

ICMS 44

44th International Conference on Multidisciplinary Studies

“Recent Studies and Research”

Strasbourg

ICMS 44 Strasbourg

25-26 April 2025

Venue:

Strasbourg

BOOK OF PROCEEDINGS

Editors

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ISBN: 978-1-915312-19-8



Revistia

Research and Publishing

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Strasbourg

ISBN: 978-1-915312-19-8

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**THE PROTECTIVE ROLE OF PROBIOTIC-RICH DAIRY BY-PRODUCTS IN MITIGATING BISPHENOL A
TOXICITY: ANTIOXIDANT AND ANTI-INFLAMMATORY MECHANISMS 101**

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Investigation of the Psychological Capital of Security Employees by Nationality and Status

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Abstract

The concept of psychological capital (PsyCap) recently has attracted a great deal of interest who has been studying on organizational behavior. Psychological capital can be defined as individual's positive psychological state which contributes both personal and organizational aims and improves human performance. It is accepted that psychological capital has four components: self-efficacy, optimism, hope and resiliency. The purpose of the present study is to examine the associations of psychological capital (PsyCap) of security employees by nationality and status. In this study a cross-sectional survey was conducted using a convenience sample of 336 security employees in a military organization to establish possible relationship between psychological capital and two of demographic variables (nationality and status). The data obtained by the survey was analyzed using the SPSS 21.0 package program. In statistical analyzes, T-test and variance (ANOVA) analyzes were used. The results of the data has showed that resiliency of civil employees differs significantly from officers and noncommissioned officers. The analysis has also showed that self-efficacy and hope of Turkey participants differ significantly from European countries participants. However, no statistically significant difference has been found in resiliency of participant countries.

Keywords: Psychological capital, nationality, status, security employees

Introduction

Positive psychology issue has attracted attention since Martin E. P. Seligman stressed this concept in his speech after being elected as president of the American Psychological Association in 1998 (Seligman and Csikszentmihalyi, 2000). Martin Seligman challenged the field to change from a preoccupation with what is wrong and dysfunctional with people to what is right and good about them. Specifically, it focuses on strengths rather than weaknesses, health and vitality rather than illness and pathology. In his recent book on Authentic Happiness, Seligman (2004) first asked the question of whether there is psychological capital, and if so, what it is and how we get it. He answered the question by suggesting that “when we are engaged (absorbed in flow), perhaps we are investing, building psychological capital for our future.” Luthans, Luthans and Luthans (2004:46). Peterson (2000:44) emphasized that psychology should be as focused on strength, as interested in resilience as in vulnerability and as concerned with the cultivation of wellness as with remediation of pathology.

The aim of positive psychology is to begin to catalyze a change in the focus of psychology from preoccupation only with repairing the worst things in life to also building positive qualities. (Seligman and Csikszentmihalyi, 2000: 5) Although positive psychological has begun to draw attention throughout the years, it has only recently been proposed as a new approach focused on organizational behavior studies (Luthans, 2002a, 2002b; Luthans and Youssef, 2007; Wright, 2003).

The concept of psychological capital has emerged from the theories and researches within the field of positive psychology. (Seligman and Csikszentmihalyi, 2000: 5) categorized positive psychology as individual and group level. While individual level is about positive individual traits: the capacity for love and vocation, courage, interpersonal skill, aesthetic sensibility, perseverance, forgiveness, originality, future mindedness, spirituality, high talent, and wisdom, group level is about the civic virtues and the institutions that move individuals toward better citizenship: responsibility, nurturance, altruism, civility, moderation, tolerance, and work ethic. The field of positive psychology at the subjective level is about valued subjective experiences: well-being, contentment, and satisfaction (in the past); hope and optimism (for the future); and flow and happiness (in the present).

(Luthans et al., 2006: 388) define Psychological Capital as “An individual’s positive psychological state of development that is characterized by: (1) having confidence (self-efficacy) to take on and put in the necessary effort to succeed at challenging

tasks;(2) making a positive attribution (optimism) about succeeding now and in the future; (3) persevering toward goals, and when necessary, redirecting paths to goals (hope) in order to succeed; and (4) when beset by problems and adversity, sustaining and bouncing back and even beyond (resiliency) to attain success.”

Drawing from positive psychology constructs, four psychological resources which were termed by (F. Luthans et al.,2007) best meet the POB scientific criteria: self-efficacy, hope, optimism and resilience.

Self-efficacy, which is one of the basic elements of psychological capital, is most often defined as a person’s perception or belief of “how well one can execute courses of action required to deal with prospective situations” (Bandura, 1982, p. 122). And self-efficacy was defined as “an individual’s conviction (or confidence) about his or her abilities to mobilize the motivation, cognitive resources, and courses of action needed to successfully execute a specific task within a given context” (Stajkovic and Luthans, 1998:66).

Hope has been identified as the most unique construct included in POB and although it has not been as thoroughly researched as self-efficacy. Snyder, Irving and Anderson (1991: 287) defined hope as “goal-directed thinking in which people perceive that they can produce routes to desired goals (pathways thinking) and the requisite motivation to use those routes (agency thinking)”. The pathways component of this definition refers to an impression of being able to generate alternative plans to meet goals when impeded, as well as positive self-talk about being able to find these routes.

A useful definition of optimism was offered by anthropologist Lionel Tiger (1979): “a mood or attitude associated with an expectation about the social or material future—one which the evaluator regards as socially desirable, to his [or her] advantage, or for his [or her] pleasure”. An important implication of this definition, one drawn out by Tiger, is that there can be no single or objective optimism, at least as characterized by its content, because what is considered optimism depends on what the individual regards as desirable. Optimism is predicated on evaluation—on given affects and emotions, as it were (Peterson, 2000:44). Optimism can be viewed as an attributional style that explains positive events through personal, permanent, and pervasive causes and negative events through external, temporary, and situation-specific ones (Luthans and Youssef, 2007: 331).

Luthans (2002b) defined resilience as “the positive psychological capacity to rebound, to ‘bounce back’ from adversity, uncertainty, conflict, failure, or even positive change, progress, and increased responsibility” (Luthans, 2002a: 702).

Resilience is a topic that has received increasing attention in recent years and as characterized by positive psychology, involves positive coping and adaptation in the face of significant risk or adversity (Masten and Reed, 2002: 74).

In this study, it is aimed to examine the psychological capital of the security personnel in terms of different dimensions (self-efficacy, optimism, hope and resilience) according to nationality and status.

Methods

In this study a cross-sectional survey was conducted using a convenience sample of 336 security employees in a military organization consisting of seventeen countries: Turkey, U.S.A., Germany, Portugese, Slovenia, Austria, Poland, Greece, Swiss, Ireland, Hungary, Romania, Croatia, Czech Republic, Sweden, Italy, Finland, Denmark, Norway, Britain, Netherlands, Ukraine, Canada, Lithuanian, Bulgaria, Albania and Kosovo. Country-based assessment was not made because of the number of countries is in large and the number of personnel in the participating countries varies considerably from each other. Instead, a four-zone grouping was used to categorize European countries. (United Nations E-Government Survey, New York, 2016, pp.219). The countries in Europe were categorized in the study as North-Western Europe and South-Eastern Europe. Descriptive statistics of participants according to nationality and status are shown in Table 1.

Table 1. Descriptive Statistics of the Participants According to Nationality and Status

Demographic Variables	Category	N	%
Nationality	Turkey	54	16,1
	North American C.	44	13,2
	North and Western European	96	28,5
	Southern and Eastern	142	42,2
Status	Officer	185	55,1
	Non-commisioned officer	115	34,2
	Civilian employee	36	10,7

To assess psychological capital, the recently developed (Luthans, Youssef & Avolio, 2007) and psychometrically analyzed (Luthans, Avolio et al., 2007) 24 items PsyCap Questionnaire (PCQ) was used and free permission was gotten from Prof. Dr. Fred

Luthans via e mail for research purpose. Ratings for the PCQ were based on a 6-point Likert scale ranging from “strongly disagree” to “strongly agree.” This instrument has adapted 6 items each from published hope (Snyder et al., 1996), efficacy (Parker, 1998), resilience (Wagnild & Young, 1993) and optimism (Scheier & Carver, 1985) scales. Confirmatory factor analysis, conducted using Lisrel 8.80 version 17 was used to compare four competing models of the underlying structure of the PsyCap scales. Four items with a factor load of less than 0.32 were excluded from the analysis and the models tested with a four factor (self-efficacy with the six relevant items, hope with the five relevant items, resilience with the five relevant items and optimism with the four relevant items).

Results

The effect of participants' nationality and on psychological capital was tested by t-test and analysis of variance (ANOVA). The results of the analyses are shown in Tables 2 and 3.

As shown in Table 2, the difference in self-efficacy ($f_{335}=1,03, p>,05$), hope ($f_{335}=1,53, p>,05$) ve optimism ($F_{335}=2,34, p>,05$) does not have significant effect on status. This result showed that status does not have any effect on self-efficacy, hope and optimism. In the resilience ($F_{335}=3, 53 p<, 05$) dimension, the difference was found to be significant. In order to find means that is significantly different from each other Tukey's test was applied. It has been found that the resilience of civilian employees differs significantly from officers and non-commisioned officers.

Table 2. Anova Results by Status

Factors	Status	N	Mean	S. Deviation	sd	F	P
Self-Efficacy	Officer	185	4.82	.87	2/333	1,038	,355
	Non-Commisioned Officer	115	4.77	.83			
	Civilian Employee	36	5.01	.86			
	Total	336	4.82	.86			
Hope	Officer	185	4.71	.76	2/333	1,532	,218
	Non-Commisioned Officer	115	4.76	.70			
	Civilian Employee	36	4.95	.74			
	Total	336	4.75	.74			
Resilience	Officer	185	4.57	.71	2/333	3,534	,030
	Non-Commisioned Officer	115	4.55	.76			
	Civilian Employee	36	4.90	.61			
	Total	336	4.60	.73			
Optimism	Officer	185	4.33	.88	2/333	2,340	,098
	Non-Commisioned Officer	115	4.30	.75			
	Civilian Employee	36	4.63	.81			
	Total	336	4.35	.84			

As shown in Table 3, the difference in self-efficacy ($F_{335}=5,642$, $p>, 05$), hope ($F_{335}=7,363$ $p>, 05$) and optimism ($F_{335}=3,777$ $p>, 05$) has significant effect on nationality. It has been found that self-efficacy and hope of Turkey participants differs significantly from European countries participants and optimism of Turkey participants differs significantly from North and Western European countries. In the resilience ($F_{335}=2,890$ $p<,05$) dimension the difference was not found to be significant. This result showed that nationality does not have any effect on resilience.

Table 3. Anova Results by Nationality

Factors	Nationality	N	Mean	S. Deviation	sd	F	P
Self-Efficacy	Turkey	54	5.23	.65	3/332	5,642	,001
	North American C.	44	4.83	.79			
	North and Western European C.	96	4.65	.93			
	Southern and Eastern European C.	142	4.78	.85			
Hope	Turkey	54	5.14	.57	3/332	7,363	,000
	North American C.	44	4.86	.53			
	North and Western European C.	96	4.59	.78			
	Southern and Eastern European C.	142	4.68	.78			
Resilience	Turkey	54	4.86	.61	3/332	2,890	,036
	North American C.	44	4.57	.75			
	North and Western European C.	96	4.53	.67			
	Southern and Eastern European C.	142	4.55	.78			
Optimism	Turkey	54	4.63	.86	3/332	3,777	,011
	North American C.	44	4.52	.61			
	North and Western European C.	96	4.22	.68			
	Southern and Eastern European C.	142	4.28	.95			

Conclusion

The results of the current study indicated that nationality and status significantly differ psychological capital. In conclusion: (1) Status does not have any effect on self-efficacy, hope and optimism. (2) Resilience of civilian employees differs significantly from officers and non-commisioned officers. (3) The difference in self-efficacy, hope and optimism has significant effect on nationality. According to this, self-efficacy and hope of Turkey participants differ significantly from European countries participants and optimism of Turkey participants differs significantly from North and Western European countries. (4) The difference in resilience is not significant.

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Living, Narrating and Enhancing the Landscape Through the Ethics of Responsibility

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Abstract

This study aims to provide some answers to the following problems regarding the landscape: 1. What does enhancing the landscape mean? 2. Upon which theoretical and operative bases is it possible to intervene in the landscape in order to enhance it? 3. How is it possible to build in a way which promotes good living while respecting the landscape and its environmental equilibrium? I intend to discuss these issues from the perspective of some considerations regarding the narrative of the landscape. Man has always provided accounts about his environment and territory thereby forming a complex idea of the landscape over time. The narrative of the landscape constitutes a sort of collective memory making the landscape a “quasi persona” that interacts with man's different actions. The basic thesis of this study is to demonstrate that each intervention in the landscape – with the intention of its enhancement and good living – should be inspired by the ethics of responsibility and, thereby, be guided by the narrative of the landscape which conveys its specific and characteristic traits.

Keywords: Landscape; Living; Responsibility; Well-being; Narrative

Introduction

In this study I will put forward some reflections regarding the landscape to outline some theoretical and practical features which I consider necessary in order to enhance and improve the quality of living. To this end, once the concepts of landscape, territory and environment have been clarified, I will move on to the narratives of the territory and the ethical perspective of the principle of responsibility as fundamental prerequisites to shed light on all forms of intervention in the landscape and the way of living.

On this basis I will outline the theoretical and ethical aspects which should animate the different types of intervention in the landscape. Such aspects, which have been identified and conceived to enable the application of the universal principle of responsibility in the single and specific concrete cases, will be indicated in the

following: interpreting to understand the historical and typical cultural characteristics of a certain landscape starting from its narratives using our understanding of the landscape to realize ethical actions able to restore and reactivate the resources of the landscape which have been interrupted by short-sighted and irresponsible intrusions; restoring any of the landscape's cultural features of historical importance in order to contribute to the creation of a landscape that can offer the best living conditions, thereby creating psycho-physical well-being and healthy relationships; implementing initiatives which can materialise in constructions that protect the future generations from known or identifiable risks and dangers.

In the light of these traits I will try to promote the enhancement of the landscape not only from an aesthetic point of view but, more collectively, according to the ethical perspective of the good life, which can be defined as life with and for others in the context of an inhabitable landscape for us and for future generations.

Landscape, environment and territory

What is meant by landscape? What is do we call landscape? In order answer these questions, it is necessary to clarify its meaning in relation to what we mean by environment and territory. These terms, despite being referred to reciprocally, have their own specific meaning. By "territory" we refer to the extention of the earth's surface with its geographical and morphological characteristics. To learn about the territory we refer to the Geography of the area which indicates the morphology of places and their transformation brought about by man's intervention.

The term "environment" essentially has both a biological and a historical-cultural meaning. In its biological sense, the environment refers to the conditions of life present in a certain place for living beings such as the geological soil conformation, the hydrography, climate, altitude above sea-level, precipitation, latitude and longitude. The latter meaning refers to the environment in the context of human presence and activities such as agriculture, live-stock farming, industry, urban centres with varying degrees of density and extension, cultural events, artistic records and traces of past and present populations. In both meanings the environment includes the territory, but the territory can do without the environment considered in both the biological and historical-cultural sense. Indeed, the environment moulds the territory.

The landscape, in turn, includes the territory and the environment to which can be added man's vision and considerations regarding the biological, historical and cultural environment of a certain territory.

The landscape is the work of man's tranforming actions over time and the distinctive historical and cultural features of the populations that have shaped it are recognisable. The landscape is the result of long, and often, contradictory works of transformation of the territory and environment in response to necessity, needs,

desires, goals and projects, alongside economic, religious, political, artistic, aesthetic, scientific and ideological expectations.

The landscape can be considered a text which lends itself to different forms of interpretation and as a result of interpretations that have materialised over time into many types of transformations which have often turned out to be disastrous for both man and the environment. Bad or mistaken interpretations of the landscape, generated by the logic of power and domination of the territory and the environment, and/or by market and profit-making forces, have produced environmental disasters which will also affect future generations.

In view of this situation, in this study it is of fundamental importance to highlight the importance of elaborating interpretations, unspoilt by the above-mentioned reasoning, which lead to the emergence of the characteristic features of a particular landscape. My objective is also to suggest interventions aimed at enhancing and improving man's living-inhabiting according to an ethical perspective. On this basis I believe it is necessary to adopt the ethics of responsibility as the principle guideline in interpreting and intervening in the landscape. In particular, I will take into consideration H. Jonas' principle of responsibility formulated in the following terms: intervene in a way that the consequences of our actions are compatible with the permanence of authentic human life on earth (Jonas 1980).

The landscape narratives

If the cultural, historical and aesthetic dimensions together with geographical and environmental factors are considered in isolation, they both reveal and hide important aspects of the landscape. It is therefore necessary to try to consider the territory and landscape's multiple and varied distinctive features as a whole and in relation to one another. The human practice of narrating best fulfils this need. Through this form of narrative, man has always described his environment and territory thus configuring his idea of the landscape over time. In the narrative numerous elements and dimensions of the landscape are linked thereby constituting a sort of collective memory made up of aspects relating to geology, biology, the actions and endeavours of different inhabitants who have contributed over time to the generation of an environment and a landscape. From these narratives the landscape emerges as a "quasi-persona" that interacts with people by forming a context for the facts, events, actions and protagonists of a story. As stated by E. Turri, in the imaginary landscape the dynamic stories of life occur in the places which act as a "theatre" and in this sense it forms an integral part of the collective memory (Turri 1998).

There are also narratives relating to geographical and geological aspects together with different types of measurable and quantifiable physical events such as rainfall, flooding, earthquakes and avalanches etc. These narratives constitute a historical memory of a scientific nature which, alongside the humanistic accounts, contribute to the creation of what we mean by landscape. From this perspective, landscape can not

be given without memory and memory can not be given without a narrative. In actual fact, the narrative dynamically unites heterogeneous aspects and elements of varying periods of time, so, in this way the landscape acts as a “quasi persona”, or as a sort of protagonist and actor in the story.

Two different kinds of landscape narrative

From the landscape narrative there emerge continuous interventions by man in the territory and environment. Man has contributed to creating his environment together with other physical and biological agents. The landscape narrative, therefore, also conveys the different kinds of wounds that have been afflicted upon the territory and environment over time. In relation to the two notions of landscape outlined above we can identify two sorts of narrative and memories which each responsible intervention in the landscape ought to take into consideration. Firstly, consideration of the landscape from a geo-morphological perspective. Such narrative emerging from this perspective is mainly founded on empirical data which is often illustrated on geographical maps regarding the territorial lay of the land, the type of vegetation, the presence of waterways, ancient and recent urban settlements. Empirical data is also present on geological maps and graphs showing climate variations and precipitation throughout the year etc. The narrative also communicates man's interventions, above all, those which have had a negative impact on the territory and the environment. In this type of narrative, the human settlements form the transitional feature connecting it with the other kind of narrative based on the consideration of the landscape according to a historical, cultural and therefore aesthetical perspective. This narrative encompasses human activities which have appeared, developed and disappeared over time; places inhabited by or “marked” by the actions of prominent figures; historical events and works of art with their symbolic significance etc.

Often political reasoning and the logic of profit do not take into consideration any form of narrative resulting in the construction of urban areas which may be vulnerable to natural disasters such as flooding, hydro-geological instability, landslides and avalanches etc. Furthermore, in many cases these elements of risk for living are accompanied by constructions and urban planning which also ignore the historical, cultural and artistic aspects represented in the narrative. When this happens a landscape of “non-places” is produced, in other words, a landscape comprising spaces which annihilate from the outset any possible form of activity in which man interacts with his peers, with the environment and the territory thereby leading to a devaluation of the landscape and a worsening of the quality of life.

Responsible interventions and good living

Each intervention on the landscape must emerge from the different types of narrative and from a semi-narrative providing the possibility to position the different narratives in relation to and in communication with one another. As mentioned above, these narratives provide us with objective, physical, measurable and

quantifiable elements. Besides, they also give us cultural and aesthetical aspects. We believe that any intervention should be enlightened by responsibility in consideration of these narratives since they embody the integral and fundamental elements of a certain landscape expressed by man. Through them it is possible to understand what can be done to improve the landscape and the quality of life for future generations. Therefore, this does not mean that each type of intervention need be rejected from the outstart seeing it as a danger to the conservation of the landscape. Indeed, the landscape is not best conserved by eliminating all forms of intervention or construction. It involves modifying the landscape by attempting to exploit its hidden or partly-known potential in order to enhance the characteristic features emerging from its narrative.

Responsible and far-sighted interventions are those which know how to use and make the most of these characteristic features. Such interventions are therefore undertaken responsibly with regard to the past, the present and the future. Responsibility with regard to the past involves the awareness that the intervention should consider what the territory and the environment have presented on an objective and quantitative level for centuries including the geological conformation of land and subsoil, the hydrography and climate etc., but also the settlements and the cultural works and activities. Responsibility with regard to the present means that the intervention is undertaken following a close examination of the new and current needs of a cultural, environmental, economic and commercial nature which can not be accepted and translated into interventions in the light of what the old and new landscape narratives communicate and transmit. Responsibility with regard to future generations involves not promoting interventions which may compromise the characteristic traits of a certain landscape, but rather, exploiting and enhancing its potential to promote and improve the quality of life. Such dimensions of responsibility are linked to the recognition of the memories transmitted by the different kinds of narrative.

Living and enhancing the landscape

The landscape is enhanced if accompanied by responsible transformations for future generations. From this viewpoint responsible enhancement involves improving the quality of living in close relation to the quality of the environment. But what do we mean by “enhancement of the landscape”? There is no unequivocal answer, if anything, it is provided by a set of different enhancements.

The aesthetic enhancement of the landscape, beyond its romantic and idealistic acceptance, originates from the enhancement of the environment and living. Enhancing the environment means adopting codes of behaviour together with respectful and pondered techniques regarding the management of resources, the transformation of raw materials, the production and transportation of goods, waste disposal and biodiversity. The enhancement of living means urbanisation and construction in a way which guarantees the safety of the inhabitants in the case of

catastrophic events caused by atmospheric phenomena or events relating to the geomorphology of the land and sub-soil. In addition, it means building in order to create places which promote human interaction and numerous possibilities to interact with the environment through activities like gardening, cultivation, walking for pleasure and sports. It also implies a diet composed of certified organic food etc. The overall enhancement of the landscape thus requires the enhancement of a whole series of components of the territory, the environment, the history and the culture. In light of this overall enhancement, whereby the different enhancements are brought together and interact with one another, living becomes an integral and fundamental part of the landscape making it a place where “dense human interaction” takes place on various levels including human relationships, the relationship between man and the different elements of the territory and environment, and man's relations with the various forms of cultural expression. All these relations become an integral part of the landscape narrative and its memory (Tarpino 2008).

Concluding considerations

The landscape narrative constitutes its memory rendering what is absent to be present thus providing the technical and conceptual elements and coordinates for construction focused on reactivating the environmental and cultural potential which past interventions ignored. In order not to be undertaken randomly or simply financially motivated, each intervention in the landscape can not be implemented without referring to its narratives. The landscape narrative, with its temporal story made up of numerous material and intangible elements, makes it possible to build while focusing on the enhancement of the landscape and good living. One narrative encompassing all the narratives does not exist, but numerous landscape narratives do exist. It is up to the intuition, sensitivity, taste, competence and responsibility of whoever elaborates and plans the intervention to build this “semi-narrative”, made up of many narratives which can be drawn upon to construct in a responsible way.

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Local governments' revenue and expenditure autonomy as a determinant of local public spending on culture. An analysis for Polish rural municipalities

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Abstract

The aim of this paper is to define expenditure and revenue decentralization indicators for Polish municipalities and to analyze if and how the limits of spending and revenue autonomy influence local government spending behaviors. The expenditure decentralization is difficult to measure, that is why the analysis of the effects of limits on spending autonomy are less common in the literature than those which relate to the revenue autonomy. In this paper, I propose indicators of revenue but also expenditure decentralization for Polish municipalities. Using statistical analysis and econometric panel analysis for rural municipalities in years 2000-2014 I study if and how these indicators explain local spending policy. I focus on spending for culture using median voter demand framework. Expenditure for culture is a small part of local budgets, but vital from the social point of view. Municipalities in Poland are important creators of local cultural life, which is especially important in less developed or peripheral regions, where citizens do not have access to private cultural institutions. I present that limits in local governments spending and revenue autonomy influences the local spending behaviors. I found that those limits caused not necessarily effective cost minimizing and create the important problem of horizontal equity. At the same time in less autonomous municipalities spending are less related to citizens demand- so there are problems to attend allocative efficiency. My study presents that the problem of the effects of incomplete expenditure decentralization is very important but poorly recognized in the literature.

Keywords: public expenditure on culture, local governments' autonomy, fiscal federalism

Acknowledgement: The study is part of research project No. 2014/13/B/HS4/03204, financed by National Science Centre, Poland

Introduction

Decentralization is a complicated phenomenon. We can discuss for example political, administrative, fiscal and economic decentralization. (Litvac, Ahmad, & Bird, 1998) All these varieties of decentralization coexist together. The other problem in studying of decentralization is that in practice there is no “full” decentralization, there are different limitations of the local autonomy, which affect different aspects of local government decisions. It can be analyzed different levels or degrees of decentralization/autonomy. In my study, I focus on fiscal aspects of decentralization, and the first goal of this paper is to find measures of spending and revenue autonomy of local governments. The best established in literature indicators of fiscal autonomy are related to local revenues. It is relatively easy to find in public finance data, information about different types of revenues, distinguishing specific and general grants, shared and own taxes. The indicators which use public spending data are more problematic. The local expenditures are very often defined by central regulations, so are not autonomous. However, in contrast to revenues, it is difficult to distinguish less and more autonomous spending looking only on statistical data. The study of regulation is needed. The novelty of this study is that I established expenditure autonomy indicators for Polish municipalities. Subsequently, I use these indicators to analyze if and how the limits of autonomy- on spending and revenue sites, determine local public expenditures on culture. These expenditures are a small part of local budgets, but vital from the social point of view. Municipalities in Poland are important creators of local cultural life, which is especially important in less developed or peripheral regions, where citizens do not have access to private cultural institutions. My paper focuses on rural municipalities, I present the results of statistical and econometric analyses for more than 1500 rural municipalities in years 2000-2014. To analyze municipal expenditures I use median voter demand framework, which is well established in the local public finance literature.

The structure of this paper is as follow. In the first part of the paper, I review the literature related to the problems of limits in local autonomy- its measurement and influence on the efficiency of public finance. In the second part, I present the demand system framework with a special focus on studies related to allocative efficiency and local public spending on culture. In the third part, I introduce indicators of expenditure and revenue autonomy for Polish municipalities, I present the variance of the expenditure and revenue decentralization across rural municipalities in Poland. In last part using econometric panel data analysis for Polish rural municipalities in years 2000-2014 I present the impact of restrictions on the spending and revenue autonomy on local government expenditures on culture.

Limits of Local Fiscal Autonomy- Measurement and Effects

The phenomenon of decentralization is the theme of plenty of scientific researches. The fact, that in practice the decentralization is only partial- and there are limits on

local governments autonomy, is an important feature of decentralization that allows conducting these studies. The researchers, using different measures of decentralization, compare subjects of analysis which are less and more decentralized. There are two main groups of studies on decentralization and its effects. Large literature uses international comparisons, and the subject of analysis are different countries. The second large group focuses on one country analysis and compare local units across one country or in a different moment of time- before and after (de)centralisation reforms¹.

In international studies, there are two the most frequent strands in the measures of decentralization. First focused on the revenue autonomy and the second on expenditure autonomy of local governments in analyzed countries. The measures of decentralization take into account local revenues (distinguishing local taxes or local own revenues and transfers) or total expenditures and compare them to all public revenues (taxes) or expenditures. There are also studies where authors combine those two sites of autonomy and calculate aggregate indicators of fiscal autonomy or analyze so-called vertical imbalance- the relationship between expenditures and allocated revenues. (for example) (Baskaran, Feld, & Schnellenbach, 2016; Dziobek, Mangas, & Kufa, 2011; Eyraud & Lusinyan, 2013; Gemmell, Kneller, & Sanz, 2013; Rodden, 2004; Sharma, 2006; Stegarescu, 2005) A key methodological problem of cross-country studies is that aggregated data could result in misleading figures. Especially problematic in these studies is autonomy of expenditures, “..it is difficult to know what to make of expenditure data without additional data on regulatory framework for subnational finance” (Rodden 2004). Some researchers have doubts about the results of these studies on the effects of decentralization. (Baskaran et al., 2016; Ebel & Yilmaz, 2002) The solution could be econometric methods with fixed effects or using different indexes defining other than fiscal aspects of country decentralization. (Pina-Sanchez, 2014; Schakel, 2008)

The second important part of studies on decentralization and its effects focused on one country analysis. The subjects of this kind of analysis are different local units or regions in the single country. (for example) (Balaguer-Coll, Prior, & Tortosa-Ausina, 2010; Barankay & Lockwood, 2007; Boetti, Piacenza, & Turati, 2012; Feld, Kirchgässner, & Schaltegger, 2004; Xie, Zou, & Davoodi, 1999; Zhang, 2006) In these studies, the problem of the comparable institutional environment is less important. But still, there is an open question about proper quantification of decentralization and its variation across the country. As in international studies, the most used indicators are related to revenue autonomy. Expenditure autonomy is also analyzed but as the non-autonomous spending are defined only those which are financed by specific grants. (Brueckner, 2009) There are also studies whose authors focusing on particular problems of local revenues or expenditures, use different indicators presenting the local government's autonomy. For example, it is a wide range of

¹ The preliminary version of the review of literature on measurement of decentralization was presented in (Kopańska, 2016)

literature concentrating on grants effects on local government fiscal behaviors. (for example Inman 2008a; Gramkhar 2002).

There is also a small group of studies which focused on differences of degree of decentralization, without quantifying the level of decentralization. They use the natural experiment method analyzing the local spending behaviors before and after the decentralization reforms in one country. (Ahlin & Mörk, 2008; Borge & Brueckner, 2014; Borge & Rattsø, 1995; Faguet, 2004; Salinas & Solé Ollé, 2009) They do not define the exact size of changes in decentralization, but only define the reforms as shifting the local government system from less to more decentralized.

As presented the most problematic are indicators related to expenditure decentralization. There are no indicators analyzing spending financed from own revenues (or general grants) but strictly define by centrally established rules related to these tasks. (Martinez-Vazquez & Timofeev, 2009). The solution, in that case, seems to be expert analysis, under which is carried out a detailed examination of local regulations and indicates the task with varying degrees of restrictions on autonomy. (Blöchliger, 2014; Oulasvirta & Turala, 2009) In my paper, I propose indicator of expenditure autonomy for Polish municipalities. This indicator is established using analysis of local regulations which influence spending autonomy of municipalities.

Taking into account mentioned above problems of multidimensional aspects of decentralization and also a measurement of the level of decentralization there are some doubts related to the results of studies on decentralization. But generally, literature agree that decentralization (or higher local autonomy):

- enhance cost and allocative efficiency of public sector, thanks to- better responsiveness of local governors to society needs and more active society (in exit or voice activity) - theoretical background for these effects was given by (Oates 1972; Tiebout 1956; Hirschman 1970) and confirmed in many empirical studies for example (Borge & Brueckner 2014; Sørensen & Hagen 1995; Solé-Ollé 2009)
- Limits the size of public sector and its indebtedness (Eyraud & Lusinyan 2012; Cassette & Paty 2010; Marlow 1988; Stein 1999; Jin & Zou 2002)

On the other hand, there were noticed negative effects of decentralization, like:

- Problem of deepening inequalities (Prud'homme 1995; Zhang 2006)
- macroeconomic instability and slower economic growth due to problems of coordination, spillovers and soft-budget constraints (Prud'homme 1995; Ahmad et al. 2008; Alesina & Perotti 1999; Levaggi & Levaggi 2011; Jin & Zou 2002; Eyraud & Lusinyan 2012)

In my study, I focus on the effects of decentralization on local citizens' wealth. I try to answer if and how differences in degree of local autonomy/decentralization influence the municipal spending decisions on culture. First I analyze the variation of these

spending across the whole country- looking at the problem of equal access to publicly sponsored culture. Second I study if those spending are matched to citizens preferences. The background for these problems is given in next part of this paper.

Allocative Efficiency of Decentralized Spending With Special Focus on Spending for Culture

One of the main arguments for decentralization is that local public spending is in line with local citizens preferences. This argument - known as preference matching idea or allocative efficiency in local government - is the theme of very important for local finance theoretical and empirical investigations. The theoretical base for this argument was established by Tiebout and Oates. Tiebout in his seminal paper presented that at local level citizens could "vote with their feet" and choose those local units where cost/benefits composition is the best for them. Local governments compete for citizens and produce what they really want. (Tiebout, 1956) Oates presented, that centralized production of local public goods creates the loss of wealth, and only local units could produce local public goods at proper - expected by local citizens level. (Oates, 1972)

In the empirical studies, the question of allocative efficiency is analyzed using demand system framework. The classical assumption is based on the median voter model. (Downs, 1957) In terms of independent local governments, the "median voter" decides on the expenditure made locally. (Bergstrom & Goodman, 1973; Borchering & Deacon, 1972). The idea of median voter model was the theme of many theoretical and empirical studies, which presents that assumptions of this model are far from reality. (the interesting discussion was presented by Bailey, 1999; Holcombe, 1989) Despite that, the basic idea of a correlation between the voter's preferences measured by socio-economic characteristics of local citizens is still present in empirical analysis on local government expenditures. Those studies analyzed usually local governments in one country¹, and study the determinant of the variation in spending per capita for analyzed good or services using the linear relation:

$E_i = f(\text{soc}_i, \text{rev}_i, \text{cost}_i)$; where

E_i - expenditures per capita for analyzed good of i 's municipality

soc_i ,- the vector of a characteristic of a local society in municipality i

rev_i . municipality i income per capita, distinguishing own revenues and grants

cost_i . the vector of characteristics of i ' municipality which explain the variation of costs of local production

The private income of citizens, as a budget constraint for demand, is usually ignored in those studies. The idea is that taking into account the characteristic of the local

¹ There are also studies where international comparison is made using the demand model for example (Busemeyer, 2008)

systems in many countries, where local tax policy is very limited, it can be assumed that public and private goods are not substitutes for one another and voters maximize their utility only with respect to public goods. (Borge & Rattsø, 1995) The important is local government income, divided on own and other categories of incomes- which is related to so called fly paper effect of grants (Inman, 2008b) The prices for local public goods do not exist, but important is the variation of costs of public production in different municipalities.

It needs to be noticed, that the allocative efficiency means that public spending varies among municipalities. If such variation is the result only of preference matching it can be positively assessed. But the variation of the level of public spending in different municipalities is related also to the differences of revenue base of local units. As Solé-Olle noticed: *“decentralization has the potential for better matching of regional preferences, but this potential would not be realized in practice if the revenues at the disposal of some regions are severely constrained”* (Solé-Ollé, 2009) This is the core and the unsolved problem of fiscal decentralization policy, because, on one hand, the unequal revenue base create the necessity to established equalizing transfers in local budgets, on the other hand, such transfers decrease autonomy of municipalities and erode the efficiency of local governments. What's more, previous studies presented that decentralization not only reveals local inequalities but also deepen them. (Lessmann, 2009; Persson & Tabellini, 1996; Prud'homme, 1995; Zhang, 2006) and in the case of culture, such result could be found for example in (Urrutiaguer, 2005) The question about acceptable differences of public spending remains open (see discussion in Hagan, 1996) but the problem of inequalities need to be taken into account in studies on decentralization.

The large literature used demand framework in studies on spending for education (Ahlin & Mörk, 2008; Borge & Rattsø, 1995; Poterba, 1996; Salinas & Solé Ollé, 2009) public investment or the structure of public spending (Borge & Brueckner, 2014; Busemeyer, 2008; Faguet, 2004; Kappeler, Solé-Ollé, Stephan, & Valila, 2013) There are also some studies where demand system framework is used to analyze municipal spending on culture (Benito, Bastida, & Vicente, 2013; Depalo & Fedeli, 2011; Hakonsen & Loyland, 2016), but taking into account the small size of spending for culture in local budgets such analysis are relatively rare and according to my knowledge there are no such studies for Poland and other East European countries.

Below I shortly discuss the most important factors which are presented as an important determinants of local spending on culture.

Socio-economic characteristic of local society

Young people- children and youth- are important consumers of the local cultural offer. This is due to parents perception of the value of cultural heritage. On the other hand, parents have less time to take part in cultural activities, and there are also other spending related to kids, which are important in public budgets (especially

education). That is why the influence of the share of young people on cultural spending is unclear. The second important group of society analyzed in cultural studies is old people. They have time to take part in cultural events and studies present that municipalities, where share of elderly population is higher, spend more on culture. (Benito et al., 2013; Borge & Rattsø, 1995; Getzner, 2004; Werck, Heyndels, & Geys, 2008)

The literature presents, that women pay more attention for cultural heritage, they also are more interested in the wealth of future generations Women tend to consume more cultural goods and services than male. (Diniz & Machado, 2011) That is why we could suspect higher public spending in municipalities where there are fewer men.

As mentioned private income is ignored as a budget constraint for demand for publicly provided goods. But we could use information about citizens income as an information needed to understand their preferences. According to Wagner's law-private income increases causes an increase in public spending (even higher than in private spending). Culture is defined as luxury good, so in the analysis of private demand for culture was found high positive income elasticity of demand for culture but in the case of low-income people it could be a crowd out by spending on more basic goods and it is not purchased at all below a certain level of income. While in the case of high-income citizens the interest in publicly sponsored culture could be a crowd out by private cultural goods. Taking those opposite arguments into account the influence of citizens income on their preferences on public spending for culture is unclear. In most studies, it was found positive income elasticity (Benito et al., 2013; Getzner, 2004) but (Werck et al., 2008) did not find any significant correlation, while (Rose & Schultze, 1998) presented the negative impact of private income on support public spending for culture.

The level of education is positively related to income. So we could suspect the similar effect of higher education on public spending. It needs to be noticed also that higher education makes culture more accessible. Highly educated people enjoy culture more, first because they understand it better, second because culture is positively adjective (the satisfaction is rising with consumption) and those people have more experience with culture goods. (Rose & Schultze, 1998) The positive impact of the higher education on public spending was found in (Getzner, 2004) But in many studies, the level of citizens education was found as not significant explanatory of their support of public spending for culture. (Benito et al., 2013; Werck et al., 2008)

Local government financial statement

The studies on local governments spending policy, present that important determinant of the level of spending is the size of the municipal budget. Higher local income means more money for all categories of spending. But in the case of public spending, we need to take into account not only size of local incomes, but also the real autonomy of local budget policy. There are many studies which present that grants

influence on public spending more than own local taxes. In the case of spending for culture, the fly paper effect of grants was presented in Hakonsen & Loyland study for Norway (Hakonsen & Loyland, 2016). But there are no studies which analyzed how spending autonomy influence local decisions. I will fill this gap in my empirical study.

Characteristic of the local cultural sector- which influence the cost of cultural services.

The final variables, which are needed to understand variation in local spending for culture, are related to the differences in local cost of cultural services. The important is the size of the local population. In many studies the size of the population was presented as demand factor- more populated municipalities have a central role in relation to cultural public goods. (Benito et al., 2013). But it is also correlated to cost of cultural services. If there are more people who use cultural services, the cultural infrastructure (for example houses of culture, museums, concert halls) is more complicated and costly. (Rose & Schultze, 1998; Werck et al., 2008) That is why we could expect that per capita spending for culture increase with a number of citizens.

Population density is the second factor where demand and cost aspects are correlated. In less populated municipalities, the problem of distance to central places of the local unit may decrease the citizens demand on culture. Simultaneously in more populated municipalities, the economies of scale occur and cost and spending per capita are smaller. (Benito et al., 2013; Werck et al., 2008)

The cost of culture services is related also to a number of real consumers of local services and number of infrastructure objects needed for culture services. That relation is well developed in case of analysis of education- where a number of schools and pupils is presented as an important factor of spending for education. For example- (Ahlin & Mörk, 2008; Borge & Rattsø, 1995; Falch, Ronning, & Strom, 2008; Poterba, 1996; Salinas & Solé Ollé, 2009) Number of consumers represent on one hand demand of local society on other it could be related to economies of scale. In previous studies on local spending on culture these variables were not analyzed, but taking into account they economic validity I add variables of the quantity of cultural objects and users in my empirical analysis.

Revenue and Expenditure Autonomy of Polish Municipalities

Sub-central governments in Poland are responsible for important part of public tasks and local and regional expenditures represent about 30% of public spending. The most important are expenditures of 2412 municipalities (gminas). We can distinguish three types of gminas- rural, urban and mixed municipalities. In my study, I focus on the biggest and most diverse group of gminas- rural. There 1565 rural units and about 29% of Poles live there. The rural municipalities are those where there are no towns, and usually, such municipality consists of several villages. There are rural municipalities where most of the citizens are farmers, but there are also rural municipalities which are strongly urbanized, and the citizens work in non-agricultural sector. The diversity of municipal economy is also related to the history

of Poland. In XIX century Poland was occupied by 3 neighboring countries and the differences in regional development, but also social and cultural characteristic of citizens of these regions are still present. (see for example (Gorzelać & Jałowicki, 2001)).

The variation of the local economy is visible also in local governments budgets. The important part of local revenues (about 28% of rural municipalities revenues) is own taxes and charges for which local governments could decide about rates and reliefs. The shares in centrally levied income taxes decide about 14% of rural municipalities' revenues. The general grants cover about 35% of rural municipalities revenues and specific grants about 23%. But the diversification of this structure is very important. To analyze it we can use revenue autonomy indicator- see table 1. As presented in first part of this paper revenue autonomy indicator is quite simple to established, and in my study, I define revenue autonomy indicator as

$IRA = OR/R$; where

OR = local taxes and charges, and the loss of revenues due to local fiscal policy

R = all budget revenues and the loss of revenues due to local fiscal policy

Table 1 The variation of revenue and spending autonomy indicators and revenues per capita in rural municipalities in 2014 and correlation of these variables

	IRA	ISA	Revenues per capita (in zł)*
mean	0.302	0.449	3 164.23
p50	0.287	0.445	3 041.35
min	0.102	0.272	2 158.59
max	0.771	0.781	13 204.37
cv	30%	45%	20%
Pearson correlation coefficient			
IRA	1		
ISA	0.64	1	
Revenues per capita (in zł)*	0.51	0.36	1

* without grants from the European Union.

Source: own calculation based on Statistical Office data

The analysis of expenditure autonomy is more difficult. As mentioned, the information about more and less autonomic spending are not simply visible in local budgets. To distinguish them the detailed analysis of regulation is needed. I did such analysis for 5 the most important in local budgets categories of spending- education, social protection, administration, transport and communal services (they cover about 80% of local expenditures). I analyzed policy, budget, input, output autonomy and the

rules related to monitoring and evaluation. (Bach, Blöchliger, & Wallau, 2009; Blöchliger, 2014). I establish an indicator of spending autonomy (ISA):

$ISA = (OE - N\&LA)/OE$; where

OE = operational expenditure

N&LA = not- and low-autonomous expenditure

I define non-autonomous expenditure as spending for which budget autonomy is strictly limited; that is, the spending is financed by specific grants or obligatory payments to a central budget are required. I define low-autonomous expenditure as local tasks for which both input and output autonomy are strongly restricted. It is worth noting that the above-mentioned legal regulations are the same for every municipality. Consequently, de jure spending autonomy of local units is the same for all units, but de facto spending autonomy is differential and depends on the real costs of local public services and the size and flexibility of local revenues. As presented in table 1 the spending and revenue autonomy are positively and quite strongly correlated, there is also a positive and moderate correlation between those indicators and wealth of municipalities. But it needs to be noticed, that this correlation is not very strong- it's mean that those indicators represent different problems of local autonomy.

In my empirical study, I ask if and how the limits in autonomy influence local spending policy. To answer this question I divided rural municipalities into groups- those where autonomy is high, moderate and low. Analyzing the whole population of rural municipalities in years 2000-2014, I define the levels of indicator which represents first and third quartile of municipalities. (in case of IRA: $Q1=0,215$ and $Q3=0,35$; for ISA $Q1=0,381$ and $Q3=0,465$). As highly autonomous units I define those which indicator of autonomy (separately for revenues and spending) is higher than Q3 in eleven or more years. The low autonomous are units which autonomy indicator is smaller than Q1 in eleven or more years. The rest of population I define as moderately autonomous units. Finally, 167 municipalities are defined as low spending autonomic, 1180 as moderately and 218 as high. In the case of revenue autonomy, there are 199 municipalities in the low-autonomic group, 234 in high and 1132 in moderate. As table 2 presents those groups in case of revenue and spending autonomy are not the same. There is an important group of municipalities which are low (or high) autonomous on revenue/spending side, but moderate on spending/revenue side.

Table 2 Number of low, moderate and high -autonomous rural municipalities.

	ISA			
	low	moderate	high	total
low	72	127	0	199
moderate	95	956	81	1132
high	0	97	137	234
IRA total	167	1180	218	1565

* without grants from the European Union.

Source: own calculation based on Statistical Office data

Municipal Spending on Culture- The Determinants Of Variance

Dissemination of culture as a public task is strongly decentralized in Poland, and sub-sovereign governments decide about 70% of public spending for culture. What is important in my study there are no strict regulations on local spending for culture. The only important one is related to libraries- in every municipality need to be at least one public library. Local governments are responsible for organization and financing of public cultural entities- especially libraries and houses of culture, but there are also municipal museums, art galleries, cinemas, theatres, philharmonics, orchestras etc. (Kukołowicz, Modzelewska, Siechowicz, & Wiśniewska, 2016) Spending on culture is small part of local budgets (in average about 3%) but steadily growing and rural municipalities spent in 2014 two times more on culture than in 2000 (in real values). But as table 4 presents there is important variation in this spending. In my analysis, I focus on operational spending, without spending financed by EU grants. The most autonomic municipalities spend in average twice more than the less, but the variation inside the groups is also very important. (see table 3)

Table 3 Rural municipalities operational spending on culture per capita in years 2000-2014 (value in zł from 2014)

		mean	p50	Min*	max	cv
ISA	low	42.02	38.64	0.00	191.69	52%
	moderate	52.28	46.31	0.00	381.17	60%
	high	85.53	73.12	0.00	927.70	73%
IRA	low	44.80	39.51	0.00	211.97	57%
	moderate	52.52	46.83	0.00	381.17	59%
	high	81.10	68.41	0.00	927.70	78%
Total		55.81	48.12	0.00	927.70	69%

* zero means no spending or lack of data, and there are maximum 6 units every year where no spending was noticed. Source: own calculation based on Statistical Office data

To find if and how the level of autonomy influence local spending policy I made econometric panel analysis, using dynamic panel estimator – system GMM (Heinesen, 2004; Zhu, 2013)¹. First I do the simple demand framework model- as presented in second part of this paper. The table 4 summarized the variables which I use.

$$Eit = \alpha_i + \sum_k \beta_k soc_{it} + \sum_n \gamma_n rev_{it} + \sum_m \delta_m cost_{it} + \varepsilon_{it}$$

Second I analyzed interaction effects, which help me to find if there are differences across groups and if effects of variables defining citizens preferences differ. I include an interaction term between socioeconomic variables and dummy variable -D. Where D=0 for the moderate group, and 1 separately for lowly and highly autonomous groups, so we can compare effects on spending of lowly and highly autonomous groups to moderate municipalities.

$$Eit = \alpha_i + \sum_k \beta_k soc_{it} + \sum_k \beta_{Dsoc} Dsoc_{it} + \sum_k D\beta_{Dsoc} + \sum_n \gamma_n rev_{it} + \sum_m \delta_m cost_{it} + \varepsilon_{it}$$

Taking into account budgetary characteristic and possibilities of GMM analysis, I add in models spending for culture from previous two years (L.E and L2. E), lagged variables for some budget categories and also year effects. The results of analysis are presented in tables 4 and 5. (for clarity of presentation in table 4 I do not present variables for years and in table 5 I present only interaction variables.)

The econometric analysis presents that spending for culture in Poland is determined by noticed in literature budgetary, social and cost variables. In the case of budgetary variables, the most interesting in my study are autonomy indicators. More autonomous municipalities spend more on culture. But the influence of spending autonomy is much stronger than of revenue autonomy. 1% more autonomous expenditures caused 0,77% increase of spending for culture, while 1% more autonomous revenues are responsible for only 0,08% higher expenditure on culture (see table 4). This effect is confirmed in interaction analysis. The more spending autonomous group of municipalities spend more on culture, while lowly less- than the moderate group. In the case of revenue autonomy, there is no difference between moderate and low autonomous group and only high revenue' autonomic municipalities spend more, but the value of interaction is twice smaller than in the case of spending autonomy analysis.

¹ All analyses were done in the program STATASE 14

The socioeconomic characteristic of society influence local spending on culture, when we analyze all municipalities together (table 4)- this is in line with preference matching idea. In the case of age structure, the sign of correlation is the same in both models presented in table 4 but the significance of variables is not stable. The model where revenue autonomy is included presents that if there are more small kids in municipality spending for culture are smaller. The other age variables are not significant in that model. While in a model with spending autonomy indicator, significant are: shares of school kids and share of old people in the municipality. Both variables have positive coefficient- more students and old people in society cause in higher spending for culture. The gender structure of municipalities is not significant in both models presented in table 4. Important in both models is the education of society and citizens financial statement. In municipalities, where there is more educated society spending for culture are higher. But the better financial statement of people in the municipality (bigger houses and more private firms) has a negative impact on public spending for culture.

The interaction analysis presents that the variables representing the influence of share of small kids, the share of old people and number of firms on spending for culture are valid only in case of most autonomous municipalities (in both analyses presented in table 5). These results could represent the problem of preference matching in less autonomous municipalities. Because presented in table 4 results of analysis of the whole population of municipalities, could be- as visible in table 5- related only to the significance of socioeconomic variables in highly autonomic groups.

Only in the case of a variable representing the citizens level of education the interaction model represents validity for moderate group. What interesting the effect of changes in the share of educated citizens in highly autonomous municipalities is smaller than in a moderate group.

The signs of the coefficient in cost variables represent the problem of the small scale of cultural activity when no economies of scale exist. More citizens, higher density, more libraries and readers, houses of culture or cinemas cause more spending per capita on culture. The only number of museums give opposite effect.

Table 4 List of variables and estimation results for demand model for logarithm of spending on culture per capita (E) in years 2000-2014

Variable:		Description of the variable:	E	E
L.E	Budgetary and	Logarithm of spending for culture per capita in year t-1	0.714**	0.721**
L2.E		Logarithm of spending for culture per capita in year t-2	0.107**	0.112**
Grantcult_pc		Specific grants for culture from central budget per capita	0.002**	0.001**

Ownrevcult_pc		Own revenues from culture per capita	0	0
rev_pc		Logarithm of revenues per capita	0.112**	0.121**
ISA		Indicator of spending autonomy	0.766**	
IRA		Indicator of revenue autonomy		0.082**
UExpendcult_pc		Expenditures on culture financed from EU funds per capita	-0.001**	-0.001**
L. UExpendcult_pc		Expenditures on culture financed from EU funds per capita in year t-1	0.00*	0.001**
investcult_pc		Investment for culture per capita	0.00**	0.00***
L. investcult_pc		Investment for culture per capita in year t-1	0.00**	0.00***
Pop0_4_all		Share of population 0-4 in community	-0.356	-0.668*
pop5_19_all		Share of population 5-19 in community	0.357*	-0.034
pop60more_all		Share of population older than 59 in community	0.204*	0.128
men_all		Share of men in population	-0.362	-0.412
High_educ_all		Share of people with the highest degree of education in community in 2002 ¹	0.515**	0.655**
House_size_pc		Living area per capita ²	-0.002**	0.00
firms_pc		Number of private firms per capita	-0.601**	-0.276**
_part_1	Socioeconomic variables	Dummy variable representing part of Poland occupied in XIX century by Prussia (Austrian part is comparison)	0.02**	0.034**
_part_2	Socioeconomic variables	Dummy variable representing part of Poland occupied in XIX century by Russia (Austrian part is comparison)	-0.017**	-0.02**
popkm2		Density of population	0.015**	-0.00
lnpop		Logarithm of number of citizens	0.017**	0.00
House_of_cult	Cost variables	Number of houses of culture	0.02**	0.018**
readers_pc	Cost variables	Number of readers of public libraries per capita	0.398**	0.367**
museums	Cost variables	Number of communal museums	-0.032**	-0.034**
cinemas	Cost variables	Number of communal cinemas	0.06**	0.06**
cons			-0.504**	0
Number of observations			19851	19851
number of groups			1527	1527
number of instruments			271	271
Arellano-Bond test for AR(2)			0,152	0.241
Hansen test of overid. restrictions:			0.111	0.061

* p<0.05; **p<0.01

¹ The data based on census made in 2002, there are no newer data about citizens education for municipalities

² There are no data on citizens income in municipalities, the size of living area and number of private firms is a approximation of citizens private financial condition

Table 5 Interactions analysis

variables:	only dummy	pop0_4_all	pop_5_19_all	pop60more_all	men_all	High_educ_all	House_size_pc	firms_pc
ISA-low	-0.028* *	-0.037	-0.018	-0.026	0.529	-0.034	-0.013	-0.007
ISA-high	0.039* *	0.095* *	0.039	-0.015	-0.327	0.078* *	0.109**	0.088* *
variable		0	0.04	0	-0.432	1.172* *	0	0.019
variable-group low		0.138	-0.048	-0.012	-1.113	0.269	-0.001	-0.388
variable- group high		-1.095* *	0.001	0.297**	0.741	0.997* *	-0.003	-0.703* *
Arellano-Bond test for AR(2)	0.251	0.273	0.248	0.243	0.223	0.255	0.269	0.244
Hansen test of overid. restrictions:	0.062	0.071	0.058	0.054	0.058	0.064	0.065	0.062
IRA-low	-0.005	0.021	-0.064* *	0.033	-0.059	-0.012	-0.043	0.012
IRA-high	0.02**	0.13**	0.05	-0.039	0.103	0.06**	0.043	0.075* *
variable		-0.209	-0.104	0.025	-0.421	1.113* *	0	0.103
variable-group low		-0.487	0.284	-0.197	0.109	0.379	0.002	-0.29
variable- group high		-2.077* *	-0.161	0.33**	-0.167	-1.058* *	-0.001	-0.806* *
Arellano-Bond test for AR(2)	0.301	0.297	0.272	0.289	0.321	0.37	0.291	0.295
Hansen test of overid. restrictions:	0.057	0.069	0.051	0.049	0.052	0.057	0.051	0.063

* p<0.05; **p<0.01.

Summary

Partial decentralization is the fact. There are objective reasons for limits of local autonomy. The problem is that those limits influence on local government efficiency-costs and allocative. In the literature, we could find a lot of research which analyze the results of the limits on local revenues. There are less studies focusing on expenditure autonomy. In this paper I proposed indicators of expenditure decentralization for Polish municipalities, having regard to different aspects of expenditure autonomy and also not granted tasks. Those indicators focused more preciously than those which look only at the autonomy of revenues on the problem of adequacy of public money for local services and vertical imbalance problem. I present that there is an important variation of real autonomy between local governments across Poland. I presented that limits in revenue and spending autonomy influence the local spending behaviours on culture. There is an important problem of equal access to cultural services because less autonomic municipalities spend two times less on culture than highly autonomous. As econometric analysis presents to understand these differences better is spending autonomy indicator than revenue autonomy indicator. The second problem related to the important differences in the level of spending for culture is allocative efficiency. Local spending on culture is determine by citizens preferences. But this preference matching is significant more in highly autonomous municipalities. It means, that allocative efficiency is restricted by limits on of local governments revenues and spending.

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Managing Multi-Discipline Extended Programmes

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Abstract

The Vaal University of Technology (VUT) has been offering a multidiscipline Extended Programme since 2009 and even though this Programme is made up from different faculties, the entire Extended Programme is overseen by one unit director. Due to the diversity of the unit and the variety of subject offerings, the unit simply cannot follow the same managerial approach that is applied when managing one specific discipline. That is why it requires a completely different and unique approach. The Extended Programme consists of students who are enrolled in different disciplines, i.e. Engineering, Human Sciences, etc., who all learn in different ways and have different needs, but are all managed in one specific unit. Therefore, to ensure that all needs of staff and students are catered for, it is crucial that an alternative managerial approach is applied. The success of a multidiscipline Extended Programme is dependent on the successes of the students, who in return are dependent on the dedication of both academic and administration staff. More so, the positive influence lecturers have on students and the invaluable role they play. It is undeniable that without the guidance and motivation of the lecturers it would be very difficult for the students to succeed. In order for the lecturers to be kept motivated and content, it is important to provide them with equal workloads and ensure transparency at all times. Staff, which is irrefutably guided and kept motivated by a suitable managerial approach. Applying this approach when managing a multidiscipline

Keywords: Extended Programmes, Foundation Programmes, Managing Programmes, Multi-disciplined Programmes

1. Introduction

The Vaal University of Technology (VUT) has been offering multidiscipline Extended Programmes since 2009 and even though these programmes are offered from different faculties, only one unit is responsible for managing all the extended subjects on offer.

The Unit for Preparatory Programmes (UPP) consists of a Director and a Manager, both who are full-time personnel with the VUT. The Director manages the academic part of the work, whilst the Manager implements and performs all the administrative duties within the unit. All other staff members are on contract and contracts are renewed on an annual needs analysis. The Extended Programmes on offer are from all four (four) faculties on the Vanderbijlpark campus. The faculty of Applied and Computer Sciences offers the Extended Diploma in Information Technology, while the Faculty of Engineering and Technology offers the following extended engineering diploma programmes; Chemical, Civil, Electrical: Computer Systems, Electrical: Electronics, Electrical: Power, Electrical: Process Control, Industrial, Mechanical as well as Metallurgy. The Faculty of Human Sciences offers the following extended diploma programmes: Fashion, Fine Art, Graphic Design, Photography, Labour Law, Legal Assistance, Policing, Safety Management, Public Relations Management, Ecotourism Management, Tourism Management and Food Service Management. The Faculty of Management Sciences offers the following extended diploma programmes: Cost and Management Accounting, Financial Information Systems, Internal Auditing, Marketing, Sports Management and Retail Management. As can be seen, this includes a vast majority of diploma programmes, hereafter referred to as the multi-discipline extended diploma programmes.

Table 1 illustrates the programme outline for the four-year extended diploma in Information Technology offered by the Faculty of Applied and Computer Sciences (Sutherland, 2016, p. 3).

TABLE 1: First-year Extended Programme outline - Duration of Diploma is four years

TABLE 1: First-year Extended Programme outline - Duration of Diploma is four years

Semester 1		Semester 2		
Module 1	Module 2	Module 3	Module 4	Module 5
General Mathematics 1.1 H1B	General Mathematics 1.2 NTMTH2B	General Mathematics 1.3 NTMTH3B	General Mathematics 1.4 NTMTH4B	General Mathematics 1.5 NTMTH5B
Keyboard Skills 1.1 S1B	Keyboard Skills 1.2 NTKBS2B	Keyboard Skills 1.3 NTKBS3B	Keyboard Skills 1.4 NTKBS4B	Keyboard Skills 1.5 NTKBS5B
Language Literacy 1.1 N1B	Language Literacy 1.2 NTLAN2B	Language Literacy 1.3 NTLAN3B	Language Literacy 1.4 NTLAN4B	Language Literacy 1.5 NTLAN5B
Computer Literacy 1.1 T1B	Computer Literacy 1.2 NTCPT2B	Computer Literacy 1.3 NTCPT3B	Computer Literacy 1.4 NTCPT4B	Computer Literacy 1.5 NTCPT5B
Entrepreneurial Skills 1.1 P1B	Entrepreneurial Skills 1.2 NTTRP2B	Entrepreneurial Skills 1.3 NTTRP3B	Entrepreneurial Skills 1.4 NTTRP4B	Entrepreneurial Skills 1.5 NTTRP5B
Pass rate 50% per subject per module		Pass rate 60% per subject per module		

The one-year curriculum is divided into five modules. All the modules need to be completed successfully before the student can proceed to the following year. Students have to complete five subjects, as prescribed by the faculty. The subjects are General

Mathematics, Keyboard Skills, Language Literacy, Computer Literacy and Entrepreneurial Skills.

Table 2 illustrates the programme outline for the four-year extended diploma in various Engineering disciplines offered by the Faculty of Engineering & Technology (Sutherland, 2016, p. 3).

TABLE 2: First-year Extended Programme outline - Duration of Diploma is four years

TABLE 2: First-year Extended Programme outline - Duration of Diploma is four years

Semester 1		Semester 2		
Module 1	Module 2	Module 3	Module 4	Module 5
Mathematics 1.1 NTMAT1B	Applied Mathematics 1.2 NTMAT2B	Applied Mathematics 1.3 NTMAT3B	Applied Mathematics 1.4 NTMAT4B	Applied Mathematics 1.5 NTMAT5B
Science 1.1 NTSCI1B	Science 1.2 NTSCI2B	Science 1.3 NTSCI3B	Science 1.4 NTSCI4B	Science 1.5 NTSCI5B
Language Literacy 1.1 NTLAN1B	Language Literacy 1.2 NTLAN2B	Language Literacy 1.3 NTLAN3B	Language Literacy 1.4 NTLAN4B	Language Literacy 1.5 NTLAN5B
Computer Literacy 1.1 NTCPT1B	Computer Literacy 1.2 NTCPT2B	Computer Literacy 1.3 NTCPT3B	Computer Literacy 1.4 NTCPT4B	Computer Literacy 1.5 NTCPT5B
Entrepreneurial Skills 1.1 NTTRP1B	Entrepreneurial Skills 1.2 NTTRP2B	Entrepreneurial Skills 1.3 NTTRP3B	Entrepreneurial Skills 1.4 NTTRP4B	Entrepreneurial Skills 1.5 NTTRP5B
Pass rate 50% per subject per module		Pass rate 60% per subject per module		

The one-year curriculum is divided into five modules. All the modules need to be completed successfully before the student can proceed to the following year. Students have to complete five subjects, as prescribed by the faculty. The subjects are Applied Mathematics, Science, Language Literacy, Computer Literacy and Entrepreneurial Skills. The following extended diploma programmes are on offer: Diploma in Chemical Engineering; Diploma in Civil Engineering; Diploma in Electrical Engineering - Computer Systems; Diploma in Electrical Engineering - Electronics; Diploma in Electrical Engineering - Power; Diploma in Electrical Engineering - Process Control; Diploma in Industrial Engineering; Diploma in Mechanical Engineering and Diploma in Metallurgical Engineering.

Table 3.1 illustrates the programme outline for the four-year extended diploma in certain Human Sciences disciplines offered by the Faculty of Human Sciences (Sutherland, 2016, p. 4).

TABLE 3.1: Group 1 first year extended programme outline - Duration of Diploma is four years

Semester 1	Semester 2		
Module 2	Module 3	Module 4	Module 5
Business Studies 1.2 NTBUS2B	Business Studies 1.3 NTBUS3B	Business Studies 1.4 NTBUS4B	Business Studies 1.5 NTBUS5B
Visual Art & Design 1.2 NTVFD2B	Visual Art & Design 1.3 NTVFD3B	Visual Art & Design 1.4 NTVFD4B	Visual Art & Design 1.5 NTVFD5B
- Fashion	- Fashion	- Fashion	- Fashion
- Fine Art & Graphic Design	- Fine Art & Graphic Design	- Fine Art & Graphic Design	- Fine Art & Graphic Design
- Photography	- Photography	- Photography	- Photography
Language Literacy 1.2 NTLAN2B	Language Literacy 1.3 NTLAN3B	Language Literacy 1.4 NTLAN4B	Language Literacy 1.5 NTLAN5B
Computer Literacy 1.2 NTCPH2B	Computer Literacy 1.3 NTCPH3B	Computer Literacy 1.4 NTCPH4B	Computer Literacy 1.5 NTCPH5B
Entrepreneurial Skills 1.2 NTTRP2B	Entrepreneurial Skills 1.3 NTTRP3B	Entrepreneurial Skills 1.4 NTTRP4B	Entrepreneurial Skills 1.5 NTTRP5B
subject per module	Pass rate 60% per subject per module		

The one-year curriculum is divided into five modules. All the modules need to be completed successfully before the student can proceed to the following year. Students have to complete five subjects, as prescribed by the faculty. The subjects are Business Studies, Visual Arts & Design, Language Literacy, Computer Literacy and Entrepreneurial Skills. The following extended diploma programmes are on offer: Diploma in Fashion, Diploma in Fine Art; Diploma in Graphic Design; Diploma in Photography.

Table 3.2 illustrates the programme outline for the four-year extended diploma in certain Human Sciences disciplines offered by the Faculty of Human Sciences (Sutherland, 2016, p. 4).

TABLE 3.2: Group 2 first year Extended Programme outline - Duration of Diploma is four years

Semester 1	Semester 2		
Module 2	Module 3	Module 4	Module 5
General Mathematics 1.2 NTMTH2B	General Mathematics 1.3 NTMTH3B	General Mathematics 1.4 NTMTH4B	General Mathematics 1.5 NTMTH5B
LQF 1.2 NTLQF2B	LQF 1.3 NTLQF3B	LQF 1.4 NTLQF4B	LQF 1.5 NTLQF5B
- Law	- Law	- Law	- Law
- Quantitative Techniques	- Quantitative Techniques	- Quantitative Techniques	- Quantitative Techniques
- Basic Finance	- Basic Finance	- Basic Finance	- Basic Finance
Language Literacy1.2 NTLAN2B	Language Literacy1.3 NTLAN3B	Language Literacy 1.4 NTLAN4B	Language Literacy 1.5 NTLAN5B
Computer Literacy1.2 NTCPH2B	Computer Literacy1.3 NTCPH3B	Computer Literacy 1.4 NTCPH4B	Computer Literacy1.5 NTCPH5B
Entrepreneurial Skills 1.2 NTTRP2B	Entrepreneurial Skills 1.3 NTTRP3B	Entrepreneurial Skills 1.4 NTTRP4B	Entrepreneurial Skills 1.5 NTTRP5B
per subject per module	Pass rate 60% per subject per module		

The one-year curriculum is divided into five modules. All the modules need to be completed successfully before the student can proceed to the following year. Students have to complete five subjects, as prescribed by the faculty. The subjects are General Mathematics, Legal: consisting out of Law, Quantitative Techniques and Basic Finance, Language Literacy, Computer Literacy and Entrepreneurial Skills. The following extended diploma programmes are on offer: Diploma in Labour Law; Diploma in Legal Assistance; Diploma in Policing; Diploma in Safety Management.

Table 3.3 illustrates the programme outline for the four-year extended diploma in certain Human Sciences disciplines offered by the Faculty of Human Sciences (Sutherland, 2016, p. 5).

TABLE 3.3: Group 3 first year Extended Programme outline - Duration of Diploma is four years

Semester 1		Semester 2		
e1	Module 2	Module 3	Module 4	Module 5
atics 1.1 1B	Basic Mathematics 1.2 NTMTB2B	Basic Mathematics 1.3 NTMTB3B	Basic Mathematics 1.4 NTMTB4B	Basic Mathematics 1.5 NTMTB5B
.1	LEC 1.2	LEC 1.3	LEC 1.4	LEC 1.5
1B,	NTETL2B,	NTETL3B,	NTETL4B,	NTETL5B,
1B,	NTCLL2B,	NTCLL3B,	NTCLL4B,	NTCLL5B,
1B,	NTLPR2B,	NTLPR3B,	NTLPR4B,	NTLPR5B,
1B	NTLTM2B	NTLTM3B	NTLTM4B	NTLTM5B
	- Law	- Law	- Law	- Law
OR PR	- Tourism OR PR	- Tourism OR PR	- Tourism OR PR	- Tourism OR PR
ance	- Basic Finance	- Basic Finance	- Basic Finance	- Basic Finance
ency 1.1 1B	Language Literacy 1.2 NTLAN2B	Language Literacy 1.3 NTLAN3B	Language Literacy 1.4 NTLAN4B	Language Literacy 1.5 NTLAN5B
ency 1.1 1B	Computer Literacy 1.2 NTCPH2B	Computer Literacy 1.3 NTCPH3B	Computer Literacy 1.4 NTCPH4B	Computer Literacy 1.5 NTCPH5B
Skills 1.1 1B	Entrepreneurial Skills 1.2 NTTRP2B	Entrepreneurial Skills 1.3 NTTRP3B	Entrepreneurial Skills 1.4 NTTRP4B	Entrepreneurial Skills 1.5 NTTRP5B
ate 50% per subject per module		Pass rate 60% per subject per module		

The one-year curriculum is divided into five modules. All the modules need to be completed successfully before the student can proceed to the following year. Students have to complete five subjects, as prescribed by the faculty. The subjects are General Mathematics, 1) Tourism: consisting out of Law, Tourism, and Basic Finance or 2) Public Relations: consisting out of Law, Public Relations and Basic Finance, Language Literacy, Computer Literacy and Entrepreneurial Skills. The following extended diploma programmes are on offer: Diploma in Ecotourism; Diploma in Food Service Management; Diploma in Public Relations Management; Diploma in Tourism Management.

Table 4 illustrates the programme outline for the four-year extended diploma in certain Management Sciences disciplines offered by the Faculty of Management Sciences (Sutherland, 2016, p. 5).

TABLE 4: First-year Extended Programme outline - Duration of Diploma is four years

Semester 1	Semester 2		
Module 2	Module 3	Module 4	Module 5
General Mathematics 1.2 NTMTH2B	General Mathematics 1.3 NTMTH3B	General Mathematics 1.4 NTMTH4B	General Mathematics 1.5 NTMTH5B
Accounting 1.2 NTFAT2B	Accounting 1.3 NTFAT3B	Accounting 1.4 NTFAT4B	Accounting 1.5 NTFAT5B
Language Literacy 1.2 NTLAN2B	Language Literacy 1.3 NTLAN3B	Language Literacy 1.4 NTLAN4B	Language Literacy 1.5 NTLAN5B
Computer Literacy 1.2 NTCPH2B	Computer Literacy 1.3 NTCPH3B	Computer Literacy 1.4 NTCPH4B	Computer Literacy 1.5 NTCPH5B
Entrepreneurial Skills 1.2 NTTRP2B	Entrepreneurial Skills 1.3 NTTRP3B	Entrepreneurial Skills 1.4 NTTRP4B	Entrepreneurial Skills 1.5 NTTRP5B
subject per module	Pass rate 60% per subject per module		

The one-year curriculum is divided into five modules. All the modules need to be completed successfully before the student can proceed to the following year. Students have to complete five subjects, as prescribed by the faculty. The subjects are General Mathematics, Accounting, Language Literacy, Computer Literacy and Entrepreneurial Skills. The following extended diploma programmes are on offer: Diploma in Cost and Management Accounting; Diploma in Financial Information Systems; Diploma in Internal Auditing (Sutherland, 2016).

It is clear from the different programme outlines that staff members with various qualifications are needed to educate the students. This leads to one very diverse unit consisting of staff members with various personalities, characteristic and qualities. The unit as a whole is guided by the management style and leadership skills of the unit director.

2. Leadership Styles

The responsibility falls on the leader to delegate tasks to staff and furthermore supervise the tasks which were allocated to staff members. The style of the leader can be interpreted as the behavior of the leader towards the unit, staff members and outsiders (Luthans, 2002). Although there are many leadership styles, the most common styles evolved through the last centuries are Directive, Autocratic, Authoritarian, Democratic / Participative, Delegate (Laissez-Faire), Bureaucratic, Affiliative, Pacesetting and Coaching (Khan, Khan, Qureshi, Ismail, Latif and Tahir, 2015, p. 87; Cardinal, 2013, "6 Management styles and when best to use them - The leaders tool kit," para. 4-30).

2.1 Directive style of leadership

The leader orders the staff members around, disciplines them if they do not comply with their tasks and as a leader set high standards. However, when the leader leaves the room everybody stops working. This style needs full-time management and can

be described as high maintenance (Cardinal, 2013, "*6 Management styles and when best to use them - The leaders tool kit*," para. 4). The unit director only applies this style when crisis management is needed and not as part of the daily operations.

2.2 Autocratic style of leadership

The leader keeps as much possible authority and decision-making power to him/herself. This has been identified as a classical approach, but staff members are usually highly resistant to this style of leadership, even though there are usually rewards attached to the completing of the tasks (Khan *et al*, 2015, p. 87-88). However, this leadership style is never followed by the unit's director and no rewards are awarded for the completion of tasks by staff members.

2.3 Authoritarian style of leadership

The leader is perceived as a dictator, bossy, autocratic and controlling individual, as the tasks are allocated with specifics. Specifics in the sense that no inputs are required from the staff members, as the leader will already provide specifics on exactly how, when and where the tasks should be completed. According to Lewin (1939) staff members are very productive with leaders applying this leadership style (Cardinal, 2013, "*6 Management styles and when best to use them - The leaders tool kit*," para. 1-18; Changing Minds. 2016. "*Lewin's leadership styles*," para. 1-5). However, the unit director only implements this type of leadership style when uniformed standards are required in the unit, for example, examination front pages, university logo usage, and forms used by the unit's staff members.

2.4 Democratic / Participative style of leadership

The leader will always keep the staff members up to date regarding any important information pertaining to the unit. Responsibilities of problem-solving and decision making are open and staff members' participation is coached by the leader (Khan *et al*, 2015, p. 88-89). Due to the fact that the unit consists out of highly skilled staff members, this type of leadership is typically applied by the unit's director. Lewin (1939) found that staff members were less productive with a democratic leader than with an authoritarian leader, but on the other hand, the contributions of staff members with a democratic leader were of much higher quality (Khan *et al*, 2015, p. 89; Changing Minds. 2016. "*Lewin's leadership styles*," para. 1-5). That is why the combination of the two above mentioned leadership styles, makes the unit extremely productive and contributions of staff members are of a high quality. The director of the unit participates in the workload distribution. Experienced and credible staff, together with the unit director, all contribute to the completion of tasks, but ultimately the unit director makes the final decision to ensure the successful completion of the tasks (Cardinal, 2013, "*6 Management styles and when best to use them - The leaders tool kit*," para. 1-18; Khan *et al*, 2015, p. 89).

2.5 Delegate (Laissez-Faire) style of leadership

The leader does not participate in decision-making exercises. Staff members are the ones deciding on what should happen and when it should happen (task-related). Therefore, little or no direction is given by the leader. Lewin (1939) proved that although the staff members are highly skilled, educated and show pride in their work, they feel insecure without a direct leadership style available and are overall not very productive (Khan et al, 2015, p. 89-90; Changing Minds. 2016. "*Lewin's leadership styles*," para. 1-5). This leadership style is never utilised by the unit's director, even though the staff is highly skilled and educated, it is imperative that they always receive some form of coaching from their leader.

2.6 Bureaucratic style of leadership

The leader follows rules and regulations precisely. If a task is not prescribed somewhere in a policy or procedure, the leader will first consult with his/her line manager for guidance. This indicates that staff members are performing routine tasks on a daily basis, staff members get bored and work habits that are difficult to break are formed (Khan et al, 2015, p. 90). This leadership type is only followed by the unit director when compiling the teaching and learning schedules for staff 2

2.7 Affiliative style of leadership

The only time this leadership style is used is when the unit director manages conflict, either between a specific student group and their lecturer or amongst staff members themselves. During meetings with staff members, the unit director presents staff with a topic for discussion and or allocates tasks. These meetings can sometimes lead to conflict between staff members, especially when stronger personalities start to dominate the discussion or some staff members may ask for guidance when they are experiencing difficulty in coping with tasks and need assistance from other staff members. The unit director encourages individuals to speak their mind and motivates them to come up with solutions to the problems that have been identified. Cardinal (2013, "*6 Management styles and when best to use them - The leaders tool kit*," para. 1-18) opines that in times like these it is important that the unit director creates harmony and controls the discussion while encouraging staff members to speak their mind. However, regardless of the discussion outcome, the unit director still has the final decision making power.

2.8 Pacesetting style of leadership

The leader does most of the work and expects staff members to follow suit. However, the staff members have to be motivated in a positive manner and staff should not be in any need of assistance regarding the direction the unit is moving towards with its goals (Cardinal, 2013, "*6 Management styles and when best to use them - The leaders tool kit*," para. 1-18). Only a few tasks are specifically set out for the unit's director

and most of them are due to quality and security restrictions. Tasks are allocated specifically to the unit's director to ensure that they are properly performed.

2.9 Coaching style of leadership

The leader is always positively influencing staff members to develop themselves academically and motivating them to engage in lifelong learning. However, it is important that the leader stays in touch with what is new and also has to be experienced enough to apply this leadership style correctly (Cardinal, 2013, "6 *Management styles and when best to use them - The leaders tool kit*," para. 1-18). Although the unit's staff members are well educated, new developments are always rising and it is important to stay in touch with what is happening in the real world. Education has to progress and grow with the new developments, and even though the basic rules and regulations within the various teachings stay the same, it is necessary to identify how the basics can develop into something new and different.

Though the majority of these leadership styles are currently applied by the unit's director, it is important that the leadership of the unit stays authentic. Authenticity as a construct has been debated for centuries, therefore, the concept of authenticity is not new (Walumbwa, Avolio, Gardner, Wernsing, Peterson, 2008, p. 89-90). According to George (2003) as well as George & Sims (2007), there is evidence that the authentic approach by an individual leader is prominent to a desirable and effective methodology for advancing individuals and achieving positive and enduring outcomes in an organisation. In order to obtain an authentic management style and unique leadership style, the unit director developed a curriculum framework for the engineering programme which has been adapted and then applied throughout the different faculties and disciplines. This has finally lead to the development of the managerial theoretical framework.

3. Theoretical Framework

The curriculum framework aims at providing structured guidance, in the form of a skeleton profile that provides strength to the inner sub-structures. Hence, the curriculum framework can be described as a sustainable practice that comprises of a methodology, technique, and an innovative use of resources that has a proven record of success in providing continuous improvements in academic performance, quality performance or other measurable factors. Furthermore, it enables the higher education institution to deliver the best value to their prospective students and therefore, positively impacting the overall success of the institution. A curriculum framework providing introductory learning experiences for students in the study field of engineering at the VUT is depicted in Figure 1 (Sutherland, 2009, p. 178).

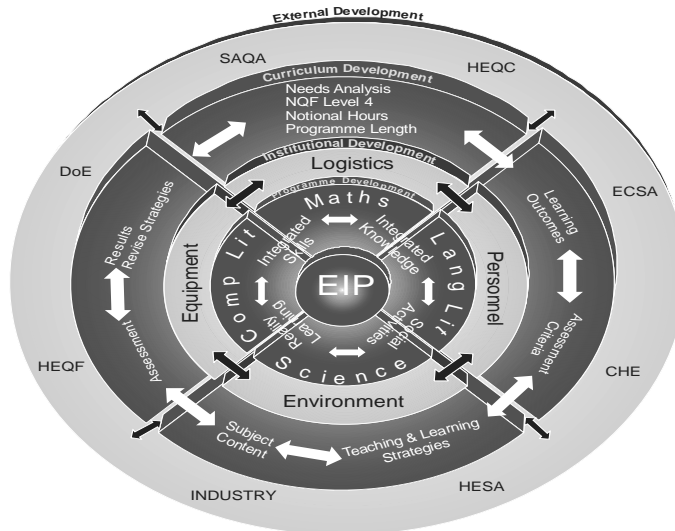


FIGURE 1: A curriculum framework for Extended Programme students (Sutherland, 2009, p. 178)

It is from this curriculum framework that the director developed the managerial framework applicable to the UPP. The managerial framework (Figure 2) depicts the UPP as the focus of the framework. On the periphery of the frame (External development) and impacting all the other layers in the frame, are the contextual role players responsible for legislation and regulations, as well as statutory bodies and providers of education. National and international trends that have an impact on teaching and learning are of importance and provide a backdrop to the managerial activities within. The main role players within this layer are the Department of Higher Education and Training (DHET), Higher Education Quality Committee (HEQC), Council on Higher Education (CHE), the Engineering Council of South Africa (ECSA) and the industry, while the legislative changes within the Higher Education Qualifications Sub-Framework (HEQSF) and the South African Qualifications Authority (SAQA) have to be taken into consideration before the next layer (authentic management) can be attempted.

The next layer in the framework represents the authentic management styles applied by the unit director. These activities were determined from the literature. The subsequent layer in the framework represents the institutional managerial hierarchy. Higher education institutions have basically the same institutional management hierarchy. The central layer of the framework represents the unit's development activities, all directed at prospective staff members and their activities as the focus of the framework.

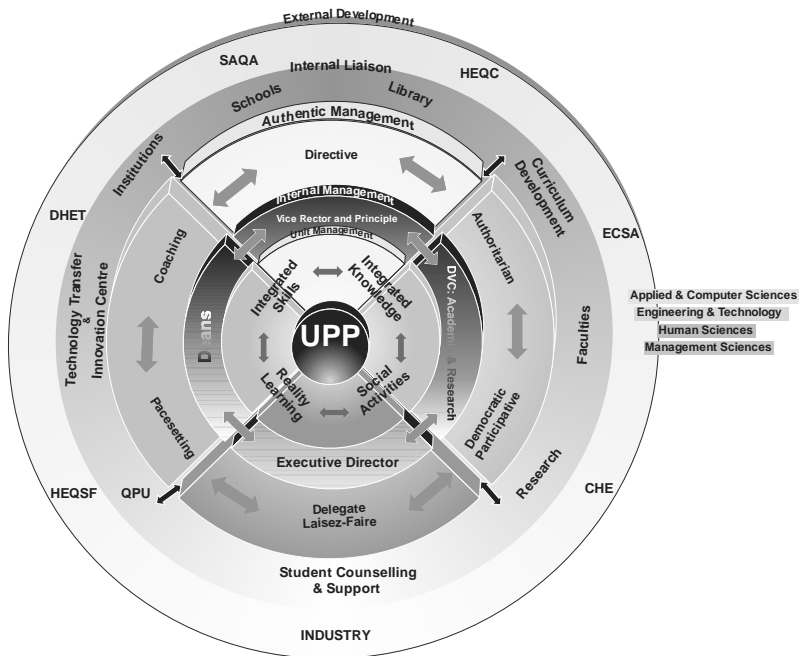


FIGURE 2: A managerial framework applicable to the Unit for Preparatory Programmes

The two-way arrows are implemented to indicate integration and reciprocal functioning. The openness of the layers represents flexibility and the ability to allow for a diversity of programme offerings and staff members but also depicts that external development influences managerial styles, institutional management, and staff member development. In the end, all these factors have a direct influence on the success rate of the participating students.

4. Success of the Extended Programmes

The success of a multidiscipline Extended Programme is dependent on the successes of the students, who in return are dependent on the dedication of both academic and administration staff. More so, the positive influence lecturers have on students and the invaluable role they play. It is undeniable that without the guidance and motivation of the lecturers it would be very difficult for the students to succeed. In order for the lecturers to be kept motivated and content, it is important to provide them with equal workloads and ensure transparency at all times.

This method supports and contributes to the success of the students because they are being equipped with the proper tools and guidance, which is ultimately provided by

motivated and dedicated staff. Staff, which is irrefutably guided and kept motivated by a suitable managerial approach. Applying this approach when managing a multidiscipline Extended Programme has proved to have significant and satisfactory results (91% success rate) in the success of a multidiscipline Extended Programme.

5. Conclusion

Even though the unit consists of self-managing teams, comprising of subject experts and very knowledgeable individuals, leadership in the form of a unit director is still crucial. In fact, Cohen & Bailey (1997) found that self-managed cross-functional project teams are less likely to be successful if they do not have a leader.

A programme was specifically designed, developed and implemented for the engineering students of the university by the unit director and because the proven success rate of the students, was to such an extent, the VUT finally decided to extend the programme and apply it throughout the university and its various faculties. Though not all diploma programmes on offer at the university have an extended programme, the majority do offer this option for students, who do not meet the intake criteria for the diploma programmes.

The director binds the unit together and ensures that all parties communicate with one another throughout the various disciplines in the unit. The unit, also consists of a wide variety of unique individuals, who each contribute their own unique style and individualism to the unit. Therefore, the combination of leadership styles which are utilized and implemented by the unit director, is appropriate to the nature and diversity of the unit and plays a vital part in the success of the Extended Programme. In addition, the confirmed success rate of the Extended Programme students enrolled in mainstream programmes, proves that the Extended Programme was indeed well managed and successful in its operations.

Unit logistics can become very problematic, due to the large amount of students participating in the programme. Venues becomes problematic, as the mainstream programmes are also running parallel to the extended programmes. Management has to ensure that the required resources for the extended programmes are available. In the university, managerial set-up factors, such as acquiring resources for the teams and team member behaviour, such as encouragement to take control of their own activities, is the directors solely responsibility (Nygren & Levine, 1996).

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Perspectives of Public Pedagogy in Christopher Nolan's Cinema. Case Studies on *Inception* and *the Dark Knight Rises*

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Abstract

The educational and pedagogical impact of cinema is investigated through two popular Christopher Nolan's films *Inception* and *The Dark Knight Rises*. Analysis of his films, in the context of cinema public pedagogy, shows that Nolan's way of film-making defines a specific set of challenging and reversing messages, hidden behind the Hollywood mainstream standards. Moreover, throughout this analysis, the power of the public pedagogy of the cinematic medium is established, and cinema is approached as a powerful tool that sets the standards of private and public behavior by combining entertainment and politics, according to [Giroux, 2008]. We end up in suggesting that the public pedagogy of cinema be embedded in the educational system as a distinct educational tool.

Keywords: Christopher Nolan, Public Pedagogy, Giroux

Introduction

Cinema public pedagogy is one of the most important types of informal education of our times. Grollios (2008), on commenting related analyses of Henry Giroux, states that "the meaning of public pedagogy demands a radical reflection of how optical

technologies are produced, circulated and adapted on various aspects of pedagogic. These aspects give birth to types of knowledge being intervened with specific social relations and activate selected ideologies, stories and memories (Giroux, as referred in Grollios, 2008).” Based on the above, one could claim that the educational and pedagogical influence of cinema comes in a massive way and, thus, Hollywood has developed irresistible ways through which it can affect public behavior.

Public Pedagogy through Christopher Nolan’s Films

In the context of this claim, we approach two Christopher Nolan’s films, with which he succeeds in establishing a frame of opposing to the mainstream, although he conforms to the rules imposed by the big studios. Analysis of Nolan’s films is made on the basis of cinematic narrative and aesthetic, intertextuality, psychoanalysis and ideology as factors that compose this basis so that public pedagogy is produced and publicly accepted.

Nolan is a British-American director born in London in 1970. His projects are characterized by huge production costs and the participation of highly recognizable movie stars (*Batman begins, The Dark Knight, The Prestige, The Dark Knight Rises*). His films are to be blockbusters and comply with the rules of modern capitalistic economies in terms of being as profitable as it gets. Issues dealt with in his films are enriched by motives and stories popular in modern American society. What makes his films important is not their content but the way the content is developed and evolved. The result may seem as being set on the industry standards, although multiple views of political, existential, psychoanalytical, and controversial (but truly ideological) dimensions are hidden. Narration levels of Nolan’s films are composed of controversial elements that seem to confront to the basis of current social-economical-political status.

Inception

The film *Inception* (2010), can be used as an example of intertextuality, which includes most of the themes of cinema theory: demonstrating pictures as signs and symbols, references to Freud and Lacan, connection of the cinema to the other "Fine Arts" (visual arts, architecture), philosophical questions of a phenomenological type, references to the ideological absolutism and the creation of thought that arises from a film. The film *Inception* can be considered at the same time a psychoanalytic and ideological comment, while its narration strength can be located in the multiple *mise en scène* (dream in a dream). The intertextuality of the film includes the self-reference

of cinema itself, since essentially every dream is a well directed, almost cinematic, story.

The film has as the main character Dom Cobb (Leonardo DiCaprio), who is an expert in a new specialization of the Science of Sleep. He "invades" into the dreams of unsuspecting people and steals their secrets, something that proves a valuable asset in industrial espionage. In the USA he is wanted man and as a result he is forced to be active in any other place of the planet. When the Japanese businessman, Saito (Ken Watanabe), offers him to clear him of his alleged crimes, Cobb accepts to make a risky plan. Saito asks Cobb to achieve the "inception", something truly inconceivable for Dream Invaders. The enterprise consists in planting an idea into the subconscious of Fischer (Jilian Murphy), a business rival of Saito, so that Fischer will believe that the idea is exclusively his own. Cobb with his friend Arthur (Josef Gordon Levit) enlist the young architect Ariadne (Helen Page), the forger Eames (Tomas Hardy) and the chemist Yusuf (Deleep Rao) in order to achieve his reckless plan. However, the personal subconscious unresolved issues and his guilt for the death of his wife, Mal (Marion Cotillard), pose a dangerous threat to Cobb's team.

The initial classification of the film to the type of fantasy films – although simplistic – is exceptionally accurate. It is a paradigm of fantasy film, which combines at the same time adventure, spectacle, continuous action, suspense, unbroken narrative, unexpected development, romanticism and a clear-cut philosophical-political-social background.

Cinema – through the film of Christopher Nolan – proves to be the ideal reflection of subjective and subconscious reality. It is the personal dream-like reflection and the visionary mirage of the creator that becomes the personal experience of the spectator. Like a dream inside a dream, where the boundaries and the limits are blurry and – as a result – easy to change at any moment. Through the dream, the "inception" of an idea is implanted with surgical precision in the victim-target's subconscious, by brilliant scientists and con artists. At the same time, it is also implanted in the spectator's subconscious, since he is also an abuser (he participates actively in the development of the story through the process of identification) and a victim (he also suffers the "inception" with the process of the spectacle). The con man, scientist-artist in the *Inception* is the director Christopher Nolan, who insists with his films in exploring the instincts of man inside a modern environment, which creates new urban nightmares and insecure and iconic, for himself and his work, characters. The original character in his case is the fact that his films constitute the essence of mainstream while, at the same time, they demonstrate his personal anxieties, masked by

Hollywood's business philosophy, which has as its motto the phrase "give the people what they want".

The philosophical structure of the *Inception* becomes clear and understandable from the first sequences of the film. Dom Cobb, the character played by Leonardo DiCaprio, is particularly persuasive when he develops his arguments regarding the existential and philosophical origin of the Idea: "The most resilient parasite?... An idea! A single idea from the human mind can build cities. An idea can transform the world and rewrite all the rules". It is an obvious and perhaps simplistic parallelism with modern reality. The powerful media daily overwhelm citizens with "simple parasitic ideas", and consequently it is easy to shape-transform the world, according to the will of those who are in power. The Ideas (that is the idols of the real objects that are created in the mind and at the same time, every abstract concept) are the most powerful parasites, when they are used like this.

Nolan structures the film creating three levels, as many as the dreams in which the characters of the story invade into. "Dream inside a dream" (like babushka dolls), until Cobb and his company manage to enter into the depths of the subconscious of the subject-target. The "Inception" is designed completely. Cobb is the director-inspirer of the three dreams and operates as the alter ego of Christopher Nolan, who builds his film on three levels using the same mechanism. Integral pieces of the films –like the one of the dreams– the architecture, the identification and, finally, the flight, the basic structural components of a successful film experience. The architecture expresses the decor-environment (artificial or natural) over which spectators start to feel a gradual familiarity with the characters of the film. Cobb needs an architect to build an environment, on which the heroes (and through them the spectators themselves) will experience "dream inside the dream". Cobb's architect is the young student Ariadne, who will provide the "thread", the means for him to find a way out from the complicated situation in which he found himself and thus escape Oblivion.

The complete identification of the spectators comes with the achievement of the "Inception", that is with the implantation of the parasite-Idea. The identification is multiple, successive and parallel. The spectators in the first dream are identified with Yusuf, who is trying to escape the persecutors-projections of Fischer driving a van, which moves in the highways of a big city. In the van there are, in a state of hypnosis, the rest members of the team. At the same time, in the second dream they are identified with Arthur, who gives his own, unimportant, battles with Fischer's bodyguards in a vaguely familiar hotel. In the third dream, spectators identify with the rest of the characters: Cobb, who faces his own personal insecurities, his lost wife

Mal, Ariadne, Saito, Eames, even the group's target, Fischer, who through the deceptive "Inception" he sees his past under a different light. The flight of the heroes and of the spectators as well comes at the ending (it is melody).

All these take place at the same time, in succession, fully harmonized and masterfully designed in the multiple and complicated *mise en scène* planned by Nolan. That is, we have a *mise en scène* inside a *mise en scène*. Action inside action. Plot inside the plot. A film inside another film. An adventurous Odyssey from Memory to Oblivion and back again, with the invaders of the subconscious and with them the accomplices-spectators (perpetrators and victims) to return constructing and deconstructing the dreams-realities, using signs and symbols. The film, according to the views of Daniel Frampton about cinema (2006), obtains its own autonomous thinking and is defined as a new entity with its own intelligence.

The Dark Knight Rises

An example regarding how the projector creates a clear ideological substratum and at the same time a powerful pedagogic influence to the mass public, with direct measurable influences to society itself, is the trilogy of Christopher Nolan's films with central character the comic hero Bruce Wayne/Batman [*Batman Begins* (2005), *The Dark Knight* (2008) and *The Dark Knight Rises* (2012)].

The *Batman* trilogy was based on the popular comic with the same name by DC COMICS and is a powerful figure of the American popular culture that deals with the known stereotype "good against evil". Bruce Wayne, a wealthy businessman, with a strong "feeling of justice", is transformed into a masked vigilante, in order to face the criminals that institutional justice can't or won't arrest. That is, he is a vigilante who operates outside the legal framework. This in itself is an issue that troubles society for centuries. The limitations of the "Law and Order" that provide asylum to big time criminals, through bureaucracy and the corruption of public servants, allow the appearance of masked-vigilantes, which will try to give justice, as it is necessary. Usually, these masked vigilantes are rich, noble and philanthropists and have an intense sense of justice, always within the framework set by the status quo. Such famous characters of popular culture are Robin Hood, Zorro and others, whose actions provided plenty of material, both for films and TV series.

Batman by Christopher Nolan tries to restore the system of corrupted city (Gotham City) into an operational situation, fighting outside the system against mafia and organized crime. He doesn't wish to overthrow the system, but to make it even more humane. He is not the overthrower but the one who maintains the status quo. In the

three films by Nolan, interesting are the "villains". In the first film, Ra's al Ghul, who wants to destroy the corrupted city of Gotham, in the second is Joker who comes to create panic and upheaval into a declining city and state, while in the third city, the terrifying Bane, who clearly shapes the ideologically profile of the villains and through some amazing scenes seems to justify them. For Nolan villains are ideologists, who try to overthrow the system through violence. They are terrorists with crystalized ideological and political attitude. Apart from the first (easy) reading of the film, Nolan manages to specify his own, revolutionary, almost of terroristic ideology, character through a blockbuster production. The whole story is structured around Bane, who is the opponent of the tired, disappointed Bruce Wayne/Batman. Bane (actor Tom Hardy) pushes Batman (Christian Bale) even more into the background, weakens him ideologically and comes as a tornado to destroy everything. "Victory defeated you", he says ironically to the resigned and without ideological and personal motives Batman. The capitalistic businessman Bruce Wayne, who wears the uniform of the vigilante Batman, is presented tired and compromised since he is invited to defence the status quo of Gotham, which is based on lies and corruption. Behind the apparent calm of the city with the low levels of criminality, the oppressed citizens who live in the sewers of the city are ready to offer their lives, since Bane promises them "death to the rich people of Gotham". The outcasts of society, the despised homeless are ready to sacrifice themselves in order to build a new world, where there will be no corruption. As a matter of fact, "... they have nothing to lose but their chains".

Through Bane, Nolan preaches violent revolutionary overthrow. Film producers, faced with the certain profits from the tickets of the Batman films, seem to ignore the production of anarchist ideology of Nolan. The anarchist manifesto of Bane, in the middle of the film speaks for itself:

"We take Gotham from the corrupt! The rich! The oppressors of generations who have kept you down with myths of opportunity, and we give it back to you... the people. Gotham is yours. None shall interfere. Do as you please. Start by storming Blackgate, and freeing the oppressed! Step forward those who would serve. For an army will be raised. The powerful will be ripped from their decadent nests, and cast out into the cold world that we know and endure. Courts will be convened. Spoils will be enjoyed. Blood will be shed. The police will survive, as they learn to serve true justice. This great city... it will endure. Gotham will survive!"

The Machiavellian Bane gives hope where hope does not exist. He sets popular courts and eliminates the rich and powerful giving his own kind of justice, reminding the following day of the French Revolution. Bruce Wayne/Batman, in the second half of the film, he understands that in order to subdue Bane he must not become like him.

He understands that he must desire the insatiable desire of Bane to achieve his objectives. "Desiring the desire of the other" according to Lacan (Stam, 2006) and thus Nolan's film is justified, apart from ideologically and psychoanalytically. Through this process of identification of desires, the spectator desires Bane's desire for justice that is imposed by instincts and which will come with an uncontrolled social entropy.

Discussion

According to Grollios (2008), "many theoreticians of cultural studies, following the works of Antonio Gramsci, Raymond Williams and Stuart Hall, recognize the primary role of culture in education. They argue that culture, as an area of production of meaning and social interaction, is important because it is there that, through struggle and negotiation, the different types of identities and values are created, although always in a framework of unequal power relationships". According to Giroux (2008) "given the important role of popular culture, including cinema, the influences it exercises are pedagogic and political, determining identities and values and wider social practices that characterise a continuously increasing postmodern culture, in which the electronic media and visual forms are the most powerful educational tools of the new millennium" (p. 591). Giroux (2008) also emphasised that cinema as a medium of public pedagogy combines entertainment and politics, while it creates an atmosphere that helps shape individual behavior and public beliefs with multiple and complicated ways, consciously or unconsciously. The films, which were analysed in the present paper function as models of a state pedagogy, which invites citizens to question and to stand with scepticism in front of the status quo. This is interesting and peculiar, since the specific films are products of the status quo itself, expressed through the powerful film industry of Hollywood. Christopher Nolan with his films behaves like a "functional" intellectual according to Gramsci's analysis of "hegemony". During the opening night of *The Dark Knight Rises*, the "pedagogic" influence of his films in the mass public, was "measured" with human casualties. This took place on the night of the 20th July 2012, in the packed dark hall of a cinema in the city Aurora of Colorado, which was characterised by the press and the internet as exciting (like watching a film!...), disturbing, terrifying, ominous and at the same time expected. The twenty-five year old James Holmes, (PhD Candidate at the University of Denver, in the field of neuroscience), dressed in Joker's costume, opened fire against the spectators that were watching the midnight show of the Batman film, killing 12 people and wounding over 50. In conclusion, it doesn't matter who was the neuroscientist, or why he did it (a young woman who knew him since high school said that he was a "cool guy", but she was puzzled that he was identified with the "villain" in the action films). What is important is that James Holmes, did this on the specific

place, dressed as one of the basic characters of the story, during the opening night of one of the most successful films ever shot, something that demonstrates its influence of the medium to the people and the masses.

The dimensions of the film reality are confused with the dimensions of the actual reality and the object of art (the film or the location of the projection) "occupies" the subject (man, who passes into a different dimension and becomes literally the unsurpassed hero of the film). The object becomes the subject through an amazing confusion or the retraction of the realities into a subconscious procedure that demonstrates the strength of the medium. Cinema influences ideologically both on mass and private level, it changes the spectators, educates them and finally it "transforms" them.

The mimesis of film characters consists a vehicle of behavior, both in the unconscious everyday life of people and in exceptional cases like the one of Aurora. Another case of this kind is the attempted assassination of the President of the USA Ronald Reagan in 1981 by John Hinckley Jr. The aspiring assassin, before attempting to murder Reagan, has seen fifteen times the film by Martin Scorsese, *Taxi Driver* (1981). Hinckley attempted to do exactly what the hero of the film did, the taxi driver Travis Bickle (the actor Robert De Niro played the part), who planned the assassination of a candidate for the Presidency.

Conclusion

According to what has been discussed so far, the initial claim that the public pedagogy of cinema is one of the most powerful massive pedagogic means nowadays, as it creates formulas and models of private and public behavior, throughout the combination of entertainment and politics. Christopher Nolan's films, although being produced in the frame of the massive film industry, promote an alternative view that seems to doubt on the mainstream. This view encourages the audience to rethink on the way that society is built, either through the ideology and the parasitic-ideas (*Inception*) or through the rapture of the current status-quo (*The Dark Knight Rises*). The detailed study on Nolan's films could lead to new directions on this dimension of public pedagogy, while an additional plan on future analysis could deal with research of similar cinema projects and Hollywood directors that work on a public controversial pedagogy. Furthermore, taking into account all the above and in the frame of general audiovisual education, we suggest the research and development of a system that includes the public pedagogic of cinema, as a distinct educational tool, in all types of the typical educational levels.

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Post-migration Representations of Istanbul in Turkey's Independent Cinema

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Abstract

This study aims to analyze the representation of Istanbul in the Independent Cinema of Turkey. My study focuses on Istanbul not only because Istanbul presents an opportunity for micro-scaled analysis for Turkey, but also because of the fact that the cinema of Turkey being Istanbul-oriented. I focus on the major political and sociological turning points of Turkey and how all these transformations have altered the presentation of Istanbul in the movies of the same period. The migration remained to be one of those main turning points in people's life and their conditions - in particular migration from rural to urban - on which this study is focused.

Keywords: Istanbul, representation, Independent cinema of Turkey, social changes, migration

Introduction

Istanbul, historically known as Constantinople and Byzantium, is an Eastern city which turned its face to the West since 18th century. Istanbul, as a transcontinental city in Eurasia, is a vital economic, cultural, and historical center in both Asia and Europe.

Istanbul began its life as an occidental city and was transformed into an oriental city. It therefore articulates both elements. During both the Byzantine and Ottoman Empires, Istanbul was undoubtedly a cosmopolitan city, home to diverse ethnic, religious, and language groups. After the birth of the Turkish Republic, Istanbul occupied an ambiguous position as a symbol of imperial power while Ankara became the symbol of republican order. Between the 1920s and 1980s, Istanbul was of secondary importance to the project of nation building and the formation of a national, Western, secular, Turkish identity. Since the 1980s, however, with economic globalization (liberalization and the transition from import substitution to export-led production in Turkey), Istanbul became the nation's center of globalized consumption, production, and exchange. (Isin, 2001; 351)

Istanbul became the main cinematic city in Turkey, and has been handled in different perspectives in Turkish cinema. The majority of films are Istanbul-based productions. Their narrative and space arrangements have been shaped around the city Istanbul. The importance of choosing setting place with combination and manipulation of film elements were not understood by the prominent directors in the first period of Turkish cinema. Istanbul was used just as a cinematographic element in that period: such as *Binnaz* (directed by Ahmet Fehim in 1919), *Bican Efendi Vekil Harç* (directed by Hüseyin Şadi Karagözoğlu in 1921), etc. Andrews (2014; 6) explains the extend which a city can be used in cinema - beyond being just a decor: *“Narrative space in films is an amalgamation of numerous aspects: physical, profilmic cityscapes, landscapes, and objects in the mise-en-scene; conceptual elements to be visualized and explored on the screen: technical methods of presenting these aspects to the audience, according to the codes of film language: philosophical and ideological notions on the part of the filmmaker to be conveyed to the spectator.”*

Yeşilçam (1950-1980, a general name of Turkish cinema industry, which also became the name of popular melodrama movies of that period) produced representations, prototypes, stereotypes about the city and urbanization - which became the main information source about Istanbul to audience. Istanbul is an object of desire in Yeşilçam. Urbanized community not only refers to the people living in the city, but also belonging to bourgeois. These productions were highlighted the tension between Istanbul being an object of desire and Istanbul belonging to bourgeois. The representation of Istanbul became more realistic with the post-Yeşilçam cinema period. In this context, the study will analyze the representation of Istanbul in the Independent Cinema of Turkey, rather than Yeşilçam cinema industry.

This paper surveys the representation of Istanbul from 60's to 2017. These films show the social, economic, cultural, political conflicts of people who come to Istanbul with big-raised hope. *“I will defeat you, Istanbul”* is a generic motto of those people. *“Defeating Istanbul”* refers to survival and going back to their villages by fighting against cruel economic conditions of Istanbul.

In 70's and 80's, *“defeating Istanbul”* turned to be *“not being defeated by Istanbul”*. This change in rhetoric reflects the new-emerging conflicts regarding traditional and modern values in the adaptation process to the city. This dilemma exacerbated the frustration of migrants due to social and economic problems. Some of those immigrants who disappointed in Istanbul returned to their town in the 90's. Istanbul began to be pictured as a claustrophobic, dangerous, cold, brutal, and sinister country for migrants.

The study surveys these periods with leading examples of movies.

I will defeat you, Istanbul!

In this part, I touch upon social changes in Turkey as a developing country and how these changes affected Turkish cinema. After World War II, the US Marshall Plan was

introduced in Turkey. There was a rapid urban industrialization, and a strong growth of the market economy in the rural areas. As a consequence of this rapid development farm mechanization (which displaced rural labor and encouraged urban migration) is observed in Anatolia. People started to migrate to big industrial cities to find jobs, and other opportunities. This idea became popular with another motto: *Istanbul, the Golden City*. Additionally, because of somewhat egalitarian bequest traditions (the land being shared among all children) caused every villager having only a tiny bit of agricultural field. This was an additional force which made immigration tempting. As a result, 50's were marked a huge migration wave from rural areas, like Yozgat, Erzurum, Sivas, etc. to urban areas, especially to Istanbul, squatting also increased, emigration to European countries started.

In the 1950's another important phenomenon is described by Romana (2014; googlebooks), *"The Democrat Party's electoral success and political agenda in the 1950s depended in part on challenging the Republic's strict secularism, rather than its mono-nationalism. (...) Referring to the DP's increasingly authoritarian actions, their anti-secular program, corruption and declining public order to justify their intervention, Turkey's generals instituted a coup d'etat in the spring of 1960"*. Following the 1960 coup d'état, a constituent assembly was formed. After the 1961 constitution, film directors were allowed to show social problems in their films. During that time, the cinema was extremely sensitive to social and political issues. In the 60's, Turkish cinema represented the migration problem from urban to rural consistently. In the films, the common topic is a story a family which emigrates from suburb to metropolitan (Istanbul) to have a better life. Öztürk (2002; 24) states the dilemma of those immigrants: "Istanbul whose dynamics rhythm, carnivalesque chaos, poetic and fabular image, and with stories which commitment new happy live with contrast such as east/west, villager/town-dweller, rich/poor, beautiful/ugly, is an sample of the place of cinematic production."

Nearly all characters in the movies are from immigrant families. In this period, narrative of films generally starts at the same place, such as Harem or Topkapı bus terminal and especially Haydarpaşa Train Station: *"Haydarpaşa Train Station, constructed in 1908, has always been one of the significant landmarks of Istanbul. It has been frequently included in the opening scenes of Turkish movies, where characters arrive the first time in Istanbul and have the first glimpse of the city while standing on the stairs of Haydarpaşa Station. It has always been one of the "entrance" points to the city and an important part of the city silhouette"* (Kaymaz, 2013; 755). A family or a person who comes from a village, get off a train, carry their luggage, when they go out of the train station, they go down the stairs and look at Istanbul admiringly. When the main characters step into Istanbul, the family or the person get straight into the chaotic experience of Istanbul. Generally men want to be rich and to have beautiful girls and women want to live the freedom in Istanbul. In the pursuit of adaptation, for instance, women put on new clothes, very expensive jewelers, go to a night party.

However, they end up not being able to adopt the city. This failure of adaptation is narrated as being raped, having to work in a brothel or going back their hometown etc. This phenomenon repeatedly shown in movies which has an underlying message: Istanbul is not for them, Istanbul does not belong them - Istanbul is the city of those rich people.

For example, in the film of **Birds of Exile** (directed by Halit Refig in 1962), there is a six person family; two parents, three sons and a daughter. On the arrival in Istanbul, they dream to defeat the city and to reach a higher standard of living. Firstly audience sees them at the Haydarpaşa train station; they look at the Bosphorus Sea. The sea and the city look very nice. The sons look at the girls of Istanbul, the daughter looks at the sea, which means freedom to her. They experience a tragic event which ends with the death of their daughter. The film narrative ends when they decide to go back to their hometown. Only one of them stays in Istanbul - the one who goes to university. Interestingly, even himself, does not aim to stay in Istanbul, but rather go back to the rural areas of Turkey and educate those people. Again, Istanbul does not belong even to those people who educate themselves. When they get on the train, audience sees another family coming to Istanbul, maybe with the same hopes and wishes - immigration will continue. The other films with similar narrative from the same era are *Golden City*, and *Unfinished Road*.

In **Oh Beautiful Istanbul** (directed by Atif Yılmaz in 1966) Ayşe comes to Istanbul from Izmir to be a famous actress or singer and to be rich. She meets a photographer whose name is Haşmet. Haşmet falls in love with her, and decides to help her. Haşmet is an Istanbulite who is a kind, helpful, intellectual, and well educated gentleman. He is represented as true "Istanbul Gentlemen". He helps her to become a famous singer. He doesn't want anything from her except her love. She uses him for her ambitions. At the end of the film, she realises her mistakes. She comes back to Haşmet to start again. At the final scene, they are in a ferry, we see Istanbul from their eyes. Haşmet looks into Ayşe's eyes and says "look at that beauty", and turns his head to the Bosphorus, we see Istanbul again, and then Haşmet goes on "*Do you know that there is no match to this beauty anywhere else in the world.*" Ayşe says "*for me there is only you*" Haşmet says "*yes, for me too*": Istanbul is like a love for lovers. Ayşe tries to be famous, but she finds an endless love in Istanbul. The underlying message is as follows: The only way for a woman from a rural area to be an Istanbul woman is being married to a man from Istanbul.

Time to Love (was directed, produced and written by Metin Erksan in 1965) is another important movie from this period. Halil is a traditional man from East side of Turkey. Meral is a modern woman from West side of Turkey. They fall in love each other in the city. Istanbul presents their identity and character. "*The use of the images of the city is also underlining the east-west dichotomy presented in the film. Halil is always seen in the older parts of the city or in nature whereas Meral lives in the newly built apartment blocks far away from the ancient city of Byzantium-Istanbul. But later*

as their love develops the lovers are forced to enter the other part of the city” (Akser, 2013, 177). In the film Istanbul is like a dream city, it supports films atmosphere. So audience sees Istanbul between reality and dream, modern and traditional, and future and past.

2. I will not be defeated by Istanbul!

Istanbul reflected onto cinema especially with an immigration films, especially during the eras of the 70's and 80's, but at this time it was found a different plot from before. During those years, cultural duality, urban collapse, educational problems, housing/residential problems, jobs problems were all increased and these reflected onto cinema and all have could seen in the films. In the immigrant films of this era, people generally who tried to stay in Istanbul, adapt to the big city, they want to earn so much money and give a member of their family as a sacrifice. It is associated with the new capitalist mentality which was not adopted by these people yet. They live in dual life between tradition and modern life style.

In this era, some films emphasize migration and modernization of society and the city itself; some of the prominent examples of such movies are Ömer Lütfi Akad's trilogy **The Bride (1973), The Wedding (1974) and The Blood Money (1975)**. The narration of these three melodramic films is about an Anatolian family, their traditions, and their conflict with modernity in the city. In the narration of the film *The Bride*, a young woman moves with her husband and their child to her husband's family living in Istanbul. Her son becomes ill and the doctor tells her that he will soon die if he doesn't get an operation. The family refuses to help her because they can't see anything wrong with the boy and all money is needed for a new shop they have just opened. The family is male dominated so they don't listen to her. When her son dies on the day of Muslim festival of sacrifice. This scene related with Prophet Ibrahim who offers his son to God as a sacrifice. *“Symbolically, the son dies on the day of Kurban Bayramı, the religious festival when a sheep is sacrificed by devout Muslims, Meryem leaves the family to work in a factory, defying patriarchal convention”* (Colin Dönmez; 2014, 60). In the films, emigrated people live in Istanbul, as if they were in their home city. They build up small ghettos in Istanbul, like little China towns in USA. They don't want to change or adapt the city's rules. This is not suitable for their cultural structure. They want to continue their traditional rules, but it is impossible for them. They learn to adapt to the city, giving some sacrifice.

“With the pressures of such numbers coupled with the phenomenal social, economic, and cultural transformations in Turkey after 1980, when the late President Turgut Özal opened up the country to global markets, Istanbul's macro form has changed dramatically. The proliferation of five-star hotels, supermarket chains, shopping malls, and office towers has transformed the fabric, the skyline, and the social panorama of the city in ways that would have been inconceivable before 1980. While these developments can be seen as manifestations of a worldwide trend in the postmodern era, the rise of

political Islam parallel to globalization has given Istanbul a more complex and uniquely hybrid urban culture” (Bozdoğan, 2013; 127). These changes affected people who emigrated from rural areas to urban areas and alter their daily life, morals, attitudes and behaviors.

For example, **A Handful of Paradise** (directed by Muammer Özer in 1985), is about finding a house in Istanbul. A family migrates to Istanbul hoping to find a better life. Being unable to afford a place to stay in, they find shelter in an abandoned bus. They don't want to go back to their village. In a little time they make a garden with flowers which is their paradise. We could see a strong contrast between poor and rich. They have a girl and a boy and also another one soon to come. New child mean is a new hope. At the end of the film's narrative, government took the abandoned bus; their boy was arrested despite of his innocence. They don't trust government. So after taking their 'home', they decided to stay in the city.

The Horse (directed by Ali Özgentürk in 1979) is another film about emigration in the 80's. In the film, a family wants to defeat the city, like in early examples of migration cinema, but at the end of the film, they just want to be alive in the city. Unfortunately, their dreams change. The father wants his son to be well-educated; he can afford education for him. He makes a better life for his son, by making sure that his sons' life won't be like his. He can't find a job, but he always tries. Main character can't stay on Istanbul, he refuses to return to the town even Ferhat, his son requests *“father, let's go back to the town!”* It will mean to be defeated to go back to the town. In the end of movie, the father is killed as an unsuccessful character and he can't reach his dreams.

The Broke Landlord (directed by Nesli Çölgeçen in 1984) is a black comedy about the hardships of being village landlord with fading authority. The landlord migrates to the city but fails to suit himself to the city. The film is one of the first examples which focuses on a landlord rather than peasant. This film is a trilogy written by Yavuz Turgul and includes **Mr. Muhsin** (1987), **The Unforgettable Director of Love Films** (1992) directed by Yavuz Turgul. The village is called Haraptar - means ruinous in Turkish. His grocery store in Istanbul is also called Haraptar. It is shown that he tries to sell tomatoes as a once-upon-a-time, authoritarian landlord. In the end, we see that his boats, as a sign of his landlordship is sold in the city for food. (Dönmez-Colin, 2014, 236).

Mr. Muhsin is a tragi-comic social commentary of the economic and cultural transformation of Turkey during the post-coup years of the 1980's and the free market policies of President Turgut Özal, similar to the Thatcher-Reagan policies. The narrative's main idea is the cultural clash between Mr. Muhsin Kanadıkırık who is an Istanbulate, gentleman and has principles. Another character Ali Nazik comes from Anatolia with characteristic hopes like being a famous singer - arabesque. The arabesque culture associated with the migrant Anatolians, who are neither able to

preserve their culture nor adapt the culture of Istanbul. He tries to transform the urban culture rather than to adjust. Mr. Muhsin and Ali Nazik represent different cultures of Turkey. So viewer could see by way of the contrasts between east/west, rural/urban, old/new, value/money in their identities. The new one/arabesque culture affects everything and transformation of values. Director chooses old one to show viewers for getting empathy.

The type of migration in Turkey was opposite to the type of migration in Europe. In Europe, migration was a demand stemming from the cities themselves - like Germany and England. In the case of Turkey, villages pushed villagers out of their homes in Turkey, so they had no choice; they had to the big city for jobs. They were pushed out because the land wasn't enough on the farm anymore they become jobless and had no money. The cities were not prepared for this migration, they aren't industrialized or modernized enough to accommodate such demand - they were deceptively portrayed as a golden city.

3. Istanbul is a place to escape from!

Neoliberals deregulation, privatization, and market led reforms are as the developmental policy of Turkey have resulted in some problems. To Erkip (2000; 371) in 90's growing problems of metropolitan Istanbul are unemployment, housing problem, inequality and the problems of social justice and redistribution. For Isin (2001; 361) in the 90's there is a polarization between the rich and the poor depending on increasing foreign direct investment such as advertising, marketing, fashion, design, and entertainment. In cinema, after the middle of the 80's, the number of migration movies start to decrease. Istanbul now lost is identity of being a metropolitan and started to be defined as a giant rural town. Independent cinema, starting from 90's, portrayed Istanbul as a place to escape from. Istanbul represents a type of jail and we could see, people who live in Istanbul are unhappy and want to go to another country or city for new opportunities, unlike in the 60's migrant films. It is the complete opposite of the original films: first they wanted to come to Istanbul, now they are in a hurry to leave Istanbul. *"The regeneration and renovation of the historic core of the city for both the tourist industry and the new chic quarters of the wealthy continued as poverty was increasingly suburbanized further and further out from city"* (Isin, 2001, 361).

For example **Somersault in a Coffin** is directed by Derviş Zaim in 1997. Mahsun is homeless and unemployed. He lives in Rumelihisarı as a car thief. His friend died during a cold winter night. He hasn't got anywhere to live. So he steals cars so that he has shelter from the cold winter nights - he does not sell them for profit. During the nights, he drives, and in the morning he leaves it very clean and in a safe place. He tries to work and survive with some help from some fishermen. One day he falls in love with Charlot who is a heroin addict and a prostitute. Some scenes show that Istanbul is an prison camp for low class people. In one scene, he looks at the Boğaziçi

which is a very rich area. He tries to balance what is given to him and what is not acceptable by him. At the end of the film, Mahsun is in prison because of killing a peacock by cutting it and trying to eat it. The peacock represents plentifulness and wealth. He is shown on a news report where Mahsun says that 'I did it because I was hungry'. After the news program, we see an advertisement for sausages, where a girl is saying 'I am eating you sausage, yummy yummy sausage'. So director starts to criticize the capitalism and marks Istanbul as the main place of injustice. This shows the contrast to Mahsun's life and makes the audience to think about the injustice of life in Istanbul. The films' atmosphere is very foggy and claustrophobic. The real prison is in the outside world, for example Istanbul is a prison for others like Mahsun, the poor, women, LGBT, gipsy, etc.

Istanbul Tales (directed by Ümit Ünal, Ömür Atay, Kudret Sabancı, Selim Demirdelen, Yücel Yolcu in 2004) is a story about 5 tales and a night in Istanbul. Those 5 tales are very different to each other but all of them look like old fairy tales such as, Cinderella, Sleeping Beauty, Little Red Riding Hood. Cinderella - just one of the parts of film - is directed by Ümit Ünal. Cinderella of Istanbul is a travestite prostitute who wants to run away with a man. We can see Haydar Paşa train station when she wants to go to Eskişehir - this time it is the place of departure, not arrival. Istanbul is a very big city but some who live inside it are unhappy. The social and economic problems cover everybody like a prison. In the 60's films, we could see people coming to Istanbul for new hopes, new life, or new love, but now people has crushed their dreams want to run away from it.

The Particle is written and directed by Erdem Tepegöz in 2012. The film is about 10 days of Zeynep's life. All her days are similar to with each other. The film starts in a textile factory. Zeynep is queuing for her lunch. We see a particle in the air. It is related to Sufizm which is all people women and men, rich and poor, etc are the same as each other like particles. Then Zeynep gets fired from her job. When she waits out of the factory, she looks like a prisoner in a prison. Director show that the prison is outside world. The camera records to Istanbul when she starts to walk along to Istanbul's streets - a documentarywise depiction is adopted. Istanbul looks very crowded, very ugly, harrowingly, unattractive and claustrophobic, especially the color of filmic narrative is just grey which is a cold color. Zeynep is just a metaphor for lower class inhabitants. She goes to Tarlabası - a canonical area of Istanbul mostly contains lower class people- within 5 minutes walking distance of Taksim, the heart of Istanbul. *"Tarlabası, the controversial face of an urban renewal project for seven years now. Tarlabası is the home to migrants with low incomes or no jobs, mostly coming from Eastern Turkey, as well as the marginalized communities like the Roma gypsies or the LGBT (...) Tarlabası has become the epitome of what could go wrong with a metropolitan centre. It signifies overpopulation, migration, class differences, a rise in crime, gentrification, a disregard for historical architecture, and the tragic living conditions of the working class. Tarlabası is just an area of five acres* (Güler, hurriyetdailynews). She

has a very old mother and a disabled daughter, but no money. Due to this situation, she needs to work to survive. Zeynep isn't Istanbulite, she sells her kidney to live in Istanbul - being an "other" living in Istanbul. The capitalist system alienate them and uses poor people for the cheap labor. On the other hand, it ignores them by pushing them out of the city, marking as criminal figures, disrupter of urban structure, polluters and etc.

The movie, **My Only Sunshine** (directed by Reha Erdem in 2008) focuses to the story of Hayat (it means "life" in English) growing in a ghetto of Istanbul under bitter conditions. Hayat has got a bedridden godfather who hardly breathes because of his asthma, and a father who does all kinds of illegal work. She goes to a school where she is seeking for acceptance by her friends and teachers. Just like asthma; Hayat is also suffocated by major problems. She wants to successfully complete high school but she can't, because of her inadequate life conditions. She childishly wants to get married with her father's friend to escape from her poor life. She is raped by a neighborhood grocery who often abuses her- she takes chocolates when she is abused by him, and gives them to her friends to be loved by them. She lives in a river-side shack which is opposite of luxury housings the rich people live in. Bosphorus divides the country into two; one side is a poor place where Hayat lives and the other side where rich people live. Hayat escapes to open sea from Istanbul and her restricted conditions. When she's escaping, an arabesque music, in the background, which is the symbol of migration is played. Hayat and her friend travel against large waves in a small boat. The camera circles and focuses to the running waves and her happy smiling face till the movie ends.

The Present Tense, which was directed by Belmin Söylemez in 2012. The film's narrative is about a woman, Mina who is bored of patriarchal order. At the beginning, we observe that her appearance is blocked by the the famous man figures. Meanwhile, we hear some orders, such as, look straight ahead, move a little bit right, don't smile, etc. She dreams of finding job in USA, and in order to do so she needs to find a job In turkey to save some money. She lives in Istanbul at an apartment which will be renovated and hence her landlord wants to evicts her. So she doesn't have any job or any place to live in. The viewer can feel the boredom of the city. During the movie, we observe how Mina loses her grip to her hopes.

There are many other examples which is based on escaping from Istanbul such as Tayfun Pirselimoglu movies, *Hiçbir yerde/Nowhere* (2002), *Rıza* (2007), *Pus/Misty*(2009), *Saç/Hair* (2010) and *Ben O Değilim/I Am Not Him* (2014), *Abluka/Blockade* (2015) directed by Emin Alper, *Yozgat Blues* (2013) directed by Mahmut Fazıl Coşkun, *Güneş Yolculuk/The Journey of Sun* (1999) directed by Yeşim Ustaoglu, etc. All people in these films want to run away from Istanbul to another city or a country.

Conclusion

Istanbul is a metaphor of total problems in Turkish Society. Independent cinema of Turkey gives a chance to see social and cultural transformations. People immigrate for different causes to Istanbul. Istanbul started its appearance in movies as a setting and later on it became an element for the movie, like a character or a sound. Different phases of the city of Istanbul in the independent cinema of Turkey is surveyed. In the first phase, Istanbul is a golden city in early examples, and then it is seen rural people who cannot adapt to the city. In the second phase, we observe Istanbul under urban and class-based conflicts were increasing during the process of Istanbul's post-80's global capitalism-oriented reconstruction. In the third phase, Istanbul became a prison camp for the alienated people who lost their access to the city during urban transformation projects. These people's deprivations, a feeling of no-way-out, desperations, systematic alienation, and dispossession of their habitat have been represented in many different ways in the cinema of Turkey. The common theme on these movies is the fact that Istanbul belongs to bourgeois - it does not accept other people; if it accepts some it needs sacrifice; even it accepts them they keep them in an open prison.

Istanbul has a soul with history, metropolitan structure, and its famous beauty. In the future, independent cinema will apparently start to make movies regarding Gezi/ Occupy Park Resistance. This movement can be conveyed as a resistance, driven by young people, against newly rising political structure as a result of 2000's new conservative movement. This resistance shown that, new young Istanbulites, on the contrary of what older people thought about them, they are not apolitic or unresponsive. This important event, combined with 2016's political and diplomatic atmosphere might bring about a new understanding of Istanbul for cinema.

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Research on Consumers' Brain Activations by Means of Electroencephalography Method

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Abstract

Marketers are excited about two main reasons that are concerned with neuroelectrical brain imaging. The first reason is that they expect neuroimaging will offer a more efficient exchange between cost and benefit. This expectation is based on the assumption that consumers don't want to express their preferences explicitly or that it is not possible for them to do this when their preferences are asked; or that consumer's brain, which is related to real preferences, contains confidential information. Such information is used in theory to influence purchasing behavior. Thus, the cost of performing neuroimaging studies against improved product design and increased sales benefit is outweighed. As the second reason, marketers expect that they will be able to obtain an accurate marketing research method that can be applied even before an existing product. The purpose of this study is to determine the rational influence activation of consumers and to emphasize the deficiency of using traditional method of questionnaire based solely on declaration to understand consumers. Accordingly, volunteer subjects watched an advertisement film and their brain activities were tried to be measured while they were watching the advertisement. This measurement was performed with a 10 channel EEG device. During the research, the emotional responses of participants and their brain activities were measured and EEG patterns were obtained. The obtained data were interpreted by academicians and EEG experts.

Keywords: Electroencephalography (EEG), Neuromarketing, Consumer Behaviour

Introduction

Understanding human behaviors in the sense of business management today is indispensable to perpetuate the existence of the businesses. It has long been thought that people have made these decisions within reason with a rational inference. The routine in this process arose as *think-perceive-buy/don't buy*. However, this process does not continue so simply. The simplest thing that shows this is not the case is shopping habits of the consumers. How can a consumer behavior be interpreted when he/she buys a pair of shoes more although they don't need them? And why does a consumer want to replace his new computer for a newer one on the market? Here, the mentality which advocates that the process goes on in a routine manner remains silent to these questions. To repeat, these attitude and behaviors indicate that people are not rational beings only, they act with their emotions and their irrational behaviours must be analyzed. Accordingly, in traditional methods, among the possibilities of significant differences between what the consumer say and do, only creating declaration-based marketing strategies will cause big costs (Girişken, 2015).

Because of these kinds of needs and when neurology and marketing science have come together with technological movements, the concept of neuromarketing has become the agenda. In this study, brains activations are presented with eeg method which is a one of the neuromarketing techniques and it is aimed to discover what parts of people's brains are active for how long while watching the ads and what kinds of images they are most impressed by. As a result of the measurement, the declarations of the potential consumers were included and the correlation between measurement results and declaration was also investigated. This study differs from the others because of the fact that it is analyzed by eeg measurement which is one of techniques used by neuromarketing discipline of a commercial film so as to investigate buying behavior.

I. Neuromarketing and Electroencephalography (EEG)

A. Neuromarketing

Neuromarketing, which has managed to attract attention especially in advertising in recent years in terms of both academic studies and business practices, is a new successful application to integrate neuroscience and consumer psychology. The said application has enriched marketing research portfolio in a short time and it supports marketers to a considerable extent by getting beyond verbal statements of the consumers. Neuromarketing which can measure emotional and unconscious responses of the consumers has actually broken fresh ground in marketing

researches. It can carry out this by determining the source of consumer behavior and it manages the process of being convinced while customers are making a decision to purchase or not by making use of neuroimaging techniques and other biological measurements. Trying to conceive the factors that the consumers are influenced in this process is included in the field of occupation of the application (Kong et al. 2013; Girişken, 2015).

Neuromarketing has recently aroused interest enabling academicians and business practices to focus on the issue that much and it has made progress considerably. Under the guidance of this interest, to create conceptual framework, many definitions have been made in the literature about what neuromarketing means. According to Lee et al., neuromarketing is a methodology based on a measurement which combines brains waves and clinical psychology so as to improve the understanding of heuristic responses of people to products, brands and advertisements (Lee et al. 2007). Bercea describes consumer behavior as an interdisciplinary area which aims to search and conceive by investigating the brain (Bercea, 2013). According to Babu et al., it is an application of cognitive neuroscience to marketing and marketing research (Babu and Vidyasagar, 2012). Lindstrom regards neuromarketing as a key to rise subconscious thoughts, feelings and desires which direct purchasing decisions made by consumers everyday (Lindstrom, 2014). Butler asserts that neuromarketing tries to understand the biology of human behaviors and thoughts and actions in this context (Butler, 2008). Hubert and Kenning approach the concept more simply and call neuromarketing a simple marketing research tool only. They define it as an integration process of neuroscience and pscophysiology outputs into marketing world and they generally prefer the concept of consumer neuroscience (Pop and Iorga, 2012). Georges and Badoc define neuromarketing as recognising knowledge process of human brain related to theory production mechanism to influence the decisions of the masses the marketers do business with (Pop and Iorga, 2012). Stephen Genco describes it as any marketing or marketing research activities which use the methods and techniques of neuroscience or which is enlightened by neuroscience findings or views (Genco et al. 2013). According to Pepe Martinez, neuromarketing is cognitive psychology which investigates human brain and relationship between thoughts and behaviors and it is the integration of variety of disciplines such as the combination of art and science which are responsible for the development of new concepts for the products and services so as to satisfy the consumers and to increase the profits (Martinez, 2012).

B. Electroencephalography

Neuromarketing applications of electroencephalography is included in product development cycle in two places potentially. First, it is used as a part of EEG design process. Here, neural responses are used to refine before the products come onto the markets. Second, it is used as a part of an advertising campaign to increase the sales and to measure the neural responses generally after the product is manufactured completely (Martinez, 2012).

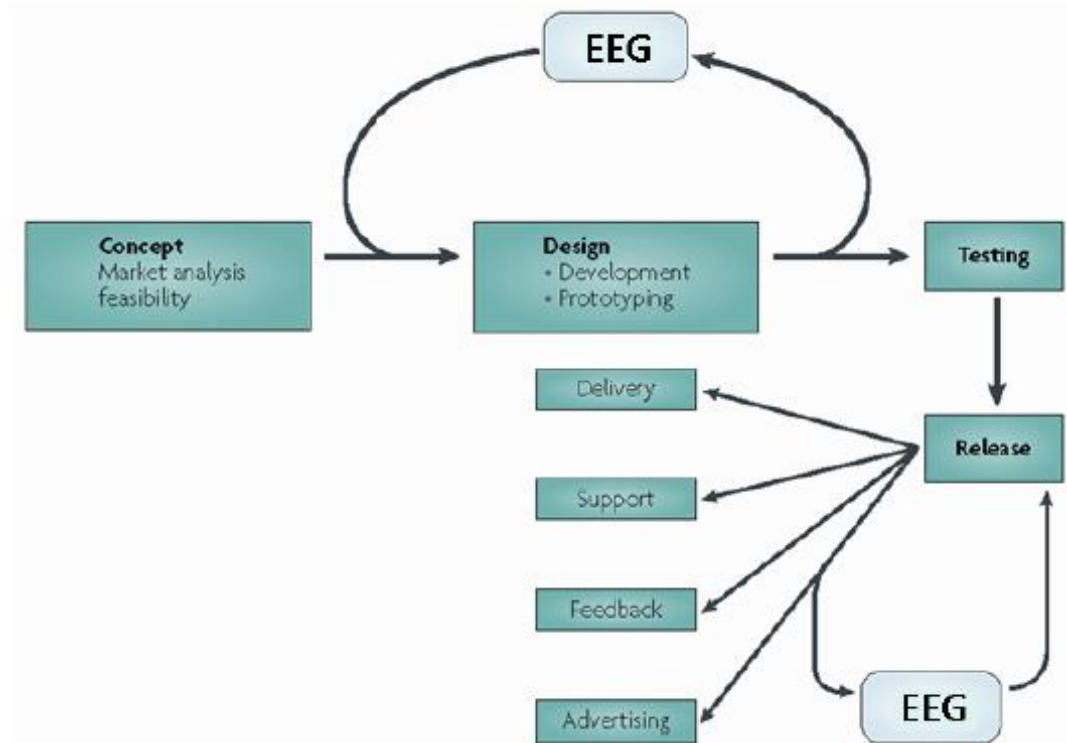


Figure 1. Product Development Process

Source: Giovanni Vecchiato, Patrizia Cherubino, Arianna Trettel ve Fabio Babiloni, **Neuroelectrical Brain Imaging Tools for The Study of The Efficacy of TV Advertising Stimuli and Their Application to Neuromarketing**, [electronic version], UK: Springer, 2013, p. 5.

EEG is one of the most commonly used techniques in clinics and in the area of psychophysiology and cognitive neuroscience. It is aimed to comprehend the relation between brain functions and behavior in either case. In a study performed in 1960s to explain the relation between brain and behavior, Benjamin Libet performed an EEG

measurement and asked the subjects to raise their fingers whenever they wanted. Meanwhile, the subjects were looking at a high-resolution timer and when they felt an impulse to do the action, they would write down that moment. Libet discovered in his study that the impulse to move was formed before the movement was carried out. However, in actual output of the research, Libet who was observing brain waves indicated that the increase of activity in the brains of the participants was felt much earlier than the desire to move. Here, the statement "much earlier" should be emphasized because the indicated time exceeds one second. So it means, in consideration of the study, that before we get the news that we have made a decision to raise our finger, brain and its functions have already started to work (Vidal et al. 2015; Eagleman, 2013).

In that case, brain may resemble a circuit which makes a connection of senses and electrical events occur during the functions of the brain. As well as typical consisted electric potentials; the method of printing a bit more different electric potential changes, in excited state depending on receptor activities, is called EEG. First EEG measurements were performed by German psychologist Hans Berger in 1929. The measurements of electric activities are carried out by means of electrodes placed by EEG device in scalp or directly in the cortex. EEG waves are not periodical physically but they are rhythmic waves. The observed potential wave frequency varies between 0.5-70Hz and amplitudes vary between 5-400 mikrovolt (μV). As activity level of the brain increases, EEG wave frequencies also increase and amplitudes decrease. Electrodes measure potential differences in the scalp at μV interval. For this reason, EEG can measure a great deal of neuron activities. The results of the measurements are quite sensitive because electromagnetic waves spread simultaneously in their environment. High number of electrodes are useful because they increase measurement precision and more proper measurements can be performed. While the discussion about the standardization of this number is still going on, Neurofocus company state that at least 16 electrodes are required (Girişken et al. 2014; Yücel and Çubuk, 2014).

EEG outputs change according to age, alertness of the brain, sensory stimuli, diseases –brain diseases particularly- and chemical changes in the body. Accordingly, the mood and psychological state of people cause small electrical currents in the brain. The data measured with high sensitivity are analyzed by means of an algorithm. Relevant EEG data are placed in three dimensional brain map and they reveal what part of brain is activated by each feeling of people during shopping or when watching visuals. In this way, the method removes the necessity of consumer's declaration and it enables to

When the visuals above are investigated, "Fp" stands for Frontal Pole area, "T" stands for Temporal, "O" Occipital, "C" Central, "P" Parietal and "A" Agur. The combination of two letters shows the placement of intermediate electrode. While "FC" takes place between electrode placement of frontal and central, "PO" is between the placement of parietal and occipital. 10-second schedule corresponds to one output of EEG paper. The names of electrode placements used generally are Oz, O1, O2, Pz, P3, P4, P7 (T5), P8 (T6), CP3, CPz, CP4, TP7, TP8, Cz, C3, C4, T7 (T3/C7), T8 (T4/C8), FC3, FCz, FC4, FT7, FT8, Fz, F3, F4, Fp1, Fp2. In EEG device, wave lengths with odd numbers show left part of the brain and wave lengths with even numbers show right part of the brain. Centre line electrodes are shown by lower case "z". Eyeball movements in Fp1 Fp2 electrodes may sometimes be seen in F3-F4 electrodes.

"F" Frontal-Pole: In forehead area. Whereas frontal lobe (left frontal lobe) is related to volitional acts, prefrontal cortex is related to memory, intelligence, concentration, anger and personality. Premotor cortex undertakes the orientation of eye and head movements while broca area has importance for talking. In essence, frontal area has influence to dominate memory, buying behaviors, socialising, resolution process and motor functions.

"T" Temporal Area: Audibility zone above each ear. This area is especially effective in memory. Right side keeps visual memory and left side keeps verbal memory.

"O" Occipital Area: Visual areas are above two protruding bones in the back. Visual cortex is located in the above-mentioned region. Because of the fact that these lobes have systematically cross-over work, right occipital lobe enables to see left side and left occipital lobe enables to see right sight.

"C" Central Area: As its name suggests, this is a central area and it starts from ten-finger above the ear.

"P" Parietal Area: Parietal area starts from the top point of the head and it goes on in the right and left regions. The signals coming from 5 senses in the body are processed in this area.

The number of the waves shown on the screen within one second is just as important as knowing the letters belonging to the electrodes in an EEG application. David Lewis describes the said wave numbers in his work called The Brain Sell (Lewis, 2013):

- **Delta Waves δ** (0.5-4 Hz) : Especially related to sleep.
- **Theta Waves θ** (4-6 Hz) : Related to a mental comfort and condition and imagination.

- **Alpha Waves** (8-12 Hz) : Related to comfort, wakefulness and carelessness.
- **Beta Waves β** (13-40Hz) : Irregular and the smallest amplitude waves which are the most common when someone is stimulated or doing something requiring mental effort.
- **Gamma Waves γ** (40-100 Hz) : Related to memory formation and combination.

While electrodes are being placed, first the distance between nasion (nasal bridge) and inion (occipital protuberance) is measured. The mid-point of this distance is known as Cz (central vertex). Fz (midline frontal) is found by getting beyond 20% of the distance between nasion-inion from Cz. Pz (midline parietal) is determined by going back from Cz in 20% ratio. Moving back from Pz 20%, Oz is found. Then, the distance between two external auditory canals (targus) going through Cz is measured. Moving from Cz electrode 20% to right and left of the mentioned distance, C3 and C4 are determined respectively. T3 and T4 are found by moving away C3 and C4 in 20% ratio. The distance of frontopolar electrodes to nasal bridge must be nearly 10% of the distance between nasion-inion. EEG application makes it possible to determine in what hemisphere of the brain the activities are carried out. During EEG application, the fact that the eyes are closed or open affect wave lengths because swallowing and eyeball movements can be determined during the application. Even the psychological state of the subject at that moment like being stressed is involved in this. Approaching the subject nearer than 2 meters, electrode skidding, gestures distracting the subject may cause artefacts (misleading or confusing alteration that does not reflect the reality in data or observation) and they naturally affect the measurement results negatively (Event-Related Potentials ERP, Recording and Analysis 15.05.2016).

III. Methodological Framework

As research methodology, the relevant application was compiled under a few headings in this chapter. Firstly, a general definition of the company included in the study was made. Then, why the matter was investigated and what target was intended with the results obtained from the study was dealt with in the section of '*the aim of the research*'. The contribution of the study to the theory or application area and the different aspects of the study from similar ones were mentioned in the section of '*the importance of research*'. In the section of '*the method of the research*', answers were sought for the questions such as how the data were obtained, what the content and universe of the research was, what problems were solved by this information and how it was used, what method and techniques were made use of in this process. The results were analyzed and interpreted.

A. The Importance and Target of the Study

Neuromarketing tries to solve the puzzle of 'the fact that the individuals with a complex biological structure act with their emotions as well as with their minds make them move away rationality'. And the main objective of this study performed in neuromarketing is to determine the effects of the advertisements and their messages, which has a function to prepare potential buyers to visit salesman, on consumers by eeg method. Neuromarketing is a new and different area which should be developed and the awareness of which should be expanded. And also it has a high cost application, so contributing to the development of neuromarketing, drawing a projection for the businesses which want to minimize the costs by determining the expectations of the customers well and by interpreting the obtained data scientifically; and creating an awareness for consumers whose needs and demands are met in desired level are among other objectives.

Real results are obtained in neuromarketing studies because what the consumers really want is measured, that is, consumers do not tell lies and they give replies without worries and prejudices. It is declared that the studies performed in this field are realist, scientific and more reliable. In addition, the fact that the researches direct other studies which eliminate ethical concerns make a contribution to existence of more conscious individuals and make them behave more rationally. The other studies on neuromarketing so far and in the future, including this one, will contribute to the national and international literature of neuromarketing and also it is important that they show the suitability of social sciences for experimental studies. Besides, this study has a particular importance in that it makes a better comparison, it emphasizes the deficiency of using traditional survey technique based on declaration to understand the consumers; and because the commercial film is analyzed by eeg measurement which is one of the techniques used by neuromarketing discipline.

B. Method of the Study

The study deals with the effect of the advertisement on consumers by means of electroencephalography technique. A commercial film made for Father's Day for the product 'No:1 Wafer' of Konya Şeker Corporation Torku was investigated. Konya Şeker, a producer cooperative, created Torku brand in 2007 with a strategic and visionary point of view. In this part of the study, the subjects watched the mentioned commercial film of the company. While they were watching the film, their brain activations were measured. This measurement was performed by 10-channel EEG device. During the research, emotional responses of the participants whose brain

activations were measured were recorded and EEG patterns were obtained. EEG outputs were analyzed and interpreted by academicians and EEG experts comparatively, taking into account the declaration of consumers.

IV. Data and Results

84-second commercial film which was made especially for Father's Day for No:1 Wafer product of Torku was watched by the volunteer subjects who were analyzed by EEG and the reactions of the subjects for the stimuli were tried to be measured. In some cases, the opinions of the participants were also taken for the purpose of confirmation. Brain waves of 30 volunteer subjects, 15 males and 15 females, were measured by means of EEG device. EEG patterns obtained as a result of the measurements were interpreted by academicians and electroneurophysiology experts. Sample group was formed using random sampling technique and it consisted of university students aged 18-40 who consumed wafers. Brain waves of the subjects were measured by EEG technique and the emotional reactions were recorded. Furthermore, these reactions reveal significant results because they are in accordance with the demographic attributes of the participants. A different segmentation was made for this and the measurements were analyzed specifically because innate physiological and emotional differences of male and female brains cause sometimes simultaneous and sometimes tally unlike changes for similar stimuli. For this reason, it must be emphasized how the exchange values are important on male and female participants caused by the difference between the seconds and the themes in the commercial film. Women are emotionally more devoted and they give more importance to details than men do. The reason is that right hemisphere of woman brain is more developed than left hemisphere.

Data algorithms measured by EEG device indicate emotional reactions of the subjects. The electrodes named Fp1-F7, F7-T3, T3-T5, T5-O1, Fp1-F3, F3-C3, C3-P3, P3-O1, T3-A1 show red wave lengths and the activations in left hemisphere of the brain. The electrodes Fp2-F8, F8-T4, T4-T6, T6-O2 Fp2-F4, F4-C4, C4-P4, P4-O2, T4-A2 are blue wave lengths and they show the activations in right hemisphere. Fz-Cz, Cz-Pz are black electrodes and they show the activations in the middle (Yücel and Çubuk, 2014). EEG device used in the study is designed for international 10-20 system and the diversions, the placement of the electrones, are F7-F3, F3-Fz, Fz-F4, F4-F8, F8-F4, T4-T6, T4-C4, F7-T3, T3-T5, T3-C3.

The first 10 seconds of Torku commercial film is a kind of introduction. Father Pascal introduces himself and he talks about Pascal's childhood. The walking stick with eagle

head in father Pascal's hand resembles the company (the eye of the eagle is shining). And the Eiffel Tower is shown because Pascal Nouma is French. Neutral data show that not many reactions are observed in male and female subject, so it can be concluded that this introduction part of the film is not so effective.

Then, it can be said about this part that the effectiveness of the equal theme was similar for male and female subjects and their stress levels increased.

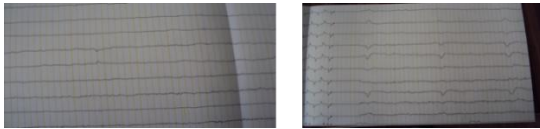


Figure 4. Male (left) and Female (right) EEG Patterns

After the 10th second, an upbeat music is started emphasizing that Pascal is 9 years old and Pascal kisses the hands of the guests saying "Nobir Auntie" in front of bewildered father Pascal. Then, Pascal says "good morning dady" with menemen (spicy Turkish omlette) in his hand and starts to tell his father about menemen. He eats menemen hungrily saying "come and dip a bit" and he sends the basket to the grocery store from his flat ordering "three croissants a packet of milk." It is clear that Turkish customs are emphasized here. The suit and open-necked shirt of father Pascal, gold chain, large frame glasses, golden watch and handlebar moustache make these Turkish motifs richer. In this part of the film from 10th to 32nd second, it was seen that female subjects were impressed with the scenes of kissing hands and sending the basket more. The responses of male subjects measured during Menemen scene which goes on from 16th second to 26th second and during supporting this scene by slogans attract attention. After 16th second, beta rhythmic activities were observed in left hemisphere and especially more clear in right frontotemporal area.

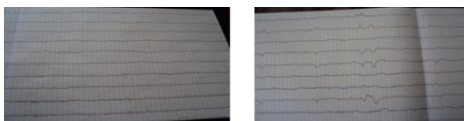


Figure 5. Male (left) and female (right) EEG patterns

After 32nd second, the music changes and it is explained that Pascal is a very good footballer. Pascal completes this scene making gestures at the gol keeper and saying 'Nobiiir'. During this period lasting until 36th second, it can be said that the *positive data* of the males were steady whereas female data were stable. Effects were seen in the right hemisphere of the males for about 5 seconds. Space and the goals made of stones and walls are effective in the responses in terms of nostalgia.

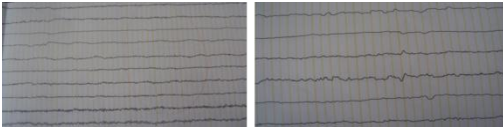


Figure 6. Male (left) and Female (right) EEG Patterns

Together with the same music at 36th second; describing a car with a CD on the mirror, barbecue, camping cylinder and a football in the car trunk, a child figure on fuel lid and a sticker written 'NOBİLİR' on the rear window; beads in Pascal's hand and his coat, watch and glasses, as a fashion of that moment, all caused to continue the responses. This time the responses of instant attention are high and it can be said that amplitudes decrease considering the responses obtained from football scene. These responses generally consist of short instant attention. However, after 40th second, the fact that Pascal toots a horn while the girls are passing by the car and he says "wonderful! Gearing up like a cat!" caused positive data and increased emotional involvement level in men especially. After 40th second, it became clear in right frontotemporal areas that waves varied and amplitudes increased more. Moreover, reactions were observed in opposite hemisphere areas in some male subjects and it was seen that activations increased gradually. Between 42nd and 44th second, activations were observed in some female subjects during 1 or 2 second while the girls were passing by. However, no remarkable reactions were observed in females in this period lasting 46th second.



Figure 7. Male (left) and Female (right) EEG Pattern

Between 46th and 53rd second, Pascal gives directions to a Frenchman using the statements like "yes, please dear?", "ohh mr. you ringed to false place" and "keep in the right hand, ok?." It is understood from this scene that giving a direction in Turkish style is approached wittily. In these scenes, short time equal increases were observed in right frontotemporal areas of males and females. From 54th second on, father Pascal talks about Pascal's transfer to Turkey with his eagle-head stick in his hand. At that time, close-up eagle figure represents Anadolu Birlik Holding (ABH) and Beşiktaş Football Club. During this period lasting until 62nd second, males and females were affected by the equal theme in the same level statically. This effectiveness occurred as short time ripples in general. However, after 62nd second, whereas noticeable

activations were seen in males with Pascal's expression "happy father's day, dady", no movement was seen in the same level in the waves of female subjects. Then, from 67th second of the ad, Father Pascal says "what nobir about you?" in close-up and Pascal advertises the product in close-up also saying "nutty nobir from me". During these talks, emotional involvement levels of the subjects show similarities. Close-up view of Father Pascal was more effective than of Young Pascal. The real point to be emphasized is that emotional involvement and positive data increased in male and female subjects who consume Torku products at 68th second and beta rhythmic activities were detected in left hemisphere from time to time and in right frontotemporal areas (F7, F3, F8, F4, T3, T5, T6) more clearly symmetrically.

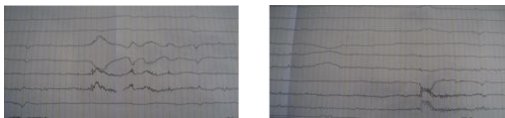


Figure 8. Male (left) and Female (right) EEG Patterns

In the responses which continued decreasingly, positive waves were observed at 75th second when Father and Son Pascal were eating Torku No:1 Wafer with a subtitle "I will always be proud of my son." These reponses were remarkable in the customers of Torku but a partial movement was seen in others. In accordance with EEG patterns particularly and with the obtained results, which were confirmed taking into account the subjects' opinions, it was discovered that the expression "Happy Father's Day, all dads!" at 78th second, Torku logo at 81st and 82nd second and the slogan "Naturally From Us" became prominent in long-term memory metrics and Konya Şeker took place in short-memory scala.

On th other hand, it was found out that the artefacts in EEG patterns resulted from eyeball movements, physical movements of hands and feet and swallowing. It was seen that the facts such as stress, straining, risk and uncertainty cause artefacts.

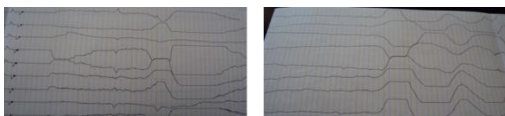


Figure 9. EEG Patterns Artefact Image

V. Conclusion and Discussion

Electroencephalography measurements have shown that some behavioral outputs can be adapted to the outputs of emotional reactions based on subconscious responses created in the brain. The participants' waves which were in alpha rhythm

before they watched the film started to change as from 10th second and it was seen that amplitudes increased especially after 40th second and the rhythms turned into Beta rhythm. That is to say, when child Nouma came in and kissed hands saying "Nobir auntie" after upbeat music at 10th second, participants' attention level increased and wave rhythms got move and changed after this activation. This movement became clear especially after Young Nouma made horn sound in his car with "Nobiiir" sticker in rear window and he made a pass to the girls and this was valid for nearly all participants. Using a foreign person like Pascal Nouma in a commercial film, fitting out him with Turkish motifs, the slogan "naturally from us" and the expressions such as "Nobiiir" and "we say nobir to all daddies" affected this activity even if it was partial. The fact that Pascal Nouma is a friendly person and a successful, favorite footballer in Turkey made a contribution to this. To express in a techinal statement, it was observed in EEG measurement that electrical currents in the brain were under the influence after 40th second especially. These mentioned areas are right frontal and temporal areas with diversion of FZ-F4, F4-F8, F8-T4, T4-T6, T4-C4. According to EEG outputs, it was observed that the factors in commercial films caused different reactions in men and women occasionally. A general inference in accordance with this commercial film is that positive reactions were received from the participants in the scenes which were natural and sincere; where family bonds were emphasized, tradition was expected to keep on, emotional and smiling people were together and proper music and color were used in the theme. As mentioned before, the film was made for Father's Day and the responses of males were so clear in these scenes specifically. However, generally negative responses or no responses were obtained from females in those scenes. It was seen that using a star in the ad was not in the expected level in terms of the atteniton of the participants. Fortunately, the fact that Pascal Nouma was mostly a favorite person in Turkey and reflected Turkish culture in the film and his friendly behaviors reversed this situation even if a bit. In spite of this, it must be borne in mind that using a star in a commercial film is a risky factor. Level of interest of male participants were remarkable especially in those scenes. Supporting Pascal Nouma's life in the film with a suitable jingle increased interest level. On the other hand, the fact that the film was long and it mainly appealed to males and the actor got beyond the brand increased the findings that it caused opposite changes in responses. Besides, describing Pascal's life for quite some time, making a pass to girls and repeating the themes resulted in a negative effect especially in terms of women. It can also be criticized that the film was not so effective in arousing interest. Another criticism is that the ad was deprive of vivid colors. Although not very noticeable changes were observed in brand, logo and slogan scenes

with regard to responses, it can be said that it was effective. However, it was seen in the findings that the sub-factors such as off-voice, jingle and background music in the scenes with these factors affected consumers' perception in a positive way and increased the positiveness of interest. Accordingly, it is possible to criticize that first 10 seconds of the ad did not cause an electrical responses in the brain but including more remarkable factors in these parts would increase degree of influence of the film. In the final analysis, the commercial films are more likely to be successful if people find some values from themselves, ordinary people are used, clear product environments are presented, mental costs of consumers are minimized; and when they are not exaggerated and do not contain information inflation. Final determination in accordance with EEG is that it is more rational to run an effective advertising plan for the balance between the messages of the advertisement of the company and the reactions expected from consumers.

In essence, in EEG measurement after 40th second especially, it was found out that electrical currents in the brain were under the influence till the end of the film. These areas are right frontal and temporal areas with FZ-F4, F4-F8, F8-T4, T4-T6, T4-C4 diversions. Accordingly, it is possible to criticize that first 10 seconds of the commercial film did not cause any electrical reactions in the brain and including more noticeable factors in this part would enhance effect level. In short, it was seen that the themes increase positive effects of the participants when people find some values from themselves, there are natural and sincere family bonds, more lively jingle and vivid colors are used, debonairness and emotions are together and nostalgia is mentioned. The fact that the film addressed males in general affected female participants negatively and using a foreign famous person in the film did not cause expected obvious changes in the reactions. Finally, the themes with unnatural, pale colors tiring for the brain caused negative effects or no effects in people.

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The Importance of Motor Skills in Wrestling Sports Classes

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Abstract

The purpose of this study was to identify and assess the importance of motor skills in the 14-15 year-old age group among wrestlers. Familiarity with motor skills and improvement of specific physical knowledge of wrestling at this stage is a foundation that will be used in adulthood. The involvement of sports classes in physical education can bring an interactive environment for potential promotional activities and character development. Method: The subjects are 34 male wrestlers who practice training four times a week. The participants were taken from the districts of Tirana and Lezha. Age 14.68 ± 0.8 . Body height 161.41 ± 5.28 cm, weight 56.45 ± 5.34 kg. Envelope running test (A-B-E-C-D-E-A), 10 X 5 m boat running test (SHRT), long jump from the place, box folding flexibility test. For the initial data analysis, one-way ANOVA ($\alpha = 0.005$) was used. The data collected from the test are presented as mean \pm standard deviation (SD), the maximum and minimum were calculated in Excel for each test conducted. We believe that identifying key success factors and motivation in training sessions are essential and will help in the work of coaches in age groups for a more effective process towards success.

Keywords: training methodology, wrestling, youth, physical knowledge

Introduction

The origin of sports practices began with the development of growth that has characterized the economic and social development of human society. Motor development corresponds to the phase of physical education that belongs to schoolchildren aged 14-15. (Gallahue, 2012). Improving skills with specific physical knowledge of wrestling at this stage is a foundation that will be used in adulthood. The characteristics of this stage aim to support a physically active lifestyle and to expand the skills and knowledge applied to achieve a physically educated individual. The involvement of sports classes in physical education can provide an interactive environment for potential promotional activities and character development. The

structural composition and motor skills of wrestlers are the most important determinants of performance. The wrestlers during the match aim to physically dominate opponents and establish control (Ratamess N.A., 2011), (Chaabene H., 2017). The athlete's success depends on the development of muscular strength, speed, flexibility and technical ability. (İmamoğlu, 2018), (Chaabene H., 2017), (Elsawy G., 2014), all of which are essential for competitive success (Passelergue P.A., 2012), (Horswill C.A., 1992), (Kapedani K., 2024) Important factors in the development of physical fitness are age parameters, body weight, height, aerobic and anaerobic power, resting heart rate and blood pressure, flexibility and body components (Güneş S., 2019) and (Koca F., 2019). The development of characteristics and the determination of the possibilities for success can only be possible through scientific tests and studies. Physical characteristics and motor performance parameters vary according to age and gender. Determinations of anthropometric characteristics, and body composition including physiological factors and physical fitness can help wrestling coaches balance training schedules based on the profile of this age group. A very important place is played by the source of energy in wrestling matches, which are anaerobic and the recovery of wrestlers through the aerobic system, agility and high speed. Faktorët kryesorë për të arritur sukses në fusha të ndryshme atletike janë antropometria, vlerësimi i strukturës dhe tiparet fizike (Arrese AL., 2006).

Strength is a very important factor in both defence and attack when practising techniques or resisting practised techniques. Flexibility allows wrestlers to move and coordinate with positive effects on the execution of techniques. Speed and reaction speed in wrestling are very important factors that affect the success of wrestlers. (Mirzaei B, 2009) and (Kapedani K., 2024). Speed skills in boys improve between the ages of 5-18 years and agility performance develops until the age of 18, especially 5-8 years. (Malina, 2004). During a fight, wrestlers perform many attacks and counterattacks that require quick bursts. (Aslan C.S., 2013), (Cicioğlu Hİ, 2007), (Tekelioğlu A., 2010). The role of affective learning is to promote feelings, emotions, attitudes and social behavior. (Metzler, 2012).

Method

Wrestling is a sport that requires the combination of various functional features. In performance; Muscle strength, fast reaction time, neuromuscular coordination, static and dynamic balance and high aerobic capacity are the factors that play a role (Otağ A, 2011). To determine the changes in physical and motor characteristics in body weight, height, body mass index, and body fat percentage, it was deemed reasonable to conduct the zigzag envelope running test, 5X10 meter shuttle run, long jump on foot, and the box folding flexibility test. The training program of wrestlers in the

wrestling sports classes was conducted for eight months (September-April); September and October were taught basic wrestling games and techniques, November and December were taught basic techniques, skills and falls on the mat, January and February were taught basic techniques and endurance movements, March and April were held matches for techniques and tactics and competitions. A descriptive field method was used in this study. The purpose of this study is characterized as functional and practical research. The subjects are schoolchildren in wrestling classes 14-15 years old and there were 34 boys. The training was conducted four days a week, and the intensity of the load was maintained between 55-65%. The training included 20 minutes of warm-up based on gymnastic exercises, 40-45 minutes of basic techniques and 10-15 minutes of stretching. Data analysis: The SPSS package program was used to analyze the data obtained in this research conducted in a descriptive model, the "paired sample" t-test was preferred. The error level was accepted as $p < 0.005$. The study was conducted in accordance with the Declaration of Helsinki.

Table 1. Age, BM and BMI.

	n	Mean	SD
Age (year)	34	14,68	0,92
BW (kg)	34	56,24	12,24
BW (cm)	34	161,22	8,12
BMI (kg/m ²)	34	21,46	4,12

Results

Table 2 shows descriptive data from field tests conducted on school athletes aged 14-15 in sports classes in Albania.

Table 2. Data from the agility, speed, explosiveness and flexibility tests of school athletes

Test SD	Average	Max	Min
Zigzag run ± 1.06	28.35	29.32	26.46
SHRT 10X5m ± 1.12	19.21	21.86	17.96
Long jump cm ± 0.68	194.2	212.4	178.6
Folding on the box 0.9	12.4	16.2	8.4 ±

The results of the normative values regarding the athletes' parameters obtained from the tests are presented in the table.

Discussion

In competitive sports, especially combat sports, more self-determined and autonomous types of motivation are associated with long-term commitment and greater interest in participating in sports at a high level. (Pelletier, 2013). Their goal is to perform consistently at maximum levels, relying exclusively on themselves. In the process of identifying and developing talents in sports, it is necessary to create assessment models according to age groups. Athletes must devote a lot of time and effort to training sessions to be superior to their opponents and to achieve their highest performance. Talent assessment standards should be defined as criteria by sports scientists and specialists (Ko B. G., 2003). Wrestling as a sport contains high-intensity, explosive offensive and defensive manoeuvres that determine the winner. Skill performance is recognized as a high training need (Dawes J., 2012).

Where based on the results after the analysis that we will perform, we can plan specific training in the development performance for school wrestlers of the age group 14-15 years. Several studies have reported that BMI and body mass were significantly related to skills, respectively. A large number of studies have focused on the evaluation of the conditioned performance of school wrestlers, most of them were

focused only on the development of flexibility and speed of performance. Many researchers refer to the idea that without high levels of anaerobic power, they cannot achieve technical actions or control the opponent's manoeuvres (Mirzaei B, 2009), (Nilsson J, 2002), (Chaabene H, 2017). In the study (García-Pallarés J, 2012), from an examination of 30 variables reported, only three were logical including maximum power. Several studies (Gierczuk D, 2018), (Whitley JD, 1992) relate response time to wrestling performance. What is unclear is the role of response time in wrestling (Gierczuk D, 2018), (Kroll W, 1958). According to the results (tab 2) obtained from the tests, it was evident that school wrestlers aged 14-15 who practised 4 times a week, had low values compared to various studies in the literature. As a result, the speed and agility skills are evaluated as components of wrestling performance. Age group coaches can use the norms achieved in this study in school wrestler training programs. The use and development of sport-specific norm values is important for long-term athletic development.

Conclusion

According to the results obtained in the values, we think that there is a relationship between the effect of age on the development of speed, agility and flexibility skills. The current study provides a description of the types of engagement, health benefits that may be useful for sports professionals to understand how young athletes maintain their sports activity and prevent dropout.

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The Impact of Group Music-Making Programs on Well-Being Among Nursing Home Residents in Tirana, Albania

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Abstract

As societies adapt to an aging population, ensuring the well-being of older adults is increasingly recognized as a vital issue. This study investigates the impact of group music-making programs on the health and well-being of nursing home residents in Tirana, Albania. Through a series of seven weekly music sessions delivered by professional and student musicians, the research examines how musical activities can reduce feelings of isolation, alleviate anxiety, and enhance self-esteem. The findings suggest that music plays a significant role in residents' lives, providing opportunities for engagement, promoting novelty, and facilitating social connections. This paper emphasizes the importance of music-based interventions in improving the quality of life for older adults.

Keywords: group music, well-being, home residents

Introduction

The aging process is accompanied by various challenges that can significantly impact the mental, emotional, and physical health of older adults. Among these challenges, social isolation, anxiety, and decreased self-confidence are particularly prevalent and can severely diminish the quality of life for elderly individuals. Social isolation often leads to feelings of loneliness, reducing opportunities for social interaction and engagement, which are vital for maintaining both psychological health and emotional well-being (Cattan et al., 2005). As the global population of older adults continues to expand, effective interventions aimed at enhancing their overall well-being have become increasingly essential (World Health Organization, 2021).

In the context of aging, arts-based interventions, especially those centered around music, have emerged as promising avenues for support. Music has long been recognized for its therapeutic benefits, with a growing body of research

demonstrating its capacity to uplift spirits, create social connections, and promote emotional healing (Thoma et al., 2013). Studies have shown that engagement in musical activities can effectively reduce feelings of loneliness and anxiety while fostering a sense of achievement, purpose, and fulfillment among older adults (Creech et al., 2013; Daykin et al., 2017). These activities not only provide enjoyment but also facilitate cognitive stimulation and enhance self-expression, contributing to improved mental health outcomes (Brendel et al., 2012).

Moreover, music's inherent qualities allow for reminiscence and nostalgia, linking individuals to their past experiences and reinforcing their identity. In environments such as nursing homes, where many residents may grapple with the complexities of aging, music can serve as a powerful tool for fostering community, encouraging participation, and enhancing overall quality of life (Sakamoto et al., 2018). By incorporating group music-making programs into care practices, nursing homes can create enriching experiences that promote social interaction and emotional support among residents, thereby addressing the pivotal challenges associated with aging.

This study specifically investigates the impact of group music-making programs on the health and well-being of nursing home residents in Tirana, Albania. Through a structured series of music sessions led by professional and student musicians, this research aims to assess the effectiveness of musical interventions in alleviating feelings of isolation and anxiety while simultaneously enhancing self-esteem and social connections among participants. By exploring the experiences and perceptions of residents who engage in these musical activities, this study seeks to highlight the transformative potential of music in improving the quality of life for older adults living in nursing homes. The findings of this research not only contribute valuable insights to the field of gerontology but also emphasize the importance of integrating creative interventions, such as music, into care practices for aging populations. This research evaluates the effects of group music-making programs on the health and well-being of nursing home residents in Tirana, Albania.

Literature Review

The therapeutic effects of music on health and well-being have been extensively documented across various studies, highlighting its transformative potential in enhancing the quality of life for older adults. Music therapy has been shown to significantly improve psychological, emotional, and social functioning, effectively addressing the multifaceted challenges that aging individuals often face (Baker et al., 2016; Tamplin et al., 2013). For instance, interventions involving music-making not only enhance individual emotional states but also facilitate essential social interactions, thereby helping to combat feelings of loneliness and isolation prevalent

among the elderly (Sacks, 2007). Moreover, engagement with music has been linked to stimulating reminiscence, which is particularly beneficial in evoking memories and connecting individuals to their past experiences. This process not merely serves as a nostalgic recall but also plays a crucial role in reinforcing a sense of identity and self-worth, particularly for those in long-term care settings (Creech et al., 2013). Research has demonstrated that music serves as a bridge between generations, encouraging communication and fostering relationships both among peers and between residents and caregivers. Furthermore, a growing body of evidence supports the notion that group music-making can enhance overall well-being by promoting emotional expression and reducing anxiety levels. In group settings, the collaborative aspect of music-making provides a structured yet flexible environment where older adults can freely express themselves, leading to increased feelings of belonging and acceptance (Dingle et al., 2013). These positive emotional outcomes extend beyond the individual, often leading to strengthened communal ties and improved morale among residents.

Given these insights, the implementation of music-based interventions in nursing homes presents a valuable and practical opportunity to positively impact the lives of older adults. By providing engaging musical activities, facilities can not only enrich the daily lives of residents but also leverage the established health benefits of music to enhance psychological resilience and social cohesion within the elderly community. As the demand for effective geriatric care continues to rise, integrating music therapy into care frameworks emerges as a compelling strategy for fostering healthier, happier aging, thereby contributing to the overarching goals of enhancing the well-being of aging populations

Methodology

Study Context and Design

This study was conducted as part of the "Music in Society" course at the University of Arts in Tirana, taking place from April 2024 to June 2024. The primary aim was to examine the effects of group music-making on the health and well-being of residents in nursing homes across Albania. Four teams of musicians delivered a structured seven-week program of group music-making activities, with each team assigned to one nursing home.

Participants

- The participants in the study included residents from four nursing homes in Tirana, selected based on their willingness to engage in music activities. The program was tailored to accommodate varying levels of ability among the

residents, ensuring an inclusive and supportive environment. Each resident was offered the opportunity to participate in the program, and at the end of each session, the number of participants was noted by the staff of the home. The inclusion criteria for this study considered only residents who attended at least 9 sessions and who were able (in terms of their health) to be interviewed. **Mean:** 68.9 **SD:** 4.49

Program Implementation

The music intervention program was designed to engage nursing home residents through a series of weekly sessions that combined diverse musical activities tailored to foster connection, promote emotional expression, and enhance well-being. The sessions were structured around three core components:

Singing: Participants actively engaged in group singing, focusing primarily on traditional folk songs and serenades, often centered around themes of love, homeland, migration, and longing. This not only encouraged social interaction but also allowed residents to express their emotions and share personal narratives through the music. The collaborative nature of singing facilitated a supportive environment, where individuals could bond over shared cultural experiences.

Rhythm-Based Activities: The program included rhythm-based activities that utilized a variety of percussion instruments such as triangles, maracas, guitars, and the fisarmonica (accordion). These activities were designed to stimulate cognitive function and physical coordination while boosting mood through rhythmic engagement. By tapping into the residents' inherent sense of rhythm and movement, these activities promoted a sense of vitality and joy.

Live Performances: To further enhance the program's appeal, professional musicians led live performances during select sessions. These performances provided a unique opportunity for residents to experience music in a dynamic format, heightening their engagement levels and offering them an enriched emotional and sensory experience.

Team Composition and Training

A total of five music students participated in the program, with 2-3 students designated to each music team. Some students volunteered across multiple nursing homes, demonstrating a commitment to enhancing the community's musical engagement. Each student possessed advanced instrumental performance skills and underwent rigorous training designed specifically to equip them with the necessary facilitation skills for the music workshops. This training comprised several key components:

Directing Small Groups: Students learned how to effectively lead small groups of residents in singing activities, focusing on fostering an inclusive atmosphere where everyone felt encouraged to participate.

Facilitating Rhythm Activities: Training emphasized the use of available percussion instruments, enabling students to confidently guide residents in rhythm-based exercises that promote both enjoyment and physical engagement.

Encouraging Participation: Students were trained to support and encourage resident participation in a manner that was engaging and respectful, recognizing the diverse abilities and preferences present within the group. This approach was crucial in establishing a positive and nurturing environment, ensuring residents felt valued and motivated to join in the activities.

The comprehensive training provided to music students prepared them to create an inviting atmosphere during the workshops, significantly enhancing the quality of the interactions and overall experience for participants.

Program Interruption

The initial plan for a ten-week program faced an unexpected interruption due to a serious influenza outbreak, resulting in a seven-week quarantine at one of the nursing homes involved in the study. This situation necessitated modifications to the implementation strategy and presented challenges in maintaining consistent engagement with residents. The impact of this interruption was carefully considered in the overall analysis of the music-making program's effectiveness on participants' well-being. The adjustments made during the program's execution, along with the resilience exhibited by both students and residents, provided valuable insights into the flexibility and adaptability required in intervention programs focused on elderly populations. Despite the challenges, the remaining weeks of the program revealed significant potential for music-based interventions to enhance the quality of life for older adults, underscoring the importance of continued exploration in this valuable field.

Session Structure and Content

Each group music-making session was designed to last 60 minutes, providing a structured yet flexible framework to enhance engagement and participation among nursing home residents. To initiate each session, live performances by professional musicians were featured, capturing the residents' attention and setting an uplifting tone for the activities that followed. Throughout the program, adjustments were made weekly based on feedback received from the residents, ensuring that their

preferences and requests were integrated into the musical offerings. This participant-driven approach allowed residents to feel a sense of ownership and agency over their musical experience.

While music teams tailored their specific programs, several common activities were consistently included across all sessions. Each session typically began and ended with agreed-upon group songs, which helped create a familiar structure that residents could rely upon. Additionally, each session incorporated musical warm-up exercises designed to prepare participants both physically and mentally for the activities ahead. These exercises aimed to enhance vocal warm-ups and increase participants' comfort levels with the session's content. A careful balance was struck between introducing new songs and revisiting previously learned ones, fostering both a sense of novelty and continuity. Throughout the sessions, residents were given the freedom to engage at their own comfort levels—whether through singing, playing instruments, or simply listening to the music. This choice-based model promoted inclusivity and allowed residents to connect with the music in a way that felt most meaningful to them.

Data Collection

Data collection for this study was executed through focus group interviews conducted by the primary researcher, who played the dual role of mentor and lecturer. These interviews were conducted in Italian, accommodating the residents' language preferences and ensuring effective communication. The interviews took place in either the residents' private rooms or communal spaces, enabling a comfortable setting that encouraged open dialogue. Importantly, the focus group interviews were held following the final music session, allowing residents to reflect on their experiences throughout the program and providing rich insights into the impact of the musical intervention.

Interview Process.

Utilizing a phenomenological approach, the interviews aimed to explore residents' lived experiences related to the music program. This approach encouraged residents to evaluate not only the music-making sessions themselves but also to discuss the perceived effects on their well-being and relationships with fellow participants. By prompting residents to self-assess their musical abilities, the researcher sought to elicit a deeper understanding of how engagement in musical activities contributed to their sense of identity and self-worth.

To foster an open and inviting environment, the researcher emphasized the importance of creating a space where residents felt free to express their thoughts and emotions without fear of judgment. This focus on building trust and rapport was

essential for gaining authentic feedback, allowing residents to share their honest reflections and experiences regarding the music-making program. Through this thoughtful and empathetic approach, the researcher aimed to capture the holistic impact of the music intervention on residents' lives, shedding light on the transformative potential of music in enhancing the well-being of older adults in nursing home settings.

Findings

Enhanced Well-Being

The study found that participation in music-making programs significantly contributed to improved overall well-being among residents. Numerous participants reported an increase in happiness and a substantial reduction in feelings of sadness and anxiety as a direct result of their involvement in the music sessions. This finding aligns with previous research indicating that musical engagement can positively influence mental health, particularly in older adults (Creech et al., 2013; Daykin et al., 2017).

Residents highlighted the importance of social interaction during the music sessions. The group activities fostered relationships among participants, effectively reducing feelings of isolation. The collaborative nature of the program encouraged camaraderie and a sense of community, which are crucial factors for emotional support and overall mental health (Baker et al., 2016). These results suggest that music programs not only serve as therapeutic interventions but also as platforms for social bonding.

Personal Significance of Music Participants expressed that music held profound personal significance in their lives, with many recalling cherished memories connected to specific songs from their past. The music sessions provided a valuable opportunity for reminiscence, reinforcing residents' identities and integrating their life experiences into the present moment. This aspect echoes findings by Sacks (2007), who noted that music has a unique ability to evoke memories, facilitating a stronger sense of self in older adults.

Residents particularly appreciated the live performances by the musicians. These interactions not only provided enjoyment and entertainment but also established meaningful connections with the younger generation, enriching their social experiences and promoting intergenerational relationships. The presence of live music has been shown to elevate mood and encourage engagement in participants, enhancing the therapeutic benefits of the program (Thoma et al., 2013).

Conclusion

The findings from this study align well with existing literature on the benefits of music for older adults, demonstrating that group music-making programs effectively address key challenges faced by nursing home residents, such as social isolation and anxiety. The participants' positive experiences strongly underscore the necessity of integrating music-based interventions into care practices, highlighting their capacity to enhance both emotional and social well-being among aging populations (Brendel et al., 2012; Daykin et al., 2017). Furthermore, this study illustrates that music plays a critical role in enhancing the quality of life for nursing home residents in Tirana, Albania. Music-based interventions not only provide essential therapeutic benefits but also foster social engagement and personal fulfillment. As such, nursing homes and care facilities should prioritize the inclusion of music programs as a strategic component of their holistic care approaches to improve the overall well-being of their residents. In closing, future research should continue to explore various artistic interventions tailored to the unique needs and preferences of older adults, with a focus on understanding the long-term impacts of these initiatives on residents' quality of life, mental health, and interpersonal relationships.

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The Protective Role of Probiotic-Rich Dairy by-Products in Mitigating Bisphenol a Toxicity: Antioxidant and Anti-Inflammatory Mechanisms

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Abstract

Bisphenol A (BPA) is a widely used industrial chemical, primarily employed in the production of synthetic polymers and thermal paper. Epidemiological surveys have indicated that BPA exposure can lead to toxic, endocrine-disrupting, mutagenic, and carcinogenic effects. This study explores the potential of probiotics, specifically *Lactobacillus rhamnosus* and *Lactobacillus plantarum*, in mitigating the harmful effects of BPA. The study consolidates findings from the past decade, focusing on preclinical in vitro studies and mouse models exposed to BPA. The findings suggest that probiotics can alleviate BPA-induced damage by decreasing its accumulation, reducing oxidative stress, and modulating inflammatory pathways. Furthermore, probiotics can improve gut microbiota diversity, which acts as a natural barrier to prevent the absorption of BPA. The paper highlights the potential of fermented dairy products to provide a dietary source of these beneficial bacteria. Given the rising concerns about BPA exposure, incorporating probiotics into the diet, especially through fermented dairy products, could be an effective preventive strategy. This review provides a comprehensive synthesis of existing literature and suggests future avenues for research in this field.

Keywords: *Bisphenol A, probiotics, fermented foods, Lactobacillus, oxidative stress, gut microbiota, endocrine disruptors, dairy by-products*

Introduction

Bisphenol A (BPA) is a chemical compound commonly used in the manufacturing of plastics and resins, including polycarbonate plastics and epoxy resins. BPA has raised widespread concern due to its endocrine-disrupting properties, which can interfere with hormone signaling and have been linked to various health issues such as

infertility, cancer, and developmental abnormalities (Vandenberg et al., 2012). BPA is also a known xenoestrogen, mimicking the action of estrogen in the body, which is one of the main reasons for its biological impact. The human body absorbs BPA primarily through the consumption of contaminated food and drink, particularly from food stored in plastic containers or food packaging. The resulting exposure has prompted scientists to explore preventive and therapeutic strategies. In this context, probiotics, particularly *Lactobacillus rhamnosus* and *Lactobacillus plantarum*, have shown promise in mitigating BPA-induced effects due to their antioxidant and anti-inflammatory properties. These bacteria, commonly found in fermented dairy products, may play an essential role in protecting the gut and systemic health from BPA-induced oxidative stress and inflammatory damage.

Dairy By-products and Probiotics

Dairy by-products, particularly fermented dairy products such as yogurt, kefir, and cheeses, have long been recognized for their health benefits, including improving gut health, modulating the immune system, and enhancing metabolic functions. These products are rich in beneficial microbes, particularly lactic acid bacteria (LAB) such as *Lactobacillus rhamnosus* and *Lactobacillus plantarum*, which have demonstrated therapeutic potential in various health conditions (Ouweland et al., 2017). Fermented dairy products can help restore microbial balance in the gut, promote the growth of beneficial bacteria, and prevent the absorption of harmful compounds like BPA. *Lactobacillus* strains are also known for their ability to produce bioactive compounds, such as lactic acid, that exhibit antimicrobial and antioxidant properties (Parvez et al., 2015). These bacteria can play a crucial role in counteracting the oxidative stress induced by BPA, thereby providing a protective mechanism.

Mechanisms of Action

BPA Binding and Absorption Prevention

Recent research has shown that *Lactobacillus rhamnosus* and *Lactobacillus plantarum* possess the ability to bind BPA through structures such as lipopolysaccharides and teichoic acids on their cell walls. By binding BPA, these probiotics prevent its absorption through the intestinal wall, limiting its entry into the bloodstream and reducing its endocrine-disrupting effects (Mennigen et al., 2009). This barrier function could significantly reduce BPA's toxic impact, especially in individuals exposed to high levels of this compound.

Biotransformation of BPA

Another key mechanism through which probiotics exert their protective effect is through the biotransformation of BPA. Both *Lactobacillus rhamnosus* and *Lactobacillus plantarum* are capable of producing enzymes that degrade BPA into less toxic metabolites. These enzymes, such as glucuronidases and sulfatases, convert BPA into water-soluble metabolites, making it easier for the body to eliminate BPA through urine or feces (Chauhan et al., 2020). This biotransformation process is critical in reducing BPA's long-term accumulation in tissues and its potential harmful effects.

Anti-inflammatory and Antioxidant Properties

In addition to preventing BPA absorption and enhancing its elimination, probiotics can mitigate BPA's oxidative stress and inflammation. BPA is known to induce oxidative damage by increasing the production of reactive oxygen species (ROS), which can damage cellular structures, including lipids, proteins, and DNA. Probiotics like *Lactobacillus rhamnosus* and *Lactobacillus plantarum* exhibit antioxidant activities that scavenge ROS and reduce cellular damage (Lee et al., 2018). Additionally, these probiotics can modulate inflammatory pathways, reducing the production of pro-inflammatory cytokines such as TNF- α and IL-6, which are elevated in BPA-exposed individuals (Liu et al., 2017).

Methodology

A structured literature review was conducted using prominent databases, including MEDLINE, Embase, Current Contents, and the Cochrane Library. The aim was to gather comprehensive data regarding the pharmacological effects, detoxification mechanisms, and dietary applications of probiotics in mitigating BPA toxicity.

Search Strategy

The literature search included the following keywords: *Bisphenol A*, *probiotics*, *fermented dairy products*, *Lactobacillus rhamnosus*, *Lactobacillus plantarum*, *oxidative stress*, and *inflammation*. Articles published in English were included, ensuring a diverse representation of scientific findings.

Inclusion Criteria

- Studies including randomized controlled trials (RCTs), cohort studies, case-control studies, observational studies, meta-analyses, or systematic reviews.
- Research articles investigating the biochemical and pharmacological roles of probiotics in BPA detoxification.

- Studies assessing probiotic-rich dairy products as potential dietary interventions.
- Experimental studies evaluating oxidative stress and inflammatory markers in BPA-exposed models treated with probiotics.

Data Extraction and Analysis

The selected studies were analyzed based on their relevance and contribution to understanding the role of probiotics in mitigating BPA toxicity. The extracted data were categorized into key aspects: probiotic binding mechanisms, biotransformation of BPA, antioxidant effects, and anti-inflammatory responses.

Results and Discussion

Probiotic Mechanisms in BPA Detoxification

Mechanism	Description	Key Findings
BPA Binding	Probiotics bind BPA in the gut, preventing absorption.	<i>Lactobacillus</i> strains have cell wall components that interact with BPA, reducing systemic uptake.
Biotransformation	Probiotic enzymes convert BPA into less toxic metabolites.	BPA is metabolized into water-soluble derivatives, facilitating excretion.
Antioxidant Activity	Probiotics reduce oxidative stress caused by BPA exposure.	Increased glutathione levels and decreased malondialdehyde (MDA) observed in probiotic-treated groups.
Anti-inflammatory Effects	Probiotics modulate inflammatory cytokines induced by BPA.	Significant reduction in TNF- α and IL-6 levels in experimental studies.

Experimental Studies

Study Design

To further explore the protective role of probiotics against BPA exposure, a recent study employed a rodent model where male mice were exposed to BPA at a dose of

50 mg/kg/day for six weeks. The mice were divided into six groups: (1) control, (2) BPA, (3) BPA + *Lactobacillus plantarum* (LY-08), (4) BPA + probiotic mixture (LY-02 and LY-08), (5) probiotic mixture alone, and (6) BPA + corn oil. The study aimed to examine the effects of *Lactobacillus* strains on the accumulation of BPA and the associated physiological and biochemical markers of oxidative stress and inflammation.

Findings

The results demonstrated that the probiotic mixture (LY-02 and LY-08) significantly reduced BPA accumulation in tissues, particularly in the serum, gut, and testicular tissues. The treatment also improved gut integrity, as evidenced by increased tight junction protein levels and reduced permeability. In terms of oxidative stress, the probiotic-treated groups showed lower levels of malondialdehyde (MDA) and higher levels of reduced glutathione (GSH), indicating a reduction in lipid peroxidation and enhanced antioxidant capacity. Furthermore, the probiotic mixture reduced inflammation markers, including TNF- α and NF- κ B, highlighting its anti-inflammatory effects (Wang et al., 2022).

These findings support the hypothesis that probiotics, particularly *Lactobacillus rhamnosus* and *Lactobacillus plantarum*, can counteract the adverse effects of BPA through a combination of binding, biotransformation, and modulation of oxidative stress and inflammation.

Preclinical animal studies demonstrated that probiotic intervention significantly reduced BPA accumulation in tissues, improved gut integrity, and modulated oxidative stress markers.

Table 2 presents key experimental outcomes.

Study Model	Probiotic Strain	BPA Dose	Effects
Mouse	<i>Lactobacillus plantarum</i>	50 mg/kg/day	Decreased BPA serum levels, improved gut barrier function
Mouse	Probiotic mixture (<i>L. rhamnosus</i> + <i>L. plantarum</i>)	50 mg/kg/day	Reduced oxidative stress (lower MDA, higher GSH)
Rat	<i>Lactobacillus rhamnosus</i>	25 mg/kg/day	Lowered inflammatory cytokines, enhanced BPA metabolism

Future Research Directions:

Despite the promising results from animal models, further studies are needed to translate these findings to human populations. Future research should focus on:

1. **Human Clinical Trials:** Conducting randomized controlled trials to confirm the efficacy of probiotics in mitigating BPA-induced toxicity in humans.
2. **Mechanistic Studies:** Investigating the exact molecular mechanisms by which probiotics prevent BPA absorption and modulate oxidative stress.
3. **Long-Term Effects:** Assessing the long-term effects of probiotic intervention in individuals with chronic BPA exposure, particularly in vulnerable populations such as pregnant women and children.
4. **Probiotic Formulations:** Developing and testing probiotic formulations specifically designed to mitigate BPA toxicity through controlled dosing and targeted delivery.

Conclusion

The findings suggest that probiotic-rich dairy products, particularly those containing *Lactobacillus rhamnosus* and *Lactobacillus plantarum*, offer a promising natural intervention against BPA toxicity. Through binding, biotransformation, and modulation of oxidative and inflammatory responses, probiotics can mitigate the harmful effects of BPA.

Moreover, incorporating probiotics into daily dietary habits can provide a practical and sustainable approach to counteracting BPA exposure. As research progresses, the development of specialized probiotic formulations and functional dairy products could further enhance BPA detoxification strategies. Additionally, interdisciplinary studies integrating microbiology, nutrition, and toxicology will be essential to fully elucidate the long-term benefits of probiotic-based interventions. Public awareness and regulatory measures should also support the widespread use of probiotics as a preventive strategy against BPA-related health risks.

Future research should focus on translating these findings into clinical applications and optimizing probiotic strains that exhibit the highest efficacy in detoxifying BPA. Large-scale human studies will be necessary to confirm these benefits and establish standardized guidelines for probiotic consumption as a protective measure against environmental toxins.

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