graphic presentation shows that the child K.R. was progressively socially trained in direct proportion to the application of individual education programs (PEI-I + II + III). Finding this rubric at the full level is: (PEI-1-35% / PEI-2-45%, PEI-3-55%).

Figure 12. Graphic representation of the mental age of the child KR. Assessment performed by SONER Test.

Child KR in 2017, 2.5 years old; in 2018. 4.7 years old, in 2020 6.5 years old.

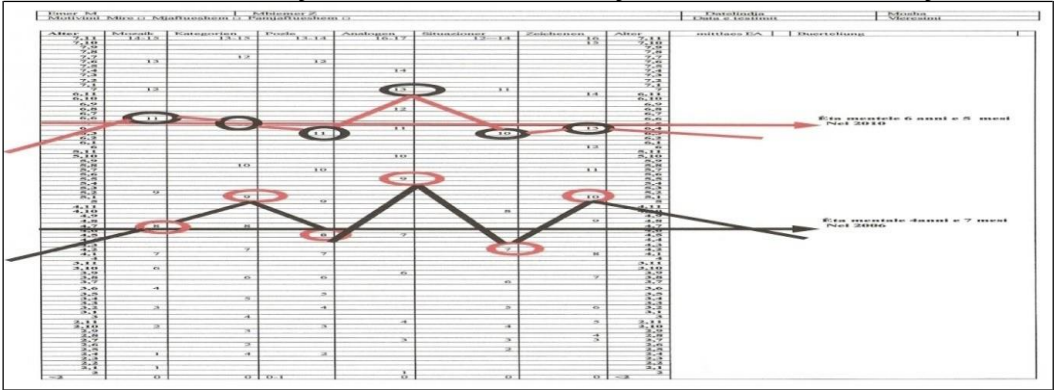


Figure 13. Language training of child S.V. Not exercised with (PEI)

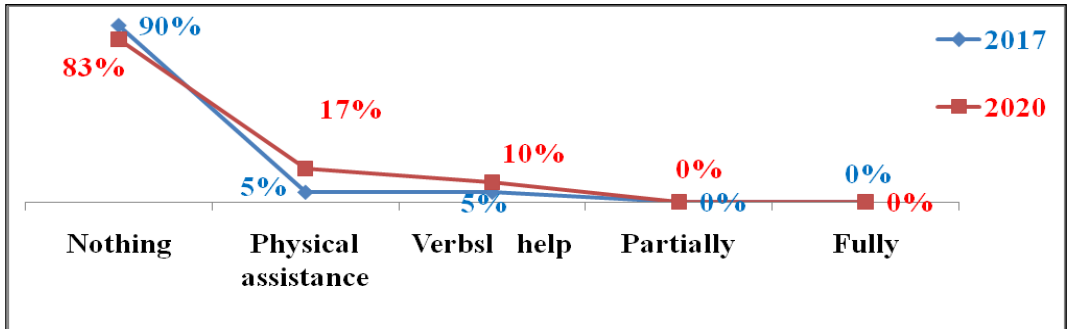


Figure No. 13, shows that the language training of the child S.V of the control group in 2017, is 90% at the level at all. In 2020 the language training of the child SV, untrained with programs, results 83% at the level at all.

Figure 14. Cognitive training of S.V.

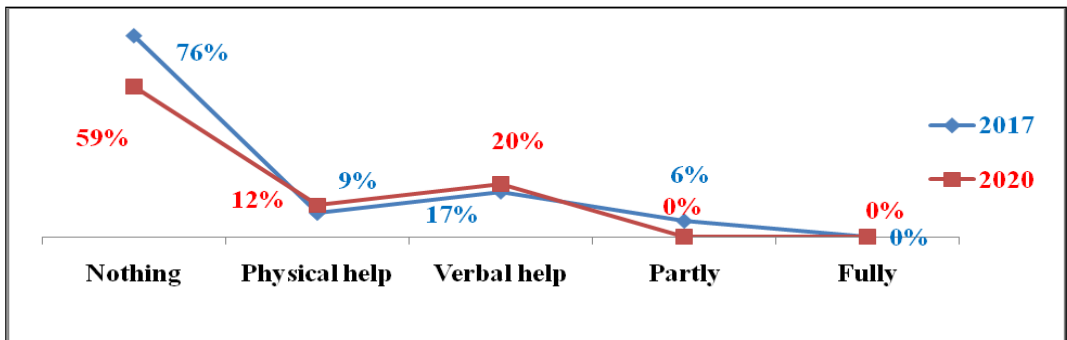


Figure 14, shows that the cognitive training of the S.V child of the control group in 2017, is 76% at the level at all. In 2020 the language training of the child SV, untrained with programs, results 59% at the level at all

Figure 15. Social Training of S.V

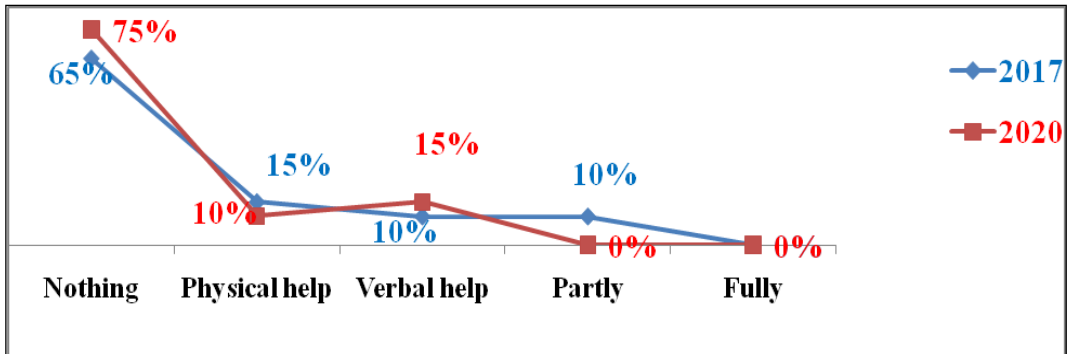
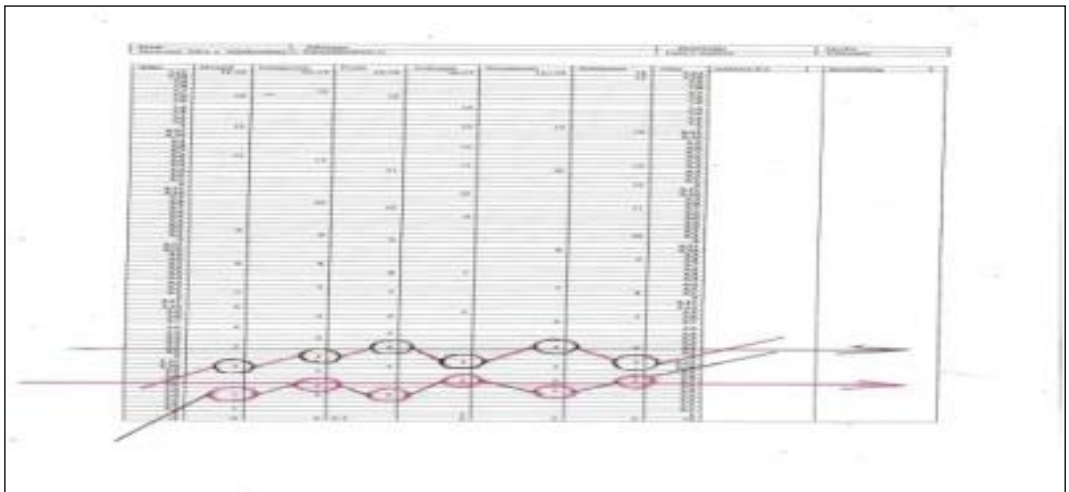


Figure No. 15, shows that the language training of the child S.V of the control group in 2017, is 75% at the level at all. In 2020, the language training of the child SV, not trained in programs, results in 65% at the level at all

Figura 16. Graphic representation of the mental age of M.L;



In the year the mental age of the child M.L, assessed with the SOONE-R and Griffiths test was: (2017 - 2.5 years old); (2020- 3.5 years old).

V Discussion

The treatment with Individual Education Plans of Down children enabled them in several directions: The mental age of the child M.I realized through the SONER test, increased as: (2017-2018- 2.6 years old); in the year (2018-2019- 4.8 years old), in

the year (2019-2020- 6.6 years old). Child M.I was trained in the following areas: Language training: PEI-35%; PEI-2-50%; PEI-62%; Cognitive acquisition: PEI -1-30%; PEI-2-40%; PEI-2-60%; Social skills: PEI-1-35%; PEI-2-50%; PEI-3- 60%; The untreated E.E child had the following parameters: Cognitive training: 2017-76%; 2020- 57%. Language training-2017-85%; 2020-75%; Social education- 2017-87%; 2020-78%; Child E.E, untreated with PEI, in 2017 had a mental age of 2.6 years; in 2020 her mental age was 3.2 years. The treatment of Down syndrome varies from person to person, so for the treatment of students with Down syndrome, the multidisciplinary team of experts intervened through PEI Programs and professional methods, TEACCH, ABA, information technology. .

Down children were trained by specialists: How to learn to read; How to learn math skills. How to master writing learning. The Down children included in this study were treated by a multidisciplinary team consisting of psychologists, doctors, speech therapists, social workers, support teachers, physiotherapists, ergotherapists, therapists who care for them. For the treatment of the children involved in this study the experts applied Physical Therapies where children perform physical exercises which strengthened the children to improve fine and global motor skills and helped them in their posture and balance. The physiotherapist designed the Individual Education Plan (PEI) for each of Down's children and trained them intensively in the gym. The speech therapist applied Down Speech Therapy to the children, which helped them communicate clearer and faster, because children with Down syndrome usually start talking later than other children. Also for the cognitive and social development of children we use Behavioral cognitive therapy.

Occupational therapy or ergotherapy was used intensively during the treatment of the children we treated because this therapy helped the Down child with daily activities such as eating, dressing, and taking care of himself. Psychological therapy - which helped the children we studied to cope with their condition. Children with the Down syndrome we treated become irritable quickly and sometimes lose control of their behaviors. They are at high risk for hyperactivity (ADHD). Therapies with a psychologist, which are highly recommended, were used intensively with the Down children who were treated during this study.

For the treatment of Down children, the experts developed a strategy to carry out the process of diagnosis and chromosomal analysis of pregnant mothers, counseling and emotional support of parents. Experts planned assessment of gastrointestinal abnormalities; Scheduled thyroid gland examination, eye examination. Experts also developed rapid intervention programs; They organized nutrition counseling and cardiac examination for Down children. etc.

VI Conclusion

Advances in medical care, increasing the level of psychosocial services, increasing the level of technology, increasing social sensitivity are some of the factors that have

affected the life expectancy of people with Down Syndrome. The problems of children with Down Syndrome vary from person to person, so the multidisciplinary group coordinated by the psychologist develops and implements Individual Education Plans (PEI).

The study showed that the effectiveness of (PEI) is high when these plans are accompanied by modern rehabilitation therapies such as: Cognitive therapy, occupational therapy or ergotherapy, Speech therapy or Speech therapy; Developmental therapy etc. People with Down Syndrome need more moral and financial support from state decision-making bodies, the community and the family.

Individual Education Plans are effective when the treatment of these children starts as early as possible. Therefore, the integration of children with Down Syndrome into inclusive education institutions should begin as soon as possible. Families of children with Down Syndrome should be financially supported by the state, and civil society for training and specialization to support their children with Down Syndrome.

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Influence of Implementation of Composite Materials in Maritime Industry on CO₂ Emission's Reduction

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Abstract

The future of the composites market looks attractive with opportunities in the transportation, construction, wind energy, pipe & tank, marine, consumer goods, electrical and electronics, aerospace, and others. The composite materials market is expected to reach an estimated \$40.2 billion by 2024 and it is forecast to grow at a CAGR of 3.3% from 2019 to 2024. The composite materials that have started to be used in the production of tourist boats, especially those of the yacht type, have proved in practice the designers' expectations for the great advantages they have brought compared to steel. The performance of the new generation ships of this millennium, will require the ever-increasing use of new and innovative materials, to meet the also growing demands of potential buyers of these vehicles. On the other hand, based on the already sanctioned principles of the European Community for the observance of the norms set for CO₂ emissions from maritime transport - (Green shipping) in respect of the Kyoto Protocol on Climate Change, it becomes more necessary to produce marine vehicles that significantly reduce the weight of marine vessels, consequently engine power and fuel consumption by significantly reducing CO₂ emissions. This study aims to bring a specific analysis of the impact of composite materials to the CO₂ emission's reduction.

Keywords: composite materials and composite market, performance of marine vessels, climate change, CO₂ emission's reduction, software simulation.

Introduction

As an incentive for this article, was the study carried out by the I Care Consulting Company in collaboration with the partners of the PASSAGE Project - Interreg Europe Program on CO₂ Emissions in the European Maritime Strait, including the Otranto Strait.

This study identified the source of CO₂ contamination by Otranto, considering several factors: economic activity, maritime transport, inland transport, and human activity.

Straits have unique geographies, and are characterised by diversified and specific economic activities, including transportation, industrial activities, tourism, services, and manufacturing. Straits are important centres of communication, commerce, and culture.

Straits include cities with an important population living on coastlines, and thus particularly vulnerable to global environmental change, such as rising sea levels and coastal storms. Additionally, all these economic activities may be a significant, and growing, sources of energy consumption and account for a significant percentage of greenhouse gas (GHG) emissions. [1]

This may include not only GHG emissions from “land based” activities (ports, industries, cities, tourism), but also “sea based” activities, such as domestic or international maritime transportation. Therefore, straits may play an important role in tackling climate change and responding to climate impacts, bringing an integrated management approach, considering marine areas and hinterlands, on both sides of the strait.[2]

As for cities, strait’s ability to take effective action on mitigating climate change and monitoring progress, begins with developing a GHG inventory; a “carbon study”. Such an inventory will first enable straits to understand the main emissions contribution of different activities taking place at strait level. It may then allow straits to determine where to best direct mitigation efforts, where to best consolidate partnerships with key stakeholders, and finally create a strategy to reduce GHG emissions. [3]

The clear definition of the concept of maritime straights helps to analyze the impact that maritime transport brings to the level of CO2 emissions.

Defining a strait: perimeter, activities

From a geographical point of view, a strait is a narrow stretch of water between two landmasses joining two marine expanses. Unlike cities, for which we can generally base studies on administrative boundaries, a strait is a complex area comprising a maritime space and a terrestrial interface, with a spatial dimension that can be subject to discussion and interpretation depending on the purpose of this definition. Moreover, there is no administrative boundary for a strait (although there are different administrative boundaries within a strait), and thus it is necessary to take into consideration functions and activities of a strait to be able to propose and justify a specific boundary. [4]

From a functional point of view, a strait is the crossing-point where the crossing is the shortest possible. It is thus a core node of transport and communication, with a “bridge effect” stepping up maritime connections (ferries, container transport, ro-ro ferries etc.) or fixed links (bridges and tunnels). A strait be a transportation hub organized around the main ports on both side of the strait, involving longitudinal (between the main ports of the strait) and transit flows of goods and people through

the maritime corridor. Economic activities, as well as in-land transportation are then induced by these flows through the maritime corridor [5]

Main GHG emission sources at strait level

Calculation of CO₂ emissions in the maritime strait considers the major activities that are developed in the strait according to the concept defined for it, as described in the table No1

Ports operation: including energy consumption of the buildings in the port and of the ships in the port areas.

Maritime transport: including local, international (with calls to the strait's ports) and transit maritime cruise. This emission source was included in most of the inventories, depending on the local availability of data. The local maritime cruise data was collected from the ports and/or the local maritime companies. The international maritime cruise data was collected from the ports, and the transit maritime cruise was collected from the coastguards

Table 1: Technical and economic activities in the Strait

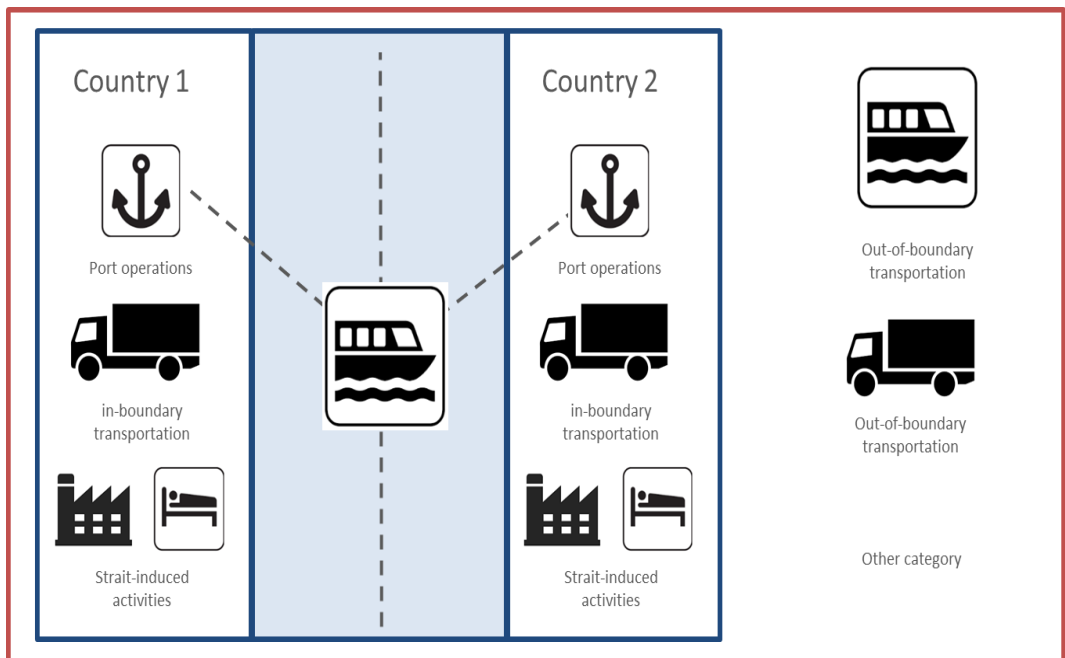
Ports	<ul style="list-style-type: none"> • Port operations: port-owned and leased vehicles, buildings, port-owned and operated cargo-handling equipment, port purchased electricity for port administration-owned buildings, lighting and operations • Ships in port areas: In fairway channel, at anchor, in port basin, maneuvering, at berth
Sea-based	<ul style="list-style-type: none"> • Local maritime cruise: traffic between port-to-port inside the strait (Ferry, fishing) • International maritime cruise: emissions due to ships arriving / departing from the port located in the strait • Transit maritime traffic: emissions « inside » the strait without calls at straits' ports
Land-based	<ul style="list-style-type: none"> • Road-railway-fluvial traffic: origin/destination of goods handled in the ports' area • Tunnel • Induced economical activities (ex: fishing, tourism, etc...)

In-land traffic: including road, railway, waterways transport from and to the ports and tunnel transport if appropriate. This emission source was included in all the inventories based on local and national statistics on the quantity of merchandise transported, the number of passengers passing through the ports, the mode of transport and the distance travelled. This emission source represents between 3% and 20% of the emissions within the strait.

Induced economical activities: including industries and residential and commercial activities. This emission source was included in all the inventories based on European data on the emissions from industries (in the EU-ETS database), and on the emissions from residential and commercial activities per capital.

The analysis methodology includes the collection of statistical data regarding the number and typology of economic enterprises operating in the coastal area at the perimeter of the straight, the number of vessels anchored in the port of Vlora, the number of vessels transiting the Strait of Otranto, the number of Port shipyards, as well as the processing duration, the number of land transport vehicles to the Port, statistics on the number of people around the straight as is described in the Fig No1.

Fig No 1 - Diagram of technical and economic activity in the straight



Otranto straight CO₂ Emissions

The Strait of Otranto (Albanian: Kanali i Otrantos; Italian: Canale d'Otranto) connects the Adriatic Sea with the Ionian Sea and separates Italy from Albania. Its width from Kepi I Gjuhes, Karaburun, Albania to Punta Palascia, east of Salento is less than 72 kilometres (45 mi). The strait is named after the Italian city of Otranto. The strait of Otranto has a very strategic position and for centuries has been a key to control all traffic flow from Mediterranean to Adriatic seas.

Fig 2 – Strait of Otranto

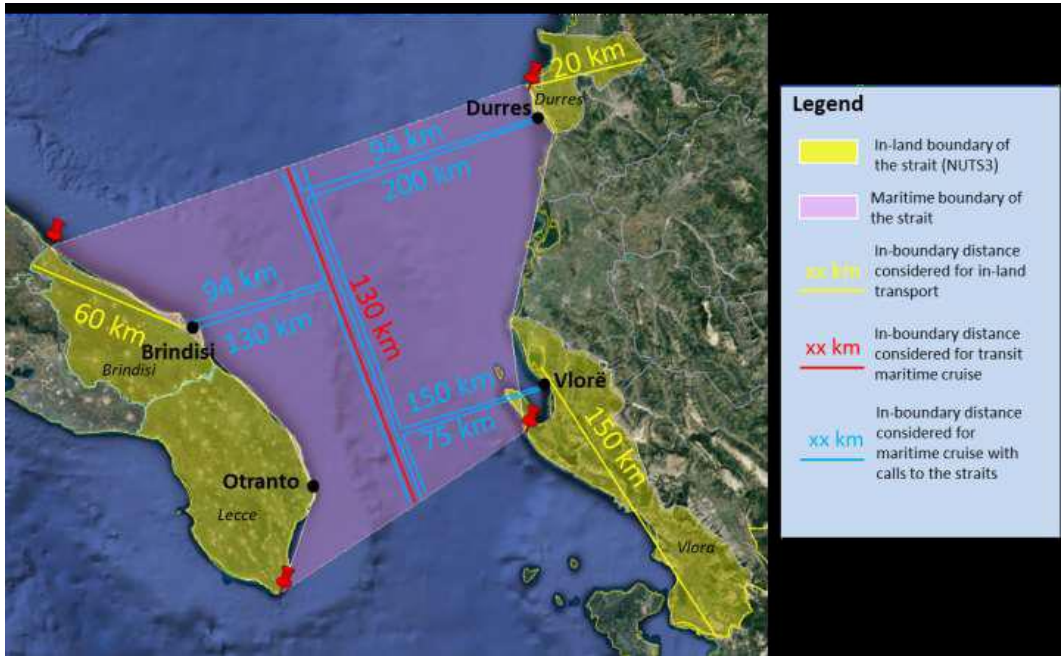
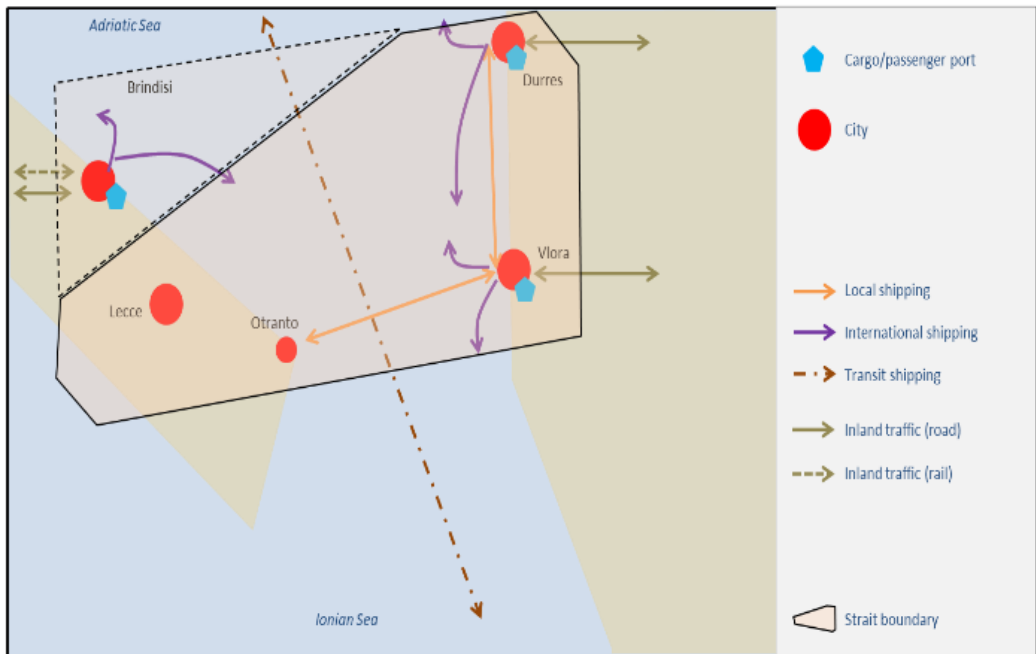


Fig 3 – Diagram of maritime transport activities

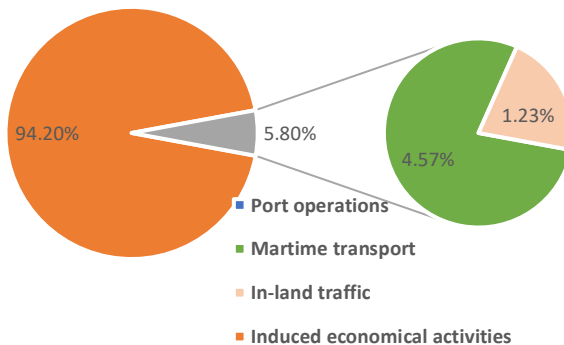


From the analysis of the data for the variables defined in the diagram the calculation of CO₂ emissions resulted: 94% of the emissions in the strait are generated by economic activity, 5 % by sea transport and 1% by land.

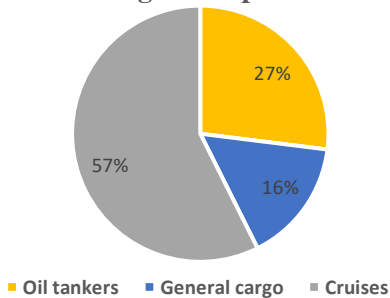
If we will go more in details for the maritime transport Co₂ emissions define by category of vessels 57% of in boundary emissions are generated from the cruises, 27 % from oil tankers activity and 16 % from cargo activity.

Graph 1 - Emissions in the Otranto Strait

Emissions of the Strait of Otranto

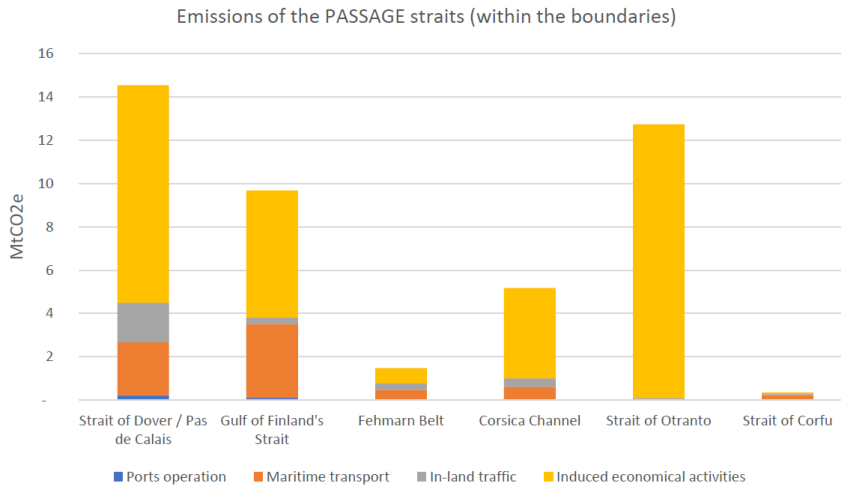


In-boundary emissions from the vessels calling at the port of Vlörë



If we compare the level of CO₂ emissions in the Strait of Otranto with those of other European Straits, we find that the total level of emissions in the Strait of Otranto is 12.5 M Ton. 95% of CO₂ emissions in this strait are attributed to economic activities.






Graph 2 - Emissions of the Passage Straights



At the strait level, the application of the national objectives (disaggregated by sector) results in a reduction of the emissions by 36% by 2030, compared to 2016.

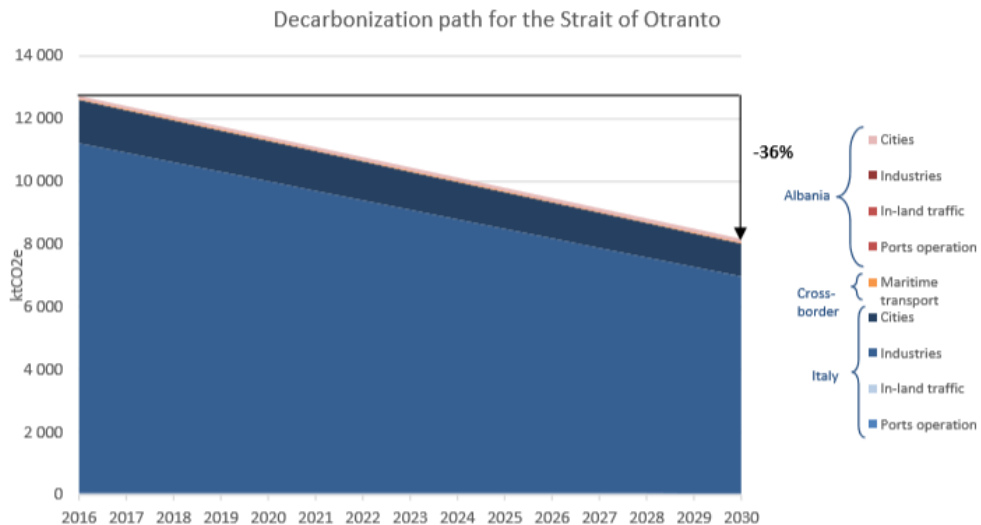
The following table presents the main hypothesis made to estimate the decarbonization path of the Strait of Otranto.

Table No2 – Table of hypothesis for decarbonisation in the Strait of Otranto

Emission source (within the strait's boundary)	Source of hypothesis	% of reduction	Emissions 2016 (tCO ₂ e)	Emissions 2030 (tCO ₂ e)
Port operations 	European Commission's target on CO ₂ emissions from maritime transport	-40% between 2005 and 2050 (corresponding to -12.3% between 2016 and 2030)	NC	NC
Maritime transport 	European Commission's target on CO ₂ emissions from maritime transport	-40% between 2005 and 2050 (corresponding to -12.3% between 2016 and 2030)	31 432	27 566
In-land traffic 	Transport target in Italian National Energy Strategy and Albania's Target in INDC	IT: -16% between 2016 and 2030 AL: +47% between 2009 and 2030 (corresponding to +30.6% between 2016 and 2030)	64 157	58 380
Industries 	Industry target in Italian National Energy Strategy and Albania's Target in INDC	IT: -38% between 2016 and 2030 AL: +47% between 2009 and 2030 (corresponding to +30.6% between 2016 and 2030)	11 163 390	6 921 302
Buildings 	Building sector target in Italian National Energy Strategy and Albania's Target in INDC	IT: -24% between 2016 and 2030 AL: +47% between 2009 and 2030 (corresponding to +30.6% between 2016 and 2030)	1 468 585	1 161 873
TOTAL			12 727 564	8 169 120




This reduction is due to the actions implemented at all the levels (national, regional, local) and corresponds to the path that is being taken with the actual strategies. The emissions can also be reduced by implementing new actions specifically on the strait's boundary.

Graph. No 2 – Decarbonisation paths for the Strait of Otranto



Based on the decarbonisation paths for the Strait of Otranto 2016-2030 the action plan for Albania will be focused on three main thematic axes.

Table No 3 – Action Plan for decarbonisation in the Strait of Otranto

Thematic axes	Cross-border
Port operations 	<ul style="list-style-type: none"> Energy efficiency certificate for the port buildings
Maritime traffic 	<ul style="list-style-type: none"> Energy efficiency on maritime transport vessels – Green shipping
Induced economical activities 	<ul style="list-style-type: none"> Local government supporting climate change mitigation Green certificate for tourism

Composite materials and their performance

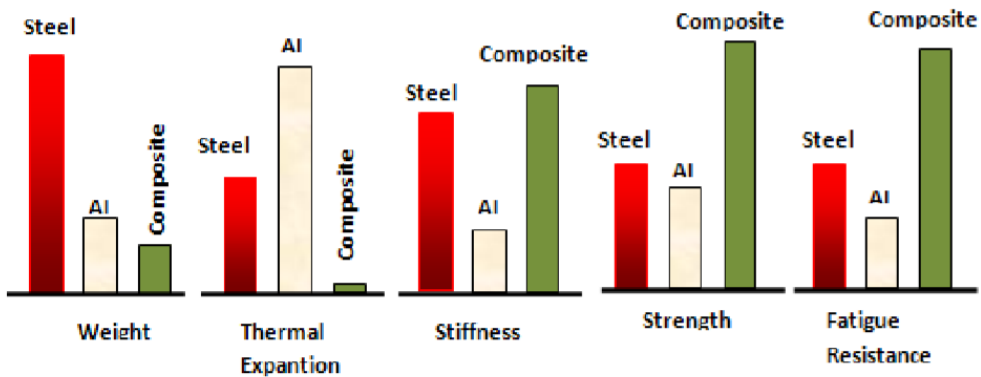
As described above, maritime transport is one of the relevant polluters in the Otranto Straits. Energy Efficiency in Shipping is proposed in the Decarbonization Action Plan. From this point of view, the reduction of the motor power of the marine means is one

of the directions of interference. The design and construction trends of ships are those of realizing the final product with a total dislocation as small as possible.

As is known from Archimedes' law, minimal deployment means the minimum diving volume of the vehicle, which, on the other hand, contributes to a lower resistance to movement, better hydrodynamic characteristics with a reduction of the surface of the vessel (in the case of yachts with sail) or motor power installed in the case of motor yachts; a better ride comfort, lower cost of construction and vehicle utilization, increased navigation autonomy, especially in the case of large sized cruise vehicles.

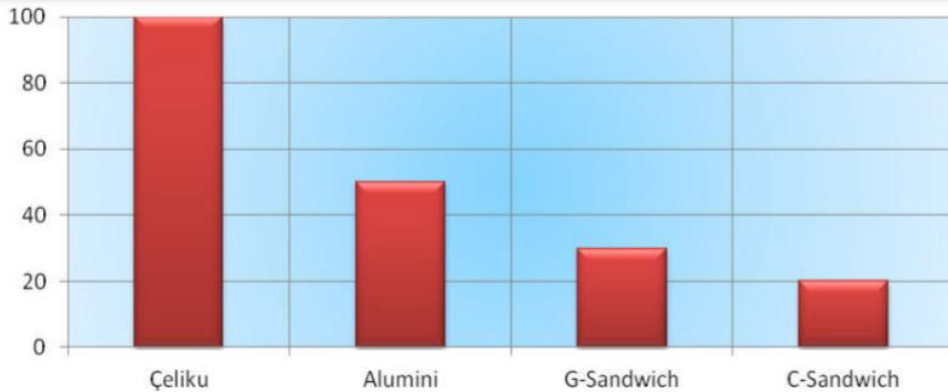
If we take in consideration the physical and mechanical parameters (fig. No 4) the composite material has very good performance for the weight comparing to the metallic materials.

Fig. No 4 – Physical and mechanical parameters for vessels materials



The designers of these ships always face the constant challenges of creating more and more efficient structures, while facing higher demands on national and international safety standards and norms. Saving weight in many naval structures has long been considered one of the most important problems by attracting the attention of researchers and naval projectors.

An approximate weight factor estimate in marine structures is shown in Figure 35 (Based on the recommendations given in Ref.86). Thus, aluminium structures are about 50% lighter, compared to those of steel. Glass fibre reinforced plastic (FRP) sandwiches are 30-50% lighter than light alloy structures (aluminium). Carbon FRP sandwiches are 30% lighter than glass FRP sandwiches.

Fig – Saving weight for vessels based on the material

A marine material with composite material can be constructed with a weight much easier than other materials (steel) and, consequently, this tool requires an installed power of up to 25% less for the same vehicle performance. This enables the choice of an easier engine, creating better opportunities for its maintenance and repair. A smaller weight of the engine means even more access to other board accessories, thus increasing the degree of comfort.

A smaller installed power means less fuel consumption and, consequently, a lower cost of storing this vehicle from their owners. Understandably, the cost also depends on the cruise times of the vehicle. The greater the time it is to use, the greater is the saving of monetary values.

Steel and aluminium structures can guarantee an almost constant maintenance cost up to the first 15 years of service. Then its chart begins to grow very rapidly, because of steel corrosion and the appearance of cracks due to aluminium fatigue. Current manufacturing technologies with composite materials have eliminated the osmosis phenomenon, making the tools maintain the aesthetic side, not exhibit structural degradation, and maintain the maintenance cost constant up to 20 years or more of the lifecycle of the product.

To quantitatively assess this phenomenon, let's take a simple case of a vessel calculation.

Thus, a steel patrol vessel, depending on its use profile, can spend carriages up to an equivalent of \$ 800,000 a year. A reduction in installed power (due to the use of composite materials) of 25%, means an engine with 25% lower power, 25% less fuel consumes, 25% less CO₂ emissions, in total means a saving of \$ 200,000 a year.

Conclusions

So, to achieve the second objective energy efficiency in marine vessels the best solution will be the use of composite materials to produce the marine vessels.

The use of composite material in the production of marine vehicles reduces their weight, creates the possibility of installing a fewer motor power than the floating memories produced with metallic material, creates opportunities for a higher standard of comfort, adding accessories to interior design.

The use of composite materials creates possibility of installing a fewer motor power and for consequence less fuel consume, less carbon emissions.

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Surgical-Orthodontic Treatment of Impacted Teeth

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Abstract

An impacted tooth is one that has completed development and cannot and will not come out in its normal position, for various reasons. The ways of treatment over the years have changed depending on the specialist who dealt with the study and was put in contact with specific cases. The aim of this study is the role of the oral surgeon in the combined surgical-orthodontic treatment of impacted teeth. In this study were included a total of 63 patients aged 10 - 34 years who have sought surgical treatment in support of orthodontic therapy in the University Dental Clinic, Tirana, Albania. Evaluation of operative and postoperative results for a period of 6 - 18 months was performed through the collection of all data. According the treatment protocol were evaluated different parameters on several aspects such as: gender, age group, jaw orientation of the impacted teeth and their positioning, access, surgical, causes of contents, various radiological examinations used, time of teeth eruption in the arch after surgical treatment. Based on the data obtained from the results it is very important "The role of oral surgeon in the treatment of impacted teeth".

Keywords: Surgical-Orthodontic Treatment, Impacted Teeth

Introduction

An impacted tooth is one that has completed development and cannot and will not come out in its normal position, for various reasons, therefore it needs observation or treatment [1], [2].

Impacted teeth have become the field of study and action of many specialties of Dentistry. Pedodontics, orthodontists, oral surgeons, periodontists and prosthetists have been treated these cases. The ways of treatment over the years have changed depending on the specialist who dealt with the study and was put in contact with specific cases. However, the results achieved by these specialists individually have been limited in success. None of these specialties can achieve good results alone, except in a limited number of patients and cases.

The discussion is about impacted teeth with values in aesthetics, occlusion and the dental system. Significant percentages in the incidence of impacted teeth are occupied by wisdom teeth, especially mandibular ones. For these cases the treatment is surgical extraction, as indicated and applied by the oral or maxillo-facial surgeon, as the case may be. These cases will be excluded from this study.

Ways of treating impacted teeth can be surgical extraction, transplantation, prosthetic replacement, surgical exposure and expectation of spontaneous eruption or surgical exposure, accompanied by orthodontic treatment. Time has shown that orthodontic surgical treatment has the potential for better results. Despite numerous studies in this field, there always remains room for debate, in terms of indications for this treatment, the time of intervention of specialties and the technique followed.

In studying the problem of impacted teeth, we must first of all have a good knowledge about the development of dentition, both permanent and deciduous.

Our interest regarding the development of teeth is related to its eruption. To understand what an impacted tooth is, if and when we need to intervene, we need to have a good understanding about the development of the dental system over time [3].

The tooth, having formed $\frac{3}{4}$ of its root, must erupt in the oral cavity. A permanent tooth with delayed eruption is a tooth that has not erupted in the oral cavity and has a long-developed root, the spontaneous eruption of which can occur in time. A tooth that is not expected to come out in these conditions is called impacted (impacted, retained) [3, 4]. The aim of the study is "The role of the OMF surgeon in the combined surgical-orthodontic treatment of impacted teeth".

Material and methods

For the realization of this work were taken in a study a number of 63 patients aged 10 - 34 years who have sought surgical treatment in support of orthodontic therapy for dental management contained for the period 2013 - 2018.

Patients in the study underwent a treatment protocol that included:

- Opening the clinical file and obtaining general data
- Taking the anamnesis
- Consultation with the orthodontist
- Objective examination
- Radiological examinations

The collected data were analysed and a surgical treatment plan was determined depending on each clinical case.

The data used in the study contained information on several aspects such as: gender, age group, jaw orientation of the impacted teeth and their positioning, access, surgical, causes of contents, various radiological examinations used, time of teeth eruption in the arch after surgical treatment.

Evaluation of operative and postoperative results for a period of 6 - 18 months was performed through the collection of all data and analysis of variables obtained in the study.

Patients who did not present for the postoperative re-examination specified in the treatment protocol were excluded from this study.

Statistical analysis

This is a study of the transverse type (cross-sectional). The advantage of this study consists in obtaining point information at a certain point in time, related to surgical interventions in the function of orthodontic treatments. In all cases, a value of $p \leq 0.05$ was considered statistically significant.

- All statistical analysis was performed in SPSS (Statistical Package for Social Sciences, Version 21.0).
- The results were presented in absolute value and in percentage and were illustrated through tables and graphs.

Results

<i>Etiological factor</i>	<i>Number</i>	<i>Percent</i>
<i>Lack of space</i>	36	57.1
<i>Persistence of deciduous teeth</i>	6	9.5
<i>Childhood trauma</i>	3	4.7
<i>Agenesis and atypical lateral incisor</i>	8	12.6
<i>Early extraction of deciduous teeth</i>	9	14.2
<i>Heritage</i>	1	1.9

Table 1: Distribution of patients according to etiological factor

Figure 2: the distribution graph according to etiological factor

<i>Jaw</i>	<i>Number</i>	<i>Percent</i>
<i>Mandible</i>	17	19.1
<i>Maxilla</i>	72	80.9

Table 2 shows the distribution of patients according to the positioning of the impacted tooth in the jaw.

Table 2 shows the distribution of patients according to position in the jaw. From the results of the study it is noticed that in 19.1% of the patients included in the study it is mandibular and in about 80.9% maxillary. These data are presented in more detail in the following figure.

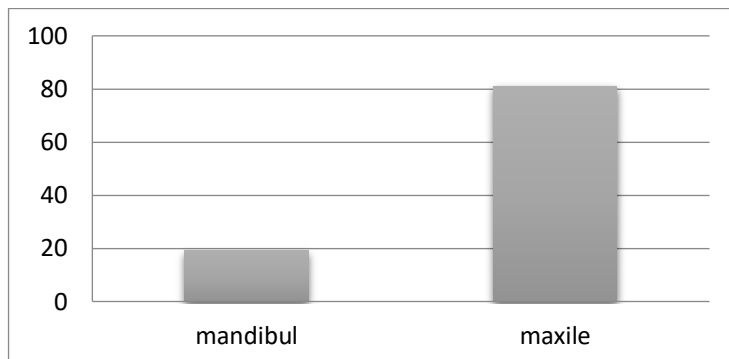


Table 3: the distribution of patients included in the study according to jaw orientation

Jaw orientation	Number	Percent
Vestibular	51	57.3
Palatinal	29	32.6
Lingual	9	10.1

Figure 4, shows the distribution of patients according to position in the jaw.

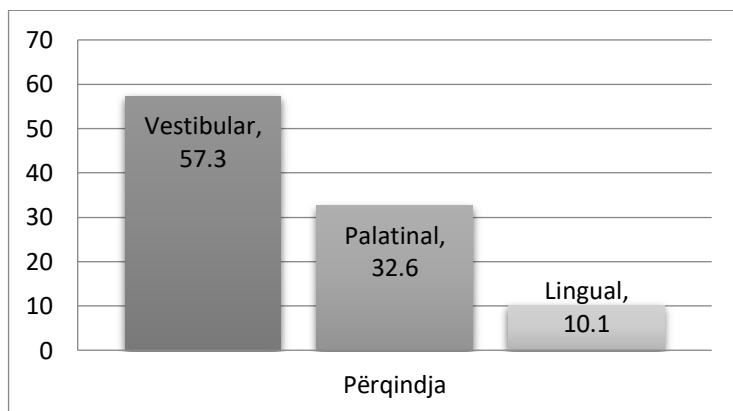


Figure 5, shows the distribution of patients included in the study according to jaw orientation

Tooth type	Number	Percent
Maxilar central incisor	3	3.4
Maxilar lateral incisor	2	2.2
Maxilar canine	65	73
Mandibular canine	3	5.6
Maxilar first premolar	2	2.2

Mandibular first premolar	4	4.5
Mandibular second premolar	8	9.0

Table 5, shows the distribution of patients included in the study in relation to tooth type.

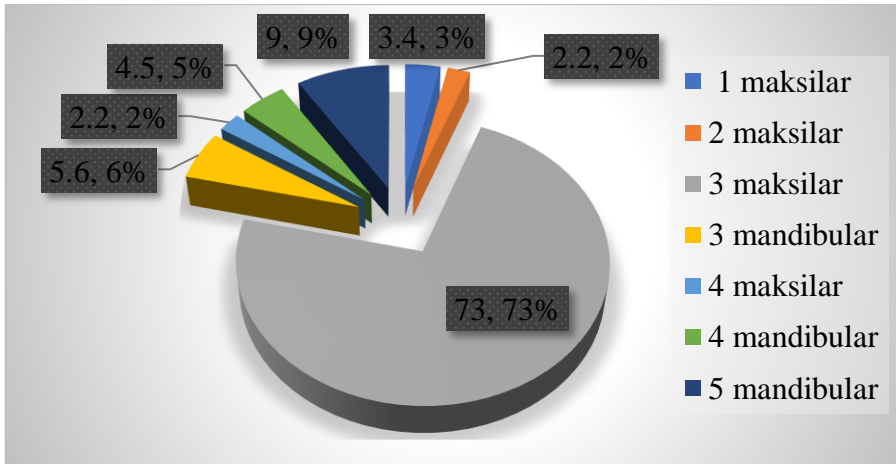


Figure 6 shows the distribution of patients included in the study in relation to tooth type.

Position of the maxillary canine	Number	Percent
Palatinal	43	66.2
Vestibular	22	33.8

Table 6, shows the orientation distribution for the maxillary canines

Clinical cases 1

Female patient, age 14, place of birth and residence in rural areas, is presented to the dentist; with complaint of non-eruption of teeth, central, lateral, canine left above.



Figure 9, Panoramic examination.



Tooth extraction started in order, canine, lateral, central.



Figure 10, Surgical intervention



Figure 11, REP Apparatus



Figure 12, Situation 4 months after the intervention



Figure 13, Situation 6 months after intervention

Clinical case 2

Patient V.C, male, age 15, in routine check-up at the dentist complains about not replacing some deciduous teeth.



Figure 15, Clinical examination



Figure 16, Panoramic radiographic examination



Figure 17, Extraction of deciduous teeth



Figure 18, Eruption of the maxillary canines after placement of the fixed device.

2 months fixed orthodontic appliance was placed in the upper jaw.



Figure 19, Placement of the fixed device in the lower jaw



Figure 20, Creating space for canines in the mandible

The fixed device in the lower jaw was placed 4 months after placement in the upper jaw.



Figure 21, Surgical intervention, mucosal excision, to expose the vestibular site of the tooth



Figure 22 Excision of a bony part and expose of the vestibular side of the tooth



Figure 23 Placement of ZnO paste for hemostasis



Figure 24, Attaching the bracket to the tooth

Conclusion

At the end of this study, based on the data obtained from the results, we can draw the following conclusions:

The results of the study showed that most of the subjects included in the study were female (77.8%). The 10-18 age group had the highest percentage (71.4%). In this study it resulted that 73% of the impacted teeth were maxillary canines and from the number of teeth obtained in this study resulted a high percentage of vestibular positioning (57.3%) and localized to the maxilla in (80.9%). In 41, 3% of the treated cases open surgical technique was applied. Clinical cases used in the study, concluded in a percentage of 98.2, well lined up in the dental arcade. The reason for the impacted teeth in the jaw resulted in the absence of place 57.1%, early extraction of deciduous teeth 14.2%, agenesis and atypical lateral incisor 12.6%, persistence of deciduous teeth 9.5%, childhood trauma 4.7%, heredity 1.9%

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Preventive and Interceptive Orthodontics Treatment

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Abstract

Preventive orthodontics is that part of orthodontic practice which is concerned with patients and parents education, supervision of the growth and development of the dentition and cranio-facial structures. The diagnostic procedures undertaken to predict the appearance of malocclusion and the treatment procedures instituted to prevent the onset of malocclusion. Interceptive orthodontics has been defined as that phase of science that can recognize and eliminate potential irregularities and malpositions of the developing dento-facial complex. Many of procedures are common in preventive and interceptive orthodontics, but the timings are different. Preventive procedures are undertaken in anticipation of development of a problem, whereas interceptive procedures are taken when the problem has already manifested. Orthodontic problems in children can be divided conveniently into non skeletal and skeletal problems, which are treated by tooth movement and by growth modification. Such treatment may take place in deciduous or transitional dentition and may include redirection of ectopically erupting teeth, slicing or extraction of deciduous teeth, correction of isolated dental crossbites or recovery of minor space loss.

Keywords: preventive orthodontics, dentition, malocclusion, malpositions, deciduous teeth

Introduction

Many of the procedures are common in preventive and interceptive orthodontics but the timings are different. Preventive procedures are undertaken in anticipation of development of a problem. Whereas interceptive procedures are taken when the problem has already manifested. Purpose of early orthodontic treatment: To intercept developing problem. To prevent obvious problems from becoming worse. To correct obvious problems. To remove the etiologic factors and restore normal growth. To reduce the severity of skeletal problems, making possible easier and more precise tooth positioning in adolescence.

Purpose of early orthodontic treatment. To intercept developing problem. To prevent obvious problems from becoming worse. To correct obvious problems. To remove the etiologic factors and restore normal growth. To reduce the severity of skeletal problems, making possible easier and more precise tooth positioning in adolescence.

2. Methodology

Preventive orthodontics include treatment of: Natal teeth, Occlusal relationship, Eruption Problems, Space maintenance. Natal teeth: Present at birth or erupt shortly after birth. Most frequent in lower incisor region. Only 10% are supernumerary therefore removed only when interfere with feeding or causing tongue ulceration.

Cross bites of Dental Origin: Correction of dental crossbites in the mixed dentition is recommended, because it eliminates functional shifts. The most common etiologic factor for non skeletal anterior Crossbites is lack of space for the permanent incisors. It is important to focus the treatment plan on management of the total space situation, no just the crossbite. If the developing crossbite that is discovered before eruption is complete and overbite has not been established the adjacent primary teeth can be extracted to provide the necessary space.

Prevention and timely restoration of carious teeth. The deciduous teeth are natural space maintainers. Simple preventive procedures like: Application of topical fluorides & fissure sealants.

Management of ankylosed tooth: Ankylosis is a condition characterized by absence of the periodontal ligament in small area or whole of the root surface.

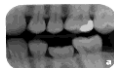


Fig 1 Ankylosis of teeth Fig 2

This radiograph demonstrates both anterior and posterior teeth tipping over adjacent ankylosed primary molars. The ankylosed teeth should be removed if significant tipping and space loss are occurring.

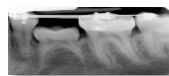


Fig 3

Supernumerary & supplemental teeth can interfere with eruption of nearby normal teeth. They deflect adjacent teeth and erupted teeth in abnormal positions. They should be identified and extracted before they cause displacement of other teeth.



Fig 4 Supernumerary teeth Supplemental teeth

Space maintenance: Premature loss of deciduous teeth can cause drifting of the adjacent teeth into the space. Space maintainers must be inserted in appropriate cases after the loss of deciduous teeth. Space maintainer appliance is different intra oral removal of fixed appliance.



Fig 5 Space maintenance



Fig 5 Over-Retained Primary Teeth

Over-Retained Primary Teeth: A permanent tooth should replace its primary predecessor when approximately three fourths of the root of the permanent tooth has formed. Once the primary tooth is out, if space is adequate, moderately abnormal facial or lingual positioning will usually be corrected by the equilibrium forces of the lip, cheeks and tongue. A primary tooth that is retained beyond this point should be removed because it leads to: Gingival inflammation, Hyperplasia that causes pain and bleeding.

Ugly duckling stage: The spaces between the incisors, including the midline diastema, decrease and often completely disappear when the canines erupt. While their crowns diverge distally, this condition of flared and spaced incisors is called the "ugly duckling" stage of development. These spaces tend to close spontaneously, when the canines erupt and the incisor root and crown positions change.



Fig 6 Ugly duckling stage

Procedures undertaken in interceptive orthodontics: Serial extraction, Correction of developing crossbite, Control of abnormal habits, Space regaining, Muscle exercises, Interception of skeletal malrelation, Removal of soft tissue or bony barrier to enable eruption of teeth.

Serial extraction: Planned and timely removal of certain deciduous teeth followed by certain permanent ones, to allow normal alignment of permanent teeth.

Advantages of serial extraction: Reduces the severity of malocclusion, Reduces the extent of mechanotherapy, Reduces the duration of treatment.

Disadvantages of serial extraction: Chances of increasing overbite, Canines may fail to migrate distally, anterior teeth may tip lingually.

Correction of developing crossbite. Anterior cross bite is a condition characterized by reverse overjet, where in one or more maxillary anterior teeth are in lingual relation to the mandibular teeth.



Fig7 Dento-alveolar

Skeletal

Functional

The crossbite should be intercepted and treated at an early stage to prevent a minor orthodontic problem from progressing into a major dento-facial anomaly. The best time to treat a crossbite is the first time it is seen" Or else it may grow into skeletal malocclusion" Correction of developing crossbite.

Methods of correction of developing anterior crossbite:



Fig 8 Tongue blade

Disadvantages :It is effective only during phase that clinical crown has not erupted totally in oral cavity. It is used only when we have adequate space for correction. Indications: It is used only in cases when crossbite is due to palatal movement of maxillary incisive. It is putted in an angle of 45 degree in lower anterior and is made of acrylic or metal.



Fig9

Control of abnormal Oral habits. Habit's refers to certain actions involving the teeth and other oral or perioral structures, which are repeated often enough by some patients to have a profound effect on the positions of teeth and occlusion. Oral habits should be recognized early and patient should be helped to give up by motivation or by fitting a suitable habit breaking appliance.

Some common habits: Thumb / digit sucking, Tongue thrusting, Mouth breathing, Lip sucking / biting.

Functional appliance are used. These appliances are equipped with accessories that train tongue to the new position. Correct the position of teeth (close anterior open bite).

Mouth breathing as habitual respiration through the mouth instead of the nose.

Usually seen in people with nasal obstruction may also occur as a habit. If persists, Vestibular Screen / Oral Screen can be used.

Lip bumper. It is positioned in the vestibule of the mandibular arch & serve to prohibit the lip from exerting excessive force on the mandibular incisors.

The myobrace interceptive appliance system is designed specifically to correct poor oral habits. It is more effective before a child permanent teeth are coming through ages 5 to 8.



Fig10 Lip bumper



Myobrace interceptive appliance

Space regainers in the form of removable appliances or fixed appliances are used to regain the space by moving the drifted teeth back to their original position. Premature loss of deciduous teeth causes migration of the adjacent teeth into the edentulous space. This cause inadequate space for the eruption of the permanent teeth.



Fig 11 Space regainers

Conclusion

The mal occlusion may be accepted or be treated in a variety of ways. The natural growth change which follows the completion of the treatment may spoil fine results. Interceptive procedures can to some extent prevent or reduce the severity of malocclusion. In the treatment at early ages the orthodontist can reasonably become “Re director” of growth pattern rather than solely concerned about tooth position.

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Informing Young Girls about the Risk of HPV Infection in Developing Cervical Cancer and Preventing

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Abstract

This study aims to provide detailed information about HPV as a widespread sexually transmitted infection, which is considered one of the most important factors in the occurrence of cervical cancer in young girls, emphasizing the connection between infection. Participants were 126 randomly choosed young girls at the master's level student at Sport University of Tirana. Date were collected using a questionnaire investigating risk factors as well as knowledge on this sexually transmitted infection of HPV where through a descriptive and informative letter which was distributed to all girls participating in this study. From this study it was observed that a significant number of them were aware of the virus and ways of transmission 81 girls (64.28%), of which 22 girls (17.46%) had in hearing that it was a sexually transmitted virus, 11 girls (8.73%) had read that this virus could cause cervical cancer, 9 (7.14%) of whom had heard of an HPV-related vaccine, while 3 of them (2.39) refused to complete this questionnaire. From the data collected in this study it was noticed that information and awareness campaigns should be carried out immediately for this age group as the most at risk in relation to sexually transmitted infections and in particular HPV, enabling in this form the ability to care more specifically for their health thus preventing very dangerous pathologies such as cervical cancer. However for this aspiration to be realized, in practice requires a greater understanding on the part of these young girls of the natural history of early HPV infection and its role in creating cervical epithelial abnormalities.

Keywords: Information, HPV, cervical cancer, prevention

1. Introduction

Human papillomavirus (HPV) infection is a very common sexually transmitted infection. This Infection with high-risk types of HPV is now considered to be a necessary, but not sufficient, cause of cervical cancer (1). A large majority of women

are usually infected soon after they become sexually active in their early teens nowadays (3). Persistent infection with at least one of the 12 high-risk HPV types is a necessary but not sufficient cause of all cervical cancers and part of vaginal, vulvar and oropharyngeal cancers (2). Cervical cancer is mainly caused by HPV 16 followed by HPV 18 which together cause 71% of this pathology worldwide (4). We can also say that most of these infections can be eliminated on their own within a period of time (5). But young girls in whom the virus persists for a long time may be predisposed to exhibit epithelial changes which are a high risk factor for developing cervical cancer in the future (6). Also various concomitant factors may play a specific role in the persistence of this infection increasing the risk of developing cervical lesions (7). These can depend on various causes such as genetic factors, long term use of oral contraceptives, smoking and other sexually transmitted co-infections (8,9). Where as one of the main factors it is worth mentioning the high number of sexual partners as well as the beginning at a very young age of sexual intercourse which increases the exposure to the HPV virus (10,11). Cervical cancer remains the most common sexually transmitted infection with an annual incidence 6.2 million, 80 million infected are between 15-49 years. Cervical cancer kills 270,000 women a year and 9.2 million sexually active young people aged 15-24 are infected with genital HPV (12). It also occupies the second place with (7%) among malignant tumors in women and occupies the first place with (40% of cases) among genital tumors in Albania (13). Where we must emphasize that the biggest problem appears in early adolescence as the most dangerous period in sexual development in young people associated with several developmental factors such as sexual development, emotional development. Where we should consider that the biggest problem appears in early adolescence as the most dangerous period in sexual development in young people associated with certain developmental factors such as sexual development, emotional development. At this age of adolescence there is no proper information about emotional, sexual maturity, as well as sexually transmitted infections and this is a fundamental problem in the way of approaching different situations which pose a high risk for come in contact at a very young age (14). Where we must keep in mind that sexual development begins at puberty at the age of 12-13 years which appears and with an increase in interest about sexual intercourse. What should be noted is that in Albania these data are very evasive and especially in these age groups are almost missing. For this reason, informing the masses of this age group and not only is very important to prevent. Where the main focus is to provide sufficient and accurate knowledge of how this virus is transmitted and referring to the measures taken in some countries to prevent the occurrence of this disease in vulnerable individuals associated with vaccination against certain types of human papillomavirus in young girls to prevent the occurrence of cervical cancer associated with those types and is potentially the most effective form for health care (16). This as it eliminates not only the disease itself, but also its consequences and refers to the measures taken to identify and treat asymptomatic subjects who already have preclinical disease, and

thus prevent the progression of the disease in these already sick individuals where it is intended to minimize the effect of the impact to the disease. What is worth noting is that full knowledge and detailed information against all the risk factors that are determinants provide an opportunity to identify the disease at an early stage, in which the disease should be treatable, as well as treatments should be able to change the natural history of the disease in a favorable way.

2. Methodology

A questionnaire was the instrument used to collect the information needed for the study. This study is a survey which is expressed as a percentage in a certain group of subjects. It was a 10 item questionnaire distributed to 126 young girls at the master's level student at UST during the period November 2018- July 2020. It aimed to collect information for the knowledge that these girls have about the human papilloma virus and how updated they are in relation to the high risk that this virus poses to them in the future. A questionnaire investigating risk factors for HPV infection, and during the completion of the questionnaires all the girls were first explained the reason for this study and were helped during the completion of the questionnaire when they had uncertainties and in this way a detailed profile of social, sexual and behavioral risk factors was collected. Questions were regarding socio-demographic characteristics like the educational level in general for sexually transmitted diseases and ways of transmission, smoking, age at first menstruation, age at first intercourse. And in the second part of the questions were asked about the HPV virus could cause cervical cancer, and vaccination as a preventative measure, as well as if you were given the opportunity would they do it. Of which 126 questionnaires only 123 are valid, because 3 of them refused to complete.

3. Results

This group of questions was designed to generate a general idea to understand how much knowledge these young girls have about this virus and the need for more detailed information about the symptoms and the risk it may pose if it is not detected in time. It consists of ten questions. In the first part of the questionnaire participants have to identify potential risk factors such as socio-demographic data, gynecological history, health and sexual life behaviors, and reproductive data. The second part of the questions asked to elicit the information they have about prevention such as HPV vaccination and screening. The study found that a significant number of them 81 girls (64.28%) they had no knowledge of the HPV virus and modes of transmission. 22 of them (17.46%) had heard that it was a sexually transmitted infection and that it was also related to their sexual behavior, such as the number of sexual partners and the beginning of the first intercourse. 11 girls (8.73%) had information that this virus can cause cervical cancer where only a fraction of these lesions will progress to high-grade cervical intraepithelial neoplasia. 9 of which (7.14%) knew about the vaccine as one of the ways of prevention besides screening, and 3 girls (2.3%) refused to be part of this study.

4. Discussion

Detailed and specific information about HPV taking into account the mode of transmission and care to be shown in relation with the sexual behaviors can raise awareness to conduct examinations like cervical cancer screening programmes may be effective in reducing mortality from cervical cancer, but they do so at the expense of substantial over-diagnosis and unnecessary treatment (15). Although the treatment of pre-malignant changes in the cervix is therapeutically efficacious, it is also procedurally inefficient. Infection with high-risk types of the human papillomavirus (HPV) is the most important risk factor for cervical cancer all these should be known extensively by these girls who having a high level of knowledge thus increase the awareness to be examined in time, and in view of this he clearly understand how important it is to prevent in time .

5. Conclusion

From what is noticed in this study, young people should be informed about sexually transmitted infections and especially against HPV in order to be able to take care specifically of their health by preventing in the future dangerous pathologies such as cervical cancer. And this can only be done through occasional information and awareness campaigns. Also vaccine is one of the most valuable ways of prevention besides screening. The vaccine protects against 90% of the HPV types they cause cervical cancer and 90% of HPV types that cause genital warts (17). Referring to the data every young girl should be able to research and recognize ways of prevention as a right to take care of their health, and early detection of the first signs of lesions caused by HPV is the main point of prevention study to determine the natural history and aetiology of early cervical neoplasia, in young women. This type of study should include an even larger group of girls starting from adolescence where the risk is even higher and to inform them in more detail about this infection and the risk it poses if not prevented in time. This study is also an indication to conduct in the future a more comprehensive study on the lack of information that was identified in relation to the mode of transmission and prevention and to increase in this way their awareness to show caution about risk factors.

6. Recommendations

Information programs and measures should be developed to ensure high coverage and high participation, at the educational level. There are adequate facilities for obtaining cervical smears and adequate laboratory facilities are available to examine them. It is sufficient to have a high level of information and to refer to a specialist doctor. Evaluation and monitoring of comprehensive programs to help and counsel these young girls should be organized effectively. There should be a carefully designed referral system for managing any abnormalities found and for providing information about normal screening tests, providing convenience in the required service. It has been suggested that the link between cervical HPV infection and cervical

neoplasia could be utilized to improve the effectiveness and efficiency of primary and secondary cervical cancer prevention programs. Achieving these improvements still requires a greater understanding of the natural history of early HPV infection on the part of and by setting key objectives regarding prevention and subsequent treatment.

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Physical Skills in Male Volleyball Players 14-18 Years Old

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Abstract

During the monitoring of volleyball teams in Albania during training, it was noticed that coaches pay more attention to technical elements and not to physical abilities to ages 14-18 years. The aim of this study was to find out the trend of improvement and differences with the age on physical abilities of male's volleyball players in Albania. Methods: Participants in this study were N=43 volleyball players from two age categories; N=21, cadet (14-16 yrs.), N=22 and junior (16-18 yrs.) Measurement for anthropometrics (body weight, body height) and physical abilities (push up test, curl-up test, standing long jump and vertical jump test) were assessed. Results: Analysis between two age categories shows significant differences. Showed results for anthropometrics and also for physical abilities showed differences between groups of volleyball players. Data of this study for jumping performance using vertical jump CMJ test between groups for cadet vs. junior data show (mean difference= 21.3 cm; Sig= 0.004) while for vertical jump Run up test between groups for cadet vs. junior data show (mean difference= 22.3 cm; Sig= 0.003). Conclusion: In the best interest of the study, it would be good if other teams were involved from different cities of Albania. Suggestions for other studies we recommend in comparing data by positions in the field. Trainers should plan training with these age groups different coordination programs not only technical. This study has limitations with regards to the sampling number of male volleyball players, which is justified for not having sufficient funds.

Keywords: junior, anthropometric, cadet, volleyball.

1. Introduction

Volleyball is characterized by continuous jumps combined with blocks and spikes, numerous short-distance sprints as well as short agility movements that occur repeatedly throughout the match or training session [1]. Physical abilities are of particular importance to every player who plays but specifically, physical skills play a

crucial role and affect the intelligence and tactics of the game because during these games a high physical performance is required. The performance of these precise and structured movements depends on anthropometric parameters and physical abilities [2]. For this reason, players need to focus a lot to improve their physical capacity (aerobic and anaerobic) in order to have a high performance in the game, fast and long-term movements throughout the game both in offence and defense. The coaches who deal with the training are convinced and oriented quite accurately that there is a difference in performance for the anthropometric parameters and physical abilities according to gender and positions in the field with regard to volleyball [3, 4, 5,6,7, 8] and in other team sports [9,10]. The aim of this study was to monitor in some volleyball player's cadet and junior find out the trend of improvement and differences with the age of anthropometric and physical abilities volleyball players in two team's Albania.

2. Methodology

Participants in this study were N=43 volleyball players from two age categories as follows; N=21, cadet (14-16 yrs.), N= 22 and junior (16-18 yrs.) N=24. Measurement for anthropometrics (body weight, body height) and physical abilities (push up test, curl-up test, standing long jump and vertical jump test) were assessed. Measurements were done in Tirana which is the capital city of Albania in two teams.

Protocols of the test

Weight- It was recorded the weight measurement in kilogram (kg).

Height- On to a scale stadiometer. It was recorded the height measurement was in centimeters (cm).

Push up test - measures upper body strength and endurance. A standard push-up begins with the hands and toes touching the floor, the body and legs in a straight line, feet slightly apart, the arms at shoulder-width apart, extended and at a right angle to the body. The time performed at maximal was 30 seconds.

Curl-Up test -measures abdominal muscular strength & endurance. The curl-up abdominal fitness test requires the subjects to perform as many curl-ups as possible for 30 seconds.

Standing long jump; the volleyball players place their feet over the edge of the sandpit, crouches down and using the arms and legs jump horizontally as far as possible landing with both feet into the sandpit. The players repeat the test 3 times.

Vertical test CMJ and run-up; CMJ- The countermovement jump (CMJ) is a simple, practical, valid, and very reliable measure of lower-body power. The player must keep their hands on the hips throughout the test. The player must perform a minimum of three jumps so that performance averages can be calculated. *Run up*; the coach decides before testing to include the use of the arm-swing and steps.

3. Results

Data from table 1 show descriptive statistics (mean, Std. Dev.) for anthropometric variables for the two age categories group with regard to volleyball male. Participants in this study were (N=43) volleyball players from three age categories as follows; N=21 cadet (14-15 yrs.), N= 22, and junior (16-18 yrs.). Descriptive mean data are shown for body height, body weight.

Table 1 Descriptive statistics for anthropometric variables in male's volleyball players by age group categories

		N	Mean	Std. Dev.
Body Height	Cadet (14-15 yrs.)	21	160.2	7.3
	Junior (16-18 yrs.)	22	166.5	7.4
Body Weight	Cadet (14-15 yrs.)	21	55.2	8.7
	Junior (16-18 yrs.)	22	64.7	13.0

Data from table 2 show descriptive statistics (mean, Std. Dev.) for physical abilities variables for the two age categories group with regard to volleyball male's. Descriptive mean data are shown for Push up Test (strength upper body); curl up test (strength core body) and standing long jump test (explosive power lower limbs).

Table 2 Descriptive statistics for physical abilities variables in male's volleyball players by age group categories.

		N	Mean	Std. Dev.
Push ups 30s	Cadet (14-15 yrs.)	21	3.6	3.8
	Junior (16-18 yrs.)	22		4.2
Curl up 30s		21	18.8	4.0
	Cadet (14-15 yrs.)	9	20.6	3.6
	Junior (16-18 yrs.)	6	21.7	3.3
Standing Long Jump	Cadet (14-15 yrs.)	22	161.2	23.1
	Junior (16-18 yrs.)	24	178.9	17.9

Data from table 3 show descriptive statistics (mean, Std. Dev.) for physical abilities variables for the two age categories group with regard to volleyball male's. Descriptive mean data are shown for vertical jump CMJ test (strength lower body limbs), vertical jump Run up test (strength lower body limbs).

Table 3 Descriptive statistics for physical abilities variables in male's volleyball players by age group categories.

		N	Mean	Std. Dev.
Vertical Jump CMJ	Cadet (14-15 yrs.)	22	233.3	26.6
	Junior (16-18 yrs.)	24	254.7	18.8
Vertical Jump Run Up	Cadet (14-15 yrs.)	22	237.7	27.0
	Junior (16-18 yrs.)	24	260.0	18.8

4. Discussion

The findings of this study are in line with the results of [11] which found significant differences in body height. Comparison data for body height between groups cadet vs. junior data show (mean difference= 6.3 cm; Sig= 0.045). Data from this study for body weight between groups cadet vs. junior data show (mean difference= 9.4 kg; Sig= 0.010). This study investigated the differences between the two age groups for male volleyball players for anthropometric parameters and physical fitness components. Other data results from [12] showed that anthropometric parameters are age-dependent. Data results from this study for strength using push up test between groups cadet vs. junior data show (mean difference= 0.8 counts; Sig= 0.699). Comparison data of this study for the core strength using curl up a test between groups cadet vs. junior data show (mean difference= 1.1 counts; Sig= 0.583) while for standing long jump test between groups cadet vs. junior data show (mean difference= 17.7 cm; Sig= 0.008). The study of [11] result showed differences for standing long jump where players +17 years old performed better than -14 years old. Also significant differences were found between this 2 age categories. Finding from [13] showed that physical performance seems to be dependent on the playing positions. Finding from different studies [14, 15 and 12] showed that significant differences in fitness parameters were found between game positions in a wide range of sports. Data of this study for jumping performance using vertical jump CMJ test between groups cadet vs. junior data show (mean difference= 21.3 cm; Sig= 0.004) while for vertical jump Run up a test between groups cadet vs. junior data show (mean difference= 22.3 cm; Sig= 0.003). This study has limitations with regards to the sampling number of male volleyball players which is justified for not having sufficient funds. In the best interest of the study, it would be good if other teams were involved from different cities of Albania. Suggestions for other studies we recommend in comparing data by positions in the field.

5. Conclusion

Results show a statistical increase between age categories for body weight, height and stranding long jump, vertical jump (CMJ and run-up) while for the other measurement of physical fitness components no significant improvement was found mostly in female volleyball players with regard to age groups. This study has limitations with regards to the sampling number of male volleyball players which is justified for not having sufficient funds. In the best interest of the study, it would be good if other teams were involved from different cities of Albania. From the data obtained from this study, we suggest coaches to develop in training and exercises to effect the development of physical skills of volleyball players, not just the technical elements.

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Design and Development of Hybrid Converter for Marine Applications

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Abstract

Recently, there has been an increase in the growth and advancement of electric propulsion in marine electrical drives. A maximum amount of energy is utilized by ships for propulsion drives. To be aware of it and develop an optimized structure to improve the effectiveness of the propulsion system with power consumption is necessary. The proposed paper aims to develop a model and perform functional analysis as per the above understanding and requirements. The factors considered include greenhouse gas emissions, CO₂ emissions, environmental aspects, and the availability of non-renewable resources, which leads to the introduction of renewable energy as a replacement method of power generation. For this work, two different renewable sources, such as solar and wind energy, were chosen. The combination of these two resources can manipulate the voltage and satisfy the load in a desirable way. For voltage improvement, a high gain converter with a minimal number of active and passive components is selected. This system adopts a storage system to meet the needs in the future. The inverter switches are controlled by the recommended control algorithm, which can balance and provide adequate power towards the drive by a feedback control loop. The speed of propulsion in the drive is adjusted by the induction motor coupled

with the propeller. The analytical study of the proposed system is carried out in MATLAB software. The simulation study revealed the effectiveness of this modern optimization technique.

Keywords: Renewable Energy, Propeller, MPPT optimization, PI controller, Buck Boost Converter

I. Introduction

Propulsion is used to propel the vessel ahead. This has been going on for a long time in the traditional manner. Prior to the twenty-first century, most ships used diesel engines for propulsion [1]. A few years ago, fossil fuels became a key resource for power production all over the world, resulting in pollution and a high total cost. Electric propulsion is used in order to focus on capital costs, fuel requirements, and the environment [2]. These factors draw attention to renewable energy sources such as solar, wind, hydro, tidal, geothermal, and others. Electricity generated by wind and solar has surpassed all other renewable energy sources in recent years [3-4]. This situation is playing out all across the world; China has taken the lead in installing 35 percent of the world's wind energy. Manufacturers of wind turbines throughout the world, such as Gold Wind, Vestas, Suzlon, General Electric, and Siemens Gamesa, have been attempting to build massive wind turbines with a capacity of 10–15 MW. The arrangement of the wind turbine and power electronic converters determines full-speed, semi-speed, and low-speed operation.

For wind energy conversion systems (WECS), there are two types of power electronic conversions: AC-AC and AC/DC, DC/DC, DC/DC & DC/AC. Based on the magnitude of voltage produced by the generator, it is further divided into two types: medium and low voltage converters [5]. Low-voltage conversion systems are only suited for wind turbines up to 3 MW, while medium-voltage conversion systems are acceptable for wind turbines over 3 MW. Based on solar irradiation and temperature, photovoltaic systems generate direct current (DC) power. Because each solar cell can only provide 0.5-0.6V, solar cells are coupled in series and parallel to increase power production. Due to its decreasing cost over time, environmentally beneficial character, and renewability, researchers have been more interested in the electricity generated by photovoltaic arrays [6]. The ability to achieve sufficient torque without compromising pitch angle is the most important consideration when choosing electric propulsion. There will be perfect redundancy in this type of propulsion.

Section II dealt with the overall study of the proposed method. The circuit configuration and the approach used to utilize the energy produced by those two renewable resources are described in section III. The charging and discharging of the battery interfaced with the converter is explained. The section IV reviewing peak current mode control technique, used in the feedback control loop to improve the system performance, is visualized. The Simulink study of the proposed study and the

output attained from the converter are reviewed in Section V. The effectiveness of the proposed study and its impact in the future are depicted in section VI.

II. Proposed Methodology

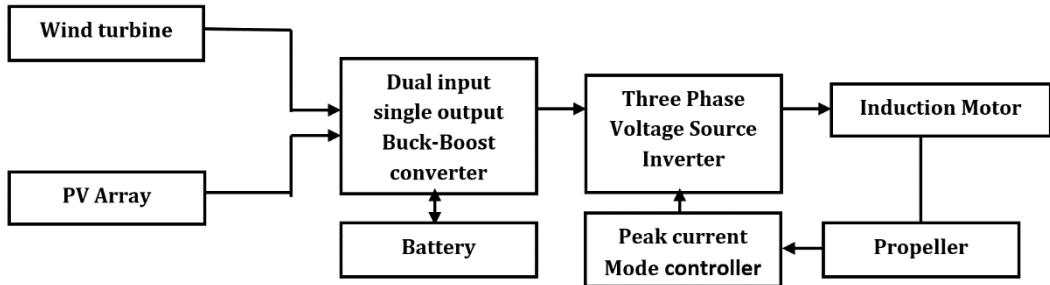


Fig.1. Block diagram of proposed system

The overall structure of the proposed methodology is shown in figure 1. The sources, such as wind turbines and PV arrays, are used in this study. When sunlight is available, the PV array generates an abundant amount of energy. Wind energy is utilized by wind turbines to supply electricity continuously. If any failure happens in any one of the generating stations, the remaining resources can manage it. The major factors which will limit voltage generation from both resources, such as solar panels, are shading, change in climatic conditions, a wide range of change in wind speed, area of the rotor, wind density, etc. Here, the role of the converter is a much needed factor. The energy gained from both sources is transmitted towards a dual input, single output buck-boost converter. Then it is stored in the battery. Whenever the generated voltage is said to be high, the converter steps down the voltage and fulfills the battery. In any condition, if the load faces voltage lag, the converter boosts the voltage received from stored energy in the battery. This is how the converter action is performed. Further, the received energy is converted into AC by a three-phase inverter to satisfy the load [7]. The shaft interlinks the induction motor with the propeller. The peak current mode controller receives feedback from the propeller and alters the switching cycle to improve the functionality of the inverter.

III. Proposed converter

The circuit configuration of the proposed converter is represented in figure 2. T_1 and T_2 switches are bidirectional conduction and bidirectional blocking (BCBB) switches in this configuration [8]. The diodes D_1 and D_2 offer freewheeling of load current. Two input sources are connected to the basic converter circuit, which consists of two switches, T_3 and T_4 , as well as an inductor and capacitor, which is then connected to the load. The combination of switches T_1 and T_2 allows the converter to operate in various states. Switch T_3 enables Buck-Boost functionality, while Switch T_4 enables bidirectional operation of the DC/DC converter. The input sources, E_1 and E_2 , are two [9], whereas E_1 defines the input voltage gained from the PV array, and E_2 denotes

the rectified DC voltage gained from WECS. E_0 is the output voltage, and the load current is I_0 . There are four different modes of operation for this converter.

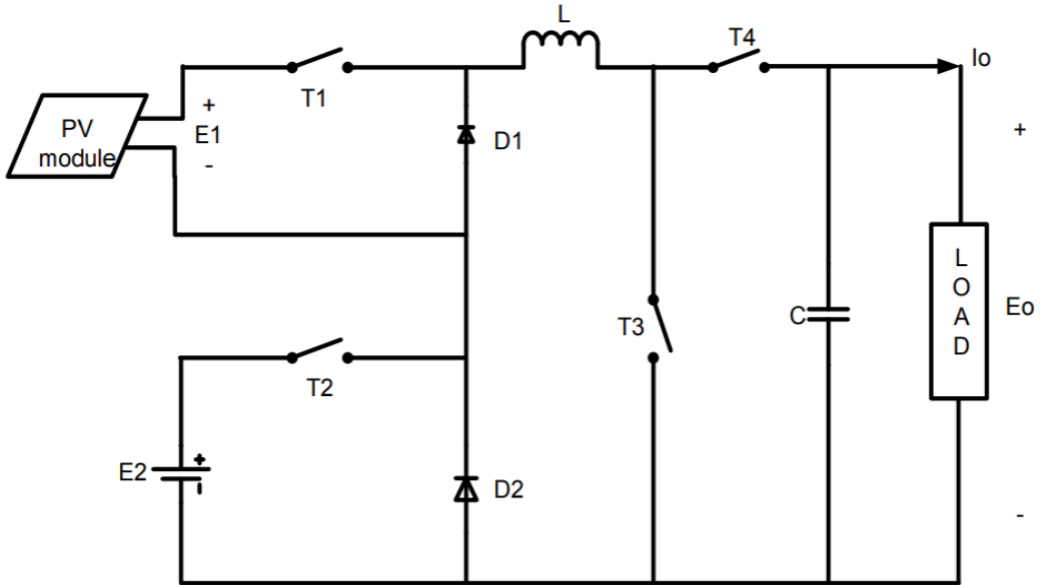


Fig.2. Dual input single output Buck-boost converter

Mode 1: In this mode, E_1 supplies the transmit current towards the converter, and the inductor L absorbs the energy supplied by the source. Both T_1 and T_3 are in conduction mode.

Mode 2: This mode utilizes the energy generated from E_2 (i.e., WECS). Again, L absorbs the energy completely when the switches T_2 and T_3 are in continuous conduction mode.

Mode 3: Both sources are activated in this mode, and the switches associated with each source, such as T_1 , T_2 and T_3 , are closed.

Mode 4: In the absence of both sources and switches, such as T_1 , T_2 , and T_3 , the switch T_4 starts conducting and discharges the energy stored in L towards E_0 . The capacitor C stores the charge and balances the load. By this way, the switching action is regulated. This cycle repeats, and the load requirement is managed.

IV. Peak Current Mode Controller

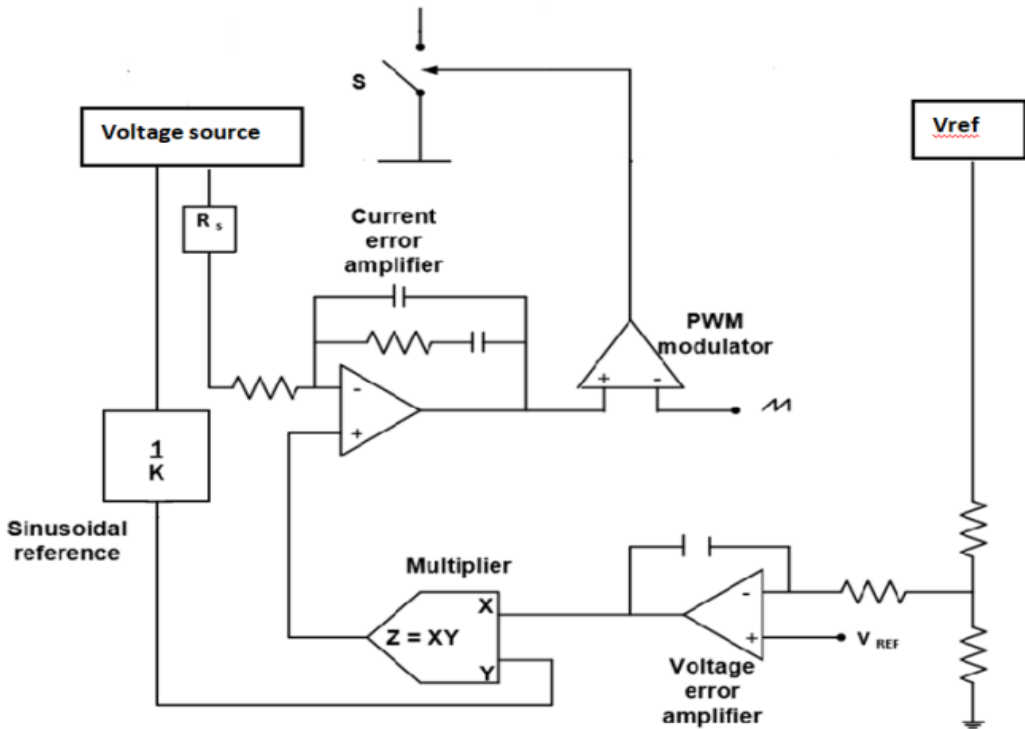


Fig.3. Closed loop control of propeller incoming voltage by suggested controller

A control technique called peak current mode control, which is shown in figure 3, is used to turn on and off the switch in a three-phase voltage source inverter. The switch is held in an on state by a clock signal with a fixed switching frequency. The switch is turned off when the sum of the switch current and the compensating ramp equals zero. Expand the voltage error amplifier with line voltage at the rectifier to obtain the reference signal. With this extension, the current reference amplitude has been established. As a result, the switching current may rise above zero, causing the switch to conduct, or it may rise above the reference current, causing the switch to turn off.

V. Experimental Analysis

The experimental analysis of the proposed study is carried out in MATLAB software. A Simulink setup is implemented by the Simulink library. The PV array's temperature and irradiance are 25 degrees Celsius and 1,000, respectively. A total of 72 cells were connected in series and parallel combinations, and the voltage gain of them should be 227V. The speed of the rotor present in WECS is 60 rad/s and it delivers a total of 150V. The outcome of both resources is represented in figures 5.1 and 5.2.

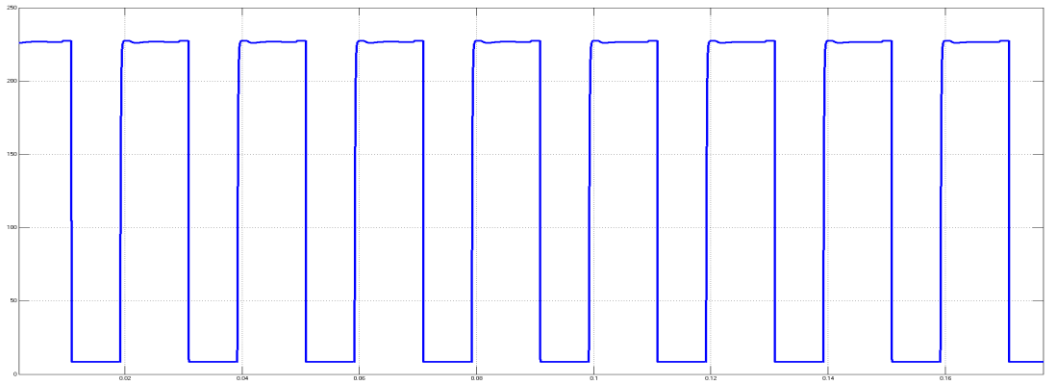


Fig.5.1. PV array's Outcome

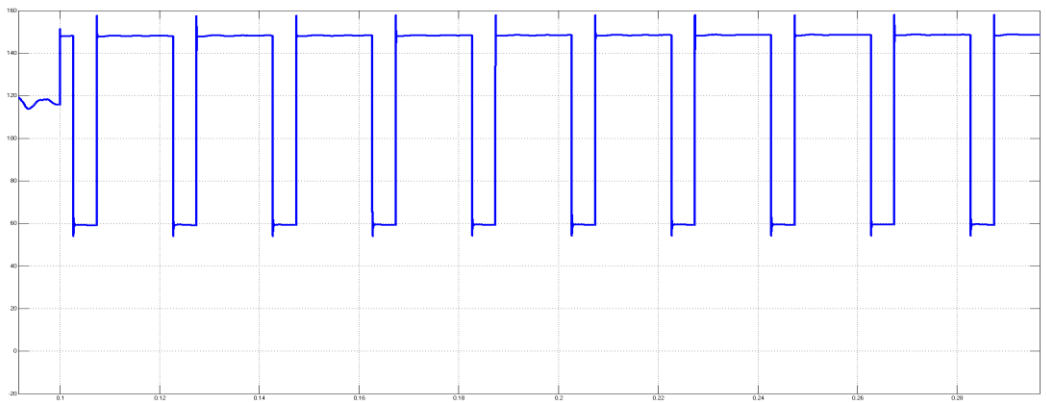


Fig.5.2. Output of WECS

The converter charges the battery and it holds 250V, which can be used in the future in case any voltage drops in resources or voltage lags across load.

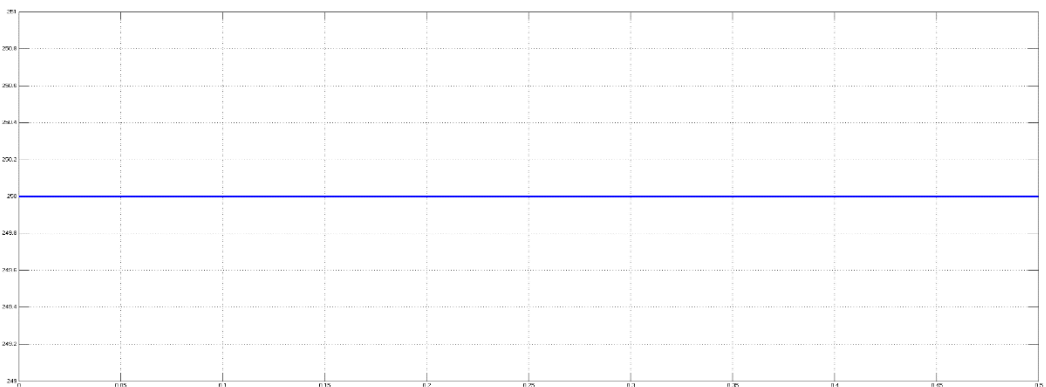


Fig.5.3. Energy stored in battery

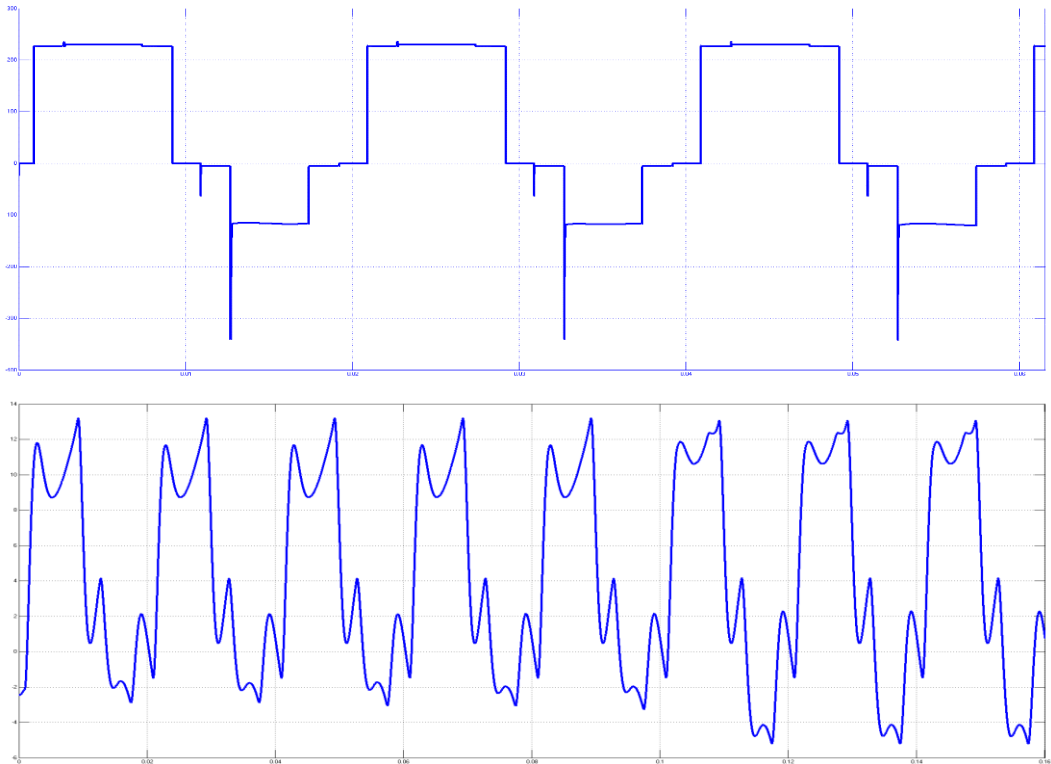


Fig.5.4. Voltage and Current across phase A

A total of 230V is gained, and the above waveform depicts the amount of voltage and current supplied by the inverter's phase A terminal.

VI. Conclusion

Thus, Renewable energy resources (solar and Wind) are hybrid with a buck boost converter to get constant output voltage. Experimental verification of the peak control mode controller is being investigated using Matlab. This mode of operation gives satisfactory speed adjustment of the propeller which is more efficient and economical. As a result of the aforementioned factors, a propeller may be able to run at a variable speed with a low starting torque.

Acknowledgment

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The Two Truths that Descartes Discovers in His *Meditations on First Philosophy* that Do Not Require the Divine Guarantee

Stanley Tweyman

Abstract

In my paper, I show that there are two truths in Descartes' *Meditations on First Philosophy* that do not require the divine guarantee, despite Descartes' claim in the last sentence of the fourth paragraph in the third meditation that he cannot be certain of anything unless he knows that God exists as Descartes' creator and that God is not a deceiver.

Keywords: Thinking thing, Self, God, Knowledge, Meditation

Introduction

Early in the third meditation of his *Meditations on First Philosophy*, Descartes asserts that all knowledge depends on knowing that God is his creator, and that God is not a deceiver. In my paper, I show that this claim is misleading, in that there are two truths that Descartes discovers in the *Meditations* that do not require the divine guarantee, the first being that he exists as a thing which thinks, and the second that a veracious God exists as his creator. In my paper, I explore why Descartes holds that the divine guarantee is not required for these claims.

Methodology

Descartes' method in the *Meditations* is never articulated in this work. In fact, commentators usually regard Descartes' method in the *Meditations* to be the deductive method utilized in Mathematics. In the *Replies to the Second Set of Objections*, Descartes explains that the method utilized in the *Meditations* is not the method of the mathematician, but rather is a method unique to the *Meditations*. He refers to this method as 'analysis', and the method of the mathematician as 'synthesis'. In my paper, I explain why the special method of analysis is required in the *Meditations*, and how this method is employed to establish the truth that he exists as a thinking think, and that God is Descartes' creator.

Early in the third meditation of his *Meditations on First Philosophy*, Descartes asks himself what it was that assured him of the truth discovered in the second meditation that he is a thing which thinks. He replies:

Certainly in this first knowledge there is nothing that assures me of its truth, excepting the clear and distinct perception of that which I state...(M.59)

However, after recognizing that mathematical claims are equally clear and distinct, but might be subject to the deceptive powers of a deceiving deity, he hesitates to generalize and conclude that 'whatever he perceives clearly and distinctly must be true'. In fact, he goes further, and urges that all knowledge depends on knowing that God exists as his creator and that God is not a deceiver:

But in order to be able altogether to remove it [i.e. his doubts about the truth of the clear and distinct] I must inquire whether there is a God as soon as the occasion presents itself; and if I find that there is a God, I must also inquire whether He may be a deceiver; for without a knowledge of these two truths, I do not see that I can ever be certain of anything. (M.60)

In my paper, I propose to show that Descartes holds that there are two truths which he discovers in his *Meditations on First Philosophy*, which do not require the divine guarantee - knowledge of the self as a *res cogitans*, and knowledge of God - and that, therefore, the passage quoted above is misleading.

Descartes' *Meditations on First Philosophy* seeks the metaphysical first principles of human knowledge, that is, what must be known before anything else can be known. Since first principles are what must be known before anything else can be known, they cannot be conclusions of geometric-type demonstrations. In fact, the principles of knowledge, being first principles, cannot be conclusions of any argument. Therefore, a geometric or deductive-type demonstration is ruled out in the case of metaphysical first principles. Accordingly, Descartes correctly sees that the methodology developed in his *Regulae (Rules for the Direction of the Understanding)*, which is based on the deductive model of reasoning in Mathematics, is such that, even if its reliability were assured, would not serve his purpose in the *Meditations on First Philosophy*. According to the third meditation, geometric-type demonstrations will always be susceptible to doubt, until we know that God exists and is not a deceiver. On the other hand, as I propose to show in my paper, the *Meditations* reveals that knowledge of two indubitable metaphysical principles can be had without the need for the divine guarantee. Accordingly, Descartes realizes that he must develop a new method for establishing metaphysical truths, which is not based on the mathematical model developed in the *Regulae*. For Descartes, Metaphysics is possible only if (at least some) metaphysical knowledge can be had without the divine guarantee, whereas geometric-type demonstrations can be considered knowledge only after the divine guarantee is achieved.

At this stage, we are able to see that, given the nature and importance of metaphysical knowledge for Descartes, it could never have been his intention to apply the method developed in the *Regulae* to the *Meditations*. Both metaphysics and geometry utilize first principles. Descartes' treatment of the similarities and differences between

metaphysics and geometry in regard to their respective first principles is to be found in the *Replies to the Second Set of Objections*. He points out that the first principles of geometrical proofs "harmonize with the use of our senses, and are readily granted by all. Hence, no difficulty is involved in this case, except in the proper deduction of the consequences." (M.102) In other words, no special method is required in order to intuit the first principles of geometry. Metaphysics, on the other hand, lacks this advantage:

... [Nothing] in metaphysics causes more trouble than the making the perception of its primary notions clear and distinct. For though in their own nature they are as intelligible as, or even more intelligible than those geometers study, yet being contradicted by the many preconceptions of our senses to which we have since our earliest years been accustomed, they cannot be perfectly apprehended except by those who give strenuous attention and study to them, and withdraw their minds as far as possible from matters corporea¹. (M.102 – 103)

To apprehend the first principles of metaphysics, a different method of proof is required, which Descartes, in the *Replies to the Second Set of Objections*, calls 'analysis' (to be discussed below). Descartes speaks of 'demonstrations' in geometry, and in the *Replies to the Second Set of Objections*, he speaks of 'demonstrations' in metaphysics. We now understand that this term is being used equivocally. When applied to the *Regulae* and the geometric-type method developed in that work, demonstration is what we know as deductive reasoning. In the *Replies to the Second Set of Objections*, this method of proof is called 'synthesis'.

Synthesis . . . does indeed clearly demonstrate its conclusions, and it employs a long series of definitions, postulates, axioms, theorems, and problems, so that if one of the conclusions that follows is denied, it may at once be shown to be contained in what has gone before. Thus the reader, however hostile and obstinate, is compelled to render his assent. (M.102)

He insists that this method, "though it very suitably finds a place after analysis ... nevertheless cannot so conveniently be applied to those metaphysical matters we are discussing" (M.102). This is the case because the first principles of metaphysics are "contradicted by the many perceptions of our senses" (M.102) For Metaphysics, we require the method of 'analysis':

Analysis shows the true way by which a thing was methodically discovered and derived ... so that, if the reader care to follow and give sufficient attention to everything, he understands the matter no less perfectly and makes it as much his own as if he had discovered it. But it contains nothing to incite belief in an inattentive and hostile reader; for if the very least thing brought forward escapes his notice, the necessity of the conclusions is lost(M.101)

Descartes points out that "I have used in my Meditations only analysis, which is the best and truest method of teaching" (M.102). Analytic demonstrations are designed

to guide the mind, so that all prejudice preventing us from grasping a metaphysical first principle will be removed, and the first principle can be grasped. An analytic demonstration, therefore, is, as it were, a process of 'reasoning up' to first principles, the upward movement taking place as prejudice is removed. Accordingly, when in the case of an analytic demonstration, Descartes speaks about drawing conclusions or concluding a first principle (e.g., at M.51 he writes: "So that after having reflected well and carefully examined all things, we must come to the definite conclusion that this proposition: I am, I exist, is necessarily true each time that I pronounce it, or that I mentally conceive it"), he is not speaking of drawing a conclusion in a deductive argument. To draw a conclusion when employing analysis is tantamount to saying that I am now able to grasp the truth of a first principle.

The First Truth that Descartes Discovers in the Meditations which does not Require the Divine Guarantee

In the second meditation, Descartes offers two 'analytic' demonstrations or proofs of his existence:

But I was persuaded that there was nothing at all in the world, that there was no heaven, no earth, that there were no minds, nor any bodies; was I not then likewise persuaded that I did not exist? Not at all; of a surety I myself did exist since I persuaded myself of something. But there is some deceiver or other, very powerful and very cunning, who ever employs his ingenuity in deceiving me. Then without doubt I exist also if he deceives me, and let him deceive me as much as he will, he can never cause me to be nothing so long as I think I am something. So that after having reflected well and carefully examined all things, we must come to the definite conclusion that this proposition: I am, I exist, is necessarily true each time that I pronounce it, or that I mentally conceive it (M.51)

The first analytic demonstration is based on the notion of 'persuasion' and the second on 'deception'. The 'persuasion demonstration' appears to be the following: Descartes affirms something which he cannot doubt - that he was persuaded of something; he then attempts to affirm in thought both that he was persuaded of something and that he does not exist; by finding a repugnancy between these two thoughts (i.e., he cannot affirm in thought both that he was persuaded of something and that he does not exist), he concludes that his initial thought is necessarily connected with the denial of the second. A similar situation obtains in regard to his second analytic demonstration: he attempts to affirm in thought both that he was deceived about something and that he does not exist; by finding a repugnancy between these two thoughts, he concludes that his initial thought is necessarily connected with the denial of the second: if he is deceived then necessarily he exists.

But now Descartes goes further: he wants to know what he is, now that he knows that he is or exists. After ruling out that he is essentially corporeal, he turns to thinking:

What of thinking? I find here that thought is an attribute that belongs to me; it alone cannot be separated from me. I am, I exist, that is certain. But how often? Just when I think; for it might possibly be the case if I ceased entirely to think, that I should likewise cease altogether to exist. I do not now admit anything which is not necessarily true: to speak accurately I am not more than a thing which thinks, that is to say a mind or a soul, or an understanding, or a reason, which are terms whose significance was formerly unknown to me. I am, however, a real thing and really exist; but what thing? I have answered: a thing which thinks. (M.52 - 53)

Descartes' analytic demonstration that he is a thing which things takes the same form as we saw above when he proved that he exists in the 'persuasion' and the 'deception' analytic proofs. Here, in the third such analytic demonstration, he affirms that he exists and simultaneously denies that he is a thinking thing, with the result that he can no longer think that he exists. From this, he concludes that his existence is inseparable from thinking. In other words, he exists as a thinking thing.

In the third meditation, Descartes recognizes that the same clarity and distinctness that he finds in the second meditation when establishing that he exists as a thinking thing, is also present when he conceives mathematical propositions:

But when I took anything very simple and easy in the sphere of arithmetic or geometry into consideration, e.g. that two and three together made five, and other things of the sort, were not these present to my mind so clearly as to enable me to affirm that they were true? Certainly if I judged that since such matters could be doubted, this would not have so for any other reason than that it came into my mind that perhaps a God might have endowed me with such a nature that I may have been deceived even concerning things which seemed to me most manifest. But every time that this preconceived opinion of the sovereign power of a God presents itself to my thought, I am constrained to confess that it is easy to Him, if He wishes it, to cause me to err, even in matters in which I believe myself to have the best evidence. (M.59 - 60)

Descartes' knowledge that he exists as a thinking thing is seen clearly and distinctly, and propositions in mathematics are also seen clearly and distinctly. Nevertheless, while the clarity and distinctness associated with his awareness of himself as a thinking thing are sufficient to guarantee that this claim is true, the same clarity and distinctness associated with mathematical claims do not prove that the mathematical claims are true, and this must await the divine guarantee.

We must now explain why the hypothesis of a deceiving deity is regarded as a source of doubt in the case of mathematical statements, and not a source of doubt in the case of the knowledge of his existence as a thinking thing.

By the end of the fourth paragraph of the third meditation, Descartes realizes that his clear and distinct conception of himself as a thinking thing makes it impossible for him to affirm that he thinks while denying that he exists, and that the same impossibility pertains to mathematical statements which are also clear and distinct

(e.g. he cannot affirm that he has a set of 5 objects, and deny that this equals a set of 3 objects plus a set of 2 objects). And yet, the former escapes all doubt, and the latter does not. To explain this, we must consider the fundamental difference which obtains between his awareness that he exists as a thinking thing, and mathematical and other clear and distinct conceptions. When he thinks that $5 = 2 + 3$ or that motion is necessarily connected with duration, he finds that he cannot think otherwise. Similarly, when he thinks that thought and existence are necessarily connected, he finds that he cannot think otherwise. Now, to doubt, through the hypothesis of the deceiving deity, that $5 = 2 + 3$, or that motion is necessarily connected with duration, requires considering that the deceiving deity has so constituted his mind, that although he cannot think these connections other than the way he is thinking them, what he is thinking is false. But how could this be? Under what circumstances would it be false that $5 = 2 + 3$, or that motion is necessarily connected with duration? It would be false that motion is necessarily connected with duration, provided that something could move, even though time did not pass; similarly, it would be false that $5 = 2 + 3$, provided that there could be a set of two and a set of three which do not equal a set of five. In short, Descartes' concern with clear and distinct conceptions is that his way of thinking may not represent the way these items are actually related - however their relation has been brought about - and yet he cannot help believing that they are always related as he finds he must think them. That this is precisely his concern in the third meditation can be learned from the fact that after he has established that what is perceived clearly and distinctly is true, he explicitly maintains that it is this problem which need no longer concern him: "But now...because I can draw the idea of something from my thought, it follows that all which I know clearly and distinctly as pertaining to this object does really belong to it..."

In the case of the thought and existence, he intuits that thought and existence are necessarily connected, and, he insists, that he need not have, or better, that he cannot have, any doubts regarding this connection of the sort which arise in the case of mathematics. For with thought and existence, the connection thought is the connection thought about: it is the actual relation between the items involved which is being intuited, when he thinks the connection between thought and existence: "What of thinking? I find here that thought is an attribute that belongs to me; it alone cannot be separated from me. I am, I exist, that is certain. But how often? Just when I think; for it might possibly be the case if I ceased entirely to think, that I should likewise cease altogether to exist" (M.52 - 53). Therefore, Descartes' reason for distinguishing thought and existence from other matters (particularly, mathematical claims) which are clear and distinct and are found to be necessarily connected is that, only in the case of thought and existence is he apprehending the items about which he is thinking, and, therefore, only in this case, are the clarity and distinctness of the necessary connection between thought and existence an indubitable guarantor of the truth of this connection. For doubting here requires believing that the connection between thought and existence is not as he intuits it, even while he is intuiting it. And

Descartes insists that such doubt is not possible: when the mind is free of prejudice, what presents itself as clear and distinct is clear and distinct. The additional feature with respect to his thought and his existence is that the necessary connection intuited is the actual connection with which thought is concerned. Hence, not only can he not doubt what he is intuiting, he also cannot doubt *the truth* of what he is intuiting. With mathematical statements on the other hand, to know that the connection intuited is the actual connection, and therefore, to know that the intuited connection is true, requires knowing that the way in which thought apprehends the connection between the items involved is the way the items must always be connected. And to know this, he insists that he must know that God exists as his creator and that God cannot be a deceiver.

The Second Truth that Descartes Discovers in the Meditations which does not Require the Divine Guarantee

The second truth that Descartes discovers in the *Meditations* which does not require the divine guarantee is the existence of God as Descartes' creator. In this paper, I will not be studying Descartes' entire proof of God's existence. I am able to make my point by focusing on the anti-penultimate and penultimate paragraphs in the third meditation.

In the anti-penultimate paragraph in the third meditation, Descartes explains:

It only remains to me to examine into the manner in which I have acquired this idea from God; for I have not received it through the senses,...nor is it likewise a fiction of my mind, for it is not in my power to take from or to add anything to it; and consequently the only alternative is that it is innate in me, just as the idea of myself is innate in me. And one certainly ought not to find it strange that God, in creating me, placed this idea within me to be like the mark of the workman imprinted on his work; and it is likewise not essential that the mark shall be something different from the work itself. (M.70)

For Descartes, to have the idea of the self is to have the idea of God *in that thought*. And when he speaks of the idea of God in the last three paragraphs of the third meditation, he makes it plain that the relation is grasped through reflecting or meditating on the idea he has of himself as a thinking thing.

...[I]n some way he has placed his image and similitude upon me, and...I perceive this similitude (in which the idea of God is contained) by means of the same faculty by which I perceive myself - that is to say, when I reflect on myself I not only know that I am something [imperfect], incomplete and dependent on another, which incessantly aspires after something which is better and greater than myself, but I also know that He on whom I depend possesses in Himself all the great things towards which I aspire and the ideas of which I find within myself, and that not indefinitely or potentially alone, but really, actually, and infinitely; and that thus He is God. (M.71)

Intuition, for Descartes, involves two *relata*/ ideas which are necessarily connected. As we saw earlier in the first part of this paper, the necessary connection between thought and existence is intuited, once we realize that if we affirm the first *relatum* and deny the second *relatum*, then we can no longer think the first *relatum*. Nevertheless, in the case of the awareness of the self and the awareness of God, Descartes urges that, we are involved with only one idea: "And one certainly ought not to find it strange that God, in creating me, placed this idea [of God] within me to be like the mark of the workman imprinted on his work; and it is likewise not essential that the mark shall be something different from the work itself" (M.71). The awareness of the self and the awareness of God are made possible through one idea, namely, the idea of the self, whereas Descartes' proofs of his existence as a thinking thing involve two ideas (thought and existence). Now, if intuition involves two *relata* which are necessarily connected, and the awareness of the self and God are obtained through a single idea, namely the self, then it follows that knowledge of God as Descartes' creator cannot be achieved through intuition. However, even if the awareness of God is achieved through meditating on the awareness he has of himself as a thinking thing, this does not, by itself, prove the truth of the relation between the self and God, and of the claim that God exists, for there remains the question - the same as that raised in regard to his awareness of himself as a thinking thing, and with mathematics - whether what is thought accords with what is thought about. And, even if this problem does not arise in the case of one of the *relata* - the self - it can still be raised regarding the other - God. To show that the awareness of the self and God is reliable, and, therefore, indubitable, it would have to be shown that the awareness of God through the awareness of the self is like the awareness of the self: there must be no distinction between what I am thinking, and what I am thinking about. But how, in the case of God, can this be upheld?

I will now show how Descartes deals with this issue. The relevant passage appears in the *Reply to Objections V*, in which, through an illustrative analogy, he clarifies his position that the idea of God is 'as it were, the mark of the workman imprinted on his work':

When you ask *whence I get my proof that the idea of God is, as it were, the mark of a workman imprinted on his work, and what is the mode in which it is impressed, what is the form that mark*, it is very much as if I, coming across a picture which showed a technique that pointed to Apelles alone as the painter, were to say that the inimitable technique was, so to speak, a mark impressed by Apelles on all his pictures in order to distinguish them from others, but you replied with the questions: 'what is the form of that mark?' and 'what is its mode of impression?' Such an enquiry would seem to merit laughter rather than any reply. (HR.11, 221)

The idea of God stands to the idea of the self in a manner analogous to the relation between a painter's technique and works of art which result from this technique. Accordingly, the idea of God is contained in the awareness of oneself as a thinking

thing in a manner analogous to the way in which the observation of a painting contains within itself the technique of the artist who created the painting. Just as observing the painting aids in apprehending the technique through which the painting has come to be, so by meditating on the self as a thinking thing, he comes to understand the only way in which he could have come to be. Therefore, when apprehending God within the awareness of the self, there is no basis for a distinction between what he is aware of, and what this awareness is about, in the same way that when apprehending the technique in a painting there is no basis for a distinction between what is apprehended and what the apprehension is about. The technique that an artist employs in creating a painting is not a copy of the artist's technique; rather it *is* the artist's technique in creating the painting. Similarly, the idea of God which Descartes discovers through meditating on the idea he has of himself is, like the mark of the workman imprinted on his work: this idea is not a copy of God's mark or technique; rather it *is* God's mark or technique. Again here, therefore, there is no basis for a distinction between what he apprehends about God in the idea of the self and what this apprehension is about. It is in this way that indubitability pertains to the awareness of God in the awareness of the self. And once the idea of God is recognized as God's 'mark' or a 'stamp' which is inseparable from the idea of the self, we know that God exists with the same certainty as we know that the self exists, and we require no further 'proof' of God's existence.

Conclusion

What I have attempted to establish in my paper is that Descartes is misleading in his claim in the third meditation that all knowledge depends upon proving that God exists as his creator, and that God is not a deceiver. Certainly, his knowledge of the clear and distinct ideas in mathematics, and of other clear and distinct ideas, does require the divine guarantee. But his knowledge that he is a thing which thinks, and his knowledge that a veracious God is his creator do not require the divine guarantee, given that the ideas involved in these instances do not have a referential element which must be verified: in these two instances, what he is thinking is identical to what he is thinking about. On the other hand, mathematics always contains a referential or correspondence element, because what he is thinking here is not identical to what he is thinking about. Before knowing God as his creator, Descartes has no assurance that mathematical equations correspond to reality. Only by knowing that a veracious God is his creator can he be confident that the clear and distinct mathematical ideas that he is considering correspond to reality.

Discussion

I think that the portion of Descartes' philosophy developed in my paper which calls for further discussion is his claim that his idea of God is contained within the idea he has of himself as a thinking thing, and that the relation between the idea of God and the idea that he has of himself as a thinking thing is like the relation between the technique of a painting, and the painting of which it is the technique. Descartes

assumes, but so far as I can tell never proves, that he cannot be deceived about the relation between God and the self when he reflects, or meditates, on himself as a thinking thing. What I think that Descartes needs to consider is forgery in art, where art critics are misled about the artist who produced a work of art, because the technique revealed in the painting is a clever forgery. Similarly, how does Descartes know that he was not created by the Evil Genius, who has misled him into believing that he was created by God, while the truth is that he was created by the Evil Genius? Descartes can still be confident that he exists as a thinking thing, but he can have no confidence that he was created by a veracious God. If Descartes cannot respond to this concern, then the Cartesian enterprise in the *Meditations* cannot proceed beyond his knowledge of himself as a thinking thing, established in the second meditation.

About the Author

Stanley Tweyman is a University Professor in Humanities and Graduate Philosophy at York University, who has written extensively on the Philosophies of Rene Descartes and David Hume, as well as on the Philosophies of William Wollaston and George Berkeley.

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Theories of Grammar and Their Impact on Grammar Instruction: An Overview

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Abstract

This paper reviews theories of grammar and their relevance for the teaching of grammar in EFL/ESL instruction. It provides an overview of the major traditional and contemporary grammar theories and their paradigms, as well as their influence and applicability in the teaching of English as a second language. It suggests that since different grammar approaches offer different perspectives for form-focused instruction, different grammar theories can be used and even combined to explain different grammar constructs and structures.

Keywords: EFL/ESL instruction, grammar theories, grammar instruction, grammar knowledge

Introduction

Linguists and grammarians provide a variety of ways to define grammar in any of its senses. The grammar of a language, according to Chomsky, is the system of rules needed for sentence construction, which establish the sound-meaning relationship in this language (1966, 1976). With the term grammar, many other linguists including Chomsky, mean the rules by which phrases and structures are formed and related to each other in a sentence (Chomsky, 1966; Radford, 1988; Lock, 1996; Greenbaum & Nelson, 2009) or the combination of words in meaningful sentences (Givon, 2011). Despite differences in formulation, all these definitions share the concept that grammar is the system of rules according to which a language operates. Knowledge of this system is useful for the way we think and write; this has been and remains the main purpose of grammar (Sinclair, 2010).

To distinguish *grammar* from the theories that study it, authors like Mathiessen and Halliday refer to the theories of grammar as *grammatics*, arguing that they differ from each other as the words *language* and *linguistics* or *society* and *sociology* do (2009). The two main tendencies of modern thought in language in general and in grammar in particular, according to linguists, originate from the theoretical perspectives of ancient times. One is the perspective of logic and philosophy, according to which language and grammar are a set of rules used to specify grammatical structures, which can also be called the *formal approach* (Lock, 1996; Mathiessen & Halliday,

2009). The sentence in this approach is studied separately as it is considered the basic unit. The other view is that of rhetoric and ethnography, according to which, grammar is a source for the creation of thought through words; Lock calls this the *functional approach*. Since the basic unit in this view is the text, the sentence is studied as part of the discourse (Lock, 1996; Mathiessen & Halliday, 2009). While formal analysis studies the relationship between structures in a sentence, functional analysis mainly studies how these structures are used to express a particular meaning.

Linguists' considerations regarding the disciplines of grammar are very different. Traditionally, the main purpose of grammar has been the study of words, (morphology); second, came the study of sentences in order to explain the different forms of words (syntax); and finally the meaning of these words was studied (Halliday M. A., 1994). There are authors who think that it consists of syntax, which studies the order of words in sentences, and morphology, which studies word composition (Lock, 1996). Lock organizes the grammar on the basis of rank and class, where the former includes words, groups of words, parts of the sentence (as main, coordinative or subordinating) and sentences, while the latter includes nouns, adjectives, verbs, and other categories (Lock, 1996).

Many other modern linguists such as Natthan (2008), Kaplan and Bresnan (1995), Broderick (1975) and Radford (1988), in addition to morphology and syntax, include semantics and phonology. Although Broderick pays less attention to the latter two, Radford holds the view that with their inclusion grammar takes on a broader and more complete meaning. Authors like Marter as cited by Hurford and Hurford (2012) make a division of syntax into lexical and phonological categories. Talmy (2008) explains the division of language into grammatical and lexical systems by arguing that each of these two systems has clear semantic functions, which are inseparable and complementary. There have also been suggestions that grammar consists of computer and schematic aspects of the mind/brain (Mukherji, 2010).

Different theories of grammar have been proposed and their influence on L2 instruction and learning has varied depending mostly on both teachers' needs and their knowledge of these theories. This paper presents an overview of universal grammar and generative grammar as two traditional and formal approaches to grammar and of the functional grammar as the main representative of modern and functional approaches. It also provides an overview of how these theories have influenced and contributed to grammar instruction in EFL/ESL education.

Universal Grammar

According to the founder of Universal Grammar (UG), Noam Chomsky, language as a skill consists of the initial state, which is genetically determined, which then goes through different stages until it becomes an acquired state. He calls the theory of the acquired state "*grammar*", while he names the initial state "*universal grammar*" (2015, p. 12). For him, the grammar of a language can be considered as a certain set

of rules for these parameters, while the whole system of rules, principles and parameters is the universal grammar (1982). In other words, the features of language present in the human mind form the UG, which does not consist of certain rules of a certain grammar but of a set of general rules that fit all the grammars of languages; universal grammar defines the boundaries within which human languages differ. Chomsky points out that language is not just a memorized repertoire, but the brain has a kind of recipe book that uses words to express itself, and he calls this book the mental grammar. The acquisition of this grammar by children is not done by heart, but is enabled by universal grammar, which is presumed to be innate (2015).

Other linguists have also focused on universal grammar. According to Ouhalla, UG is a set of rules genetically present in all humans. These rules constitute a part of the knowledge that every individual has about their mother tongue (2001). Regarding the initial state in first language acquisition, White states that the grammar of the first language (L1), although partially, determines the way the learner conceives the data of the second language, so when learning a second language, the initial state is to some extent the grammar of L1 along with UG (2003b). White also argues that UG contains principles that generally hold for all languages, as well as parameters which leave room for language-to-language variation. In addition, she points out that linguistic competence in the mother tongue is achieved through an innate linguistic system (grammar) and that the features of the language are represented through this system, of which we are unaware (2003b).

In an attempt to develop a theory of the dynamics of grammar acquisition, Nowak Komroga and Niyogi (2001) point out that the number of candidate grammars to be learned by the child can be endless, and in the first steps of language learning all grammars can be learned. Restriction is conditioned by the environment in which the child grows up and his contact with language. Therefore, the first language or languages (in the case of bilingual children) are determined by the environment in which s/he grows up.

The UG present in the child's mind turns into language knowledge in an adult as long as certain factors in the environment serve as stimuli; it (language) is not learned in the same way as bicycles or guitars, and, as Chomsky points out, the main part of what we call "learning" is best understood by fixing cognitive structures along an internally driven course under the impulsive and formative effect of the environment. Nevertheless, during the language learning process the child does not need only universal grammar, but facts and evidence about it, which according to Chomsky (1981), can be positive or negative. First language acquisition is based mainly on positive facts (Brown & Hanlon, 1970; White, 2003b; Matohardjono & Flynn, 1995), which consist of the sentences of a language that the child encounters over time. Negative facts can be direct, that is, through correction of children's mistakes by adults, and indirect, which occurs when the child does not encounter certain language structures.

Gould and Marler (1987) consider language acquisition as a kind of "innate oriented learning", where UG teaches the learner "what issues to consider". The results of a study conducted by Lidz, Gletiman, and Gletiman (2003) seem to favour the universal view by concluding that certain universal data of semantics and syntax are necessary for the acquisition of verb lexicon in three-year olds.

Universal Grammar and second language teaching

The question of how much UG mediates the acquisition of a second language has been controversial, especially after the 1980s, and stems mainly from a particular perspective of general linguistic principles and specific assumptions about the nature of humans' linguistic faculty. The UG principles, according to which language acquisition takes place only in the presence of innate linguistic principles, (White, 2003a) may partially answer this question when it comes to first language acquisition. Nonetheless, in the case of second language acquisition, two questions arise: first, do second language learners attain unconscious knowledge that goes beyond information obtained from exposure to the language; secondly, if this knowledge is achieved, does this happen thanks to UG? According to White, the only explanation that can be given for cases when L2 learners demonstrate knowledge of language aspects they have not encountered before is the presence of UG principles (2003a; 2003b). She supports this view with a summary of the results obtained from studies conducted by numerous researchers in this field. Recognizing that both UG and learning are factors influencing language acquisition, Yang (2004) believes that UG is a step forward - it precedes learning, guiding the learner in the language learning process.

Based on UG principles, the suggestion Martohardjono and Flynn (1995) make is that second language learners already have a first grammar and this helps them to have clear perceptions of how principles and parameters work and how they are applied in the L1 grammar.

The UG principles seem to work best in cases when the learner manages to acquire L2 features, which he could not learn otherwise; that is, neither through formal instruction nor based on L1 knowledge. It can be said that progress with L2 beyond expectations and the acquisition of unfamiliar structures can be explained by UG principles. However, authors like Schachter (1988) think that the role of UG in L2 acquisition is more modest than actually claimed.

In his study on the role of UG in second language acquisition in children, Lakshmanan (1994) provides three possible answers to the question of whether children learning a second language have access to the parameters and principles of UG during the L2 learning process. First, children learn a second language in the same way as they learn their first language, therefore they have "direct access" to UG. According to the second possibility, access is "indirect", which means that the child is limited by UG unlike in the first possibility as some principles of UG are acquired while learning the first

language. In the third case, since we have a direct transfer of L1 circumstances for L2 acquisition, UG is no longer functional, unless we have L2 circumstances similar to those of L1.

After a critical observation and analysis of studies conducted on the role of UG, the influence of L1 and the nature of interlanguage, White concludes that the process of second language acquisition is different from first language acquisition and that the grammar of interlanguage differs from that of the mother tongue. Since UG plays a role in shaping interlinguistic grammar, UG-based approaches to second language acquisition largely depend on how UG is conceived and defined (White, 2003b).

As a result, the language faculty is innate and depending on the circumstances in which a person is born, he or she learns a particular language. This faculty also enables and contributes to second language learning, but in particular circumstances L1 principles can affect the level of L2 acquisition. Instruction should facilitate the process of perception and subsequent application of these principles. Since GU precedes language teaching, in order for its principles to find a place for application, exposing students to as much L2 input as possible is essential.

Generative Grammar

Generative grammar is another theory, which defines grammar as a system of rules according to which the combination of words enables the formation of grammatical sentences. Generative grammar was born in the period of the cognitive revolution of the 1950s. From the cognitive point of view, behaviour and its consequences are data that give us evidence of how the internal mechanisms of the mind work. From the same perspective, generative grammar is also supposed to give us an overview of how the language mechanism works. Based on this spirit, Chomsky introduces the term "generative grammar" emphasizing that GG is the system of rules that define the visible and hidden (not immediately distinguishable) structures of language, the relationship between them, the semantic interpretation of hidden structures and the phonetic interpretation of visible structures (1966; 2002). As Chomsky describes his book *Syntactic Structures*, many theories of language and grammar have arisen as part of an attempt to construct a general and formalized theory of linguistic structure, and in this attempt, pushing the correct yet insufficient formulation towards an unacceptable conclusion, we often point out the very source of this inadequacy and consequently gain a deeper perception of linguistic data (2002).

Authors such as Kiefer and Ruwet (1973) point out that it is difficult to make an accurate and clear definition of generative grammar; however, Broderik (1975) underlines that according to generativists, the language user possesses limited "knowledge of the language, by means of which he can produce an infinite number of sentences" (p. 13), and grammar describes precisely this knowledge. Furthermore, to refer to this type of knowledge or generative ability he uses the term linguistic competence thus distinguishing it from linguistic performance. Linguistic

competence can never be accurately represented by linguistic performance, as although the speaker knows what he will express in a given sentence, mistakes or other causes make the performance not an identical reflection of competence (Broderick, 1975).

The two major approaches of GG are generative syntax, according to which deep (hidden) structures serve as the basis of the interpretive component, and generative semantics, according to which, deep structures themselves are supposed to be the semantic representatives of utterances/sentences (Bellert, 2013). Chomsky divides sequences (structures) into "grammatical", that is, acceptable and present in a language, and "non-grammatical", unacceptable and absent in that language. He points out that the notion of "grammar" cannot be equated with the words "meaningful" or "important" by explaining this with an example: although both of the following sentences are meaningless, any English speaker would accept the former as "grammatical" (Chomsky, 2002, p. 15):

1) Colourless green ideas sleep furiously. 2) Furiously sleep ideas green colourless.

Generative grammar and second language teaching

Ritchie (1967) presents the integration of Chomsky's view into foreign language learning as an alternative to behavioural approaches. He points out that in addition to mastering the knowledge of a foreign language, the student should be able to use this knowledge with native speakers of the language, which means that the formation or acquisition of knowledge must take place before its (knowledge) use. Consequently, it can be said that L2 learners are interested in gaining knowledge which they can put into practice in the future, and this is achievable through generative linguistic description. When using a foreign language, the learner tries to construct structures similar to those in his mother tongue, which in a foreign language may not be appropriate or very "grammatical" (Chomsky, 2002). These difficulties can be easily overcome in the generative approach, as according to it, the teaching of structures is done from "simple" to "complex", where the words "simple" and "complex" Ritchie (1967, p. 48) points out, are defined based on the human ability to learn any kind of language.

Meanwhile, there has been a lot of criticism over generativists' isolated consideration of language as a skill, separating it from semantics, language functions, and the social, biological, or cognitive aspects of society. One of the consequences of focusing only on the study of grammar, Ellis argues, is "disregard for lexicon, fluency, pragmatics and discourse" (Ellis, 1998, p. 634). Therefore, generative grammar knowledge can be used to contribute to the instruction of separate grammar constructs and grammatically correct structures. However, combined with other theories, for example, functional grammar, can lead to more effective instruction of grammar structures or phenomena for functional and communicative purposes.

Functional Grammar

As the name suggests, functional grammar is a functional approach to language. As a theory, functionalism linguistics had its beginnings in the 1920s with the Prague school of thought; however, the main founders of functional grammar are Simon Dik and Michael Halliday, who later on also developed systemic functional grammar.

The notion that functionalists bring about grammar differs from formal approaches. Formal grammar considers language a set of structural descriptions of the sentence, in which a complete structural description determines the sound and the meaning of the linguistic expression. Meanwhile, from a functional point of view, “the very essence of language is that it functions properly and efficiently in verbal interaction” (Dik, 1983, p. 3). Since this essence is carried out by syntax, then it is the major means through which meaningful expressions are created. Consequently, it can be said that functional grammar is based upon the hypothesis that there is no arbitrary relationship between the function of language and its rules; rather, it aims to explain the regularities of language in terms of repetitive aspects of the circumstances under which people engage in verbal communication (Mackenzie, 2015). Thus, functional grammar considers language an instrument for social interaction.

Hengevald (1989) analyses the sentence on two levels: the representative and the interpersonal. At the representative level, he suggests that sentences are reference expressions just like terms. At the interpersonal level, he makes an analogous analyses of the sentence, where the connection between the three participants in a given context - the speaker, the interlocutor and the content or the conveyed message - is given by means of an abstract framework representing the linguistic expression (Hengevald, 1989).

Functional grammar treats the functional aspect of language as a whole. It aims to elaborate the dynamics of grammar units in their interaction with other elements of language in various expressions. Unlike the school of traditional grammar, which emphasizes the teaching of rules and structures focusing on specific grammar categories such as the noun, the adjective and the verb, functional grammar connects meaning to form by detailing the relationship between the grammatical categories, focusing on the function they perform (Lock, 1996; Derewianka & Jones, 2010). The table below, taken from Derewianka & Jones (2010, p. 10) gives an overview of how word categories are treated according to functional grammar.

The	black	umbrella	with the tortoise handle
Article	Adjective	Noun	Prepositional phrase

While traditional grammars analyse each word as a separate category, for example, black as an adjective or umbrella as a noun, functional grammar treats all words together as phrases.

One of the founders of functional grammar, Halliday, focuses on the question of how language works to construct different types of meaning. According to him, language is a resource, a meaningful system, which helps us shape the way we conceive the world (2004). They point out that the traditional grammar given in schools does not help us to see the general organization of the grammar of a language, which does not meet the requirements of this century of information.

Functional grammar has also served as a reference point for many scholars, who have then introduced function-based theories, such as functional discourse grammar and functional lexical grammar, which are addressed very briefly below.

Functional Discourse Grammar is a functionalist structural theory that focuses on the relationship between structure and function. Based on psycholinguistic studies, according to which language production is a top-down process, functional discourse grammar aims to precisely reflect this structure (Connolly, 2007). It is conceived as the interaction of three non-grammatical components: the contextual, the conceptual and the productive with the grammatical component to create a verbal interaction model, in which each of the components has a specific function.

Functional Lexical Grammar arose as a solution to the problem encountered by syntax theories in describing the argument-predicate relationship and in defining the words and expressions by which they are expressed. According to Kaplan and Bresnan, functional lexical grammar defines this correspondence in two stages: "Lexical units specify a direct diagram between semantic arguments and configurations of superficial grammatical functions. The syntactic rules then identify these superficial functions with configurations of particular compositional structures and morphology." (1995, p. 3).

Functional lexical grammar aims to separate grammatical phenomena of a purely syntactic character from those of a purely lexical character, making an empirical division between the lexical, syntactic, semantic and phonological components of grammar.

Authors like Rounds and Manaster-Ramer (1987) present the logical version of functional grammar basing their idea on the logic presented by Kasper and Rounds (1986), which aims to mainly describe typical structures. One of the new aspects that this type of grammar brings is the introduction of the typically oriented structure as a semantic structure and the organization of the word order in the sentence, especially for languages that do not have a fixed sentence order. The proposition they bring is a mathematical formulation of functional universal grammar using logic to explain connections and structures within grammars.

Functional grammar and second language teaching

Very little has been written about how functional grammar can be integrated into foreign language instruction, while its derivatives, functional discourse grammar and

functional lexical grammar have hardly been addressed in this respect. In terms of teaching grammar in the second language class, the type of grammar the language teacher chooses highly depends on the goal that he/she aims to achieve through its instruction. If the goal is to achieve the correct use of the sentence by giving basic knowledge of terminology, then traditional grammar is more than sufficient. However, when the goal is for students to be proficient in different discourse contexts, functional grammar best serves this purpose, as instead of being treated as a separate topic, it provides knowledge on all aspects of language (Derewianka & Jones, 2010).

Lock (1996) presents a concrete model of applying functional grammar to foreign language teaching. He argues that in order for the description of the grammar of a language to be as useful as possible for the teacher and the learner, it must not only lay out the forms and structures of the language; it must also show how and why they are used. Since the main purpose of functional grammar is, as Lock puts it, "to understand how the grammar of a language serves as a source of expression and exchange of meaning" (1996, p. 3), then, the type of grammar most useful to students and language teachers is functional grammar. The methodological alternative it offers consists of input and practice. The input or exposure of the student to the language has three stages: (a) the presentation, which is achieved through reading aloud or not, conversations, listening, etc.; (b) "noticing", which is addressing a grammatical feature in different ways; and (c) the level, which can be a text or a sentence. Practice consists of interaction, which means that it can be carried out individually, student-teacher and student-student (in pairs, in groups or as class work), and of the output produced by the student. The latter can be applied based on the sentence or text, and the types of activities can be completion, transformation, meaningful ordering, creation or even reconstruction of each of them (sentence and text) (Lock, 1996).

Researchers like Coffin have investigated the use of functional grammar terminology in classrooms where children learn English as a second language and for academic purposes. The results have shown that the use of terminology offers different ways to relate meaning to the form (structure) that language takes, and at the same time helps teachers make clear explanations of the type of text that students should write. This method helps students understand how English works and use the resources needed to write a particular text (Coffin, 2010).

Conclusion

Different schools of thought have proposed a variety of theories of language and grammar, which have had their impact on the instruction of English as a second or foreign language. This paper presented an overview of three major theories, universal grammar, generative grammar and functional grammar, and their influence and application in EFL/ESL instruction. In addition to grammar knowledge and grammar teaching skills, EFL/ESL teachers need an understanding and knowledge of the theories of grammar and how they can be practically and effectively applied to teach

a variety of grammar constructs in different situations. Teachers can suit this knowledge to the instruction of different areas of grammar. That is, application of one theory does not mean a total disregard of the others; on the contrary, knowledge of these theories would result in efforts to apply the most suitable theory to the particular situation and grammar phenomenon.

At a time when theories of language acquisition are changing, Ellis holds the view that it is the moment for interdisciplinarity, as a language cannot be fully understood by a theory alone (1998). From the same point of view, even the teaching of a foreign language cannot be accomplished in its most perfect form through the application of a single theory. Alternating activities that highlight features of different grammar theories, depending on the topic being addressed, the age and level of the students, might be the solution towards the ideal option. Any type of exposure to language contributes to the growth and expansion of linguistic competence, which, despite interventions, definitely contributes to improving linguistic performance.

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Gender Equality in Rural Areas in Albania

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Abstract

This paper argues that the phenomenon of gender equality is a worrying problem, which affects the development of a country. Gender inequality is evident in Albanian women and girls in access to and control over the economy and in particular in politics and decision-making. They face the greatest and most direct cost of these inequalities, but in reality their effects are felt throughout Albanian society. This phenomenon in our country is currently seen more widespread in rural areas. In these areas this phenomenon is more evident due to many factors, ranging from the mentality of the area, minimal education, lack of information due to location far away from developed urban areas, subjugation, discrimination, etc. The paper attempts to address this phenomenon on the basis of sociological thought, social policies and by analyzing and interpreting the collected data using quantitative and qualitative instruments.

Keywords: development, gender equality, urban and rural areas, discrimination

1. Introduction

Although the world has entered the 21st century, the problem of gender equality is again a visible phenomenon for society in many countries. The perspective of gender equality in Albania is being considered in recent years as an issue that requires commitment as well as seriousness and cooperation between all actors and factors in this field, to achieve faster European and international standards in this field.

Accelerating and promoting gender equality is one of the main pillars of a democratic society and as such requires important reforms to meet the objectives of the Albanian government in this area. This paper aims to explain the situation in Albania, legislation and social psychological effects on this phenomenon, as well as to make a kind of social awareness to promote gender equality. According to recent studies and statistics in Albania, there is an increase in gender equality in urban areas, while differences in rural areas are significant.

Assessments of the current situation in the field of gender equality, conducted by international institutions underline the need for equal treatment between men and women not only formally but also practically. We say this because in words people

express their respect for the criteria and standards of gender equality, while in everyday life there are still conflicts of this nature.

Rural areas are an important factor for the development of the country. Agriculture, at the beginning of the 21st century has all the conditions to be industrialized and the inhabitants of rural areas to be educated, cultured, economically developed, living as equal citizens.

But it is concluded that democratic developments have not penetrated all communities and social structures, as it should be. It is reflected and it is not difficult to perceive gender inequality, which exists especially in rural areas, therefore it was considered reasonable to consider this issue from a sociological point of view. The issue of social inequality, in addition to technical and political consideration, also requires a sociological study, which also has an international dimension. Promoting gender equality and strengthening the role of women is one of the Millennium Development Goals. And in this context, the social causes that favor and keep such a phenomenon alive must be determined. In addition to social and employment difficulties, in rural areas some girls often fall into the hands of organized criminal groups and this makes the issue more serious. The political class to comply with international requirements has taken a series of important steps by implementing the National Strategy and Action Plan on Gender Equality 2016-2020. The Strategy and its Action Plan represent a commitment for 2016-2020, with concrete interventions towards economic empowerment of women and men; ensuring actual participation and engagement in political and public decision-making processes; reducing gender based violence and domestic violence; and strengthening the coordination and monitoring role of the national mechanism of gender equality (Ministry of Social Welfare and Youth 2016).

2. Literature review

Gender Equality can be summarized in the concept, according to which all people regardless of race, sex, religious beliefs, socio-cultural level or political status, have and should have equal legal rights in all aspects of life.

People, according to the concept of natural law, which have been elaborated by the great thinkers of the European Renaissance such as Hobbes, Locke and Rousseau are born equal and must live as such in social environments, the guarantor of this is the state.

Based on the civil rights that have been proclaimed at all times, from antiquity to the present day, the equality of citizens is a principle of universal character of human rights, which received a special emphasis in the Great Revolutions, the 17th and 18th centuries, which brought about a reversal in authoritarian concepts and transcendental mentalities and paved the way for new pluralist democratic concepts.

Another important moment for gender equality was the creation of the UN, which is the largest organization and considers gender equality a value, an ideal for all people.

Gender equality is only one aspect that needs to be accompanied by concrete practical policies and attitudes, with gender integration. Gender equality is a process and strategy. According to the United Nations, gender integration is "the process of assessing the consequences (implications) of any action plan, including policy legislation or program in all areas and at all levels."

According to the European Commission, gender equality means that women and men have equal conditions for the fulfillment of their human rights and for contributing to and benefiting from political, cultural, social and economic development. Gender equality is the equal appreciation by society of the similarities and differences of men and women and the roles they play. It is based on women and men as full partners in their homes, communities and societies. Gender equality begins with equal evaluation of men and women.

3. Methodology

In this paper the combined approach was chosen, enabling us to address the details and reach more natural conclusions on this phenomenon. Descriptive analysis was used as a method for using both quantitative and qualitative instruments for data collection.

Elements of the quantitative approach gave us the opportunity to build a questionnaire, to research on several issues, such as: the percentage of women and men in work, the jobs done by men and women, the level of education of women and men and domestic violence in the areas rural.

The qualitative method using the interview, created the opportunity to research on the experiences, opinions, attitudes and feelings of participants, to examine their thoughts on gender inequality in the family, work and other aspects of social and political life.

4. Results

4.1 Causes of Gender Inequality

Gender inequality in rural areas in Albania is based on a number of factors, related to the developments of Albanian society and the demographic processes that took place in Albania after '90. For various economic-social and geographical reasons many people lives in provinces which suffered from lack of connections on a larger scale. In these circumstances were present some of the factors that we are listing as follows: Patriarchy, Insufficient education, Geographical position, and Economic and social issues.

Patriarchal mentality: is a phenomenon that comes from the centuries-old past and has become one of the main obstacles in achieving gender equality. Although a

significant number of men living in rural areas have migrated to developed countries in Europe and the world seeing that women there have an indisputable freedom, a way of life very different from their women or wives, they still have difficult to get away from the concept that the woman is their property and as such should be under their orders. The wife should always be obedient to the husband and perform family duties with dedication, engaging only in household chores, raising children, while the husband manages family life and participates in social activities.

Insufficient education: Insufficient education and qualification makes women have great difficulties in employment and consequently in securing income. Having no female income is forced to live life as the husband would like. Meanwhile the work that women do in the family is with a great physical load probably greater than the work that a man can do. But housework is unpaid, which makes men not really appreciate their contribution and become a cause for gender inequality.

Geographical position: Albania from a geographical point of view has a rugged mountainous terrain. At a time when there were no transport and communication vehicles, the provinces were developed in isolation from each other. This has led to life there according to provincial rules, which did not value the contribution of women and consequently were a source of gender inequality because women are at home all the time, away from information or associations to actively involve them in social life. Although the media, especially television, has spread to rural areas, the population there continues to fanatically defend customary rights.

Economic and social issues: Economic and social problems are present in the rural life of the Albanian woman as she has never been economically independent. This has created a barrier between women and men even in communication. Rural areas have often been the ones where the biggest problems have emerged in terms of domestic violence, women's education, their participation in social and political life, and their participation in decision-making.

4.2 Woman and decision making.

The problem of women in decision making has many constituent elements that need to be addressed. But regardless of the reality that appears, this aspect is important to emphasize that the Albanian society is aware and accepts that this problem is in social disadvantage towards women. Indeed, in the majority of respondents, ie 95.05% of respondents are of the opinion that women's participation in decision-making or politics is very low. It is also important to emphasize the fact that out of 140 women and 110 men interviewed, a really significant and socially valuable result has emerged, as the answer to the question: "what is the main factor that negatively affects the non-participation of women in decision-making?" And the same answer was given by both women and men. Exactly 52% of women and 49% of men interviewed answered " wrong mentality and lack of social policies" to this question, accepting the reality of the country. This acceptance of reality is a positive indicator

to fight the mentality so that women also have their deserved place in work, society, politics and decision-making. This indicator of the correct perception of the reality of "equality in decision-making" is an important indicator of the level of emancipation of the Albanian society, which already, has a degree of awareness in increasing the emancipation of women. to deal with politics, and consequently decisions are made in their place in various forms.

5. Discussion

From the review of questionnaires, which were distributed to be completed by different social groups in rural areas, men, girls and women; from the review of the interviews with different social categories, it results that despite the improvements made in the legislation, state policies and civil society projects, although there is an awareness on this phenomenon, such problems still remain:

- In rural areas the patriarchal mentality is still strong and this creates difficulties in implementing gender equality.
- Despite the awareness there are still difficulties as in many cases the concepts have become stereotypes. This makes it difficult to work with concrete results.
- In these areas there are problems in providing social services. There are infrastructural deficiencies such as kindergartens and social centers etc.
- There are deficiencies in the regular supply of drinking water and electricity; there are deficiencies in the maintenance and cleaning of roads, etc.
- The unemployment rate in rural areas is still high, especially for girls and women. They are forced to do routine work, which affects the non-realization of their social status and the role they have to play in the family and society.
- The number of women in leadership positions in local government is low. This is another factor that hinders the effective implementation of gender policies.
- The relocation of families from their traditional villages to urban areas has meant that they have properties in the areas from which they have moved and thus do not benefit from the social security scheme.
- In rural areas the family still retains some traditional forms and forms with different family structures are not encountered. There the head of the family is the husband.

6. Conclusions

Civil society and the state based on international conventions and Albanian culture have made considerable efforts to combat violence against women and girls. However elements of inequality still exist in various forms and are more pronounced in rural areas. In rural areas and small towns the influences from the past are still felt, this is due to the collectivist spirit and the old mentality that is still strong. They affect the lives and gender equality of those populations.

In Albania, according to the law, there is no gender inequality in employment or income differences, but the mentality, especially in rural areas, has made these phenomena appear in indirect ways. Gender equality is permeating family life, penetrating even into intimate relationships, where partners have become more aware of their feelings and their importance in keeping relationships and family healthy. In this regard, it can be said that there are limitations in intellectual communication in rural areas. It is different in urban areas, where a more independent life is developed and uninfluenced by the public environment, enabling understanding within the family. The emancipation of women is related as well to economic and socio-cultural reasons. Gender equality has also developed in women's right to property, land and inheritance. The increase in the number of women in central and local government remains a problem and this is more evident in rural areas, although political forces have stated that they will normalize these relations, committing to increasing the participation of women in the political life of the country. Investment in infrastructure, efficiency of electricity for the use of household appliances and other sources for heating and cooking, improvement of the water supply network, etc., development of the network of nurseries and kindergartens, public and private medical service institutions, etc. have enabled to reduce the working time and fatigue of women and girls. However, there are still shortcomings that affect gender inequality. Expanding educational opportunities for girls in the primary and secondary systems have created opportunities for reducing gender inequality in rural areas, but children in some villages do not meet the number to set up schools and equip them with the necessary teaching staff and these constitute obstacles as students have to go from one village to another for the benefit of knowledge.

The Albanian government in cooperation with international organizations and the European Union has always had in focus the problem of gender inequality and the policies undertaken in these years have significantly improved the level of gender equality in Albania.

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Officer Wied, a Prince with Deficient Political and Legal Culture

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Abstract

The Great Powers on December 3, 1913 declared Wilhelm zu Wied Prince of Albania. Wied accepted the throne on February 6, 1914, after receiving the opinion of his uncle, who advised him not to accept the proposal because he did not know politics, Balkan psychology, much less Albania full of troubles. Wied was a simple officer in the German army, and had no political and legal culture for head of state. Historians glorify his six-month rule, and blame the failure on the Albanian political elite and the start of the First World War. Scholars have treated Prince Wied and his rule simply in historical terms, and there is no study of the recognition of his political, legal, and institutional culture during his reign. Using numerous archival sources, especially the Organic Statute of Albania, which defined the powers of the head of state, to conclude that Prince Wied has not respected the norms for the establishment of state institutions as a constitutional legal obligation. We used the research method to know the archival sources and the acts that came out of the institution of the head of state. The comparative method served us to understand the Prince's institutional political culture and its evolution. The historical chronological method reflects with scientific objectivity the process of appointing Prince Wied, handing over the crown and decreeing and changing governments, without respecting constitutional norms. The study hypothesis is confirmed through the analysis of historical variables enabled by archival sources and publications of serious authors. The scrupulous study of numerous archival documents leads us to the logical conclusion that the Albanians had an influence on the appointment of Prince Wied. The representative of Austria-Hungary Hornbostel informed Berchtold about the secret meeting in Durrës of Wied, with the envoys of Esat Toptan, Kristo Meksi and Mehmet Konica. Article 41 of the Statute stipulated the obligation to make the law on the election of the National Assembly, before which the Prince had to be sworn in and the government approved, but it was not established, and the Prince decreed the government of Turhan Pasha Përmet, with eight ministers, when Article 73 of the Statute sanctioned that the Council of

Ministers would have, the Prime Minister and four ministers. The de jure form of government was the Constitutional Monarchy, de facto transformed into the Absolute Monarchy.

Keywords: Prince, National Assembly, constitutional monarchy, decree, organic statute.

Introduction

This scientific research was born as a necessity to clarify the historical and institutional truth of the appointment of the Prince of the Principality of Albania Wied and the way he performed the high function of the head of state, as in many analyzes, his personality is glorified and the failure of government has been billed only to the anarchist movement of Central Albania. The Conference of Ambassadors of London on July 29, 1913, determined the status of Albania. With Article 1 of the decision, Albania was internationally recognized as an Autonomous, Sovereign Hereditary and Neural Principality. According to Article 6 of the decision, the KNK had to complete the Statute / Constitution of the Principality of Albania, within the month of January 1914. The discussion for the election of the Prince of Albania had started on December 4, 1912. (Lejhanec,W, 2012) His appointment became more necessary when the government of Ismail Qemali was no longer trusted and when the influence of Esat Toptani was growing and his policy was in sync with that of the Young Turks, for him elected a Muslim prince from the Dynasty of Sultan Abdyl Hamit. (Swire, J. 2007). A Christian prince was worshiped by the Orthodox, but was anathemised by the population of Central Albania, who wanted a Muslim. Vatican-influenced Northern Catholics accepted a Catholic Christian prince but did not want a Protestant. The leaders of the Pan-Albanian Federation "Vatra" in the US, were for a Christian prince from a European royal door, as they thought that Albania should build governments similar to Norway, Denmark, the Netherlands and Belgium. (Meta, B. 2013) The Chairman of the Provisional Government of Vlora, Ismail Qemali, and the Chairman of the Albania-England Association, Aubrey Herbert, were for a Protestant prince. According to Herbert, "for the unification of Albanians, the prince had to be a Protestant and a large body, in order to be respected by all." (Swire Joseph, Dituria, 2007) politicians, adventurers and political idiots. The principality of Albania had become very attractive to the sons of former European royal families, who followed with great curiosity the "political tender" announced by the Great Powers for the prince of Albania. The press of the time dealt with cases, how young adventurers proposed marriage to the daughters of European princely families, presenting themselves as candidates for prince of Albania! The story was similar to the story of Herodotus, about the Hellen King, Clisten, who announced the competition for the blue prince of his daughter Agarista, and in the "ceremony of choosing the groom", the Illyrian from Molosia, Alconi, also participated. (Korkurti. M. 2002) The list of candidates started with the claimant of Skanderbeg's inheritance, Aleandro Kastrioti.

From the Royal Dynasty of France, and after him, the prince of Albanian origin, Albert Gjika, who wanted to be a prince himself, but according to the Director of Trieste Police, Manusi, propagandized Montpensie because he took money from him. Behind them stood the German general, Prince Wilhelm Von Úrach who promised the Italian Foreign Ministry that he was ready to change the faith, from Catholic, in Protestant. The candidate was also the Count of Turin, Moric Fonhomburg-Lipe, who according to Joseph Swire, was appreciated and preferred by the Albanians. (Swire, J. 2007) The Muslims on behalf of the Albanian colony of Egypt offered Ahmed Fuad from the Khediv dynasty of Egypt, who when he was a student in Italy, had been in a class with the Emperor of Italy, Victor Emmanuel III (Vlora S.2012) Of course, the most interested in the appointment of the prince of Albania were, Austro- Hungary, Italy and a "clan" of Albanian politicians.

The Ambassadors of the Great Powers decided that the selection of candidates for the prince of Albania would be based on the principle of excluding candidates of Ottoman descent, and of the three main religions in Albania. The specialist of the Austro-Hungarian Foreign Ministry, Tollozhani, figuratively "described" the prince as an energetic man, with the ability to provide money for Albania, because the Albanian Levantines / beys were educated in Istanbul, they coveted money, as well as journalists. Albanians sided with the one who owned them. On August 14, of 1913, the newspaper "Corriere della Puglia" analyzed the movements of Albanian politicians to find the prince of Albania himself, against the will of the Great Powers. (Meyer V.1913). As understood of course, the newspaper had a reliable source of information, because the politician Syrja Bey Vlora, in his memoirs, claims that from the meetings he had with the Austro-Hungarian Foreign Minister Berchtold and the Italian Foreign Minister San Giuliano, he understood that Albanians, could be a factor in the appointment of the prince, as he knew the desire of the Queen of Romania Eleonora, to make her husband's granddaughter Wied, Prince of Albania. (Vlora, S. 2012) Berchtold's opinion was given by Syrja Bey Vlora to Esat Toptani, who with the intuition of a political extortionist and the ability of a man to make decisions, used the opportunity to be politically factored and materially benefited. Esat Toptani collaborated with Kristo Meksi, who had been vice president of the Albanian Colony in Bucharest. On March 18, of 1913, diplomat Hornobostel informed Count Berchtold that Wied had had a secret meeting with Kristo Meksi on the ship "Baron Brook" in Durres, monitored by Mehmet Konica and Dervish Elbasani. The meeting was also confirmed by the Austro-Hungarian Ambassador to Rome, Fon Mery. ((Meyer V.1913) Actors of the "political and diplomatic affair" were also Fadil Toptani and Filip Noga. Fadil Toptani was called "Prince Wied's mandator", because he also met with the Romanian military attaché in Vienna, George Eremi, in the restaurant where Albanians "gathered" for the prince of Albania, and toasted and enjoyed politics, just like the French, gathered with wine and cheese on the food table. Fadil Toptani hinted to George Eremia that the Albanians could support a candidate for prince, if offered by Romania. The Secretary General of the Romanian Embassy in Vienna was

Alexander Jan Krap, the son of the Prime Minister of Romania, who increased the visits to the tables of the Albanians. Meanwhile, Fadil Toptani had also met with the Romanian Minister in Vienna, Mavrokordato, with whom he had discussed Wied, and had received half approval. Negotiations took a turn for the worse when Queen Eleonora of Romania, nicknamed "Carmen Silva", came into play and, in order to influence the opinion of the Great Powers, mediated Wied's candidacy. The proposal to the Ministry of Foreign Affairs of the Dualist Empire, on behalf of King Carol, was submitted by the Romanian Minister in Vienna, Mavrokordato. (Vlora, S. 2012)

Literature Review

Some Albanian scholars have justified the failure of Prince Wied's government by organizing the anarchist peasant movement of Central Albania to elect a Muslim prince. From the study of archival sources and the activity of the International Commission of Control / KNK in short, there is convincing evidence that Wied, had no constitutional and institutional political culture. This historical truth is clearly shown, since his first decree for the appointment of the prime minister and the government, on March 9, 1914, without waiting for the Organic Statute of Albania, which defined the powers of the Prince. The Organic Statute of Albania was not implemented even for the reform of the government on May 3, 1914. In Chapter V, Article 73, it was sanctioned that the Council of Ministers would consist, of the Prime Minister and of four ministers. (Duka, V.2012) The prince decreed the government with 8 ministries. (Luarasi, A.1999) The prince educated as a soldier looked like the "prisoner" of Esat Toptani. He made the next mistake when he appointed Colonel Thomson, Extraordinary Commissioner for the Southern Provinces, who on May 17, 1914 signed the document entitled the "Corfu Protocol", and the document called the "Act" that formed Northern Epirus. (Duka, V.2012) Prince Wied's political dilettantism also manifested itself in the arrest of the Minister of War and Home Affairs, Esat Toptani. Harry Lamb considered this arrest, as organized by the Austrian diplomat, Lovental. (Duka, V.2012 @ Vlora, S.2012) The prince, influenced by interventions and faced with a dilemma: investigation and trial or exile, chose the "soft" path of deportation from Albania, without going through a trial. (Salleo, F.2014) Wied's inability to run the Principality of Albania was predicted by his uncle, the former Kaiser of Germany, who had a preference for a "Mohammedan prince from Egypt, rather than for Wied." (Swaire, J, 2007)

The methodology of recognizing Prince Wied's journey to the throne in Albania.

The main method in scientific research was the research of authentic archival sources, unused, due to lack of interest of scholars, or due to lack of institutional political culture. The historical comparative method served us to approach the historical truth with scientific objectivity, using the interpretive ability provided by Jurisprudence, or Philosophy of Law. Using the method of narrative description we place the events in time and overcome the lack of desire to enter the historical labyrinths, describing the event in style with artistic letters. The Great Powers declared Wilhelm zu Wied, as a

consensual candidacy on December 3, 1913. The politician Eqerem Bey Vlora claimed that he knew all the candidates for prince, and according to him, "none of them had better qualities than Wied" (Puto, A.2009) Wied overwhelmed by the emotion of responsibility and the stress of insecurity was delayed in accepting the crown, after asking the opinion of Wilhelm II, the former Kaiser of Germany who in his memoirs evaluates Wied as a man and officer good, but incapable of politics, and it was more for a "Mohammedan prince from Egypt than for Wied." (Swire, J.2007) Officer Wied woke up from the dormant dilemma of "to accept or not to accept" the throne of the prince. Queen Eleonora also asked the Albanians to "accept the suckling prince of the ancient German race raised in the middle of the Rhine. Wied ascended the throne on February 6, 1914, in a letter to the ambassadors of England, France, and Russia. (Puto A, 2009) On the same day, Fadil Toptani, with the status of "godfather for mediation", received gold francs from the Queen of Romania. (Hornobostel, W. 1913),) Syrja Vlora claimed that she had heard with her own ears Filip Noga, that she had received gold from the Queen of Romania, for Esat Toptan (Vlora S. 2012)

The prince entered the land of Arberia, through the "Port of Teuta", on March 7, 1914, with the Austrian ship "Taurus" accompanied by the British ship "Gloucester", the French cruiser "Bruix" and the Italian cruiser "Quarto" (Hallkokondi, S. 1923) From that pier, a delegation from the Principality of Arbër and the Political Elite of Durrës had left for Naples in 1272, to "donate" to Charles I of Anjou, with the blessing of the Pope, the crown of the King of Arbër, as an illusion. In 1913, Europe "gifted" the Albanians a Prince, but not with the blessing of the Pope, because the Vatican was against the Protestant prince. (Gay, N. 2012) Prince Wied came to Albania, with such a lack of knowledge about Albanian history, that he even considered Himara, to be a territory of Greece. The magnificent reception was in contrast to the misery of the poor people who imagined the lucky opportunity to receive gifts from the European Prince. (Hallkokondi, S.1923)

Conclusions

The prince started his activity when the KNK had not completed the Organic Statute of Albania (Meyer, V.1913)) Mehdi Frashëri, who was a member of Albania in the KNK, opposed the formulation of the system of capitulations. (Frashëri, M. 2005)

The first meeting Prince Wied made on March 9, 1914, with KNK delegates. The meeting was accompanied by the close staff, Chambrailen Major Von Trotha, personal secretary Captain Heaton Armstrong and the Austrian personal physician, Dr. Berghausen. (Gurakuqi, R.2012.) The Organic Statute of Albania ended on April 15, 1914 in Vlora. (Duka, V.2012) The Organic Statute reflected the "small policy" of the Great Powers, who treated Albania as an "Ottoman government" while maintaining the regime of the Capitulations of the Ottoman Empire established in 1875.

Prince Wied began his activity with the decree on the appointment of the first Prime Minister. On March 12, 1914, Prince Wied invited Dom Nikolle Kaçorri, Omer Vrioni,

Ferit Pasha of Vlora, who refused and finally addressed the request to Turhan Pasha of Përmet, who accepted it. With the decree on the appointment of the Prime Minister, the unconstitutional and anti-institutional government began, because the decree did not refer to any norm of constitutional and procedural character. In the history of the political institutions of Albania, this moment has passed without any special interest, but due to the non-observance of the constitutional norms, the non-institutional political culture was cultivated. In Chapter 2, Article 8, the Organic Statute set out the obligation of the Prince to take the oath before the National Assembly. When Syrja Bej Vlora presented his credentials as Minister of the Principality of Albania in the Austro-Hungarian Empire, he was advised by Count Berchtold that "Esat Pasha should be trialed, even in his absence". (Vlora, S.2012), Consequently, the suspicions about Esat Toptani were not confirmed through a court process (Swire, J. 2007). The prince asked Esat Toptani to leave Albania and politics and Esat promised him, "that he would leave Albania, would not take part in internal and external movements, and would not return to Albania without a signed authorization from His Majesty the King". (Swire J. 2007) The prince, under Italian intrigue, showed neither the quality of the German "gene", nor the features of the "castle" race where he was educated as a soldier. Esat Toptani left Albania as a traitor, and was received in Rome as a winner by Foreign Minister Marquez San Giuliano, British Ambassador to Rome Sr. Rodd and Russian Ambassador, (Vlora,S.2012) William II, the former Kaiser of Germany predictions was being confirmed, when he advised Wied to refuse the "crown", as his mission did not give any hope of success, because, even the Antanta would bring him many obstacles ". (Swire, J.2007). Baron Alioti prepared the script and improvised the imaginary danger to discredit him publicly, on May 23, 1914, at 3 pm, removing him from the office and boarding him aboard the ship "Misurata". Captain Castoldi checked the documents of the Prince, who was "napping" in the sea of intrigue. Wied's secretary, Heaton Armstrong, claims to have seen Castoldi with his own eyes checking the Prince's documents. (Swire, J. 2007)

Political instability was the "accompanying song" of the missing rule of the experimental principality of the twentieth century. XX-th. The development of the events was also proving the justice of Vatra's prediction that Albania should not base its policy only on Austria-Hungary and Italy. (Dielli, 1914). The study thesis does not claim the exhaustion of all issues. In this context, we would recommend that scholars should complete the table with the activity that Wied attended, after leaving Albania. What were his intentions that made him not abdicate, when he violated the principle of neutrality and enlisted as an officer in the German army during the First World War.

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Instructional Design in the Face of COVID-19: Learned Lessons and Pending Tasks

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Abstract

Faced with confinement due to COVID-19, educational institutions with face-to-face models had to continue their activities under conditions and with resources not used up to that moment. For this, the institutions formulated and put into operation continuity plans, which involved everything from remote education to hybrids between the latter and online education. Institutions that already had online or hybrid education programs were able to apply that experience to their face-to-face programs, allowing them to respond more quickly than those that did not. The stages of the teaching-learning process that were "adjusted" during this emergency in order to give continuity to educational activities were the last two, namely: the development of instructional material and teaching. In this work, an intervention is proposed in a previous stage of the process, that is, in the instructional design (ID), using the ASSURE model derived from the ADDIE model or approach. This intervention is based on the lessons learned during the pandemic, for the preparation or reformulation of study plans that consider information and communication technologies as a platform to enhance the effectiveness of learning, selecting them and establishing their use strategy from the stage in which the materials are designed, which may be useful considering that even if the students return to the classrooms, a virtual part will be preserved, that is, a hybrid model, in which the face-to-face-virtual ratio will be determined by the educational strategy of the institution.

Keywords: ADDIE, ASSURE, instructional design, teaching-learning process

1. Introduction

As a result of the COVID-19 pandemic caused by SARS-COV-2, the activities carried out in all areas changed their form, their timing, the resources and methods used, among others, which has had both negative and positive consequences, mainly of the first type. However, although emergent measures had to be taken to continue with the activities, this need also forced to venture into methods not considered until then, given the face-to-face nature of work, education, health, etc.

In the case of education, confinement made it necessary to continue activities from home or on some occasions from the students' workplace. For this, it was used from remote education to hybrids in part remote and in part virtual, environments in which physical spaces were replaced by videoconference rooms.

In the first days of confinement, teachers had to integrate their virtual classrooms with the resources they had and knew about, but the institutions reacted by designing, building and operating programs to address the situation, which included not only communication platforms (Zoom, Microsoft Teams, Google Meet, among others), but also training for its use. Also, and depending on the topic taught by the teachers, many integrated complementary tools or platforms, such as mathematical software, simulation software, digital libraries, vlogs, LMS (learning management system), etc., to their portfolio of instructional instruments.

Thus, the emerging situation forced changes of the same nature in teaching. The changes occurred mainly in the instructional materials and in the presentation of the same with the students, that is, the last two stages of the teaching-learning process were fundamentally modified, considering the evaluation of the students in the last stage.

Although the aforementioned actions have many times satisfactorily resolved the restrictions imposed by confinement, there are also lessons learned that can be applied to earlier stages of the teaching-learning process, particularly from the instructional design, for the achievement of a more effective teaching.

2. The teaching-learning process and instructional design

Without becoming mechanistic, since there is a high degree of soft components involved in teaching-learning, a design, construction, test and operation of it can be carried out as a process, in which one of its stages is the instructional design , which in turn is also a process.

Teaching learning process

Teaching-learning is a process that consists of various interconnected stages, which feed the product of one as an input to the next, while each one takes additional inputs. As a process, all the concepts of systems and process optimization are applicable to it, in addition to the fact that it must be considered that the teaching-learning process is

developed in a multidimensional operational framework integrated at least by labor, administrative, legal and budgetary aspects. All this means that the stages must be ideally coupled to each other and that each of them must have the same robustness, that is, they must be aligned and harmonized in order to achieve good performance.

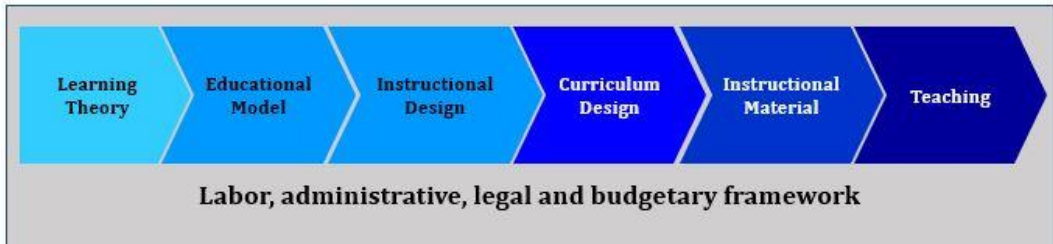


Figure 1. Teaching-Learning Process.

Source: self made

It is noteworthy that, as a system, it is very important that in order to achieve good performance, each of the stages themselves are evaluated (unit tests), their coupling between them (comprehensive tests) and the feedback of the results to the previous stages for this control circuit. Through these tests, the alignment between the stages, the harmonization of them, and the general performance of the process can be verified and adjusted.

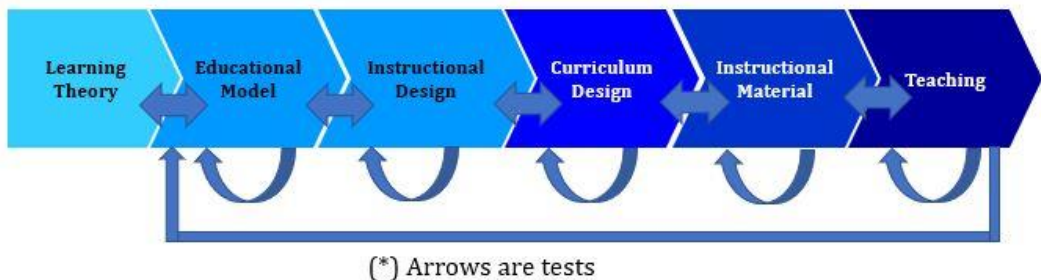


Figure 2. Tests in the Teaching-Learning Process.

Source: self made.

The subject of tests and evaluation deserves a separate treatment, at this point we will only point out that for the efficient performance of the process its review is necessary to ensure the correct coupling and flow between the stages, and to ensure that the achievement of the pedagogical objectives is built in a sustained manner in the different stages.

Instructional design

According to the process, the instructional design is the way in which the educational model formulated by the institution is implemented, it is the materialization of the educational model, so its importance is capital within the process.

Instructional Design (DI) has been widely studied and conceptualized, among many the following concepts stand out, in alphabetical order:

Branch & Kopcha (2014) point out that “instructional design is intended to be an iterative process of planning results, selecting effective strategies for teaching and learning, choosing relevant technologies, identifying educational media, and measuring performance.”

Dick, Carey and Carey (2015) consider that instructional design is an umbrella term to include all phases of the instructional systems development process, that is, the design, development, implementation and evaluation of instruction, and that all components they work together to achieve effective instruction.

Reiser & Dempsey (2007) say that “instructional design is a systematic procedure in which educational and training programs are developed and constructed with the intention of achieving a substantial improvement in learning”.

For Smith and Ragan (2005), instructional design is “the systematic and reflective process of translating learning and instructional principles into plans for instructional materials, activities, information resources, and assessment”.

The Applied Research Laboratory at Penn State University (University of Michigan, 2003) established a four-part concept for instructional design: as a process, as a discipline, as a science, and as a reality. From a process point of view, they define it as “instructional design is the systematic development of instructional specifications using learning and instructional theory to ensure the quality of instruction. Is the entire process of analysis of learning needs and goals and the development of a delivery system to meet those needs”. This concept is important because it explicitly mentions the assurance of the quality of instruction, while other authors only leave it implicit in the effectiveness of learning, it also highlights that the use of learning theories and instructional theories in instructional design is emphasized, which implies the work of specialists in the exercise of ID.

Thus, all the authors agree that instructional design is a systematic process that aims to achieve the effectiveness of learning, making use of relevant and pertinent technologies and media, in accordance with the educational model that is being implemented. This stage is where the planning of the strategies and resources to be used in the subsequent stages of the process is most effective.

Many of the instructional design models are based on ADDIE, even if they do not mention it, since according to Robert Maribe Branch (2009), ADDIE is not a model but a product development paradigm, a concept for the development of instructional design and further notes that it is a guide for the development of educational products and other learning resources. In this way, ADDIE is both a generic model of instructional design for some or a guide to the stages of an instructional design process for others.

Table 1. Stages of the ADDIE Model.

Stage	Description
A (Analyze)	<i>It consists fundamentally in identifying the target student, determining the instructional goals, determining the human and technological requirements, and creating the project management plan.</i>
D (Design)	<i>Based on the elements obtained in the design stage, the strategies for the other stages are determined, instructional objectives, performance objectives, test instruments and performance metrics are generated.</i>
D (Develop)	<i>Generate learning resources and validate their performance</i>
I (Implement)	<i>Prepare teachers, students, and in the case of electronic learning prepare electronic platforms to ensure their continuity and performance</i>
E (Evaluate)	<i>Qualify the quality and performance of the instructional products based on the criteria and metrics that have been established in the design stage</i>

Source: self made.

Based on ADDIE, as a model or as a development paradigm, many models have been built that attend to the particularities of the various learning environments, whether face-to-face, virtual, hybrid, or special cases of them, such as the flipped classroom. The following models stand out among many:

Dick and Carey model. It is a systemic approach to instructional design (Dick, Carey & Carey, 2015) based on the assumption that there is a direct relationship between the stimulus and the response elicited in the student, the stimulus being the teaching materials and the response being the learning of these materials by the student, while the purpose of the stages is to create the conditions for that relationship to be established. The nine stages of this model are: identifying instructional goals; conduct instructional analysis; initial behaviors and characteristics of the students; performance objectives; elements of evidence contrasted against criteria; instructional strategy; instructional materials, design and development of formative assessment; and, design and development of the summative evaluation.

The Gagné and Briggs 14-step model is instrumented by the well-known nine training events. This is a systemic model, organized with the structure of information processing (Gagné, Briggs, Wager, 1992). Relevant work because many other models take up Gagné's instructional events as a guide for the instructional stage.

Rapid Prototyping Model. In accordance with the agile methodologies so in force today, faster and more flexible instructional design models have been developed, but they also have disadvantages such as sometimes little depth or low focus on the aspects they deal with. One such case is the Rapid Prototyping Model by Tripp and Bichelmeyer (1990) which is based on the construction of individual lessons rather than the entire curriculum. The stages of this model are: perform a need analysis; construct a prototype; utilize the prototype to perform research; and, install the final system.

ASSURE model

In the context of this work, the ASSURE model, developed under the ADDIE approach by Heinich, Molenda, Rusell and Smaldino (1999) and formulated to ensure the effective use of instructional media, is particularly applicable due to the recommendation made to incorporate the resources of information and communication technologies from the instructional design stage of the teaching-learning process, even when it transitions to a hybrid or even face-to-face stage.

The acronyms are the acronym for Analyze learners; State objectives; Select methods, media and materials; Utilize technology media and materials; Require learner participation; Evaluate and revise.

Table 2. Stages of the ASSURE Model

Stage	Description
A (Analyze the characteristics of the students)	<i>It is the identification of the characteristics of the students to guide the development of the instructional material according to those characteristics.</i>
S (Establish Standards and Goals)	<i>It is the specification of what students should be able to do as a result of instruction.</i>
S (Select strategies, technology, media and materials)	<i>It is about the ideal selection of these elements to achieve the learning objectives.</i>
U (Use technology, media and materials)	<i>It is the planning and use of resources to hook the student with the material that is being delivered.</i>
R (Require the student's response)	<i>It consists of planning how to achieve the participation of the student and the group in the learning process, given all the previous stages.</i>
E (Evaluation and Review)	<i>The impact of teaching on students is evaluated, determining if the learning objectives were achieved. The results are used to make a review of all the elements put into play, strategies, technology, means and materials.</i>

Source: self made.

ASSURE is based on ADDIE not as a model, but as a development paradigm because the stages do not correspond one by one, but they agree that they are a development

methodology that goes from the analysis of the characteristics of the students, to the evaluation and review of the achievement of the learning objectives, with a progression of stages of strategies and plans of construction of materials and their use.

In this particular case, ASSURE is used because in the stages Select methods, media and materials and Utilize technology media and materials it is possible to determine from the instructional design the materials to be used later, as well as the means and the ways of using them (see figure 3).

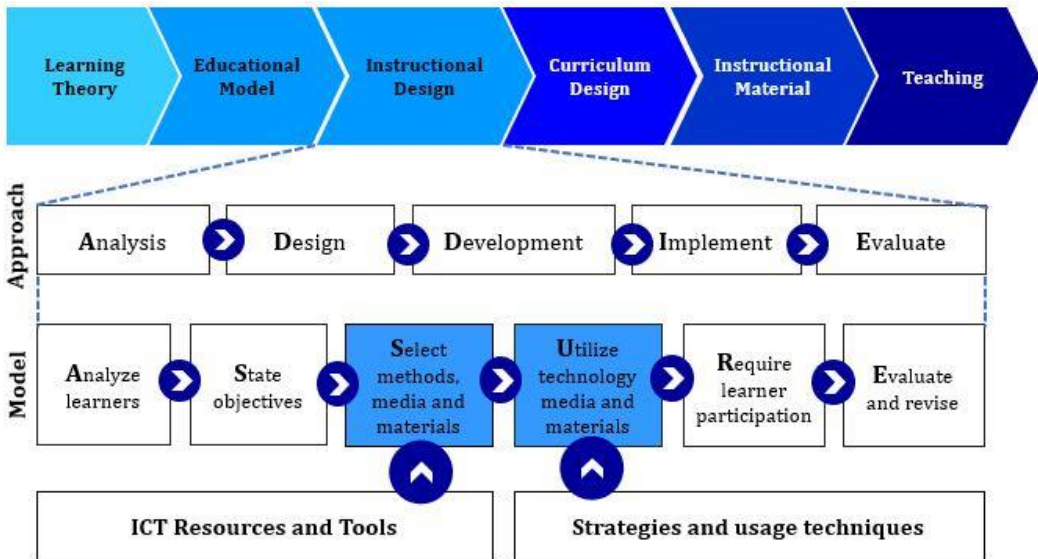


Figure 3. ADDIE-ASSURE and applicable ICT resources

Source: self made.

As with all resources used in education, the proper selection is as important as the correct use of them, but in the case of technological resources it is even more critical because at the same time they have to have the maximum impact on learning. Other aspects of economic, technical and use are also presented, such as, for example, the possibility of accessing them given their price, compatibility with other systems and platforms of the institution, and mastery of their management. All this, coupled with the strategy and technique with which they are used.

3. Methodology

From the experience lived during the COVID-19 pandemic, the authors of this document revisited their previous works regarding the systemic approach to online education (Quiroz and Muñoz 2019) (Quiroz and Muñoz 2020), contrasting against those advances the actions that were have carried out during it. For this, the strategies and actions taken by various higher education institutions in Mexico, both public and

private, were investigated and through interviews with professors and students their opinion was obtained about the dynamics used and the results obtained.

The findings of this research are the lessons learned that can be used to improve the performance of the teaching-learning process, even with a partial or total return to the face-to-face modality.

4. Analysis and development

Considering that the pandemic was an emergent situation for which no one was prepared, the institutions reacted according to the available resources and previous experience in hybrid and online modalities. For this, most of the institutions developed contingency plans for the continuity of teaching activities.

In the first days, the teachers communicated with their students to have sessions through the free videoconferencing services offered by various platforms (such as Zoom and Google) and later in a more organized and formal way once the emerging plans, such as the PEER (Programa Emergente de Enseñanza Remota) of the Universidad Autónoma Metropolitana, which considered hiring collaboration platforms at the institutional level (such as Zoom, Microsoft Team for Education, Google Classroom with Google Suite, among the most popular), as well as an intense training program, not only on the use of computer tools, but also on their use in the context of the educational model of the institution.

It should be noted that given the teachers' preferences, some institutions hired more than one platform, for example, Microsoft Teams as primary and Zoom as secondary, in accordance with the institution's "computer culture", since some already had institutional contracts with companies such as Microsoft or Google. It is also worth mentioning that there were many barriers both of a technological and operational nature, some students have had to participate in class from their cell phones because they do not have a computer, communication problems on internet channels are frequent, the price of the plans data is high and the management of the applications has not been easy for everyone. A separate mention is the use of tools for the development of instructional material, while the use of electronic presenters (MS PowerPoint, Google Slides, etc.) is very broad, in this pandemic teachers and students have ventured into the use of other presentation tools, content creation, mathematical software and simulation software, among others, which means that they have increased their knowledge and ability to use other technologies that they had not explored before, or were not sufficiently used.

With the aforementioned resources, plus some others already available, but not sufficiently exploited, the teachers created virtual classrooms that often resulted in remote teaching classrooms with online education elements (see figure 4).

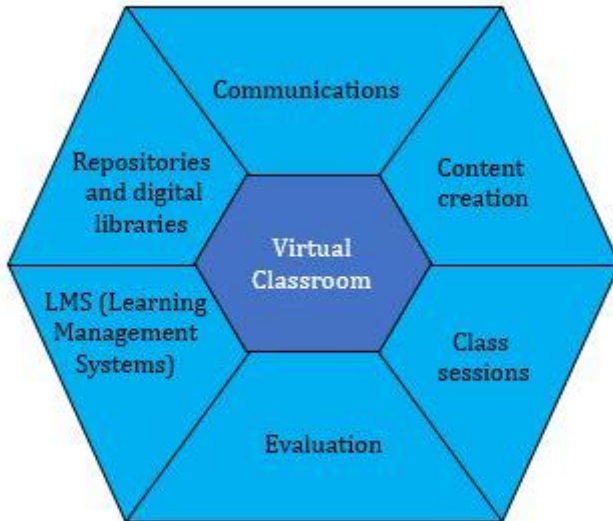


Figure 4. Virtual Classroom model during pandemic.

Source: self made.

Although this experience has been full of challenges to solve, there have also been achievements for all those involved in this process:

By teachers

- Knowledge and mastery of communication platforms
- Knowledge and mastery of authoring tools
- Knowledge and use of learning management systems (LMS, Learning Management System)
- Experience in new pedagogical strategies supported with ICT

For the students

- Knowledge of digital resources for their learning (libraries, repositories)
- Knowledge and use of learning management systems (LMS)
- Skills to attend remote learning

By institutions

- Knowledge of the areas of opportunity for the reinforcement, updating or learning of the digital skills of their community

- Identification of the requirements of technological platforms to face the new reality
- Concern to incorporate the appropriate use of ICT in their teaching-learning processes

In this regard, it stands out that knowledge and mastery of information and communication technologies applied to education will allow them to be selected, and their proper use indicated, from the stages prior to the development and delivery of instructional material, that is, from the instructional design (see figure 5), setting this in the corresponding instructional matrix.

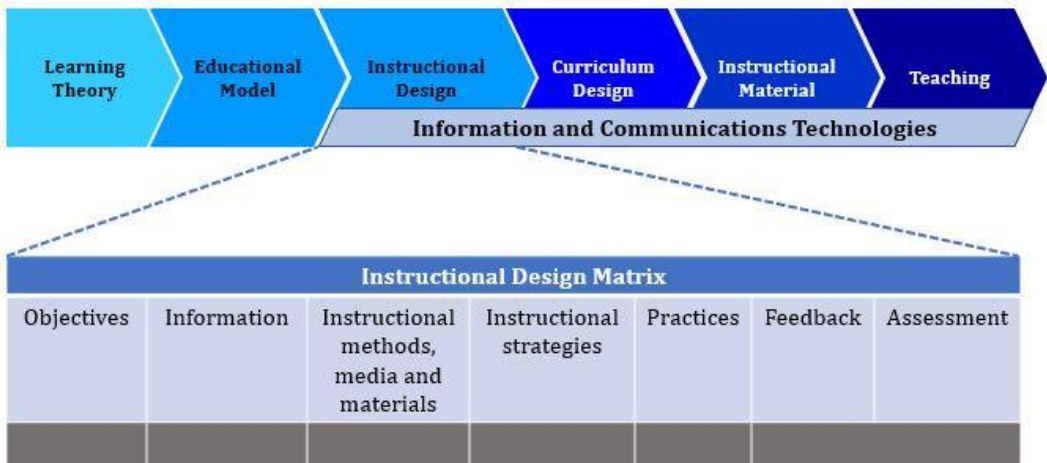


Figure 5. Determination and use of ICT from the ID.

Source: self made.

ICT for a successful incorporation into instructional design must meet the following goals:

- Assist in the achievement of pedagogical objectives
- Create effective and engaging learning experiences based on knowledge of how people learn
- Contribute to educational quality

Educational quality is a subject of wide discussion, without definition and consensus, but in the case of e-learning, various protocols and methodologies agree that the achievement of educational quality depends on four elements: equipment (teachers and technicians), design of learning, content and technology (see figure 6).

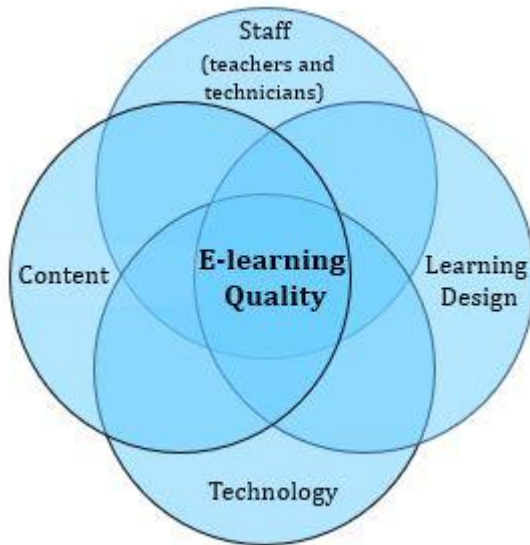


Figure 6. Quality of e-learning

Source: self made.

In the case of remote or virtual education during the pandemic, this model is also applicable for educational quality, since it has been seen that the favorable opinions of students have occurred when teachers have achieved the appropriate mix of these elements (Peñaloza and Hernández, coordinators, 2021), although it must be considered that the learning design does not begin with the preparation and delivery of the instructional material, but from the instructional design itself.

5. Conclusions

The design and construction of the instructional design process requires systematic, comprehensive and careful planning, because it is the forge from which the educational programs that represent the educational offer of an institution arise or the training programs that will affect the competitiveness and performance of an organization.

If instructional design models are compared with software development models, a great parallel will be found between them, so it is not surprising then that some are similar to the waterfall development model and its variants, and there are already based in agile methodologies, such as SCRUM. And that, consequently, when developing new systems development methodologies, these can serve as a reference for new models of instructional design.

The circumstances of confinement and the need to give continuity to the academic activities of educational institutions were the driving force behind the transformation in the teaching-learning process, but this transformation can be deepened by incorporating these new knowledge and experiences from the instructional design.

6. Final reflection

Although a good teacher is irreplaceable because he not only teaches, but also inspires and guides, his work can be supported by the lessons learned during confinement for the best use of time and the enrichment of teaching.

Based on what has been gained in the period of confinement, in particular in the domain of platforms, tools and strategies for effective instruction, either remotely or virtually, it can be recommended that this impact not only remain in the development stages of instructional material and teaching, but rather that in the constant updating of the revision of the study plans and programs, or even in the revision of the educational model, carried out by the institutions, information and communication technologies are integrated, to more effective instruction, impacting on the higher levels of the learning objectives (Bloom's Taxonomy revised from 2001) and on the most memorable activities of Edgar Dale's learning pyramid.

The proposed incorporation of what was learned during confinement in the instructional design of study plans and programs will require collegiate work for the formulation of proposals, which must take care, on the one hand, of their correct alignment with the current educational model, and on the other. professors' academic freedom. These proposals, whether of adaptation or modification, will go to the commissions of the collegiate bodies for their approval and wait for the appropriate moment to put them into operation. Thus, the path is not fast, nor is it easy, but it will be the way to take advantage of the knowledge and new skills developed in institutions, as well as in teachers and students, from the beginning.

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A Synthesis of Psychological Aspects with the Sociological Constrains in Arthur Miller Tragedies

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Abstract

This paper analyses the amalgam of psychological elements with the social realism where his characters are placed. The paper focuses on the inner conflicts of the characters and points out the literary devices that Miller uses to bring to life. Miller's drama embodies the Freudian concept of human psychological nature and the father-son conflict which is present at his most successful works. These conflicts are evident in "The Crucible," "All My Sons," "The Death of a Commissioner," "View from the Bridge," "After the Fall," and "Descent from Mount Morgan." In the plays where this conflict is not the primary conflict, it serves as a bases where other inner conflicts are grown.

Keywords: Psychological elements, father-son conflict, identity, mythological elements etc.

Introduction

Psychological drama is as ancient as drama itself. The mystery of the human being and the inner motivation of the individual have been at the centre of Greek dramas since Aeschylus, Sophocles or Euripides. At least five centuries before Christ and before Freud published his psychoanalytic studies, the public saw on stage the tragedy of Oedipus who kills his father and marries his mother, Elektra. However, the influence that modern psychologists and the studies of psychoanalysts such as Sigmund Freud, Alfred Adler and Karl Jung have made a valuable contribution to the development of psychoanalysis which has influenced twentieth-century literature. Many of the writers of the '40s and' 50s relied on these studies to describe the inner world of the characters. The writers described the inner sufferings of the characters and dramatized the conflicts within the being by giving more priority to the inner world than to the outer reality. The method of the stream of consciousness and the flashbacks enabled the writers to make a more detailed analysis of the character's personality. This new stream of realism, often referred to as "psychological realism", gives the playwright the opportunity to stage internal conflicts and darker thoughts. Psychological realism does not stop at just describing what happens, but delves into the inner and psychological dynamics of the character. Arthur Miller is influenced by psychological realism and in many of his plays he tries to present on stage the internal

conflict of the characters, their duality, the emotional and psychological insecurity that stems from the lack of coherence of their identity. Thus Miller's plays "All My Sons", "The Death of a Commissioner", "View from the Bridge", "The Crucible", "After the Fall", "Broken Glass", "The Price" and "The Last Yankee" are a combination of psychological realism with traditional realism and expressionist techniques with Miller's concept of social drama.

Psychological Realism in Miller's social drama

Miller presents himself to us as a responsible playwright. To him the human world is not and can never be black and white; the human world is full of psychological unknown, stemming from moral and customary traditions inherited from generation to generation; family relationships, but also the unknown elements related to the "prohibitions" or "permissions" that life enables.

Miller's drama embodies the Freudian concept of human psychological nature: "Every life is two folded. Down in the unconsciousness we exist, in our wholeness we are the past and the present, primitive and civilized man, the turbulent mixture of living beings, the archaic remnants of a wider self-connected with nature, in the clear and strong light we are only the conscious self that exists in time. ¹" So, as Freud himself claims, the greatest conflict to be resolved is the psychological conflict within man, where the old instincts temporarily suppressed in the unconscious sleep, but when given the opportunity they unfold unpredictably and aggressively, so they are revealed in the conscious.

In Miller's drama we encounter elements of psychoanalysis. His preferred subject is a man persecuted by the past, self-sacrificed in the present to defend ideals or morals almost unattainable in the time in which he lives, while the future is almost non-existent, unreal and projection of the past or its revival. Bigsby observes that: "while the direct tension in his plays displayed the emotional and psychological truths of his characters, as a Freudian analyst could do by digging into the background and indirectly into sexual and social relations, this effect of discovery of the naked self aims to highlight the psyche of a culture." ²

Freud emphasizes the importance of childhood, in the same way Miller artistically addresses to the past, social conditions, rites or traditions to penetrate to the psyche of the character who cannot be understood and much less interpreted without this layer of his personality. Willie Loumen's life is closely linked to his family's past, but also to that of the American culture. His earliest memory relates to his stay in a freight car in South Dakota, where his father made and sold flutes as they moved from place to place. This is also the ideal world for him, a world in which you are free to move, to live with what you produce and your identity is forged by your actions and is imposed

1 <http://psychology.about.com/od/theoriesofpersonality/a/consciousuncon.htm>

2 Christopher Bigsby, *A Critical Introduction to Twentieth Century American Drama*, Vol. II, Cambridge University Press, 1984, p. 135.

by a profession or a product with which he finds no organic bonds. In his unconsciousness this is the ideal world in which he intends to live. But the past is not always so idyllic, so rosy. Willie Loumen himself as a child is the victim of a family betrayal; the father abandons him and his mother and leaves for Alaska. His brother Ben, who is leaving for Africa, is doing the same. Thus Willie was born into a changing world, in an era where material pressure had begun to unravel the pastoral myth as cities began to urbanize. Willie's character cannot be interpreted without this temporal and spatial stratification of the former America.

Miller's main characters are motivated by deep-rooted ideas to justify themselves. They shape their identity through extreme actions of self-affirmation. The conflict between father and son precedes revolutionary conflicts in tragedy. At first the child asserts his independence after facing an intolerable paternal authority. Later this hero, grown both in age but also in art, leads the protest against the coercive forces more powerful than the paternal power¹. The father-son conflict is at the heart of Miller's most successful work, but this conflict comes into play on a psychological level, through the "Oedipus complex" and the "Electra complex." In "The Lucky Man" this conflict is implied, however in "The Death of a Commissioner", "All My Sons", "View from the Bridge" on this conflict there are developed other topics of drama. This relationship unites the present with the past, desires and ambitions are put before the test. "Therein lies the place of identity, anxiety, of conflicting values, of an ambiguous and guilty love²."

Miller unites in a three-dimensional projection the world of his characters, where the first dimension is the unconscious deeply engraved in the past, the second dimension that of the experiences and feelings of the moment, while the third dimension is the chaotic union of the first two dimensions, of the past with the present, a union which causes spiritual and psychological confusion from which neuroses originate, but also tragic actions as is common with Miller characters. These characters often also face multiple conflicts, first with themselves, inherited instincts which have not been fully combated and which lead them astray, committing adultery (the case of Willie Loumen, John Procter), causing collective murder (the case of Jim Keller), inclining to incest ("View from the Bridge"), deceiving the whole society for revenge (Abigail's case) and many other iniquities; and secondly they face the social environment ("View from the Bridge", "All My Sons", "Broken Glass"); and third, with the ideal for which they continually strive, for self-fulfilment, economic and social success, painfully embodied in the American dream, to that "green" light that Willy, like Gatsby, would always covet.

The interaction of Id, Superego and Egos is evident in the inner dilemmas and psychological issues of the characters. On one hand, we also have external pressure

1 Christopher Bigsby, Arthur Miller, A Critical Study, Cambridge University Press, 2005, p. 147-148.

2 Datar Unanati, "Psychoanalytic Study of the Plays of Arthur Miller", International Journal on English Language and Literature, Vol. 1, No. 1, p. 24.

on the individual. This pressure involves forces outside the individual, such as social, family, or temporal. These conflicts are evident in "The Crucible," "All My Sons," "The Death of a Commissioner," "View from the Bridge," "After the Fall," and "Descent from Mount Morgan." John Procter is in conflict with himself and society which requires him to act according to its rules even to the detriment of his reputation. Willie Loumen faces himself and society, deceived by illusions that society itself had presented to him as values. Chris Keller is also in threefold conflict, with himself, his family and society when he discovers the crime committed by his father and the reason why he committed it. Edi Carbone's incestuous passion for Catherine, which he constantly tries to suppress, will lead him to destruction. The drama seems to be built on the discovery of two mysteries, that of Edi's incestuous desire for the granddaughter and the hiding of two Italian immigrants in his house. The gradual discovery of these two secrets will also provoke the tragic end of Edi.

The tragedy of "View from the bridge" is built on a host of symbols such as high heels and short skirts that Catherine wears not only in protest against Edith, but also as a symbol of seduction and power she men. A boxing match becomes the masking of a strong sense of hostility; a game in the waiting room has upon turns into a threat and warning. It seems that every "action takes on a double meaning." Increased tension is expressed less in discourse and more in action, as in this desperate context silence is the only way through which feelings can be expressed or articulated.¹ The Brooklyn Bridge is another powerful and versatile symbol in drama. It evokes the division between the two cultures, the American and the Italian; at the same time it is also a symbol of economic achievement and awakens the beautiful American dream of these immigrants.

In some dramas the mystical and mythological elements perform the function of symbolic subtextual elements which help us to deconstruct the spiritual and psychological state of the characters; just to mention the house of Willie Lomen in "The Death of a Commissioner," which shows the spiritual ruin of his characters, or the symbolic character of Uncle Ben; repressed desires are projected into conversation with unreal characters, like Willie with his brother Ben; Abigail in *The Crucible* talks to the world beyond; dead people appear to Mr. Peter.

To sum it up, Miller's drama embodies the Freudian concept of the human psychological nature: "Every life is twofold. Down in the unconscious we exist, in our wholeness we are the past and the present, primitive and civilized man, the turbulent mixture of living beings, the archaic remnants of a wider self-connected with nature, in the clear and strong light we are only the conscious self that exists in time." So, as Freud himself claims, the greatest conflict to be resolved is the psychological conflict within man, where the old instincts temporarily suppressed in the unconscious sleep,

1 Christopher Bigsby, Arthur Miller: A Critical Study, Cambridge University Press, 2005, p. 190.

but when given the opportunity they unfold unpredictably and aggressively, so they appear in the reality.

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Fake News and Conspiracy Theories During the Covid-19 Pandemic. Empowering Audiences Through Media and Information Literacy

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Abstract

Fake news and conspiracy theories related to the Covid-19 pandemic, which circulated in the media, have posed a major problem in informing audiences. This study aims to examine the situation of disinformation during this period in Albania, by considering the main approaches to tackling the problem. The first part of the study analyzes the main conspiratorial narratives spread through the Albanian media, regarding the origin of the virus, the alleged connection between 5G technology and the coronavirus, and the vaccination-related conspiracies. The study delves into the origins of conspiracy theories and addresses the psychological factors that contribute to people's disposition to believe them. Furthermore, the study examines the extent to which conspiracy theories have spread among the Albanian population. The study utilizes a combination of qualitative and quantitative research methods. Through data provided by electronic and online media monitoring, the study examines the types of information disseminated during the pandemic. The second part of the study analyzes the state of media literacy and audience information, as well as discusses strategies for addressing the issue of disinformation. The results indicate that conspiracy theories and fake news related to the pandemic, permeated through the Albanian media qualitatively influencing the audience's information. This study highlights the imperative need to boost media and information literacy among audiences, as a way of empowering them to deal with the information pollution.

Keywords: Media literacy, Disinformation, Fake news, Conspiracy theories, COVID-19 pandemic

Introduction

With the spread of the Internet and the expansion of social media, the tendency of audiences to seek information from non-conventional sources has been on the rise. Social media platforms such as Facebook, Twitter, Instagram, and, more recently, TikTok, provide opportunities for both traditional news producers and network users with no journalistic background, to share information and reach wide audiences. In

2021, the TikTok network was used by a quarter (24%) of people under the age of 35, among whom 7% used it for news purposes (Newman, et al. 2021).

Digital platforms and media are breeding grounds for disinformation and conspiratorial views. These communication spaces offer new opportunities and eliminate access barriers for various actors. These actors can present their ideas into the public sphere and gain an audience through the messages they convey. In particular, groups that challenge the democratic order and the recognized structure of knowledge, thanks to these platforms can communicate independently from the filtering structures of journalism (Heft and Buehling 2022).

One of the biggest challenges in today's information landscape is the consumption of verified and truthful information. Audiences are already exposed to multiple risks regarding the information they consume, especially in the online space. Concerns about exposure to fake news and conspiracy theories on social media and the impact they have on the public opinion, have been the main topic in studies over the last two decades. Various researchers have attempted to explore the spread of misinformation in social media, their typology, the reasons why network users consume and believe them, as well as approaches to solving the problem. The information consumed by the audiences, forms the basis for shaping their opinions and attitudes toward the world, as the information that they receive influences their decision-making.

The need for verified information becomes more urgent in times of global crises and emergencies. Studies have shown that audiences increase their news consumption in times of crisis. The crisis caused by the COVID-19 pandemic was a concrete example of when the demands for news from audiences increased significantly. A study conducted in 17 European countries, concluded that there was an overall increase in news consumption. This kind of increase was directed toward television news, social media, and the Internet. In this regard, researchers conclude that in times of crisis, people mainly turn to news sources that are easily accessible and provide immediate coverage (Aelst, et al. 2021, Broersma and Swart 2021). Despite the increase in news consumption during crises, audiences feel uncertain about the accuracy and veracity of the news they access. Other studies have revealed that uncertainty is a key element of audiences' news consumption experiences.

The pandemic was an unpredictable media event, and the audience's orientation to alternative sources such as social media platforms led to their high exposure to fake news and conspiracy theories. As a result, audiences experienced fatigue from contradictory news that was being spread. This situation contributed to social polarization (Mihelj, Kondor and Štětka 2021) The manipulation of information for various financial, political and geo-strategic interests, has become a major concern. The Covid-19 crisis prompted people worldwide to show high interest in news about the virus and its impact on human health. The curiosity and desire to understand more about the virus's origin, its spread, the medications that cure the disease, the role of vaccines and other related issues, led audiences to be exposed to unreliable

information sources. The curiosity of audiences regarding the pandemic, often accompanied with fear and panic, often results in them falling prey to false news and conspiracies.

Democratic societies around the world are exposed to the threat of fake news and conspiracy theories. Polluted information streams can lead to misinformation among audiences, who then take incorrect decisions and delegate power to the wrong individuals, thus jeopardizing a set of values within societies, which can have disastrous consequences (Levy, *The Bad News About Fake News* 2017). From this point of view, decision-making based on false information has serious consequences, especially when dealing with political decisions. The assumption, in this case, relies on the premise that political judgments which are based on accurate and unmanipulated information, are more likely to produce positive normative outcomes. Conspiracies and false news, in some cases, can be deliberate and aim to manipulate public opinion, divert it, and make it difficult to distinguish between facts and rumors.

The awe-inspiring pace of technological developments, the omnipresent nature of social networks in the individuals' lives, the growing trend of communication and information consumption in virtual space, and the tendency of public sphere actors towards unmediated communication with audiences, are some of the factors that amplify the effect of disinformation, conspiracy theories, and fake news. Meanwhile, other studies have identified other factors such as belief in conspiracy theories, trust in others, level of education, frequency and specific uses of social media, as well as political views and online activism (Halpern, et al. 2019).

However, the problem is global in nature and as such cannot be addressed only locally. Several initiatives have been undertaken by the academic world, policymakers, and experts in the fields of media, health, and beyond. Organizations such as the United Nations through UNESCO, the European Union, and other countries, are paying close attention to efforts to combat fake news, propaganda, and conspiracy theories. These efforts are focused on enhancing the capacities and skills of media professionals and journalists for fact-checking, debunking fake news, and increasing the level of media and information literacy among audiences.

In the Albanian context, it is observed that the issue of spreading conspiracy narratives during the period of Covid-19 is concerning. Online media and engaged journalists, encountered difficulties in managing the risk of disinformation dissemination during this time. Based on this situation, this study aims to identify and analyze the issues related to the spread of fake news and conspiracy theories in the Albanian media during the COVID-19 pandemic.

Research Questions:

After a detailed analysis of the literature and studies conducted in this field and the preliminary examination of the spread of fake news and conspiracy theories in the

Albanian media during the period of the Covid-19 pandemic, the following research questions have been raised for this study;

1. What types of fake news, disinformation, and conspiracy theories related to the COVID-19 pandemic have been disseminated by the Albanian media?
2. What is the state of media literacy and audience information in Albania, and what strategies can be implemented to address the issue of disinformation and improve media and information literacy among the Albanian population?

Methodology

To conduct this study, a combination of qualitative and quantitative methods has been applied. Within the framework of the qualitative data, a wide range of literature from well-known authors who have studied the phenomenon of fake news and misinformation, as well as topics related to media and information literacy, has been presented. Meanwhile, within the framework of quantitative data, secondary data obtained from surveys and studies conducted within the country have been utilized and also compared with similar data from other regional studies.

The study analyzes a sample of electronic and online media, focusing on the types of information that have found space in media coverage during the pandemic. In the meanwhile, in the second part the situation of media and information literacy among audiences has been analyzed, and specific approaches to addressing the issue of disinformation have been discussed.

Media monitoring and analysis aimed to identify the main narratives that circulated in the media during this period. Regarding news monitoring, data collected by the Albanian Media Institute during 2020 with a particular focus on the quarantine period, have been utilized. The news included in the analyses cover topics such as "conspiracy theories on the origin of the virus, the links between 5G technology and the coronavirus, vaccination, etc.", which have found space in the media coverage in Albania. After examining the origin of conspiracy theories and the psychological reasons why people are prone to believe them, the extent of their spread in the Albanian context has been analyzed. To gain further insights into the spread and belief in Covid-19-related conspiracies among Albanians, empirical data collected through surveys conducted by research institutes have been utilized.

Literature review

The definitions related to conspiracy theories are of great importance, because the labeling of a theory as conspiratorial determines the public actors' assessment of its credibility. If the use of conspiracy theory excludes left-wing ideas, it implies that people with right-wing beliefs can be labeled as conspiracy theorists, and vice versa. Based on this fact, researchers in this field prefer a broader and more inclusive definition. Following this defining approach, the conspiracy is seen as a secret agreement between two or more actors to usurp political or economic power, to

violate established rights, to gather vital secrets, or unlawfully change governmental institutions for personal gain at the expense of the common good. (Uscinski 2019)

In this case, there is a distinction between the definitions of “conspiracy,” “conspiracy theories,” “conspiratorial beliefs,” and “conspiratorial thinking.” The definition essentially encompasses the concept of power. According to this definition, a conspiracy theory explains the past, present, and future events or circumstances, attributing the main causation to a small group of powerful individuals.

Research in this field concludes that people tend to attribute meaning to seemingly random events through conspiracy theories. This indicates that conspiracy theories suggest a model of events that may appear random, often connecting two or more events in a coherent narrative, thus giving meaning to a specific situation. Conspiracy ideas always emphasize an evil plot, often by a small group of people against the world or a nation, thereby absolving individuals, while also exempting them from their responsibilities (Bieber 2020). Conspiracy theories assume that everything is planned and nothing happens by chance. Conspiracists divide the world into two camps: the evil conspirators and their innocent victims. According to them, the conspiracy operates in secrecy and remains hidden even after achieving its goals.

Recent studies conclude that conspiracy theories are based on the premise that nothing happens by chance, nothing is as it seems, and everything is interconnected (Butter and Knight 2020). Global circulating conspiracy theories on the internet, such as the “Great Replacement” theory, which claims that there is a plan to replace the Christian population of Western countries with Muslim immigrants, appear to be a highly viral form of fake news. Conspiracy ideas often serve as a breeding ground for political ideologies and are used by populist politicians to manipulate people's emotions (Cosentino 2020). The phenomenon of conspiracy theories used by political parties and politicians with populist tendencies, is now a global concern. According to researchers Butter and Knight, conspiracy plays a significant role in many political contexts worldwide. However, conspiracy theories cannot be equated entirely with fake news. Fabricators and disseminators of fake news often have a clear objective to manipulate audiences based on various goals, ranging from monetary to political or geostrategic purposes. In a way, they are aware that they are spreading false information and lies. On the other hand, the majority of those who believe in conspiracy theories and become part of their distribution mechanism, especially on social networks and other online platforms, genuinely believe in what they say. They are convinced that they are helping to reveal the truth. (Butter and Knight 2020)

Reasons for Belief in fake news and conspiracy theories

Beside many reasons identified in the literature, among the primary ones is people's tendency to believe in conspiracies due to their lack of trust in authorities and legitimate actors. This includes state leaders, scientists, doctors, and professional media. When individuals face a specific crisis, such as the COVID-19 pandemic which

carries much uncertainty, the lack of trust in authorities and experts can lead people to think that there is a conspiracy behind these events. However, the study of reasons and factors that drive people to believe in conspiracies and misinformation, is a complex field that requires a multidisciplinary approach.

Some researchers from the University of Miami and the University of Louisville in the United States attempted to answer the question, “Why do people believe in conspiracy theories?” Their study was based on data from a survey conducted with young people aged 17-19 in the US, focusing on conspiracy theories related to the COVID-19 pandemic. They raised three questions to understand the extent of beliefs in conspiracy theories about COVID-19, which psychological, social, and political factors explain conspiratorial beliefs, and how political militancy influences the spread of misinformation. The findings suggest that psychological predispositions to reject information from experts and authorities, defined as denialism, the tendency to see major social and political events as products of plots (conspiratorial thinking), and political militancy are the strongest factors that explain why people believe in conspiracy theories about COVID-19. Since two of these factors – the conspiratorial thinking and denialism – are based on a high mistrust in experts and authoritative figures, correcting misinformed and conspiratorial beliefs among individuals showing high levels of conspiratorial thinking, can be very challenging. (Uscinski, Enders, et al. 2020)

Other studies have shown that conspiracy theories constitute a monological belief system, related to a central idea that authorities and officials engage in the massive deception of the public to achieve their evil goals. This central idea provides support for every conspiracy theory (Michael J. Wood and Sutton 2012). People may be drawn to conspiracy theories when, compared to non-conspiratorial explanations, they attempt to satisfy important social-psychological motives that can be characterized as epistemic (the desire to understand, accuracy, and subjective certainty), existential (the desire for control and security), and social (the desire to maintain a positive self-image or group image), (Douglas, Sutton and Cichocka 2017). On the other hand, it should be emphasized that the contamination of information in the online space encompasses a wide spectrum.

Alongside conspiracy theories, fake news has received significant attention in recent decades, partly due to its extensive use in political and broader discourse. Objective facts have less influence on shaping public opinion than appeals to emotions and personal beliefs. However, fake news creates post-truth and post-factual situations (Kanoh 2018).

Regardless of the different views on terminology and typologies, it seems that many researchers agree on the effect of “infected information” on democracy. The main idea where parties reach a consensus on, is that fake news threatens the democratic process by aiming to manipulate public opinion and, consequently, dictate citizens' decision-making (Giusti and Piras 2021). Models among researchers suggest that

belief in fake news is related to cognitive limitations or ignorance, or both combined. This model is based on the shortcomings of the individuals, which lead them to believe in the unbelievable or irrational. Studies have found that this model has a second variable, political ideology. Topics on which there is a large partisan divide, often show one party in opposition to scientific consensus. Our values, especially our sense of belonging to a specific culture, prejudice our knowledge so we reject sources of information when they clash with the core beliefs of that identity. Individuals with higher cognitive abilities have a greater capacity to explain incongruent data (Levy and Ross 2021).

The pace of information spread facilitated by the internet and digital technologies, often makes it difficult for people to distinguish truth from falsehood, because they do not have the time to pause and reflect on the accuracy of what they see on social media (Pennycook and Rand 2021). We consume such a massive amount of information per day, that it becomes too difficult to focus on and analyze it. This phase is known as information overload. Another premise from which we can build effective strategies to combat the negative influence and spread of fake news, is to understand the reasons why people interact so much with this type of content.

Another important question is, “Why do people share fake news on social networks?” Researchers believe this is related to the fact that social media users initially spread misinformation to support their pre-existing beliefs and attitudes and then to present their identities to others (Marwick 2018). The spread of false information is closely related to the habits and motives of using social media. Among the main motives for deliberately spreading unverified information are the trust in online information sources, the need for self-presentation before others, the fear or anxiety of losing the attention of others, and fatigue from social media. Research in this field has found a negative correlation between internet trust and verifying news before sharing it with other internet users. This means that social media users with high trust in the content shared on social networks, are prone to share it with others without prior verification (Talwara, et al. 2019).

Analyses

The pandemic has posed significant challenges to the media in Albania, as in many other countries. During this period, almost all of the deontological and ethical concepts of journalism have been tested (Perreault, Perreault and Mares 2021). Coverage of events focused on the coronavirus and vaccination campaign, constitutes a substantial part of the informational content published in audiovisual and online media. National and local television stations have dedicated significant space to these topics. Alongside news coverage in news editions, television debates address pandemic and vaccination related topics almost daily. On the other hand, online media have an even higher coverage of similar topics. Independent portals and some affiliated with traditional media have published information from international media sources. Often, in the race for clicks and more audience, online news portals embraced

various conspiracy theories and unverified information. According to data processed by BuzzSumo, from January 1, 2021, to June 30, 2021, a total of 22,713 articles were published in online media in Albania, with the word "Covid-19" in their headlines or content (Senja 2021).

Based on the monitoring of Albanian media in the context of this study, during the end of 2020 and the beginning of 2021, a period coinciding with the electoral campaign for the April 25 elections, a blatant politicization of topics related to pandemic management and the vaccination campaign was observed. This politicization also resulted in the news media polarization. Some parts of the media framed vaccine-related issues in the context of political debates and electoral competition. This had an impact on the audience's trust in vaccination in general and in specific vaccines. Media outlets with a critical editorial approach toward the government focused on topics that questioned the effectiveness of a specific vaccine produced by a Chinese company. Within this media approach, various Albanian specialists engaged in Europe and the US were present, defending the idea that this vaccine is ineffective (Syri 2021). Meanwhile, the primary narrative of these media outlets during the electoral campaign was "Vaccination is, in fact, electoral vaccination," emphasizing the government's use of the massive vaccination campaign for electoral purposes. The polarization of the media and of the news coverage led to open clashes. Various portals and media outlets began publishing materials claiming to have exposed the fake news of their competitors. The approaching election campaign, led some doctors who had become prominent figures in the media during the early stages of the pandemic, to be involved in the election campaign. Their involvement with seemingly consciousness-raising but sponsored messages prepared by the government and the ruling party, further confused the audience and polarized their stance on the pandemic and vaccines. This event received significant attention from the Albanian media.

Dominant Narratives

Based on the content analysis and monitoring of online and traditional media, several dominant narratives similar to those circulating about the pandemic can be identified. In the early stages of the pandemic, Albanian media initially gave space to theories focusing on the origin of the virus. Within the narrative on the virus's origin, one of the most widespread conspiracy theories in Albanian media, was the assumed connection between 5G technology and the spread of the coronavirus. The main claim of this theory is that 5G networks weaken immune systems. To make their theory more believable, they misused the theory of the French Nobel laureate, Luc Montagnier, according to which bacteria can generate radio waves. Furthermore, it was reported that by end of March an audio recording of a person presenting himself as a former director of a large telecommunications company circulated worldwide, warning that COVID-19 is part of a global conspiracy to install 5G in mobile phones, to monitor the global population through vaccinations and to destroy human society.

According to “The Guardian,” it was revealed that the voice belonged to Jonathon James, a preacher from Luton (Waterson 2020). The media monitoring shows that some portals published news on this topic. These portals were kohajone.com, “gazetasi. Al”, and “gazetatema.net”.

The second category of news that constitutes a somewhat different narrative includes fake news and conspiracy theories that present the virus as a hoax or something common, similar to seasonal flu. In this case, the main claim is that the situation created by the coronavirus pandemic is exaggerated by the governments or certain groups for their interests.

The third group includes narratives related to the vaccine, its effectiveness, the technology used to produce it and its side effects. Within this narrative, several fake news articles have been identified, such as:

- “The vaccine causes genetic changes.”
- “The COVID vaccine is a form of euthanasia; those who undergo vaccination will die after a year.”
- “Vaccines increase the number of homosexuals, as they modify the genes.”
- “The vaccine causes sterility and prevents you from bearing children.”

Table 1. Dominant narratives in the media about Covid 19

Type	Narratives
Conspiracy Theories	5G causes or helps COVID-19 spread
Conspiracy Theories/fake news	COVID-19 is a fraud /seasonal flu
Conspiracy Theories/fake news	The vaccine modifies the human organism

These claims are reflected in several television stations, primarily through statements made by guests on various programs. One of the TV stations that has given considerable space to individuals who advocate conspiracy theories is Top Channel. The TV program titled “Rrethi Katror” (The Square Circle), part of the television show “E Diell” (The Sun), broadcast on this TV channel, has a permanent guest, Mr. Alfred Çako, who is known for his pro-conspiracy stance. In the segment on December 5, 2020, Çako declared, “The vaccines themselves will be a form of euthanasia but with a longer-term effect of one year. In 10 months, they will also have a soothing effect. Then, the vaccine will be age-specific, sterilizing people between 50 and 55, and then a portion of the population will disappear. There will be a reduction in the world’s population.” This statement was reflected the following day on the portal associated with this television, accompanied with the headline “Alfred Çako’s Curiosity: The COVID vaccine is a form of euthanasia, those who get vaccinated will die after one

year.” The same guest, appearing on the show called “ABC e pasdites” (ABC in the Afternoon) on ABC television, declared, “The pandemic will plunge Europe into chaos.”

Videos of television programs posted on social networks generate a significant number of engagements (likes, shares, comments, and clicks) from users. An analysis from BIRN, based on the “Crowdtangle” platform and referring to a video from the “Oranews” television published on Facebook, shows that “this video has received over 477 thousand views and has generated more than 6,871 interactions, including comments, likes, and emojis expressing emotions.”

Global competition among vaccine manufacturers is another major topic that dominates Albanian media reporting. News covering the efficiency of various vaccine brands is more than common on news portals and their accounts on social networks. On April 3, 2021, the Balkanweb portal published news referred to a “New York Times” article ranking some major vaccines according to their efficacy. The news was titled, “New York Times ranks vaccines by effectiveness: “Coronovac” and “Sinovac” show an 83.5% efficacy in the fight against the virus.” The article stated that four Chinese vaccines ranked at the top, outperforming all other brands produced in Western countries. Later, this news article that “Balkanweb” referred to, was fact-checked by the AFP service. According to AFP’s report, the article was classified as fake news. The verification of the news as a fake one was covered by several media outlets, which highlighted that the article mentioned by the Prime Minister Edi Rama to promote the efficacy of the vaccine provided by the government, was fake.

In addition to the problems related to the publication of news based on conspiracy theories and fake news, in some cases, certain media also paid attention to the reporting of the disinformation phenomenon during the pandemic. Several media outlets reported on the spread and danger of conspiracy theories and of fake news about vaccines and the virus.

Addressing the problem

Conspiracy theories and fake news disseminated in the media, especially during the COVID-19 pandemic, can be dealt with by adopting an approach of combined interventions. At the center of the studies conducted on this topic, the question arises: How to solve the problem of misinformation and to protect citizens from its consequences? The models proposed by many researchers focus on two main approaches. The first is related to the problematic nature and role of social media platforms such as Facebook, Twitter, and search engines like Google. This group of researchers focuses on the measures these platforms should take to discourage the spread of fake news and conspiracy theories. In this case, the solution appears to be highly complex, as social media platforms themselves seem to have many issues with the transparency of their algorithms. These algorithms are essentially built with the logic of favoring user interaction with the content distributed in the network.

Considering that contents such as conspiracy theories and fake news generate significant user interaction, these platforms may not be interested in losing this valuable asset. Meanwhile, the second approach relates to the urgent need to increase the level of media literacy as an alternative that can help audiences develop the ability to analyze the information they access to on the network (Jones-Jang, Mortensen and Liu 2019). Based on these two main approaches, we can build a solution model based on three steps.

The first step involves increasing the cognitive and evaluative capacities of the audience. This means assisting internet users in modifying their online habits, to minimize the possibility of forming false beliefs influenced by fake news and propaganda. This step directly involves education about media and information and represents an alternative solution that requires considerable time and resources, but offers more guarantees. The second step involves a self-regulatory approach that requires the involvement of various actors, starting with social media corporations and internet search engines. In this regard, the commitment of these corporations is crucial in modifying the programs and algorithms behind the platforms. Meanwhile, the third step implies regulatory interventions by governments and related institutions to enact laws and regulations that anticipate measures for both internet corporations and individuals deliberately involved in disinformation campaigns (Brown 2021).

In the meantime, another model proposed to address the problem is based on solutions that can be grouped into four categories: (1) algorithmic, (2) corrective, (3) legislative, and (4) psychological (Linden and Roozenbeek 2021).

The first category, similar to the self-regulatory approach mentioned above, includes the efforts of platforms such as Google and Facebook, which following concerns about the impact of fake news on the 2016 US presidential elections, have intensified the efforts to adapt their algorithms to avoid favoring the spread of fake news. Interventions in computer algorithms aim to prevent users from being exposed to misinformation, to the same extent as news from reliable and verified sources. However, the lack of transparency regarding these algorithm interventions and concerns about the increasing power of major corporations in controlling the flow of information, has raised many questions within the research community (Çela and Tufa 2021). The pandemic period has shown that such interventions, on one hand, have been insufficient in preventing the rapid spread of conspiracy theories and fake news and, on the other hand, have increased concerns about censorship on the internet.

The second category includes fact-checking initiatives. Many media organizations and professional groups around the world, are involved in fact-checking the published news. Likewise, international bodies such as the European Union, the United Nations, etc., have created special platforms for information verification and debunking fake information. In this case, we deal with a corrective approach, which means that action

is taken after the information has been disseminated. This means that correction through the fact-checking methods does not have a retroactive effect and does not prevent the influence that fake news has on audiences.

Corrective actions can help reduce the harm caused by such information to audiences and identify the sources that disseminate them. However, it is still very challenging to verify and debunk every false piece of information circulating on the internet. This battle requires significant human, technological, and financial resources. It has already been proven that fake news spreads much faster than true information. As some authors state, fake news can spread up to six times faster than true news (Vosoughi, Roy and Aral 2018). Based on this logic, it is difficult to say that the society will win the battle against disinformation through such initiatives alone.

Legislative amendments are proposed as a way to address the problem. Several European countries have taken steps in this direction by enacting specific laws. Despite these laws, it has been observed that external interventions in the media and information ecosystem may not always produce the desired effects. France and the United Kingdom are two countries that have taken legislative initiatives to combat disinformation, and in both of them, there have been intense debates regarding the space that the new legal framework gives to the government to exercise censorship on information, thereby potentially undermining citizens' freedom of information (Smith 2019). The concern raised by media organizations, civil society, and journalists can be summarized in the negative impact that may have the expanded government powers to assess the accuracy and truthfulness of information. These powers can allow politics to intervene in the public's right to information and lead to biased benefits for political groups, labeling any news that does not align with their agendas as disinformation.

Given the above, the solution may lie in a model that combines multiple approaches simultaneously. Interventions focused on information consumers can be supplemented with top-down approaches, such as identifying and debunking sources of disinformation, discouraging political elites from spreading misinformation through sanctions that affect their reputation, etc. (Linden, Roozenbeek and Maertens, et al. 2021).

Conclusions and recommendations

Based on the analysis of key research findings and the conclusions drawn from the analysis of the Albanian media, it can be deduced that there is no single successful approach to combating disinformation in all its forms. The combination of various methods and the integrated involvement of actors from the academic world, media professionals, corporations, and policymakers can lead to sustainable results in addressing this challenge. The spread of conspiracy theories focusing on the COVID-19 pandemic and vaccination, poses a serious risk to society.

In the case of Albania, it appears that the presence of fake news and conspiracy theories, as well as their dissemination through both traditional media and social networks, have influenced the public's perception of vaccines and the pandemic in general. Data show a high level of belief among Albanians in conspiracy theories and fake news. The effect of disinformation circulation on social media is significantly amplified when conventional media provide space to individuals who promote these ideas.

The analysis of media narratives shows that certain audiovisual media and online portals have served as disseminators of conspiracies and half-truths about the pandemic and vaccines. Monitored cases indicate that some news portals publish information obtained from foreign sources, whose accuracy is often unverified. The media chooses to accompany these news stories with sensational headlines that contribute to increased user engagement with this content. It appears that the approach in the Albanian media spectrum to promote and spread conspiracy theories, is not driven by clear ideological motives, but rather by the idea of attracting more audience, viewing the increased engagement with this information as a means to increase revenues. However, there is a tendency to mishandle discussions related to the pandemic and vaccines, within the context of political debates.

Regarding the situations of global crises, there is a growing need for more transparency. Higher transparency from institutions generates more trust from citizens. As a result, fewer uninformed people will seek to fulfill this need from unreliable sources. The lower the public's trust in the media, the government, and science, the higher the trust in conspiracies and manipulated information. Conspiracy theories, fake news, and propaganda flourish in an information environment that lacks transparency.

Media and information literacy of audiences remain the most sustainable alternative in combating misinformation. International reports show that Albania is one of the countries with the lowest media literacy levels. This situation creates a suitable environment for the spread of conspiracies, fake news, and propaganda. The high belief among Albanians in conspiracy theories related to vaccines and the coronavirus, indicates that we are dealing with a society that finds it difficult to distinguish facts from fabricated information. The consumers of information and content, do not have the needed abilities and capacities to critically assess the information source and the product provided to them. Based on this conclusion, a higher commitment in mapping out policies and strategies concerning the media and information literacy for the citizens, is recommended. The advantage from a well-educated audience is not related only with combating misinformation. A well-informed citizen on how media, the news production process, the ownership, and other related issues work, is undoubtedly more protected from manipulation in general. Thus, he can make assessments based on facts and make fair decisions.

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Physical Fitness on Academic Performance in Youth

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PhD

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Abstract

Physical fitness, as an important physical health issue, may play a key role also in brain health by affecting the academic performance of youth helping the cognitive control components to improve. Memory and cognitive skill are some of the cognitive control components that are fundamental even for academic ability. Aim: In this context, the aim of our study was to investigate and analyze the facts regarding the potential of the exercises on academic achievement improvement. Methods: In order to realize a detailed review study we used the Jab Ref as a research sector, focusing more on navigating the Medline, Google Scholar, and Inspire options that this program contains. While as the selection criteria of the collected scientific articles, we used the keywords that provided us the exact articles that stated facts about the aim of our study. Results: Authors emphasized that the development of motor skills by practicing the coordinative exercises may have a beneficial influence on the learning process improving academic performance. This comes out because of the coordinative exercise's impact on increasing the number of neuron transmitters and the new neural connections that enable youth to have a better perception regarding motor and academic situations. In addition, the authors underline the fact that the most active youth tend to perform better academically.

Keywords: physical fitness, cognitive aspects, academic ability, academic performance, youth.

Effect of Different Fractions and Granulations of Zein on Physicochemical Properties of Ultrasound-Assisted Zein Extraction from Corn

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Abstract

Zein, a type of prolamine proteins derived from maize, due to the extensive genetic variety and polyploidy of the starting material, as well as the extraction methods used, analysis of this protein composition require the use of a combination of sophisticated analytical procedures. Therefore, we present an enhanced eco-friendly extraction method, including grinding and sieving corn seeds, for zein proteins from maize kernels using an ultrasonic extraction methodology. We performed a combination of modern analytical methods such as mass spectrometry, electrophoresis, atomic force microscopy or infrared spectroscopy for a better characterization of the extracted zein. Ultrasonic processor, 65% ethanol extraction buffer and 710 μm maize granulation yielded the highest protein extraction. Besides, MS and SDS-PAGE analysis revealed as the main component the α -zein proteins in the zein extract. In conclusion, proteomic approaches coupled with microscopic and spectroscopic methods can significantly improve the characterization and

identification of complex proteins like zein. This research can lead to a better understanding of the zein proteins which can lead to new applications development in foods and pharmaceutical fields. ¹

Keywords: zein, ultrasound, extraction, electrophoresis, atomic force microscopy, fourier transformed infrared spectroscopy in the attenuated total reflection

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The Impact of Different Strength Training Methods on Speed Running

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Abstract

An athlete can successfully compete in sports at a professional level only by improving the performance and that is achieved by increasing the physical strength which is the result of the strength components responsible for muscle movement and movement speed. The purpose of this study is to identify the important facts and to examine the interrelating association of training with the significance of Strength, Power, and Plyometric training in the running speed indicators. The study achieves a thorough analysis of the specific scientific literature that focuses on the physical skills of strength, expression of its complexity in its impact on speed indicators. The tests that were utilized on: 60 m dash; single two leg jumps with and without arms, drop jump, and isotonic and isometric muscular strength. The results indicated that for the 0-30m distance the program for the development of the maximal strength is more productive but for the 30-60m distance appears that the program for the maximal power is more convenient. At the 60m distance, the maximal power program is capable to yield better results but is followed closely by the maximal strength program. The plyometric exercises had also a significant impact but were of a minor success if compared to maximal strength or maximal power exercises.

Keywords: strength training, power exercises, plyometric exercises, the impact of strength exercises, speed, correlation

The Contribution of the EU Strategy for the Adriatic-Ionian Region to the Western Balkans Integration Process

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Abstract

Starting on 1 June 2021, Albania formally took over the one-year Presidency of the EU Strategy for the Adriatic and Ionian Region (EUSAIR), which gathers four EU member states (Croatia, Greece, Italy, and Slovenia) and five non-EU countries (Albania, Bosnia and Herzegovina, Montenegro, Serbia and North Macedonia). This strategy started in November 2014, with the approval of the Action Plan proposed by the European Commission, following a consultation procedure that involved various countries and interest groups of the region. This strategy represents one of the four macro-regional strategies adopted so far by the European Union, as an expression of the broader policies of economic, social and territorial cohesion. The general objective of the Strategy is to promote sustainable economic and social prosperity in the Region. EUSAIR encourages regional and cross-border cooperation and contribute to bringing Western Balkan countries closer to the EU by offering them opportunities for working closely with Member States, to address common challenges and opportunities specific to the Region¹. The strategy concentrate on a limited number of defined objectives and is structured around four interdependent pillars and two cross-cutting issues². This presentation has as its object the discipline of Adriatic-Ionian macro-regional strategy, which is considered as a new complementary level of European integration and the contribution that EUSAIR as an important EU tool, may offer to the European integration process of Western Balkans.

Keywords: EUSAIR, macro-regional strategies, economic, social and territorial cohesion, EU, Western Balkans, integration process

¹ European Commission, Communication concerning the European Union Strategy for the Adriatic and Ionian Region, 17 June 2014, COM(2014) 357 final.

² European Commission, Action Plan, SWD(2014) 190 final.

Developing Intelligent Biomaterials for 21st Century Medicine: A Collection of 25 Years of Research

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Abstract

While advances in biomaterials have helped the lives of millions over the past century, it is clear that we are at a cross roads for the future of global healthcare. Considering the COVID-19 pandemic, constant struggles with cancer, and an emerging crisis in antibiotic resistant bacteria, to just name a few on-going healthcare problems, we need innovative ideas. Non-medical fields have advanced considerably in new material design, from using sensors to drive cars and touch screen pads for electronics. Innovation in biomaterials has been lagging behind. This presentation will cover some of the more innovative biomaterials than can meet today's challenges including the use of implantable sensors, 4D printed materials in which material shape can be controlled remotely after implantation, smart nanomaterials that can seek out and passivate viruses and bacteria, and so much more. This presentation will also lay the foundation for what is needed for future biomaterial design, especially obtaining regulatory approval for interactive biomaterials.

Biographical Sketch: Thomas J. Webster's (H index: 107; Google Scholar) degrees are in chemical engineering from the University of Pittsburgh (B.S., 1995; USA) and in biomedical engineering from RPI (Ph.D., 2000; USA). He has served as a professor at Purdue (2000-2005), Brown (2005-2012), and Northeastern (2012-2021; serving as Chemical Engineering Department Chair from 2012 - 2019) Universities and has formed over a dozen companies who have numerous FDA approved medical products currently improving human health. He currently serves as Chief Scientific Officer of numerous companies and is a Professor, Biomedical Engineering, Hebei University of Technology as well as a Professor, Center for Biomaterials, Vellore Institute of Technology. Prof. Webster's research explores the use of nanotechnology in numerous applications. He is a fellow of 8 academic societies and is a World Top 2% Scientist by Citations (PLOS) and a SCOPUS Highly Cited Research (Top 1% Mixed Fields and Materials Science).

Keywords: intelligent biomaterials, 21st century medicine, global healthcare

The Attitude of British Policy towards the Riots in Yugoslavia (Kosovo) in 1981

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Abstract

The UK, as one of the largest World Power, followed closely the developments of Kosovo unrest in 1981. The Embassy of the United Kingdom in Belgrade and Foreign Office in London were in constant communication, by sending reports of political developments in Kosovo and Yugoslavia throughout 1981. In order to shed light to the events of 1981, research has been conducted out at the British Archives on this issue. During the research have been found nearly 500 pages of documents archived by the Foreign Office on riots in Yugoslavia during 1981. The documents from the British government are of particular importance as they show the authenticity of its policy at a specific time during the Cold War and high tensions between the east-socialist and capitalist-Western blocks. Most of the documents hold the stamp as Secret and are declassified recent years. Mostly the embassy will gather information from its sources, process them and send to the UK Foreign Minister in the form of event descriptions and will draft analyzes by embassy officials and the Ambassador himself. In many occasions these documents will also be forwarded to The British Embassy in Washington and also the same were forwarded at the US Administration and to the British NATO Delegation in Brussels.

Keywords: Kosovo, Balkans, diplomacy, communism, regime

Teachers' Perceptions of Students' Negative Emotions Experienced During Distance Learning

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Abstract

Distance learning has its significant raise in the past year due to the COVID19 pandemic. In this context, the investigation of teachers' perceptions of their students' negative emotions has become important. The aim of this study was to analyze the teachers perceptions of their students' negative emotions experienced during distance learning. The sample was formed by 197 Lithuanian teachers. 20 group discussions were held, and the thematic analysis was used to identify patterns of themes in the data. The results revealed 7 themes, such as anxiety, fear, sadness, detachment, anger, fatigue, and confusion. The study presented evidence of teachers' perceptions of seven negative emotions their students experienced during distance learning. The findings of the study will be useful to assess the key challenges of distance learning especially at the time when it is the only option. This study was a part of the bigger research project on the students' emotional and educational difficulties during distance learning in Lithuania.

Keywords: COVID19, teachers' perceptions, students' negative emotions, distance learning

Obesity Parameters in Children 8-9 Years Old

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Abstract

The study as part of the child obesity assessment system aims to: collect, analyze, interpret and disseminate descriptive information for monitoring overweight in children, already identified as a serious public health problem globally. Physical activity provides significant physical, mental and social benefits. In children, participation in physical activity is associated with improved musculoskeletal, cardiovascular, and mental health systems, including the reduction of anxiety and depression. The methodology used consists of children aged 8-9 years. The measurements cover the period from the beginning of April to the last week of May 2021. A transversal (cross-sectional) study was undertaken which included primary sampling units in 16 public schools and 747 pupils. All data analysis was performed using the statistical package SPSS (Statistical Package for Social Sciences, version 20.0) and M. Office Excel 2010. Pearson correlation coefficients were used to estimate the linear relationships of numerical variables, where they were considered statistically significant values $p \leq 0.05$. The prevalence of overweight is significantly higher in male children compared to female. The obesity prevalence interval by gender is 21 (5.7%) boys and 6 (1.6%) girls. Efforts to maintain weight were much more evident in girls than in boys. This behavior was more pronounced with increasing age. The school for its own function and competencies should become an ideal place for concrete actions in promoting a healthy diet and physical activity, as necessary factors for the psycho-physical wellbeing of children.

Keywords: prevalence, obesity overweight, healthy food

Strategies for School Inclusion: Teacher and Community Aspects

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Abstract

According to Wang et al. (2019), pupils' social engagement consists of social interaction with peers and adults and the desire to maintain existing relationships during learning. Socially active pupils participate in school activities, interact with classmates and feel belonging to the school community (Bouchard, Berg, 2017). As part of the school community, students feel accepted, confident and supported. School closures due to the COVID-19 pandemic have created additional barriers to pupils' social participation, while at the same time reducing pupils' sense of belonging to the school community as a basis for inclusion. The study was carried out as part of the project "Emotional and Educational Difficulties Pupils Encounter under the Conditions of Inclusive Education, and Coping with Them: Context of COVID-19" (Project Reg. No. P-DNR-21-13). The study included school leaders, teachers, education support specialists, psychologists from 23 Lithuanian schools. June-July 2021 focused group discussions were organised. The results of the study revealed that cooperation and co-creation are crucial in atypical situations (in this case pandemics). Partnerships between teachers, students and teachers, pupils, their parents and teachers are growing. Teachers faced various challenges – children's fatigue, insularity, retreat, weak feedback. The lack of pupils' self-regulatory learning skills was also a major challenge. In the opinion of the study participants, the promotion of participation in the educational process is the first and important aspect that has a strong relationship with pupils. The main findings show that the education system is not fully prepared to meet the diverse needs of learners. Teachers' competence should be focused on modelling flexible curricula, empowering pupils to make learning decisions, strengthening co-creation. A culture of inclusive leadership should be developed and strengthened in school communities.

Keywords: School Inclusion, Teacher, Community

Dominant Skeletal Pattern of Class II Malocclusion among Young Albanian Patients Seeking Orthodontic Treatment

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Abstract

A skeletal class II malocclusion may be related to maxillary protrusion, mandibular retrusion and the combination of both. Determining the skeletal pattern is mandatory in order to find an appropriate treatment protocol. An accurate diagnostic tool is cephalometric analysis. *Aims of this study was:* To describe cephalometric features of skeletal class II division I malocclusion among Albanian patients requiring orthodontic treatment establishing the prevalent form. 100 cephalometric radiographs of Albanian patients mean age 13.8 years (9-15) seeking orthodontic treatment were included in this study. *Results:* Cephalometric evaluation revealed in 78% of the cases mandibular retrusion. Maxillary base was found to be within the range of norms in 62% of our sample. With regard to vertical dimension our results revealed a high angle tendency in 23% of the sample while the low angle tendency was 12%. Upper dentition showed protrusion in 84%, while mandibular dentition was found to have a normal inclination in 50 % of the sample. *Conclusion:* All possible skeletal components that contribute to skeletal class II div I are present at our sample. The dominant pattern is mandibular retrusion. Maxilla in neutral position. A small percentage of cases has maxillary protrusion. Dentition assessment revealed maxillary protrusion.

Keywords: skeletal class II malocclusion, cephalometric

Maraging 300 Steel Subjected to Ultrasonic Fatigue Tests, at Room Temperature

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Abstract

Maraging 300 steel was tested under ultrasonic fatigue regime, at room temperature and under full reversed load ratio ($R=-1$), . Hourglass shape testing specimen dimensions were obtained by modal numerical simulation, using the mechanical proprieties of this steel: density, Young Modulus and Poisson ratio. Ultrasonic fatigue tests were performed under three loading stresses: 585, 486 and 389 MPa, corresponding to high, middle and low applied stress, respectively. Fracture surfaces were analyzed with scanning electronic microscope, in order to obtain the origin and causes of crack initiation and propagation under this testing conditions. Furthermore, general conclusions were addressed concerning the ultrasonic fatigue endurance of this aeronautical steel, together with the crack initiation and propagation behavior.

Keywords: 300 Steel, Ultrasonic Fatigue Tests, Room Temperature

Protection from Domestic Violence

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Abstract

Violence as a phenomenon is a worrying indicator for developed countries and undeveloped countries, as well. Based on statistics, certain forms of violence, such as domestic violence, are considered a global phenomenon. Therefore, the main goal remains how to prevent it and how to treat and protect victims of domestic violence. Violence as a phenomenon is also defined by the World Health Organization, describing it as the voluntary use of physical force applied as a threat against another. Furthermore, domestic violence is defined as a set of behaviors aimed at controlling others through the use of force, intimidation, and manipulation. Such a definition of violence can be applied to all forms of domestic violence, including physical abuse, psychological abuse, sexual, financial, and work abuse. Domestic violence is usually not an isolated case and often becomes more severe and more frequent over time. Many abusers are not violent in other relationships, such as at work or with friends. It only occurs between family members. They repeatedly deny domestic violence and the severity of this violence. When confronted with their abusive behavior, they tend to blame their partner for provoking them or mostly refuse to accept responsibility. In developed countries, but even in less developed countries, statistics show an increasing number of domestic violence cases. The same situation is in Kosovo, too. Despite this, states try to contribute to preventing and combating this phenomenon by passing laws and advancing the legal framework. Moreover, many countries, including Kosovo, consider domestic violence as a criminal offense foreseen by their criminal codes. Furthermore, some countries go beyond this practice in order to provide security and protection for victims as well as compensate all the victims of domestic violence. In this paper, we analyze domestic violence as a phenomenon and as a criminal offense within the legal framework of the Republic of Kosovo, with special emphasis on the categories that suffer from domestic violence and statistics on the trend of increasing this phenomenon in chronological order over the years, including conclusions based on analysis and findings.

Keywords: domestic violence, criminal offenses, perpetrators, protection, victims, Kosovo Criminal Code, laws

Spatial Diversity of Poland's Voivodships in Terms of Knowledge-Based Economy on the Base of EU Funds

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Abstract

The aim of the article is to present an approach to measuring results specified by means of the concept of Knowledge-Based Economy (KBE), which is based on the following pillars: human and social capital, technical infrastructure, research and development, and institutional and legal factors. The analysis of these pillars helps (regions, industries, national economies) to gain a competitive advantage. Knowledge Assessment Methodology (KAM) is one of the holistic approaches, developed by the World Bank Institute in 1999 and modified in 2005, is one of the methods for measuring the degree of development of KBE. It is connected with the development of a set of indicators describing the functioning of individual socio-economic dimensions, grouped in four categories: economic and institutional, education and human resources, information system, and new information technologies. The second part of the article presents the analysis results for all four pillars describing the growth of individual regions (voivodships). A synthetic index was calculated by the Technique for Order Preference by Similarity to an Ideal Solution (TOPSIS) for each pillar and for all of them for voivodships of Poland in 2009, 2012, 2015 and 2016. The data used to create this synthetic measure was obtained from the Local Data Bank of the Statistical Office in Poland. The voivodships differ largely as regards information technologies development; however, during the 2009–2016 period, the difference between western and eastern parts of Poland was smaller. During the period of 8 years (2009–2016), the voivodships whose results regularly advanced in the ranking were located in the eastern part of Poland (Lubelskie, Podlaskie and Warmińsko-Mazurskie). That was an effect of the Operational Programme for Eastern Poland (2007–2014) co-financed by the EU funds. Thanks to this, the

presented research results may help to create and monitor regional and governmental innovation strategies.

Keywords: knowledge-based economy, knowledge assessment methodology, topsis method, ranking of voivodships

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Diode Laser 980 nm - A Modality of Choice for the Management of Mucocele

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Abstract

Mucoceles are common benign lesions of the oral cavity that develop following extra vacation or retention of mucous material from salivary glands in the subepithelial tissue. Treatment may be performed by conventional surgery, cryotherapy and more recently laser surgery. In this study we report 20 cases with mucoceles of the lower lip treated in the Dental Clinic of the University of Tirana from January 2007 to January 2011, 10 of them are resected with a scalpel and 10 with 980 nm diode laser. We have documented the operative treatment and postoperative follow-up for each patient for the evaluation of early and long term results. Diode laser surgery was rapid and bloodless. Postoperative period was without complication, after one month from the treatment with laser no scar formation was reported versus the cases treated with scalpel. After 1-3 years of follow-up no recurrence was recorded after laser surgery compared with 3 cases of recurrence among the cases of conventional surgical removal of mucocele. 980 nm diode laser is a good modality for the treatment of mucocele's lip. This treatment provides satisfactory results and is also well-accepted by all age groups.

Keywords: diode laser, mucocele, treatment