

PROCEEDINGS

GLOBAL MULTIDISCIPLINARY E-CONFERENCE
WORLD SCIENCE DAY FOR PEACE AND DEVELOPMENT
10th November 2014

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European Scientific Institute, ESI (publishing)

Impressum

Bibliographic information published by the National and University Library "St. Kliment Ohridski" in Skopje, Macedonia; detailed bibliographic data are available in the internet at <http://www.nubsk.edu.mk/>;

CIP - 30(062)

COBISS. MK-ID 97620490

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PROCEEDINGS:

GLOBAL Multidisciplinary e-Conference (2 ; 2014 ;) Proceedings.
/ 2nd Global Multidisciplinary e-Conference
10th November 2014
European Scientific Institute, ESI, 2014.. - (73 p.) : ilustr. ; 28 cm
Kocani, Republic of Macedonia
Email: contact@eujournal.org
Printed in Republic of Macedonia

ISBN 978-608-4642-32-9

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Table Of Contents:

TRANSDISCIPLINARY SCIENCE METHODOLOGY.....	1
<i>Orhan Güvenen</i>	
SYSTEM-CATEGORY ANALYSIS OF ECONOMIC UP-BRINGING PROBLEM IN PEDAGOGICAL SCIENCE.....	6
<i>Akylbek Akhmetov</i>	
SEARCHING FOR SOUNDS IN U.S. LITERATURE: <u> </u> A MULTISENSORIAL, MULTIDISCIPLINARY PROJECT.....	10
<i>Alessandra Calanchi</i>	
THUNDERSTORMS, CHARGES AND CURRENTS.....	22
<i>Baishali Ray</i>	
ISSUE OF LIBERALIZATION OF ALGERIAN INTERNATIONAL TRADE IN REQUIREMENTS AND DIMENSIONS OF SUSTAINABLE DEVELOPMENT- THE ENVIRONMENT AS A MODEL-.....	26
<i>Mokaddem Abdeldjalil</i> <i>Boudkhil Mohammed Elamine</i>	
AGRICULTURE AND THE EFFECTIVENESS OF SUPPORT POLICIES IN ALBANIA ON FOCUS: FRUIT PRODUCTION.....	35
<i>Dorjan Marku</i>	
THE RELATIONSHIP BETWEEN ANTI-THYROIDAL PEROXIDISE ANTIBODIES AND THYROID HORMONES (T3, T4 AND THYROID STIMULATING HORMONE TSH) AMONG PATIENTS WITH AUTOIMMUNE THYROID DISEASE.....	42
<i>SalmanAziz Al-Juburi</i> <i>Hashim Rahim Taresh</i> <i>Abdulkareem A. Mahmood</i> <i>Rawaa Behlul Majhul Al-Fatlawi</i>	
RESPONSES OF PNP WOMEN’S DESK OFFICERS’ TO VIOLENCE AGAINST WOMEN.....	46
<i>Espineli, Ruby Ann L</i> <i>Lontoc, Marissa C</i> <i>Legaspi, Myleen P.</i>	
BIOLOGICAL CELL AND MOLECULAR COMMUNICATION TECHNOLOGY: OVERVIEW AND CHALLENGES.....	56
<i>Farhan Farhan</i> <i>Merab Mushfiq</i>	
INVESTMENT PORTFOLIO REBALANCING DECISION MAKING.....	61
<i>Grigorij Žilinskij</i>	

THE DEVELOPMENT OF FREEDOM AS A VALUE IN THE PROCESS OF INDIVIDUALIZATION.....70

Hushchyna Svitlana

PERCEPCIÓN DEL ROL QUE DESEMPEÑAN LAS MUJERES EN PUESTOS A NIVEL DIRECTIVO DEL MERCADO LABORAL.....78

Laura Estela Fischer de la Vega

David Chávez Sánchez

LA IMPORTANCIA DEL DISEÑO DE ESTRATEGIAS CONGRUENTES CON EL CONTEXTO LOCAL PARA INCREMENTAR LA INSERCIÓN LABORAL DE JÓVENES: UN ANÁLISIS DEL IMPACTO DE REDES SOCIALES EN EL SURESTE DE MÉXICO.....87

Linda Russell

Laura Garcia

EL DESARROLLO SUSTENTABLE Y LA INSTRUMENTACIÓN DE SU PARADIGMA EN MÉXICO.....97

Luis C. Santander-Botello

Luis M. Mejía-Ortíz

Marilú López-Mejía

EDUCATIONAL PROCESS MODEL DESIGN OF PARTICIPANTS' SUBJECTIVITY IN THE CONDITIONS OF INFORMATION AND EDUCATION UNIVERSITY ENVIRONMENT.....104

Nadezhda Zavalko

Yelena Feoktistova

Svetlana Sahariyeva

APPLYING CLEANER PRODUCTION AND OPTIMISING HEAT PROCESS OPERATIONS IN DAIRY PROCESSING PLANTS – A REVIEW.....110

P.Muredzi

USING BILINGUAL BOOKS TO ENHANCE LITERACY AROUND THE WORLD.....132

Peggy Semingson

Kathryn Pole

Jodi Tommerdahl

SERVICES IMPLEMENTED AT SELECTED DRUG REHABILITATION CENTERS IN CAVITE: AN ASSESSMENT.....140

Ruby Ann L. Espineli

Marissa C. Lontoc

Myleen P. Legaspi

ENGLISH LEARNING AT A DISTANCE: A CASE STUDY ON SOCIAL-LINGUISTIC AND DIGITAL INCLUSION.....149

Simone Tiemi Hashiguti

Cristiane C. de Paula Brito

**MANAGEMENT OF INTERNATIONAL STUDENTS' ACADEMIC ADJUSTMENT:
CHALLENGES AND SOLUTIONS.....161**

Sintija Valka

**EFFICIENCY ANALYSIS OF POLYCRYSTALLINE AND AMORPHOUS SOLAR
CELLS IN CLOUDY SKY CONDITIONS OF QUETTA.....169**

Sunila Bakhsh

Shoibullah Khan

Muhammad Khalid

**HEALTH INFORMATION SYSTEMS IN A DEVELOPING COUNTRY (CASE
STUDY OF E-HEALTH SYSTEM IN A NIGERIAN HOSPITAL).....173**

Umar Faruk Abubakar

**THE PHENOMENON OF SOCIAL DISCRIMINATION NOWADAYS AND THE
LEGAL SYSTEMS OF EXTINGUISHMENT.....183**

Vasilaki Aspasia-Maria

“HYPERTEXT” IN ANCIENT CHINA.....186

Yong-Kang Wei

TRANSDISCIPLINARY SCIENCE METHODOLOGY

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Abstract

The purpose of this study is to analyze the fundamentals of transdisciplinary science methodology. Transdisciplinarity requires the interactions and iterations of many different scientific disciplines. It is targeted to the problem solving optimization.

In science methodology interdisciplinary or pluridisciplinary approach gets in general specific knowledge from each disciplines and makes a synthesis. De facto this is a case of under optimality. Transdisciplinarity requires that scientist or scientists contributing to the research, are targeted to the defined problem interactions, iterations. They are aiming to understand each discipline's specific approach, by using input of various scientific disciplines and through several interactions with each other, converging to the targeted problem solution optimization. It avoids, specifically in social sciences, the subset and partial analysis approach which is quasi systematic and under optimal.

To illustrate this transdisciplinary science methodology we may consider that nanoscience and nanotechnology, due their pluralistic and interaction structures, are de facto transdisciplinary.

Keywords: Transdisciplinary science methodology, interdisciplinary, problem solving optimization, scientific approach

Introduction

In last few decades, the scope of science has been changed and its structure is constantly evolving. As the science progresses over the time, it manages to deal with more complicated issues and manage to come up with more enhanced scientific explanations and solutions. Due to the iterative and evolutionary nature of science, as soon as a question answered, more complex ones emerge. In last few decades, most of the complex scientific issues exist in the domain of multi scientific criteria disciplines. To deal with such sophisticated questions with high degree of complexity requires the cooperation of multiple scientific disciplines simultaneously and in a set structure approach.

Some Comments on Transdisciplinary Science Methodology

The complex scientific issues that deals with multiple disciplines require a new scientific methodology approach and those approaches can be categorized under three different categories:

- Transdisciplinary Science Methodology :“Collaboration in which exchanging information, altering discipline-specific approaches, sharing resources and integrating disciplines achieves a common scientific goal”. (Rosenfield, 1992)
- Pluridisciplinary (Multidisciplinary) Science Methodology: Researchers from different disciplines cooperate with each to a certain point in project; however they have different set of question and possibly separate conclusions. (Washington University School of Medicine)
- Interdisciplinary Science Methodology: Researchers interact with each other and transmit information between disciplines.

Interdisciplinary or pluridisciplinary science methodologies have a main structural difference compared to transdisciplinary science methodology. In interdisciplinary or pluridisciplinary approaches, the first step is to obtain general scientific data from each discipline. Then the second step is to combine and aggregate them and make a synthesis as an end result. It is important to mention one fact at this point: the sum of the subsets' optimal is not equal to the set optimal. This theorem can be summarized with the formula below:

Theorem: $\sum \text{subsets' optimal} \neq \text{Set Optimal}$ (Güvenen, 2008)

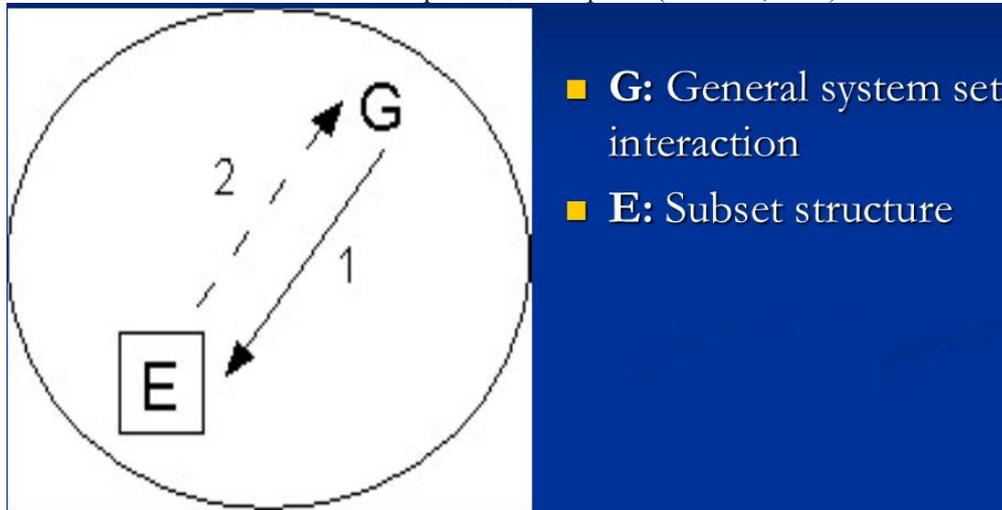


Figure 1: General system and subset interaction (Güvenen, 2000)

The figure above represents the interaction between general system set and subset structure. It is clearly shown that the interaction between two sides are not equally balanced. General system set structure has strong impact on subset structure. On the other hand subset structure has somehow limited effect on general system set.

In the light of the information provided by the theorem it is possible to estimate that both approaches, interdisciplinarity and pluridisciplinarity, leads to solutions which are under optimal and cannot use the full potential of the scientific disciplines which are used in the research.

To find the optimal solution, it is mandatory to use another scientific approach. Transdisciplinary science methodology is the approach that can solve the problems of the other scientific methodologies. Transdisciplinary science methodology can be defined as the method which every scientist who contribute to the research, use the data and knowledge from various scientific disciplines, interacting with the scientists from other disciplines and through these interactions converging to the targeted problem solution optimization. This approach avoids the common problems and shortcomings of both pluridisciplinary and interdisciplinary science methodologies. The set optimal is endogenous to the transdisciplinary science methodology.

Transdisciplinarity can be defined with three common traits: (Güvenen, 2010) (Güvenen, Öztürk, 2008)

- Being targeted to complex phenomena
- Working in an iterative approach
- Cooperation of various sciences and disciplines

The three traits mentioned above constitutes the back bone of transdisciplinary science methodology. Even if one of them is absent, it is not possible to discuss about the existence of a transdisciplinary approach.

Once Albert Einstein said : "The significant problems we face cannot be solved at the same level of thinking with which we created them" (qtd. Chestshire). Being a great visionary

and extremely talented scientist, Einstein was aware of the fact that we have to develop an exterior point of view to see the whole picture and create an optimal solution. It is not possible to solve a problem of a specific discipline by using only the data, knowledge and methods of that scientific discipline. Input from various other scientific disciplines and contribution of scientists with different sets of skills are required to come up with an optimal solution. Interdisciplinary and pluridisciplinary approach focus on the subset and partial analysis which lead to quasi systematic and under optimal end solutions. That is the main reason why transdisciplinary science methodology should be embraced in the solution of scientific problems.

A recent report from American Academy of Art and Sciences underlines the importance of transdisciplinary approach in a constantly evolving world with these words: “Research fields are evolving, and the lines among disciplines are blurring, leading to the emergence of new fields of study that span disciplinary boundaries and allow dramatic advances that no one field could have achieved in isolation. Even traditional disciplines as they are defined today differ substantially from their initial incarnations. Life sciences and medicine (LSM) increasingly relies on sophisticated instrumentation, intensive computational resources, and systems approaches that depend on close collaboration with physical sciences and engineering (PSE). PSE-derived nanotechnologies are bringing applications of quantum mechanics to the real world and advancing breakthrough technologies such as quantum cryptography and computation. Committee concludes that the objective is to achieve transdisciplinarity—to integrate fields beyond the levels of the multidisciplinary...” (American Academy of Art and Sciences, 2013)



Figure 2: Transdisciplinary Science Methodology and Education (Güvenen, 2009)

One of the most important areas which transdisciplinary approach should be applied is the education system. The existing education structure generally is based on “department” system. “Department” dominantly transmits an education of subset and partial analysis. It does not provide the methodology of linking subsets within the broader set structures. This creates in the medium-long term; mechanistic, short-termist approaches in the society, especially in social sciences. It is a fact that, the alternative costs of this approach are observed in the 20th century. 21st century science, research, analysis requires transdisciplinary methodology in order to deal with high complexities and provide feasible solutions.

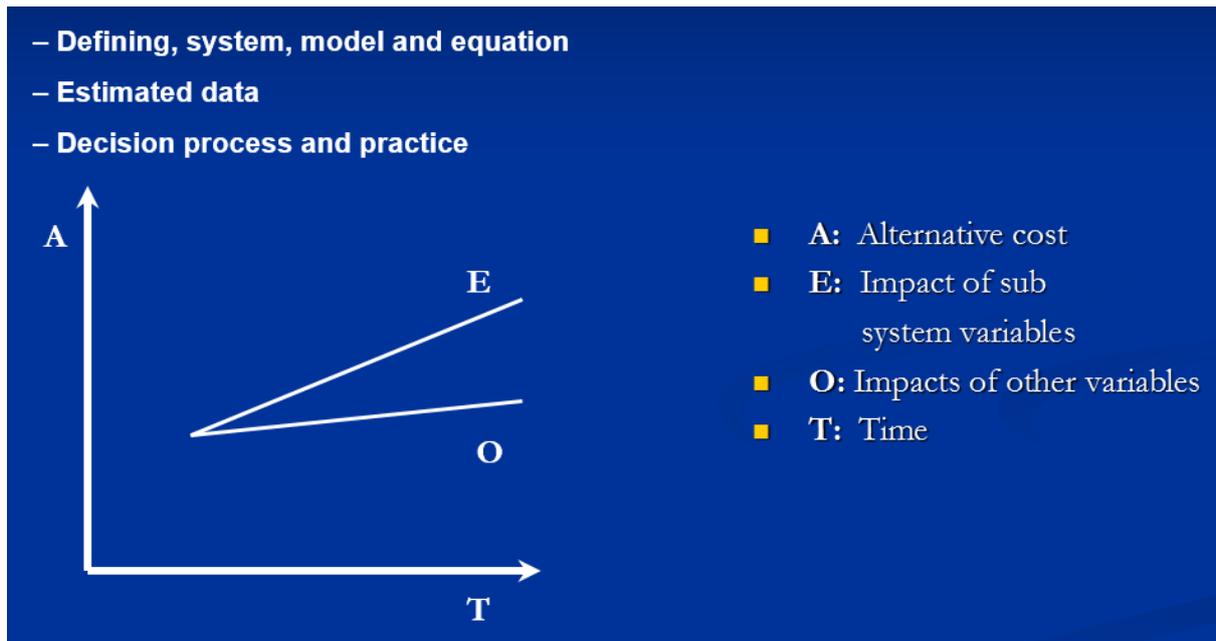


Figure 3: Transdisciplinary Science Methodology and Strategic Anticipation(Güvenen, 2000)

Obtaining data, making observations and anticipating the future trends carries significant importance in scientific progress. Figure 4 visualizes the strict relation between science methodologies and strategic anticipation. As it can be recognized from the figure the particular scientific approach has serious impact on the end result. Choosing a suboptimal scientific approach can end up with serious alternative costs. To get the minimum error margin result and come up with the optimal strategic anticipation, it is important to choose a scientific approach which takes into account the impact of sub system variables, other variables and general set structure at the same time. The scientific approach which can provide optimal solutions for these factors is transdisciplinary science methodology.

Conclusion

Science methodologies in the 20th and 21st centuries, especially social science methodologies, dominantly used subset and partial analysis approach. Along with providing short term solutions in the analysis of social and economic phenomena, subset approach and partial analysis approach creates, especially in the medium-long term; mechanistic, short-termist approaches and non-negligible alternative costs.

A new point of view is substantially needed to overcome these problems. A short analysis from a research about transdisciplinary approach summarizes the issue: “In a world characterized by rapid change, uncertainty and increasing interconnectedness, there is a growing need for science to contribute to the solution of persistent, complex problems” (Hadorn, 2008)

All the information mentioned in the previous parts of this paper, shows the importance of transdisciplinary science methodology and necessity of embracing it for all scientific researches. The endogenization of set optimal solutions of current and future persistent and complex problems lie within the domain of transdisciplinary approach.

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SYSTEM-CATEGORY ANALYSIS OF ECONOMIC UP-BRINGING PROBLEM IN PEDAGOGICAL SCIENCE

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Abstract

The paper provides analysis of economic up-bringing in pedagogical science. Economic up-bringing with the necessity covers the formation of economic behavior. The total of a man's deeds is expressed in his relationship with external economic environment, the system of personality economic activities, conscious, economically well-bred. Socially such behavior is stipulated by efficient economic activity in household activities, at school, in a society in general, in the process of household, socially useful productive labor. Crucial in behavior is the character of personality outlook, stipulating the direction, consequence and social-economic significance of this behavior. General personality economic qualities should find its implementation in it.

Keywords: Economic upbringing, system-category analysis, pedagogical science

Introduction

The necessity of characteristics of categorical instrument is being occasionally actualized in pedagogical science while developing this or that problem as a consequence of theory complicating, new areas appearance, inventing new objective laws not known before. Scholars developing methodological foundations of pedagogy note that indistinctness of categorical instrument is one of the causes of efficiency decrease of pedagogical research and makes received outcomes comparison incorrect and also becomes a serious obstacle for further science development, decreases its prestige and there is no possibility to efficiently manage the object of influence.

I.

Scientific pedagogical notions are objectively the steps, node points of world perception which are characterized by the depth and essential character of phenomena reflection and generalization width. They should correspond to the level of modern practice and reflect the object in accordance with achieved in science the level of definite knowledge system development.

Difference in contents and notions interpretations as V.Y. Gmurman notes takes place in all sciences and is stipulated by a number of factors, historical in particular, because the change and complication of practice has the necessity of these tendencies "elimination" and their reflection in the notions at the account of introducing new and correcting traditional categories contents (Gmurman et al., 1967).

Theoretical schools have significant influence for notions interpretation. They develop author schemes and single out directions in notions underlying conceptually significant components of the phenomena. P.V. Kopnin has determined a dependence between the level of science development and deep categorization, connection, flexibility and specificity of the notions being used. The more definite science system is developed the

more specific it is and more adequately it reflects its subject and expresses essential relationship in a subject and provides flexibility and open character of the notions (Kopnin et al., 1973). However it is more often in practice that disagreement is found in understanding and interpretation of one and the same notions by different authors.

So we have to state that in scientific-pedagogical literature there are simple views about the contents of economic up-bringing and the practice of its implementation.

Firstly, there is no analysis of conceptual instrumentation explaining the essence of economic up-bringing.

Secondly, there is no clear idea about the place and role of economic up-bringing in the complex of general directions of a personality up-bringing, economic culture formation in the system of world view culture of a Man.

Thirdly, it is frequent that economic up-bringing contents resolves itself into economic knowledge elements perception. All this leads to shift of accents in the up-bringing process, makes it difficult to achieve the intended effect.

On the basis of that one of the theoretical tasks of our research is system-categorical analysis of economic up-bringing theory.

Most widely spread notions represented in scientific literature are the following: economic upbringing, economic education, economic awareness, economic thinking, economic activity, economic culture, economic qualities, economic knowledge, economic skills, economic experience, economic behavior, economic needs, economic motives, economic interests.

As it was mentioned above, the most general is the term “*economic up-bringing*”. Below we bring forward the definitions by different researches, characterizing different opinions on this category and justify our approach.

Economic up-bringing is considered by the researchers as a part of general up-bringing. It is characterized as an influence on the people’s consciousness so that every person actively, creatively and efficiently participated in a collective labor, treated all social as a master and developed economic qualities.

Academically economic up-bringing is determined as a process of a man’s training to active socially useful labor activity on the basis of laws of economic development perception. Economic up-bringing is a necessary condition of supraliminal inclusion of society members in social labor process and active participation in its progressive development.

Economic up-bringing in a broad sense is a motivated participation in it of all the society layers, economic relationship implementation into life, every possible use in up-bringing aims mass media, radio, television, cinema and theatre art. It supposes the formation with society members knowledge, skills and abilities, needs and interests, way of thinking, behavior and activities that correspond to principles and norms of the dominating management type.

In the process of economic up-bringing as researchers point out such personality qualities are developed as economical habits, discipline, businesslike character, organization, responsibility, entrepreneurial spirit, etc.

Economic up-bringing with the necessity covers the formation of economic behavior. We understand it as a total of a man’s deeds, expressing its relationship with external economic environment, the system of personality economic activities, conscious, economically well-bred. Socially such behavior is stipulated by efficient economic activity in household activities, at school, in a society in general, in the process of household, socially useful productive labor. Crucial in behavior that we are speaking about is the character of personality outlook, stipulating the direction, consequence and social-economic significance of this behavior. General personality economic qualities should find its implementation in it.

The essence of economic up-bringing is determined as systematic goal-directed influence of the society on the man in the interests of formation knowledge, skills and abilities, needs and interests and other social-psychological qualities and the most important – a way of thinking and activity, corresponding to the nature of existing manufacture, goals, principles and norms of household, social morality. This is a process of formation of each member of the society as a master of the collective, strengthening social property and rationally using national wealth who is consequently managed in his activity with social interests and economic policy of the state.

Economic up-bringing is a purpose oriented and systematically organized influence on society members to develop modern economic thinking and skills, abilities and needs to act in accordance with objective economic conditions and laws, principles and norms of management with the aim of more complete perception and provision of individual collective and public interests with the leading role of the latter.

Economic up-bringing supposes the development of state approach with people to business, skills to think literally economically, give correct economic evaluation to this or that economic phenomenon of internal and international life, technical innovations, social significance of the chosen profession, personal labor, etc.

As N.A. Hromenkov underlines, economic up-bringing contributes to the formation with the students good discipline, promptitude in obeying, businesslike character, economy, the sense of a master. It teaches them to live and work in a collective, increase labor efficiency and work quality, measure personal needs with economic abilities, personal interests with collective and social, display intolerance to the sense of consumer (Hromenkov et al., 1989).

Economic up-bringing is a systematic, purpose-oriented, systematic, cooperatively organized pedagogic process, stipulating graduates training to economic activity in different industrial areas. Such process stipulates skill development of literate economic thinking from the point of view of economics, evaluate this or that social phenomenon of internal and international life; contributes to aggregating to systematic socially beneficial, productive efficient and good quality labor, its results analysis, search of more rational forms of organization of his own and collective activity.

In the course of the process being considered conscious attitude to labor products and material values is taught, skills of time rational use, measuring own needs relative to economic abilities of their satisfaction, economic consciousness and behavior are formed and strengthened and also economic interests, motivation and motives of efficient economic activities, such qualities as economic prudence, business like character, organization and discipline, the sense of responsibility, entrepreneurial spirit.

Thus, economic up-bringing is considered by the scholars multidisciplinary:

- as influence on people's consciousness with orientation on economics;
- as a process of a Man's economic training;
- as purpose-oriented participation in economic life;
- as an aggregate of ways of productive activity;
- as systematic purpose-oriented influence on potential manufacture subject;
- as a process of personality economic qualities formation;
- as a process of training to economic activity, etc.

Every of the represented definitions of economic upbringing reveal one of the sides of this complicated process of up-bringing. In our opinion, subject-object character of the up-bringing process is not reflected. During the last years pedagogy has stored new scientific material, allowing to specify and interpret more specifically the character of up-bringing process.

Thus, pedagogic influence is understood as a process of organization and inclusion of the personality into diverse activity: educational, labor, creative, forecasting, evaluation, mutual, game, etc. This influence should not only motivate students to this or that activity but stimulate internal motivation and interest to it.

Moreover nowadays the statement is generally acknowledged that up-bringing influence has appropriate pedagogical effect only in case when it causes with the personality being brought up positive attitude to further self-development.

Personality recognition not only in the quality of an object but also an active subject of up-bringing leads to the conclusion that personality development takes place not on the behavioral formula “stimulus – reaction”, but is thought in a well-known measure as process of internal progressive self-motion. The essence of it is in the following that external pedagogic influence deflected through internal perception of a personality being developed cause the latter to percept and experience the “gap” between the achieved and necessary level of work at himself.

Finally, deep essence of economic up-bringing is in the transition of different kinds of influence in the factor of individual personal development.

On the basis of this we consider economic up-bringing not as direct influence, but social interaction of up-bringing process subjects, directed to formation of personality economic culture.

Personality economic up-bringing is closely connected with economic education. These processes are unified but not equal. The unity of up-bringing and education is first of all in the commonness of their goals. Both of them are directed for the formation of all-round personality. Economic education always fulfills up-bringing functions and economic up-bringing – economic life perception functions. But the objectives of the latter are wider and more multifaceted. If the most important objective of economic education is providing the student with economic knowledge, economic up-bringing has to form with him economic views and skills, needs and aspirations, corresponding to ethical codes.

Economic education should provide a person with the knowledge of general economic laws, development economic strategy, manufacture and labor economic knowledge, skills of organization-economic activity.

Conclusion

Economic education as an integral element of economic up-bringing should become a constituent part of a specialist’s professional training. A process of a person’s training to participation in social production and many social functions completion is realized in the process of economic education at some extent.

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SEARCHING FOR SOUNDS IN U.S. LITERATURE: A MULTISENSORIAL, MULTIDISCIPLINARY PROJECT

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Abstract

The aim of this essay is to provide a contribution to soundscape studies from the standpoint of U.S. literature and from a multi-disciplinary approach. The six case studies here included are the result of a project carried out by two groups of upper graduate students and myself during the academic years 2012-2013 and 2013-2014 at the Department of International Studies of the University of Urbino, Italy.¹ We examined a selection of literary texts (from the 17th through the 189th century), searching for sounds, noises, silence, talk, conversation, bird songs, whistles, rattles, thunders, etc. with the aim of re-mapping the literary canon from an aural perspective. Given such an ambitious aim, we first had to study the ABC of acoustics, then practise the sound lexicon, and finally match our practical knowledge to the words we found on the written – and seemingly dumb – pages of our books. By reading aloud, both individually and in class, and by discussing our sensations, perceptions, and reactions to the soundscapes we encountered, we slowly discovered a universe which was full of sound and meanings. To this universe we applied the notions we had learnt from scholarly books, relying on the classification of sounds into categories (natural sounds or geophonies, sounds of life or biophonies, human-induced sounds or anthrophonies; see Schafer, Krause), the notions of low-fi and hi-fi soundscape (Schafer), the vibratory nature of sound (Di Benedetto), the findings of auditory neurosciences (Schnupp et al.), auditory spatial awareness (Blessner & Salter), and the concepts of acoustic territorialization, audible identity, and sonic body (Labelle). This essay is also a homage to electronic musician and soundscape pioneer Bernard L. Krause, b. 1938, who in 1968 founded *Wild Sanctuary*, an organization dedicated to the recording and archiving of natural soundscapes (www.wildsanctuary.com). He was the first to incorporate natural soundscapes as an integral component of orchestration, and in 2007 he demonstrated that it is possible to listen to soundscapes from all over the world and to create archives.

Keywords: Sound, noise, soundscape, literature, United States

Introduction

The aims of my project are twofold: on the one hand, I intend to open up the traditionally “visual” realm of literature to the instruments of sound-based research so that sight ceases to be perceived as dominant; in particular, for students of Anglo-American literature, this means:

- 1- Tracing the sounds of the United States as they have been represented in literature;
- 2- Reconsidering realism, symbolism, postmodernism, etc. from the point of view of sound;

¹ Among the students who participated in the project, a major contribution was given by the following: Luca Ambrogiani, Sara Carloni, Federica Crescentini, Massimiliano Greghini, Alessio Iodice, Francesca Secci, and Kevin Duan Simmonds.

- 3- Providing a data base of sounds for further study, with a particular focus on sound-witness but also including sounds of imagination;
- 4- Remapping Anglo-American literature by giving due attention to texts which appear particularly interesting from the perspective of soundscape studies;
- 5- Increasing the knowledge of acoustic history. In fact, literature – especially prior to the invention of the phonograph, radio, cinema, etc. – recorded and / or imagined an extraordinary amount of sounds which are precious for maintaining the memory of our own civilization and of technological progress with all its pros and cons.

On the other hand, I strongly advocate the inclusion of literature among the disciplines already involved in the study of sound, alongside acoustics, ecology, neurosciences, etc. In other words, I demand a place for literature, text analysis, and criticism within the arena of soundscape studies.

In the first year of my project I decided to choose a small, random amount of texts and started analyzing them, both individually and collectively. We chose some samples from poetry and some others from novels, some from the older times and some from modern production, without overlooking minorities, gender, and popular literature. We found the software “Antcom” of great help, and we also relied on the precious contribution of two particularly knowledgeable PhD students, bilingual Eduardo Fichera, who delivered a lesson on the specific lexicon related to sound, and young film director Andrea Laquidara, who gave two lessons on sound in the cinema. In the second year of activity we focused on the colonial times, up to the Declaration of Independence (1776). Given the great interest shown by my students, some of whom have offered to continue their collaboration even after the exam, it is my intention to pursue my research and team work over the coming years, also creating a website and publishing articles.

I.

In the late 1960s, R. Murray Schafer started the interdisciplinary World Soundscape Project at the Communications Centre of the Simon Fraser University, which addressed scholars from various disciplines. Nowadays soundscape studies include not only ecology and acoustics (since Schafer 1977) but also philosophy, architecture, sociology, and – hopefully – humanities. If, on the one hand, scholars are interested in ameliorating the acoustic environment (studies on acoustic pollution, noise, etc.), on the other soundscape studies are opening themselves up to the study of continuities and changes in acoustic environments in the course of time, and this obviously includes literature as the most powerful reservoir of sounds from the past (Schweighauser, B). True, a few pioneering articles appeared on literary soundscape as early as the late Eighties, such as “‘The Noisiest Novel Ever Written’: The Soundscape of Henry Roth’s *Call It Sleep*”, to give just one example, but the true input and direction was actually supplied by the invitation to a “consilience” between humanities and natural sciences, formulated by American biologist Edward Osborne Wilson at the end of the Nineties (1998). The subsequent diffusion of multidisciplinary studies and the emergence of environmental studies have gradually created the right conditions for revisiting the literary landscape from new critical perspectives which may broaden, or change, its boundaries. Eco-criticism in particular has compelled scholars to reconsider nature and urban milieu, analyzing them not as mere backgrounds but as actors, that is as bearers of contents and meaningful connotations. In the wake of these studies, literary soundscapes have proved and are proving to be a fertile terrain of inquiry and research.

The motivation for bringing this kind of research into a university classroom was based firstly on the obvious importance that sound, music and noise have for today’s youth, and secondly on the fact that text analysis has traditionally privileged sight rather than sound.

It is a fact that we do not have any aural equivalents for expressions like “imaginary”, “visualize”, “imagine”, “vision”, or “contemplate”. And yet, as Schafer remarked (Schafer: 11), we human beings do not have *earlids*, which exposes us to far a greater amount of sounds than images, since we cannot close our ears at will.

While it may seem difficult to “imagine” or “visualize” with our ears, it is certainly possible to think of a sound. Well, it is curious that we do not have a verb in the English or American language to define this “acoustic imagination”, an expression which is used by scholars but is an obvious oxymoron. Nevertheless, many terms have been created over the last years by scholars in other disciplinary areas, and literary criticism has already started to adopt them – e.g. *soundmark*, *low-fi vs hi-fi soundscape*, *acoustic profile*, *audiograph*, etc. This makes us realize that literature must necessarily interact with other disciplines, within and without humanities, including acoustics, ecology, and neurosciences, if it intends to adopt the soundscape as an area of research. Without a truly multi-disciplinary perspective, it is in fact impossible to apply the notion of soundscape to literature, text analysis, and criticism.

I am now going to give a few examples of our work, starting with early America and ending with contemporary fiction. Of course each case study would merit many more pages and deserve much more attention and analysis, but since this is intended as a work in progress and a guideline to be shared for further research, I hope the reader will bear with me and accept this justification for the apparent haste.

Anglo-American literature has been a precious reservoir for sounds right from its origins. The colonial times offer many examples of the importance of sound in early America, both for the natives and for the newcomers. Among the former, geophonies and biophonies prevail and also take on a series of meanings: the sound of the wind, or of the water, belong to the same universe as man, in a circle where all things are connected, so the experience of hearing is a fully existential, holistic one. The dimension of story-telling in so-called oral culture adds an extra, particularly powerful quality to sounds, noises, and voices, so that all senses are entangled in the experiences of life, memory, and human relationships. Moreover, since birds and other animals are perceived as brothers to human beings, and shamans are connected to the world of the spirits, all sounds may therefore belong to different dimensions of being, which considerably complicates the soundscape we find in native literature – when written. Likewise, the soundscape of plantations was also very important, since it contributed to the creation of a communal Afro-American consciousness and in many cases functioned as a means of social resistance.

Case study – 1

Among the white colonists, too, even though in a different way, sounds played an important role, especially natural nonverbal sounds such as thunder which, though belonging to a sort of recognizable sonic cosmic order, could easily be bent into symbolic or allegorical meanings. Even though instrumental sounds were important, such as bells, which were often used to constitute community (Rath 3), thunder and other natural sounds were more significant and encouraged a range of interpretations. Anne Bradstreet, the first well-known poet of the colonial age, and probably the first woman writer of the new country, well embodies this. Her poem “Some Verses Upon the Burning of our House”, written in 1666, has a great focus on sound since the female protagonist is woken up in the middle of the night by a powerful noise and by people shouting that the house is on fire. Her heart calls out for God to help her and give her strength to face the danger. This is the opening of the poem:

In silent night when rest I took,
For sorrow near I did not look,
I wakened was with thundering noise
And piteous shrieks of dreadful voice.

That fearful sound of "Fire" and "Fire,"
 Let no man know, is my desire. [...] ²

All of these sounds – thund'ring noise, shrieks, dreadful voice, fearful sound – are very strong. They belong to different domains – geophonies, biophonies. There is no calm after the initial silence, when the poet was sleeping. It is God's wrath passing judgment onto men that creates such frightening noises. The judgment is not visual, but aural. As the poem goes on, Bradstreet continues by saying that it was God's will and that the Almighty took only futile and superfluous things from her, and that a much more beautiful and richer house is waiting for her in Heaven. When the poet talks about things made by man she uses very negative adjectives, whereas God's works are described with positive adjectives. This is clearly a Puritan point of view: Bradstreet is grateful to God because He made her realize the futility of what she had. As a Puritan, she does not have to accumulate all that wealth, because it is nothing compared to what man can hope to gain in God's Kingdom.

Another puritan poet, Michael Wigglesworth, in his *The Day of Doom* depicts the pain suffered by the damned people with auditory verbs, such as *to cry*, *to roar* and *to yell*. Even though we do have verbs referred to sight (*behold*) the soundscape is overwhelming. What is interesting is the focus on the body: the horror and terror of Hell is evoked through body sounds which communicate desperation, suffering, and eternal damnation:

Oh, *fearful Doom!* now there's no room
 for hope or help at all:
 Sentence is past which aye shall last,
 Christ will not it recall.
 There might you hear them rent and tear
 the Air with their out-cries:
 The hideous noise of their sad voice
 ascendeth to the Skies. (stanza 205)
 They wring their hands, their caitiff-hands
 and gnash their teeth for terrour;
 They cry, they roar for anguish sore,
 and gnaw their tongues for horreur.
 But get away without delay,
 Christ pitties not your cry:
 Depart to Hell, there may you yell,
 and roar Eternally. (206)

Only later in the poem, when Good prevails over Sin, can we hear more pleasant sounds (hymns) but still the soundscape prevails over sight:

The Saints behold with courage bold,
 and thankful wonderment,
 To see all those that were their foes
 thus sent to punishment:
 Then do they sing unto their King
 a Song of endless Praise:
 They praise his Name, and do proclaim
 that just are all his ways. (220)
 Thus with great joy and melody
 to Heav'n they all ascent,
 Him there to praise with sweetest layes,
 and Hymns that never end,

² http://en.wikisource.org/wiki/Verses_upon_the_Burning_of_our_House,_July_18th,_1666 (14/05/2014)

Where with long Rest they shall be blest,
and nought shall them annoy:
Where they shall see as seen they be,
and whom they love enjoy. (221)³

Case study – 2

A very different use of sounds is to be found, almost two centuries later, in Edgar Allan Poe's literary production. In many of his tales he describes reality through a wide repertory of images and sounds with the purpose of creating suspense. He wants to shock the readers, to horrify them; religion has somehow lost its importance. In such stories as "The Black Cat" (1843) or "The Tell Tale Heart" (1843) the aural dimension is predominant over sight, yet sounds have not allegorical meanings but are used to create an uncanny atmosphere.

The Fall of the House of Usher (1839)⁴, for example, is set in the country and is a variation on the gothic theme of the haunted house. It goes without saying that visual elements are predominant, at least in the initial part. As a matter of fact, the reader is provided with a detailed description of the humanized house, which is crumbling to pieces. The strong sense of decay, of gloom, and presence of death is, however, matched by a subtext clearly linked to the protagonist's perception of the soundscape. One of the first things to note is that the author explicitly focuses on the absence of sound: "a dull, dark, and soundless day" and silence of course belongs to the realm of soundscape.

Though the overwhelming majority of adjectives are linked to sight and concur in conveying a sense of gloom, sounds slowly intervene and contribute in creating the atmosphere: hard sounds and occlusive consonants, for instance – *d* and *t*, – are useful to this extent. Poe makes a large use of alliteration, choosing many occlusive and hard sounds because he wants to convey negative feelings (desperation, desolation, etc.). He often uses repetitions to create a much more detailed scene, and makes it vivid as if through a *camera-eye*. The sense of music and rhythm as well make the reader feel imprisoned in the language. The syntax is very complex too.

The story begins on a "soundless day" and this absence of sound is so marked that the reader *does actually miss* the presence of sound. Silence is disquieting, almost artificial, unnatural, almost inhuman. After a few pages, "rattle", the first word in the story that has to do with sonority, appears along with other words and descriptions connected to sounds. For example, the author makes a complex and careful analysis of Roderick's timber of voice. It is interesting to this purpose that Roderick Usher, the house owner, suffers from a mental disorder which is defined as "a morbid acuteness of the senses".

The third important element comes from the human voice, a guttural utterance described in detail. The house can be described as a Hi-Fi soundscape since every single sound is heard distinctly and loudly. Almost every sound inspires the protagonist with horror, except for the fourth element, which is music. He likes lute music, but dislikes the guitar solos which pierce the silence from time to time. Quite interestingly, there is a juxtaposition of music and human voice (the "speaking guitar").

In this context, even the beating of a heart (a sound of the body) is perceived as "horrible". In the house there lives a young lady (Roderick's twin sister) who is very ill and, quite expectedly, dies. Roderick's peculiar decision to keep her body inside the building for many days blurs the boundaries between life and death and eliminates all noise except low and indefinite sounds which come from somewhere unknown. Only when the tempest finally makes its entrance do we get rid of silence.

³ <http://www.puritansermons.com/poetry/doom201.htm> (13/05/2014)

⁴ <http://www.poemuseum.org/works-fall.php> (25/05/2014)

Sight doesn't help us see the moon or the stars; what we do see is some kind of strange gases – apparently mere electrical phenomena not to be bothered with. But at a certain point, when the narrator starts reading a story, we meet with a tale within the tale and encounter sounds coming from *that* story. There is a juxtaposition of sounds (coming from the book which is being read and from the house itself). The two realities collapse. Furthermore, the scene involving the apparition of Madeline's ghost (Roderick's sister) is introduced by sonorous elements. In fact, the narrator is able to easily hear the ghost's steps along with her heart beating (an imaginary sound, of course) even if she is behind the door.

Symbolically, the story starts and ends with *silence*.

Incipit: During the whole of a dull, dark, and soundless day in the autumn of the year,

End: --there was a long tumultuous shouting sound like the voice of a thousand waters--and the deep and dank tarn at my feet closed sullenly and silently over the fragments of the "House of Usher".

Now that we have come to the end of the story, we have to go back to its beginning, since we cannot ignore the fact that before the incipit there is an epigraph in French, which reads: "Son coeur est un luth suspendu/ Sitôt qu'on le touche il résonne" (in a following edition the original *son*, his/her, was changed to *mon*, my).

The author is Pierre-Jean de Béranger (1780-1857), a French poet and songwriter. We might ask ourselves why Poe chose to give an epigraph to his short story and in particular why he chose the words of de Béranger. According to Gérard Genette (1987) there are four reasons to quote an epigraph: as a comment on the title, as a comment on the text, for the importance of the epigraph's author, for the "epigraph effect", which means to stress the author's culture. Of all these possibilities the second one seems the most credible. The epigraph is a key to unlocking the mystery of the story.

When we read the text, the first impression is that the epigraph has nothing to do with the short story: one of the first words is "soundless", while the epigraph is a metaphor that compares a heart with a lute, so it introduces the idea of music. If we go through the text we find the word "lute" just once, in the poem *The Haunted Palace* ("To a lute's well-tuned law"). On the contrary, the word "heart", the other element of the metaphor, occurs as many as five times: twice referring to the narrator's heart ("a sickening of the heart"; "my very heart"), once to Usher ("it was the apparent *heart* that went with his request"), once to Ethelred ("who was by nature of a doughty heart"), and once to Lady Madeline ("heavy and horrible beating of her heart"). Since the epigraph states "son coeur" ("his/her heart"), we could say that we can exclude the narrator. And according to logics we could exclude also Ethelred, because he is the character of a story read by the narrator. So is it Lady Madeline's or Usher's heart? The ambiguity is strengthened by the fact that in French we can't understand the possessor's sex through the possessive adjective.

This epigraph could be an anticipation of the second half of the story. In a certain sense the narrator evokes Lady Madeline's spirit by reading a book: he "touches" her heart and she makes noises. It could be also a reference to Usher's illness, because he can bear just sounds from stringed instruments, like the lute. Or it is there to remind us that, despite the silence of the beginning, *The Fall of the House of Usher* is a story of sounds, made of sounds, and that is the heart of the story that is ready to ring as soon as we read it?

We have demonstrated here that the House does not represent a mere landscape but also a very rich and evocative soundscape. As in the following short stories "The Black Cat" and "The Tell-Tale Heart" (1843), sound is not simply background but is fundamental to the story and to the development of the plot. In *The Tell-Tale Heart* the importance of sounds is made explicit from the very beginning. The first person narrator says he suffers from a disease that has sharpened his senses (as with Roderick Usher), above all that of hearing. But also his sight is impaired, since he feels an inexplicable repulsion for the old man he lives with on the

simple basis of his “blue eye”, also described as a “vulture eye”. Killing him would mean getting rid of his scrutinizing eye, which, according to the narrator, controls his conscience. So he decides to kill the man during the night. The dark setting implies the absence of images of any type: words connected to sounds are, on the contrary, very meaningful since they emphasize the scary atmosphere and the victim’s fear (“Presently I heard a slight groan, and I knew it was the groan of mortal terror”⁵, etc.)

After killing the old man, dismembering his body, and hiding its pieces under the floorboards, the protagonist feels certain that he has concealed the signs of his guilt in the best possible way. Obviously, he does not imagine that an auditory hallucination, rather than a visual detail, will betray his guilt. In fact, when the policemen enter the room where the body is concealed, he begins to hear a loud noise – the old man’s beating heart. It becomes so loud – even though the policemen do not hear it – that the narrator is compelled to admit his crime.

In “The Black Cat” too we have a domestic crime, even though the story is more complicated. A man, an alcoholic, has killed his own cat in a rage fit, out of pure perversion. Then a second cat arrives at his house, and is welcomed at first, but grows unbearable to the man, since it reminds him of his previous victim. So he decides to kill it as well, but his wife intervenes and the man kills her in its place. After the murder, the man walls his wife up in the cellar. The cat has mysteriously disappeared. After a while the police come to inspect the house, and the voice of the cat – which was walled up alive – reveals his owner’s murder. Here, too, it is sound (in this case, an animal sound) that allows the truth to come to light. Be it a sound of the human body (heartbeat) or a cat’s voice, sound betrays the bad conscience of man. No body of evidence, no confessions, and no eyewitnesses are necessary: sound will out.

Case study – 3

On a totally different standpoint we find “A Parody” from *Narrative of the Life of Fredrick Douglass, an American Slave* (1845). Slavery was still legal at the time when this work was written and sounds are quite expectedly linked to the oppression of the body and mind. It is worth noting that the Afro-Americans were traditionally linked to music and rhythm from their tribal origins and that music (through the spiritual and the blues) offered them consolation and a way of resistance. The importance of hearing and telling is remarked in the poem from the very beginning, where we find the verbs “hear”, “tell” and “sing”: hear in connection with the reader (“hear me”), tell in connection with the narrator (“hear me tell”) and sing in connection with the white man’s hypocrisy (“sing of heavenly union”):

Come, saints and sinners, hear me tell
How pious priests whip Jack and Nell,
And women buy and children sell,
And preach all sinners down to hell,
And sing of heavenly union.⁶

On the contrary, black people are deprived of the possibility to speak, even to utter any kind of sound: “Then seize their negroes by their throats / And choke, for heavenly union”. The poet asks himself (and the reader) how it can be possible that the white people “loudly talk of Christ’s reward”, “sing a sacred song”, “make a prayer both loud and long” and at the same time “roar, and scold, and whip, and sting”, “preach and roar”.

Douglass was a social activist and one of the most important Afro-American writers, having directly experienced slavery. He is well-known not only for his autobiography but for his struggle for civil rights and racial equality. In this poem, Douglass is parodying

⁵ <http://xroads.virginia.edu/~hyper/poe/telltale.html> (14/05/2014)

⁶ http://www.pagebypagebooks.com/Frederick_Douglass/The_Narrative_of_the_Life_of_Frederick_Douglass/A_Parody_p1.html (16/05/2014)

Heavenly Union, a hymn sung in many southern churches at that time. He was famous for his sense of humour and ability to mimic the clergy despite the sufferings of his people.

In the specific case of this poem, its regular rhyming scheme makes it similar to a song or a poem, so we have a great sonority. This sonority does not reveal itself only in the structure but also in many single words or sentences which are linked to sound and therefore contribute in rendering the sense of violence and in evoking the inhuman conditions of the slaves.

Case study – 4

We find what is maybe the first powerfully conscious perception of an American soundscape in Henry David Thoreau, an important thinker and writer of the mid 19th century. Thoreau belongs to a group of philosophers who are known as Transcendentalists. They were strongly engaged in creating a national literature and believed in a personal relation between man and the energy of universe, with no mediation, be it Nature or God. Thoreau is the author of a chapter entitled “Sounds” (in *Walden*, 1854) where he recognizes the importance of this sense and also includes the sounds of modernity among the traditional sounds of the wilderness (i.e. the “savage” world previous to civilization). He seems to interpret very well what Krause, more than one century later, will call *biophony* or “creature choir” or “concerto of the natural world”⁷, but he also includes man and technology in his aural description.

The social relevance of hearing in *Walden* has recently been acknowledged by Laura Zebuhr, according to whom Thoreau’s work challenges a traditional model of relation based on identification with the “other self” (such as Echo in Narcissus’s myth) and advocates for relations with the “other” (Zebuhr 37). In other words, while Narcissus is prompted by the desire to know himself better, Thoreau does not look at himself in a mirror but looks at – and listens to – the others. This otherness is made explicit by the image of the train (a symbol of technology but also of communication, of people moving and travelling, etc.): Thoreau cannot see it as from his standpoint it is out of sight, but he can hear it. We quote some passages here, where we have underlined the parts of interest:

... while the birds sing around or flitted noiseless through the house, until by the sun falling in at my west window, or the noise of some traveller’s wagon on the distant highway, I was reminded of the lapse of time...

As I sit at my window this summer afternoon, hawks are circling about my clearing; the tantivy of wild pigeons, flying by two and threes athwart my view, or perching restless on the white pine boughs behind my house, gives a voice to the air; ... I have heard the rattle of railroad cars, now dying away and then reviving like the beat of a partridge, conveying travellers from Boston to the country.

The whistle of the locomotive penetrates my woods summer and winter, sounding like the scream of a hawk sailing over some farmer’s yard, ...

I am refreshed and expanded when the freight train rattles past me, and I smell the stores which go dispensing their odors all the way ...

here comes the cattle-train ... The air is filled with the bleating of calves and sheep, and the hustling of oxen, as if a pastoral valley were going by.

Sometimes, on Sundays, I heard the bells,[...] All sound heard at the greatest possible distance produces one and the same effect, a vibration of the universal lyre... It is not merely a repetition of what was worth repeating in the bell, but partly the voice of the wood; the same trivial words and notes sung by a wood-nymph.

At evening, the distant lowing of some cow in the horizon ... I was not unpleasantly disappointed when it was prolonged into the cheap and natural music of the cow...

⁷ <<http://www.acousticecology.org/wildlandbiology.html>>, 31/08/2013).

Regularly at half-past seven, in one part of the summer, after the evening train had gone by, the whip-poor-wills chanted their vespers for half an hour, sitting on a stump by my door, or upon the ridge-pole of the house. They would begin to sing almost with as much precision as a clock, ... but often that singular buzzing sound like a fly in a spider's web, only proportionally louder.

When other birds are still, the screech owls take up the strain, like mourning women their ancient u-lu-lu. Their dismal scream is truly Ben Jonsonian. [...] Yet I love to hear their wailing, their doleful responses, trilled along the woodside; reminding me sometimes of music and singing birds; as if it were the dark and tearful side of music, the regrets and sighs that would fain be sung. [...]. Oh-o-o-o-o that I never had been bor-r-r-r-n! sighs one on this side of the pond, and circles with the restlessness of despair to some new perch on the gray oaks. Then -- that I never had been bor-r-r-r-n! echoes another on the farther side with tremulous sincerity, and -- bor-r-r-r-n! comes faintly from far in the Lincoln woods.

I was also serenaded by a hooting owl. Near at hand you could fancy it the most melancholy sound in Nature, as if she meant by this to stereotype and make permanent in her choir the dying moans of a human being -- some poor weak relic of mortality who has left hope behind, and howls like an animal, yet with human sobs, on entering the dark valley, made more awful by a certain gurgling melodiousness -- I find myself beginning with the letters gl when I try to imitate it [...]. It reminded me of ghouls and idiots and insane howlings. But now one answers from far woods in a strain made really melodious by distance -- Hoo hoo hoo, hooter hoo; and indeed for the most part it suggested only pleasing associations, whether heard by day or night, summer or winter.

Late in the evening I heard the distant rumbling of wagons over bridges -- a sound heard farther than almost any other at night -- the baying of dogs, and sometimes again the lowing of some disconsolate cow in a distant barn-yard. In the mean-while all the shore rang with the trump of bullfrogs, the sturdy spirits of ancient wine-bibbers and wassailers, still unrepentant, trying to sing [...] with the ejaculation tr-r-r-oonk, tr-r-r--oonk, tr-r-r-oonk! and [...], tr-r-r-oonk! and each in his turn repeats the same down to the least distended, leakiest, and flabbiest paunched, that there be no mistake; and then the howl goes round again and again, until the sun disperses the morning mist, and only the patriarch is not under the pond, but vainly bellowing troonk from time to time, and pausing for a reply.

I am not sure that I ever heard the sound of cock-crowing from my clearing, and I thought that it might be worth the while to keep a cockerel for his music merely, as a singing bird. The note of this once wild Indian pheasant is certainly the most remarkable of any bird's, and if they could be naturalized without being domesticated, it would soon become the most famous sound in our woods, surpassing the clangor of the goose and the hooting of the owl; and then imagine the cackling of the hens to fill the pauses when their lords' clarions rested! ... To walk in a winter morning in a wood where these birds abounded, their native woods, and hear the wild cockerels crow on the trees, [...] This foreign bird's note is celebrated by the poets of all countries along with the notes of their native songsters....⁸

The anthroponic sounds (bells, carriages, etc.) mix with biophonic sounds (birds, cows, etc.) in a multisensorial, all-American melting pot where sound and smell take over sight. More: sound encourages the perception of time flowing, memories, consciousness, and even prompts spiritual growth and shared citizenship. The use of onomatopaea also encourages reading aloud, which suggests the possibility of an audience.

Through his writing, Thoreau invites the reader to develop their perceptiveness and shows his own pleasure in listening to the sounds (both biophonies and anthrophonies) that surround the cabin where he is temporarily living: church bells ringing, carriages rattling and

⁸ <http://thoreau.eserver.org/walden04.html> (20/05/2014)

rumbling, cows lowing, whip-poor-wills singing, owls hooting, frogs croaking, and cockerels crowing. The most remarkable presence in this soundscape is, however, that of the train, which creates a visible and audible bridge between nature and technology, the past and the present. Here the author wishes to convey a sense of optimism and belief in the future of the country. Listening to sound becomes a form of knowledge, personal growth, and progress.

Case study – 5

Through me many long dumb voices,
 Voices of the interminable generation of slaves,
 Voices of prostitutes and of deformed persons,
 Voices of the diseased and despairing, and of thieves and dwarfs,
 Voices of cycles of preparation and accretion,
 And of the threads that connect the stars – and of wombs, and of the fatherstuff,
 And of the rights of them the others are down upon,
 Of the trivial and flat and foolish and despised,
 Of fog in the air and beetles rolling balls of dung.
 Through me forbidden voices,
 Voices of sexes and lusts...voices veiled, and I remove the veil,
 Voices indecent by me clarified and transfigured.⁹

These lines belong to the poem “Song of Myself” by Walt Whitman (in *Leaves of Grass*, 1860). It is a very long poem where almost every aspect of America is celebrated. Whitman was well aware of his civilian mission as a poet and of the power of poetry. In particular in these lines Whitman states that he can give voice to people who normally have no voice in American society: slaves, prostitutes, deformed persons. Even things and animals can sing through the voice of the poet, thanks to humanization. These lines represent an extraordinary way to express the social and political role of poetry in forming a national conscience.

All of Whitman’s poetry is linked to sound and music. In “Song of Myself” the poet often invites the reader *to listen* (“You shall listen to all sides and filter them from your self”) while in “I Hear America Singing” (in *Leaves of Grass*, 1860), he reunites all categories of workers in a huge concerto of *singers*.

I hear America singing, the varied carols I hear,
 Those of mechanics, each one singing his as it should be blithe and strong,
 The carpenter singing his as he measures his plank or beam,
 The mason singing his as he makes ready for work, or leaves off work,
 The boatman singing what belongs to him in his boat, the deckhand
 singing on the steamboat deck,
 The shoemaker singing as he sits on his bench, the hatter singing as he stands,
 The wood-cutter’s song, the ploughboy’s on his way in the morning,
 or at noon intermission or at sundown,
 The delicious singing of the mother, or of the young wife at work,
 or of the girl sewing or washing,
 Each singing what belongs to him or her and to none else,
 The day what belongs to the day--at night the party of young
 fellows, robust, friendly,
Singing with open mouths their strong melodious songs.¹⁰

The poet is interested in every part of his great country and in every detail of the landscape. The sea, the rivers, the mountains, the cities, all of them appear not only to the

⁹ <<http://www.poets.org/viewmedia.php/prmMID/15755>>

¹⁰ <http://allpoetry.com/poem/8451701-I_Hear_America_Singing-by-Walt_Whitman>

eyes but to the ear as well. Here the poet concentrates on voices because he wants to give voice to dispossessed people, but through the repetition of the word “singing” he creates an atmosphere of crossing echoes, a sort of modern Babel which is very modern and anticipates some important innovative stylistic modes of the 20th century (think, for instance, of Dos Passos, Faulkner, and even the film *Der Himmel über Berlin* by Wim Wenders). Undoubtedly, voice is a recurring term in poetry and narrative and an important soundmark in literary soundscape studies. We find a growing number of voices as Americans feel increasingly free to have their voice heard

Case study – 6

Emily Dickinson was arguably the greatest American poet of the 19th century together with Walt Whitman. Though living in isolation for the great part of her life, she was one of the most brilliant minds of her age. Her poems were all published posthumously from 1890 onward. We chose to concentrate on poem 465, also known as “I heard a fly buzz when I died” from its first verse. This verse is particularly intriguing, being based on an obviously ambiguous and oxymoronic statement involving not only the sense of hearing, but the true essence of life and death.

If a person *died*, how could s/he be writing about his or her experience? The fact that Dickinson describes her death while she is still alive raises questions which we cannot answer. What we can do, though, is analyse the context. And we shall observe that sound dominates the scene: the sudden sound of a fly, monotonous and irregular, “blue, uncertain, stumbling”, creates a moment of suspension between life and death, maybe the announcement of a symbolic new birth, or vice versa an abrupt return to life at the very last moment before expiring.

In our opinion, the *buzz* is more important than the *fly*. The fly has often been associated with bodily corruption and decay, but what interests us is the buzz as a sound. The last line, “I could not see to see”, has also been widely discussed by critics, but from a soundscape perspective it clearly means that sight is unfit for “seeing” in the sense of “understanding”. It appears to us that the first *see* is referred to sight, while the second one is referred to comprehension. In this way, sight fails to give the dying person assistance and what remains is sound. The key to the mystery of existence, therefore, ought to be found not in light, nor in the expectation of a powerful king, but in a simple, ephemeral buzz.

I heard a fly buzz when I died;
 The stillness round my form
 Was like the stillness in the air
 Between the heavens of storm.
 The eyes beside had wrung them dry,
 And breaths were gathering sure
 For that last onset, when the king
 Be witnessed in his power.
 I willed my keepsakes, signed away
 What portion of me I
 Could make assignable,-and then
 There interposed a fly,
 With blue, uncertain, stumbling buzz,
 Between the light and me;
 And then the windows failed, and then
 I could not see to see.¹¹

¹¹ <http://www.poets.org/viewmedia.php/prmMID/15393> (07/05/2014)

Conclusion

My students and I have traced just a very narrow and incomplete path in this essay, but my aim is essentially to arouse interest so that this branch of studies will be given the right consideration in the near future. Next year we shall start exploring the 20th century, and in the meanwhile I am fully persuaded that no innovation is possible exclusively within a single discipline, therefore in the same way as I welcome suggestions and contributions from all fields of research, I hope sciences other than literature will reach out and engender a fruitful domain of reciprocal reinforcement and exchange.

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THUNDERSTORMS, CHARGES AND CURRENTS

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Abstract

In the early part of the twentieth century, the diurnal variations of the fair weather electric field as a function of universal time (UTC) were characterized by the Carnegie and Maud research ships [e.g., Whipple, 1929; Torreson et al., 1946]. The source of these variations in the global electric circuit (GEC) was theorized to trace directly to the diurnal variations in thunderstorms and electrified shower clouds [Wilson, 1921; Williams, 2009]. Much subsequent research on the global electric circuit has focused on linking the fair weather field variation, commonly called the Carnegie curve, to worldwide variations in electrified weather by using the proxy of thunderstorm or lightning statistics [e.g., Mach et al., 2011 discussion]. What resulted from this research was long standing, unresolved scientific riddle: the diurnal variation global thunderstorm (and lightning) activity was in phase with but nearly twice the amplitude of the Carnegie Curve! A necessary and important step needed to address and solve this long standing discrepancy was providing actual observations of the electric current output and associated electrical generator strength of thunderstorms.

Keywords: Atmosphere, Thunderstorms, Current, global electric circuit

Introduction

In fair weather, when there are no thunderstorms around, the electrical nature of the lower to middle atmosphere is in a state of quasi static equilibrium. Below the ionosphere, the atmosphere is weakly conducting with conductivity increasing exponentially with increasing altitude. A current flows from the lower ionosphere to the ground. The overall electrical structure of the atmosphere below the ionosphere is usually described as a spherical capacitor filled with slightly conductive medium. The outer shell of the capacitor is the highly conductive region or ionosphere of the upper atmosphere.

The Earth's surface, which is the inner shell of the spherical capacitor, is very conductive compared to the lower atmosphere. A resistance of 200 ohms (approximately) exists between the surface and the ionosphere. The capacitor is charged with roughly 5×10^5 C of negative charge on earth and an equal positive charge in the atmosphere. As the atmosphere is weakly conducting, there is a leakage current that would neutralize the charge on the earth and atmosphere within 10 minutes.

[Peltier, 1842] stated that the earth was negatively charged but he did not address how to maintain the charge in the presence of leakage current. [Wilson, 1920] proposed that thunderstorms are the generators in a global electric circuit that can sustain the leakage currents. Placing a thunderstorm in the atmosphere will produce so-called Wilson current, from the cloud top to the ionosphere. This in turn produces a current back down through the global atmosphere along the surface, and underneath the storm. Together these 'circuit elements' are known as the GEC, Global Electric Circuit (Fig. 1).

At the ground level, the GEC creates a variable electric field, averaging 100 V/m in fair weather [Bering, 1998]. According to the Wilson hypothesis, a global total electric current of 1kA flows from all the thunderstorms in the troposphere into the ionosphere,

eventually returning to the ground through the fair weather atmosphere and closing via lightning activity.

I.

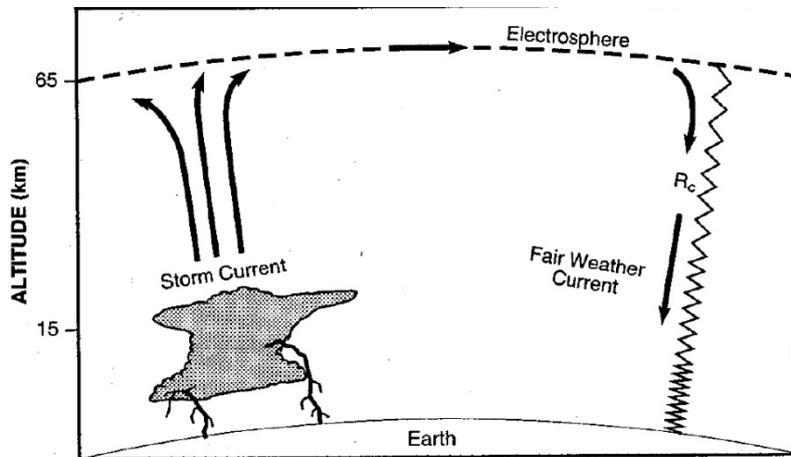


Figure:1 : Global Electric Circuit., From [MacGorman, 1998].The Wilson current is labeled “Storm current” and is represented by the three upward pointing lines with arrowheads.

The Electrical Structure of Thunderstorms

In the eighteenth century, Benjamin Franklin established that negative charge was usually present in the thunderstorm but sometimes positive charge was also observed. Around 1800’s some investigators suggested that both positive and negative charge co-existed in thunderstorms. It was not possible to determine the charge structure until new instruments were developed. Based on ground field mill measurements and electric field changes, \bar{E} changes from lightning [Wilson,1916] and [Wilson,1929] suggested that thunderstorms typically have a dipole structure. Recent balloon borne measurements have shown that these charge structures are almost always more complicated than an electric tripole. In particular, the work by [Stolzenburg, 1998c] has shown that the charge structure of a thundercloud is significantly more complex, with four charge regions (tripole structure, plus screening layer) within convective updrafts and six (or more) charge regions outside of these updrafts as seen in (Fig.2). The main positive (UP), main negative (MN), and lower positive (LP) charge regions within the convective updraft are most often associated with the lightning flashes.

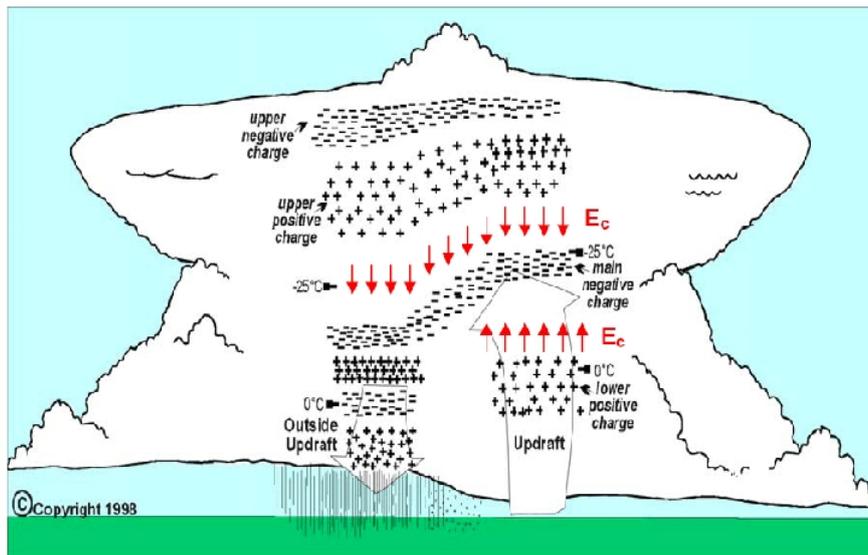


Figure: 2: Structure Of a thunderstorm with updrafts. Modified from Stolzenburg, 1998c.

Thundercloud Charges and Lightning

It is often assumed that lightning travels through the charge regions of the storm (e.g. [Reynolds, 1955], [Krehbiel, 1979]). Studies show that storms typically exhibit three layers of lightning activity with two regions of negative polarity breakdown indicating the presence of the UP and LP charge regions and one region of positive polarity breakdown interpreted as occurring in the MN charge region. In particular intra-cloud (IC) flashes effectively move negative charge from the MN charge region to the UP charge region, while cloud-to-ground(CG) flashes effectively move negative charge from the MN charge region to the earth and usually to the LP charge region (e.g. [Coleman,2003]).

Measurements of the Generator and Wilson Current

Currents in the storm environment include those in the internal generator, those from the storm top (Wilson current), cloud flashes, ground flashes, precipitation, corona, and convective air flow (both vertical and horizontal) near and in the cloud. Until recently, strategies aimed at determining the total current budget of a thunderstorm were mostly attempts to measure every conceivable current source, to estimate those not easily measurable and to total them all to derive the net current from a single storm to get a grand total. Integrating the vertical component of \vec{J} , z measured during a balloon soundings with height, a vertical electric potential profile of the storm can be made. *Marshall and Stolzenburg* [1995] presented electric potential profiles through 13 storms and found that voltages relative to the ground within thunderstorms ranged approximately between ± 100 MV.

The internal generator current that exists between the different charge regions of a thunderstorm is also known as the charge separation current. A lightning flash temporarily reduces the magnitude of the in-cloud electric field. The recovery of the electric field after the flash indicates that charging mechanisms within the storm regenerate the charges neutralized by lightning. The in-cloud electric field may not be a necessary factor for thunderstorm charge generation mechanisms, the value of the electric field plays a greater role in influencing how, where, and when a lightning flash initiates. Also, the generator should be able to replenish the charge taken away by lightning between two consecutive flashes. As stated earlier, the Wilson current flows from the top of the thunderstorm to the upper atmosphere to the ionosphere to charge the global circuit and thereby supply the fair weather current. Wilson currents above thunderstorms have been estimated with aircraft measurements by [Gish, 1950] to be 0.5 A at 12 km over 21 storms. [Stergis, 1957] determined an average current of 1.3 A from 25 balloon flights. Also another study by [Blakeslee, 1989] showed the Wilson current varied between 0.09A and 3.7A above storms with an average of 1.7A for 15 flights. The modeling used by *Davydenko et al.* [2009] uses a set of steady state horizontal layers of external currents for two storms one in the great plains and the other in New Mexico. The Wilson current calculated from those two storms were 0.53A and 0.16A. These numbers are in reasonable agreement with the observed discharging current in fair weather regions of about 1000 A over the entire globe. *Bering et al.* [1998] measured the total current over the top of a single thunderstorm and found a value of 2.5 A from a balloon borne storm observation. Very recently, *Mach et al.* [2009] using aircrafts, measured the total upward current flow from storms. The mean peak current density was 1.9 nA/m², and the median value was 0.6 nA/m². Assuming the cylindrical symmetry of the storm they calculated the Wilson current to be ranging from -1.3 to 9.4 A with a mean value of 0.8 A. The amount of current flowing to the ionosphere can be directly be measured at locations above thunderstorms *Blakeslee and Vonnegut* [1989], but these measurements alone do not indicate how thunderstorms act as generators in the global electric circuit.

Conclusion

Some of the most intriguing and pressing questions that scientists are facing in the 21st century are whether or not the global climate is changing, and if so, by what factor and by what primary cause? To adequately address these questions, we must perform reliable and in-depth studies over a broad range of global systems. Of particular interest are those systems associated with the planet's equilibrium processes. One such equilibrium process is referred to as the global electric circuit. An accurate measurement of the area where charges are enclosed and an accurate value of in-cloud conductivity would give us a better value of the generator current and hence help us understand the global electric circuit.

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ISSUE OF LIBERALIZATION OF ALGERIAN INTERNATIONAL TRADE IN REQUIREMENTS AND DIMENSIONS OF SUSTAINABLE DEVELOPMENT -THE ENVIRONMENT AS A MODEL-

إشكالية تحرير التجارة الخارجية الجزائرية في ظل متطلبات و ابعاد التنمية المستدامة (البعد البيئي نموذجاً)

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Abstract

This study seeks to analyze the dialectic of economic, because many developing economies are leaving almost locked between its shores such as the Algerian economy in trying to reconcile between liberalization of foreign trade on the one hand and maintaining the following important dimensions of sustainable development represented by the requirements and environmental standards on the other.

Keywords: International trade, exports, imports, the environmental dimension, the competitiveness, the Algerian economy

Abstract

تسعى هذه الدراسة إلى تحليل جدلية اقتصادية أصبحت العديد من الاقتصادات النامية تقع شبه مسجونة بين جنباتها على غرار الاقتصاد الجزائري في محاولتها للتوفيق ما بين تحرير تجارتها الخارجية من جهة وحفاظها على بعد مهم من أبعاد التنمية المستدامة ممثلاً في الاشتراطات والمعايير البيئية من جهة أخرى.

Keywords: التجارة الخارجية، الصادرات، الواردات، الأبعاد البيئية، التنافسية، الاقتصاد الجزائري.

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مقدمة :

بعد نهاية الحرب العالمية الثانية سعت عدة دول على اختلاف نظمها الاقتصادية – اشتراكية كانت أو رأسمالية – من أجل قيام منظمة دولية للتجارة مهمتها تنظيم السياسة التجارية الدولية، تسهيل التجارة بين الدول والحد من الإجراءات الحمائية، إلا أنه ومع فشل تجسيد مشروع هذه المنظمة في مؤتمر هافانا، توصلت هذه الدول إلى إبرام اتفاقية دولية متعددة الأطراف حول التعريف الجمركية للتجارة "الجات" هدفها التخفيض التدريجي لمعدلات الضرائب والرسوم الجمركية وإيقاف بعض الإجراءات الحمائية وتشجيع حرية التبادل برفع كل أنواع القيود والحوجز التي تعيق التجارة، لكن ما لبثت أن تحولت هذه الاتفاقية إلى منظمة عالمية للتجارة بعد أن ظهرت معطيات اقتصادية وسياسية جديدة على الساحة الدولية، على غرار ارتفاع معدلات الطلب العالمي وتزايد المبادلات التجارية بين كل أنحاء العالم في إطار القرية الكونية التي أفرزتها العولمة، تلك الظاهرة الجديدة التي دفعت بتقافة الاستهلاك إلى البزوغ بصفة رهيبية بداعي الرغبة في الربح الرأسمالي الذي يحرك العجلة الاقتصادية ويحفز الأعوان الاقتصاديين اتجاه المزيد من استغلال الموارد الطبيعية. وأمام تنامي هذه المتغيرات في العلاقات الدولية وتزايد الحركات التحريرية للتجارة الخارجية وتنامي مساعي الدول للحصول على الأرباح، ظهرت وبشكل مؤلم ابتداء من الستينات والسبعينات عديد من المشاكل والتعقيدات على غرار تلك الصعوبات المتعلقة بكيفية معالجة محتوى موضوعات الاتفاقات المنبثقة من المنظمة العالمية للتجارة إثر التغيرات التي اجتاحت البيئة الاقتصادية الدولية إقليمياً وعالمياً.

هذا، وتتضمن هذه الاتفاقيات في حد ذاتها موضوعات مثيرة للجدل الشديد من أهمها موضوع ربط التجارة بالبيئة، وهو يلقى اهتماما متزايدا على الصعيد الوطني والإقليمي والدولي، حيث برز منذ نشأته كإحدى القضايا الخلافية بين الدول بعضها البعض خاصة بعد تزايد مكانة دعاة حماية البيئة. ولطالما كانت تخشى الدول النامية من أن يتحول تناول هذا الموضوع في إطار أعمال المنظمة إلى استحداث معايير جديدة تشكل عوائق تجارية تحد من قدرتها على التصدير للأسواق العالمية الأمر الذي يؤدي في ظل هذه الظروف إلى إهدار المزايا النسبية لها، وبالتالي يصبح تحرير التجارة الدولية من خلال الانضمام إلى النظام التجاري العالمي ممثلا في المنظمة العالمية للتجارة يؤدي إلى حماية أكثر تعنتا للبيئة مما ينجم عنه مزيدا من التهديد والتدمير لبرامج التنمية الاقتصادية خاصة بالنسبة لهذه البلدان النامية.

وفي ظل هذا التوجه الجديد والتغير العميق الحاصل في مسرح الاقتصاد العالمي، نجد الجزائر باعتبارها بلدا ناميا يمر بمرحلة انتقال، تسعى إلى التأقلم معه والاندماج فيه من خلال النهوض بقطاعاتها الوطنية وتوجيهها التوجيه الأمثل وفق ما تقتضيه المعطيات الدولية الحالية من جهة، وتغليب المصلحة الوطنية من جهة أخرى .

ولا يمكن للجزائر أن تحقق هذه التوليفة السالفة الذكر- تحرير تجارتها الخارجية مع أخذها بعين الاعتبار لبعدهم من أبعاد التنمية المستدامة تحت مسمى الاشتراطات البيئية - إلا بإعطاء دور أكبر لقطاع التجارة الخارجية الذي أصبح أداة ذات دور متزايد في الاقتصاد الوطني، مما يجعل اللجوء إلى إصلاح أدواته النقدية والمالية بالإضافة إلى تكييفه وفق أبعاد التنمية الاقتصادية المستدامة وحماية البيئة، أمرا ضروريا لمواجهة التحرير التدريجي لتجارتنا الخارجية.

إشكالية الدراسة:

بناء على ما سبق تسعى هذه الورقة البحثية إلى الإجابة على الانشغال والإشكال التالي:

" كيف يمكن للجزائر أن توفق ما بين الإصلاحات الاقتصادية القائمة في إطار سعيها لترقية وتحرير تجارتها الخارجية وما يفرضه اتفاق الشراكة والمنظمة العالمية للتجارة من عوائق حمائية على غرار الاستناد على الأبعاد البيئية في المنتجات تحت مظلة متطلبات التنمية المستدامة؟"

الهدف من الدراسة:

بالإضافة إلى محاولة فك لغز الإشكال أعلاه، تسعى هذه الدراسة إلى إلقاء الضوء على ذلك الدور الذي أصبح ملقا على عاتق الدولة الجزائرية في محاولة منها لترقية وتحرير تجارتها الخارجية مع تلافي العوائق البيئية التي ما فتئت تضر كثيرا بتنافسية المنتجات الجزائرية خارج قطاع المحروقات.

منهج الدراسة:

من أجل الإحاطة بجوانب موضوع هذه الورقة سنستخدم في هذه الدراسة المنهج الوصفي التحليلي في قالب نسعى من خلاله إلى الإجابة على أهم تساؤلات الإشكالية وهذا بالاستعانة ببعض الأدوات والجدول والتحليلات البيانية.

خطة الدراسة:

سيتم تغطية هذه الدراسة من خلال المحاور التالية:

المحور الأول: التجارة الخارجية (عودة إلى الأسس وتحليل الأهمية)

المحور الثاني: البعد البيئي في اقتصاديات التجارة الخارجية (الواقع والآثار)

المحور الثالث: تأثير الاشتراطات البيئية على تنافسية الاقتصاد الجزائري وتحرير التجارة الخارجية (تشخيص الجدلية)

المحور الأول: التجارة الخارجية (عودة إلى الأسس وتحليل الأهمية)

1.1. تعريف التجارة الخارجية:

تمثل التجارة الخارجية مجموعة التبادلات الاقتصادية الدولية من خدمات وتكنولوجيا ورأس مال، إذ يظهر ذلك الترابط بين المنتجين والمستهلكين على المستوى الدولي عبر عدة معايير كأهمية كل دولة في الاقتصاد العالمي والتبادل بينها وبين مختلف دول العالم .

إن قيام التجارة سواء الداخلية منها أو الخارجية هو نتيجة طبيعية لقيام التخصص وتقسيم العمل، حيث يؤدي التخصص بالطبيعة إلى قيام التبادل بين الأفراد، فلكي يحصل كل فرد على حاجته المتنوعة، فحتما سيقوم بمبادلة جزء من إنتاجه بجزء من إنتاج غيره هذا هو الأساس الذي تقوم عليه التجارة الخارجية، أي تقوم دولة ما بإنتاج سلعة ما واستبدالها بسلعة أخرى مع مختلف دول العالم. إذن فالمقصود بالتجارة الدولية أنها " عملية التبادل التجاري في السلع والخدمات وغيرها من عناصر الإنتاج المختلفة بين عدة دول بهدف تحقيق منافع متبادلة لأطراف التبادل ". كما يقصد بها اختصارا تلك العملية من التبادل التجاري الذي يتم بين الدولة والعالم الخارجي."

2.1. تحليل أهمية التجارة الخارجية ودورها في التنمية الاقتصادية:

ليس من الصعب علينا أن نتصور ما للتجارة الدولية من أهمية في العصر الحديث، فهي تمكننا من إشباع بعض الحاجات التي لا يمكن إشباعها لو لم يتم تبادل تجاري بين الدول مع بعضها البعض، ذلك أن دول العالم تختلف فيما بينها إختلافا كبيرا من حيث المزايا الطبيعية والمكتسبة، لذلك فإن للتجارة الخارجية فوائد عديدة سواء على الفرد أو المجتمع نوجز بعضها فيما يلي:

- تمكن التجارة الدولية كل دولة من أن تستغل مواردها الإنتاجية بأكبر قدر ممكن من الكفاءة بمعنى حصولها من تلك الموارد على أكبر ناتج كلي ممكن.

- ميزة التجارة الدولية هو أنها تمكن كل دولة من الاستفادة من مزايا الدولة الأخرى، فما تتمتع به دولة ما تضعه التجارة الدولية تحت تصرف الدول جميعا.

- تعتبر مؤشرا على قدرة الدول الإنتاجية والتنافسية في السوق الدولية لارتباط هذا المؤشر بالإمكانات الإنتاجية المتاحة، وقدرة الدول على التصدير ومستويات الدخل فيها، وكذلك قدرتها على الإستيراد وإنعكاس ذلك كله على رصيد الدولة من العملات الأجنبية.

- تحقيق التوازن في السوق الداخلية نتيجة تحقيق التوازن بين كميات العرض والطلب.

- توفر للأفراد ما لا يستطيعون إنتاجه أو ما ينتجونه بقلّة.

- تساعد على التقدم في الميادين الأخلاقية والاجتماعية والثقافية بفضل ما تتطلب من احتكاك مستمر.

- تعتبر إحدى أوجه النشاط البشري الذي يقوم عليه التبادل.

- تساهم التجارة الخارجية في نشر المعرفة التكنولوجية ونقل الأفكار والخبرة والمهارات والقدرات الإدارية وفن التنظيم وإنشاء المشروعات.

- تعمل التجارة الخارجية على زيادة الرفاهية الاقتصادية من خلال إشباع حاجات الأفراد من السلع والخدمات إما بسبب عدم توفر هذه السلع والخدمات في بعض الدول وإنتقالها عن طريق التجارة الخارجية إلى جميع أنحاء العالم، أو بسبب الحصول على هذه السلع بتكاليف أقل نتيجة استيرادها من دول لديها ميزة نسبية في الإنتاج بسبب وفرة الحجم الاقتصادي.

3.1. العوامل المؤثرة في التجارة الخارجية وأسباب التخصص الدولي:

هناك جملة من الأسباب والدوافع التي تؤثر بصفة مباشرة وغير مباشرة في التجارة الخارجية، كما لها إسهام كذلك في تخصص الدول في الإنتاج. تتمثل هذه الأسباب غالبا في مجموعة من العوامل التي تؤدي إلى إنتاج السلعة المتاجر بها دوليا بكفاءة اقتصادية وإنتاجية مرتفعة، وذلك دون غيرها من السلع. وتتمثل العوامل المؤثرة في التجارة الدولية والداعية إلى التخصص الدولي فيما يلي:

1.3.1. العوامل المؤثرة في التجارة الدولية:

نظرا لما تلعبه التجارة الدولية من دور هام على مستوى العلاقات الاقتصادية الدولية فهي تتأثر بما يلي:

1.1.3.1. أوضاع الاقتصاد المحلي والعالمي:

إذ تؤثر هذه الأوضاع مجتمعة في مسار التجارة الدولية، فالاقتصاد المحلي ولكي ترتقي صناعته الداخلية فهو بحاجة إلى سلع خامة ووسيلة لذا تلجأ الدولة إلى التجارة الدولية لاستيراد ما تحتاجه هذه الصناعات، كما أن للطلب الاستهلاكي دورا في تحديد سياسة التجارة الخارجية للدولة من حيث استيراد كميات من سلع ما ذات استهلاك واسع. وبخصوص الاقتصاد العالمي الدولي فإن تغير الطلب بالزيادة مثلا من شأنه تشجيع الدولة على زيادة حجم الصادرات من ناحية وكذا ضغط استهلاكها من جهة أخرى.

2.1.3.1. مستويات التنمية الاقتصادية:

حيث تشكل مستويات التنمية الاقتصادية حيزا هاما في تشكيل وتسيير وتوجيه السياسة التجارية الدولية للبلد، إذ أن الجمود والتأخر الاقتصادي لدولة ما عادة ما يجعلها حريصة على تقييد تجارتها الخارجية وبالتالي بقائها منغلقة على نفسها. أما من الجانب الآخر نجد أن الاقتصاديات المتطورة والمتقدمة ذات المستويات المرتفعة في التنمية الاقتصادية تشهد مرونة في سياستها التجارية الخارجية.

2.3.1. أسباب التخصص الدولي في الإنتاج:

إن وراء عملية التخصص الدولي في الإنتاج دوافع وأسباب عديدة جعلت الدول تركز على صناعات معينة في اقتصادياتها وذلك حتى تستفيد مما تتوفر عليه من مزايا وفقا لما تسمح به طبيعتها وظروفها الاقتصادية. ومن بين أهم الأسباب الداعية إلى التخصص الدولي في الإنتاج رغبة الدول في توطيد العلاقات فيما بينها وزيادة درجة الاعتماد المتبادل (interdépendance)، بالإضافة إلى الحاجة للاستعمال الأمثل للموارد وزيادة الإنتاج الإجمالي وتحسين جودته، التقليل من ضياع الوقت الناتج عن الانتقال والتحول من قطاع إنتاجي إلى آخر، تشجيع عملية الابتكار وابتداع طرق جديدة أكثر فعالية للعمل.

من خلال ما سبق، وبالرغم من أننا في عالم اقتصادي راهن يتميز بمحاولات متكررة لتحرير المبادلات التجارية واقتحام الأسواق الخارجية موازاة مع التيار الحالي للعولمة، وحرية تبادل السلع التي تسعى المنظمة العالمية للتجارة إلى تقويته وتدعيمه، إلا أن الواقع الاقتصادي يثبت أن تيار الحمائية لم يستبعد بصفة نهائية سواء ما تعلق منه بأساليب الحماية التقليدية المتمثلة في الحواجز التعريفية وغير التعريفية، أو ما يصطلح عليه حاليا بالمتطلبات والاشتراطات البيئية، التي هي عبارة عن مجموع الوسائل المستعملة بغية حماية اقتصاد بلد ما من المنافسة الأجنبية عن طريق تطبيق مقاييس وإجراءات مختلفة لخلق تفاوت على مستوى السوق المحلي والأسواق الخارجية وتعديل الاستيراد أو توجيه تدفقات الإنتاج أو عوامله على هذا السوق والت سوف تكون محل تفصيل في الجزئية المالية من الدراسة.

2. المحور الثاني: البعد البيئي في اقتصاديات التجارة الخارجية (الواقع والآثار)

1.2. البعد البيئي في نظرية التجارة الخارجية:

تعود دوافع إدماج الاشتراطات والأبعاد البيئية في نظريات التجارة الخارجية إلى مبدئين أساسيين وهما:

الأول: تعتبر البيئة عنصر إنتاج ضروري بنفس ضرورة باقي عوامل الإنتاج للعملية الإنتاجية، فالبيئة الطبيعية تعد مصدر خدمات إنتاجية هامة لكافة الأنشطة الاقتصادية، فهي تقدم المواد الخام التي تدخل في العملية الإنتاجية والطاقة التي تولد وقودا لتحويل المواد الخام لسلع ومنتجات مختلفة وجزءا لا يتجزأ من الإمكانيات الإنتاجية المتاحة لأي دولة، وقيدا على الإنتاج والتجارة الخارجية، وسببا جديدا إضافيا لاختلاف تكاليف الإنتاج النسبية بين الدول.

الثاني: إن الحفاظ على البيئة يستلزم تسعير الموارد البيئية تسعيرا يتناسب مع تكاليفها الاجتماعية، وذلك عن طريق تحميل كل سلعة بتكاليف تلويثها للبيئة السالبة الى تكاليف داخلية للأنشطة الإنتاجية أو الاستهلاكية المتسببة في حدوث التلوث، فاشتمال أسعار السلع والخدمات على تكلفة استخدام الموارد البيئية هو بمثابة تصحيح لهيكل الأسعار المحلية والعالمية يساعد على تحقيق التنمية المستدامة.

3- نتائج إدراج البعد البيئي كأحد عناصر التجارة الدولية:

إن إدراج البعد البيئي كأحد متغيرات التجارة الدولية، سوف يؤدي الى مايلي:
- إذا التزمت كافة الدول بنفس المعايير البيئية، فإن هذا سوف يؤدي الى أن الدول التي تتمتع بقدرة امتصاصية ذاتية للبيئة الى تخصيص قدر أقل من الموارد الاقتصادية لمكافحة التلوث، وذلك بالمقارنة بالدول الأخرى الأقل استعدادا في هذا الشأن.

- أما الدول التي تتمتع بقدرة امتصاصية ذاتية منخفضة تحظى بميزة تنافسية كبيرة في إنتاج السلع والخدمات الأكثر تلوثا للبيئة، وبالتالي يتغير نمط التجارة الدولية، مما يحدث تغيرا في الهياكل الاقتصادية.

إلا أنه إذا انتهجت إحدى الدول سياسة بيئية، فإن ذلك يتضمن زيادة تكاليف الإنتاج، مما يصب في بوتقة ارتفاع أسعار السلع والخدمات التي يتم إنتاجها محليا، مما يؤدي الى:

* الفشل في تحقيق ميزة تنافسية عالية في إنتاج هذه السلع والخدمات، ومن ثم إسدال الستار على تنافسيتها في الأسواق العالمية.

* ومن ناحية أخرى عجز المنتجين المحليين عن منافسة الواردات الأجنبية في الأسواق المحلية.
وفي هذا الصدد تتباين مواقف الدول المتقدمة والدول النامية من حيث مدى أهمية إدراج البعد البيئي في التجارة الدولية حيث أن الأولى تركز على موضوع العلاقة بين السياسات التجارية والبيئية ومدى تطابق الإنتاج والصادرات مع المواصفات والمعايير البيئية.

بينما تتخوف الثانية من الآثار السلبية للعمل بالمعايير البيئية على القدرات التنافسية لقطاعها التصديرية، وأيضا من إمكانية تحول تلك المواصفات إلى إجراءات حامية قد تعوق نفاذ منتجاتها إلى الأسواق العالمية. وهو ما سوف يتم تشخيصه في الجزئية الموالية عند إسقاط الدراسة على الاقتصاد الوطني الجزائري.

3. المحور الثالث: تأثير الاشتراطات البيئية على تنافسية الاقتصاد الجزائري وتحرير التجارة الخارجية

لا زالت فكرة حماية السوق المحلي والحد من تدفق السلع والخدمات لأية دولة هي الشغل الشاغل للعديد من بلدان العالم على اختلاف مستويات نموها وتحضرها، الأمر الذي إنعكس على الإجراءات والسياسات التي تهدف إلى منع نفاذ المنتجات إلى الأسواق بالتنامي والتعدد والتغير.

حيث قامت العديد من بلدان العالم وخاصة الدول الصناعية الكبرى بالتوسع في تطبيق إجراءات مكافحة الإغراق كأحد سياسات الحد من تدفق السلع الداخلة لأسواقها، ولم يقتصر الأمر عند هذا الحد - سياسات الإغراق - وإنما تخطاها كثيراً ليصل إلى ما يعرف بالعوائق الفنية على غرار المتطلبات البيئية والتي أصبحت الآن تمثل التهديد الرئيس لصادرات العديد من دول العالم النامية خاصة في ظل الاستخدام المتنامي والمتسارع لمثل هذه العوائق من قبل العديد من الدول المتقدمة ما جعل صادرات العديد من الدول النامية مكبلة بهذه القيود على غرار الجزائر.

3.1. تشخيص واقع الاقتصاد الجزائري والقدرات التنافسية:

بالرغم مما يتوفر عليه الاقتصاد الجزائري من بنية هيكلية متينة ومن موارد وثروات مختلفة، إلا أن الواقع الحالي لمختلف القطاعات المكونة للنسيج الاقتصادي الوطني ليرز بأن هذا الاقتصاد لا يزال في مراتب متأخرة إذا ما قورن بالدول ذات العضوية في المنظمة العالمية للتجارة، وهذا نظرا لعدة أسباب لعل أهمها هو غياب سياسة إستراتيجية محكمة للتسيير مما أثر سلبا على الفعالية الإنتاجية للقطاعات الوطنية، ويمكن إبراز أهم القدرات الإنتاجية المحلية للجزائر من خلال استعراض واقع التبادلات التجارية الجزائرية ومدى اتزانها من حيث الواردات والصادرات.

3.1.1. تطور الواردات الجزائرية:

إن الحديث عن الواردات يعني أن حجم الإنتاج المحلي لم يستطع تلبية حاجيات المستهلك، عدم القدرة هذه قد يكون لقلة حجم الإنتاج، لسعره أو لنوعيته، لأن الوضع الاقتصادي الحالي المتميز بتسهيل الواردات جعل هذه الأخيرة محل تفضيل على المنتج المحلي حتى ولو كان هذا الأخير في درجة من الجودة.

إن الجزائر بتطبيقها لتعليمات صندوق النقد الدولي من خلال إجراءات خاصة بمخطط إعادة الهيكلة تمكنت من إعادة التوازن للمجمعات الاقتصادية الكبرى، لكن هذه التوازنات الكبرى لم ترافقها إجراءات لتأهيل المؤسسات الإنتاجية.

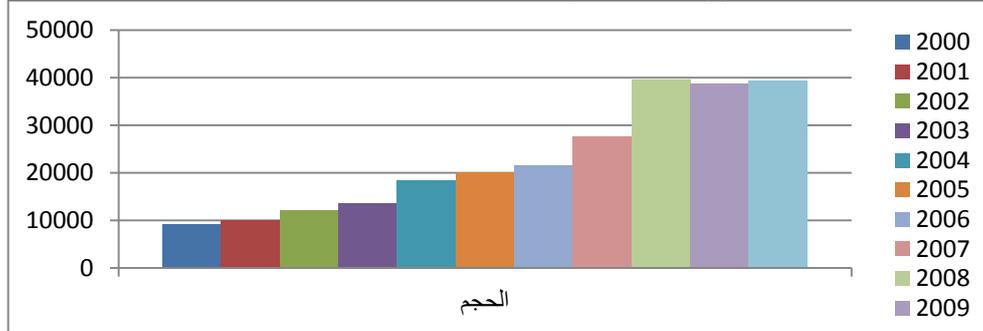
هذا ما جعل مسار تطوير القطاع الإنتاجي المحلي بطيئا أمام تزايد حجم الواردات، هذه الأخيرة التي شهدت تطورا مذهلا حسب إحصائيات المركز الوطني للإعلام الألي الإحصائي كما يبرزه الجدول الموالي:

جدول(1): تطور حجم الواردات الجزائرية(2000-2010) نسبة التطور % /الوحدة مليون دولار

السنة	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
الحجم	9173	9940	12009	13534	18308	20044	21456	27631	39479	38745	39267
نسبة التطور	0.10	7.71	17.22	11.26	20.07	8.66	6.58	22.35	30	1.89-	1.32

Source: Rapport annuelle de C.N.I.S, 2008

، مصلحة الإحصاء، 2011،(Algex)الوكالة الوطنية لترقية التجارة الخارجية
الشكل (1): تطور حجم الواردات الجزائرية (2010-2000)

**المصدر: من إعداد الباحثين بالاعتماد على معطيات الجدول (2).**

هذا الجدول دليل واضح على أن دالة الاستيراد في الجزائر وبصفة عامة- في تزايد مستمر، إذ أن حجم الواردات ازداد في سنتي 2002 و2004 بنسبة تقارب 20% "ما يقارب الخمس" عما كانت عليه سنة 2001، ثم انطلاقاً من سنة 2005 ودالة الاستيراد في تزايد مستمر بالرغم من ذلك الانخفاض الطفيف المسجل سنة 2009، وهذا التزايد المستمر يعكس الصورة الحقيقية والدور المحدود الذي يلعبه المنتج المحلي، وهو أمر لا يمكن إرجاعه إلى ضآلة الحماية الجمركية بل إلى أسباب هيكلية راجعة إلى المؤسسة الاقتصادية الجزائرية سواء كانت خاصة أو عمومية. وفي ما يخص الهيكل العامة للواردات في هذه الفترة حسب المجموعات نجد ما يلي:

جدول(2): هيكل الواردات الجزائرية (2010-2000)

الوحدة مليون دولار

مجموعة الاستهلاك	أغذية	طاقة و زيوت	مواد خام	مواد نصف مصنعة	سلع تجهيز فلاحية	سلع تجهيز صناعية	سلع استهلاكية	المجموع
2000	2415	129	428	1655	85	3068	1393	9173
2001	2395	139	478	1872	155	3455	1466	9940
2002	2740	145	562	2336	148	4423	1655	12009
2003	2678	114	689	2857	129	4955	2112	13534
2004	3597	173	784	3645	173	7139	2797	18308
2005	3570	193	732	3981	186	8333	3049	20044
2006	3800	244	843	4934	96	8528	3011	21456
2007	4945	-	1324	7104	146	10025	3752	27296
2008	7812	-	1393	10015	173	15142	4346	39479
2009	5863	-	1200	10165	233	15139	6145	38745
2010	6027	-	1406	9944	330	15573	5987	39267

المصدر: الديوان الوطني للإعلام الآلي وإحصائيات الجمارك، 2006.

الوكالة الوطنية لترقية التجارة الخارجية (Algex)، مصلحة الإحصاء، 2011.

الملاحظ في الهيكل هو أن مجموع سلع التجهيز الصناعية تحتل نسبة معتبرة من الحجم الإجمالي للواردات [تفوق الربع]، وهي تسجل ارتفاعاً قدر تقريباً بنسبة 40% لسنة 2006، هذه الزيادة شملت بالخصوص مجموعة الحبوب بنسبة 25.7%، لتلبيها الآلات ومواد التشغيل العمومية ويفسر ذلك عموماً بتلك السياسة التنموية القائمة في البلاد بغرض تقوية البنية القاعدية للاقتصاد، كما نلاحظ من خلال الهيكل العامة للواردات أن المواد الغذائية بمختلف أصنافها تحتل المرتبة الثانية من إجمالي الواردات وهذا دلالة كما أشرنا سابقاً إلى اعتماد الجزائر على أحادية الإنتاج المتمثلة في المحروقات وبالتالي تناقص الصناعة الغذائية، أما بخصوص سلع التجهيز الصناعية فهي في تزايد مستمر حيث تضاعفت خمس مرات ما بين سنتي 2000 و2010 لتبلغ ما قيمته 15573 مليون دولار.

ولعل القدرات الإنتاجية لأي اقتصاد تقاس عادة بعد تشخيص نسبة الواردات بنسبة صادرات هذا البلد وهو ما سيتم إبرازه بالنسبة للاقتصاد الجزائري من خلال هيكل الصادرات في الجزئية الموالية.

2.1.3. هيكلة الصادرات الجزائرية:

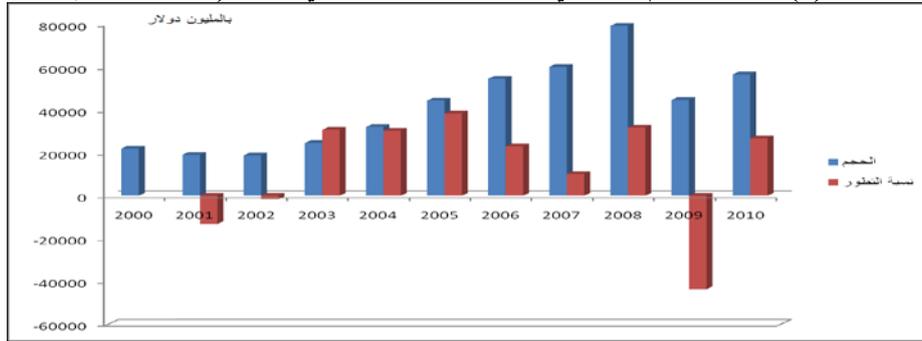
إن التطور الذي لوحظ في حجم فاتورة الواردات لا بد أن يغطي من طرف حجم أكبر من الصادرات، على أن يكون مصدر هذه الأخيرة متنوعا من أجل مجانبية خطر الاقتصاد المعتمد على منتج واحد للتصدير. لكن رغم محاولات ترقية الصادرات خارج المحروقات، إلا أن هذه الأخيرة لا تزال تشكل سنويا نسبة تفوق 95% والجدول التالي يمثل صادرات الجزائر الإجمالية:

جدول(3): الحجم الإجمالي للصادرات الجزائرية (2000-2010)

السنة	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
الحجم	22031	19132	18825	24612	32083	44395	54613	60163	79298	44688	56667
نسبة التطور	43.16	15.15-	1.63-	23.52	23.28	27.73	18.71	9.22	24.13	43.64 -	26.8

Source: Rapport annuelle de C.N.I.S, 2009.

، مصلحة الإحصاء، 2011، (Algex) الوكالة الوطنية لترقية التجارة الخارجية
الشكل (2): تطور الحجم الإجمالي للصادرات الجزائرية في الفترة (2000-2010).



المصدر: من إعداد الباحثين بالاعتماد على معطيات الجدول (3).

نلاحظ من خلال الجدول والشكل أعلاه أن الصادرات الجزائرية سجلت انخفاضا في ما بين سنتي 2000 و2002 لتعاود الارتفاع ابتداء من سنة 2003 وذلك بنسبة مئوية فاقت 23% ثم انخفضت هذه النسبة إلى ما دون 10% سنة 2007 لتعاود الارتفاع ابتداء من سنة 2008 لكن هذا الارتفاع يغلب عليه تصدير المحروقات كون الجزائر ما زالت تعتمد على الأحادية في التصدير وهو ما قد يؤثر عليها كثيرا في علاقتها التجارية الخارجية حيث يستحوذ قطاع النفط على حصة الأسد في الصادرات الجزائرية على عكس الصادرات الأخرى خارج المحروقات التي تسجل نسبا ضئيلة جدا، وبالنسبة لسنة 2009 سجل انخفاض محسوس في حجم الصادرات الإجمالي للجزائر قارب 40% وهو ما يعزى بشكل أساسي لإرهاصات الأزمة المالية العالمية وما سببته من كساد اقتصادي عالمي أثر على نسبة الصادرات الجزائرية. أما ابتداء من سنة 2010 تم تسجيل ارتفاع في نسبة الصادرات خاصة المحروقات بسبب ذلك التعافي الذي شهده الاقتصاد العالمي. إذن تبقى الصادرات الطاقوية بجميع أنواعها هي الغالبة على مكونات الصادرات نحو الخارج وعليه فالنتيجة الأساسية المستوحاة من هذه الأرقام هي أن الاقتصاد الجزائري لا يزال اقتصادا يعتمد على الربيع البترولي لتغطية الواردات المتزايدة سنويا. وهو ما توضحه حالة الميزان التجاري في الجدول أدناه:

جدول(4): تطور الميزان التجاري الجزائري في الفترة (2000-2010)

القيمة بمليون دولار

البيان	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
الواردات CFF	9173	9940	12009	13534	18308	20044	21460	27631	39479	38745	39267
الصادرات FOB	22031	19132	18825	24612	32082	34395	54610	60163	79298	44688	56667
الميزان التجاري	12858	9192	8616	11078	13775	14351	33150	32532	39819	5943	17400
نسبة %التغطية	240	192	157	182	175	221	255	217	200	115	144

Source: Rapport annuelle de C.N.I.S, 2009.

الوكالة الوطنية لترقية التجارة الخارجية (Algex)، مصلحة الإحصاء، 2011.

فنلاحظ من خلال الجدول أعلاه أنه في سنة 2000 تواصل نمو الفائض التجاري بأحجام أسعار المحروقات وقد بلغ هذا الفائض 12858 مليون دولار وبلغت قيمة الواردات 9173 مليون دولار أي بارتفاع قدر بـ 4% بالمقارنة مع نفس الفترة لسنة 1999 في حين بلغت قيمة الصادرات 22031 مليون دولار أي بارتفاع قدر بنسبة 56.32% مقارنة بنفس الفترة لسنة 1999 ووصلت تغطية الصادرات للواردات بنسبة 240%، أما في السنتين المواليين أي 2001 و2002 انخفضت

الصادرات إلى 19132 مليون دولار ثم إلى 18825 مليون دولار على التوالي وارتفعت الواردات إلى 9940 مليون دولار و12009 مليون دولار على التوالي وهذا ما أدى إلى انخفاض الميزان التجاري إلى 9192 مليون دولار أي بنسبة تغطية 192% سنة 2001 ثم انخفضت إلى 8616 مليون دولار سنة 2002 وبنسبة تغطية 157%، لتستمر نسبة تغطية الصادرات للواردات في الارتفاع نسبيا إلى غاية سنة 2008.

لكن هذا الارتفاع وإن دل على تحسن الميزان التجاري الجزائري من جهة، فإنه ومن ناحية أخرى يعبر على أن المنتج الوطني لم يستطع التكيف بعد مع متطلبات المنافسة المفروضة من طرف قواعد اقتصاد السوق، من أجل هذا أقدمت الجزائر على توقيع اتفاق شراكة مع الاتحاد الأوروبي من أجل تدعيم وتشجيع المبادلات بين الجزائر ودول المجموعة الأوروبية. لكن هذه المبادلات ما بين الجزائر والشريك الأوروبي لازالت تعترضها العديد من المشاكل والصعوبات نتيجة تمسك الشريك الأجنبي ببعض العراقيل الفنية للمنتجات كالمعايير البيئية المتشددة التي يفرضها على المنتجات الجزائرية مما يؤثر على المتعاملين الاقتصاديين الجزائريين في مجال الصادرات.

2.3. تأثير الاشتراطات البيئية الأوروبية على المتعاملين الاقتصاديين الجزائريين:

منذ دخول اتفاقية التعاون التجاري ما بين الجزائر والاتحاد الأوروبي حيز النفاذ مطلع سبتمبر 2005 اتجهت الجزائر إلى تكثيف تعاملاتها مع دول هذا الاتحاد عن طريق المبادلات التجارية وفي منتجات مختلفة ما بين الشريكين، لكن وبسبب الوزن الاقتصادي المرتفع للمتعامل الأوروبي إذا ما قورن بدول جنوب المتوسط على غرار الجزائر، أصبح هذا المتعامل يستخدم بعض الأدوات الحمائي في التجارة الخارجية ممثلة خصوصا في المعايير البيئية المتشددة اتجاه صادرات هذه الدول على غرار الجزائر، وسوف يتم في هذا الإطار إبراز بعض تلك الممارسات وهذا بعد عرض لهيكل المبادلات التجارية بين الجزائر ودول الاتحاد الأوروبي في المنتجات داخل وخارج المحروقات من خلال الجدول أدناه:

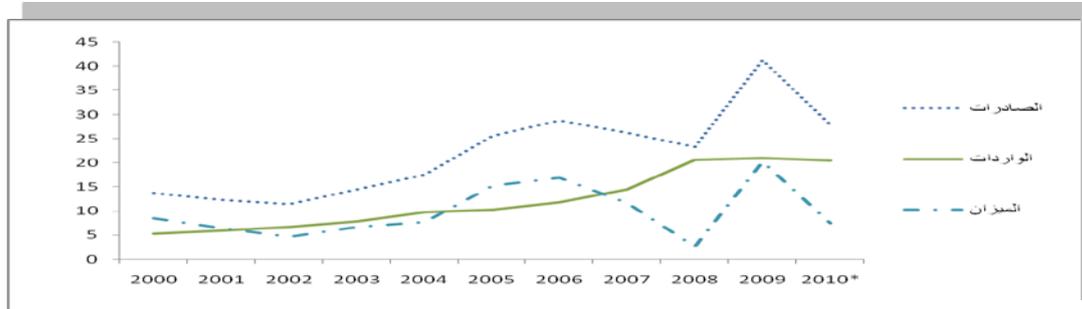
جدول(5): المبادلات التجارية الخارجية بين الجزائر والاتحاد الأوروبي (2000-2010)

القيمة بمليار دولار (Valeurs en milliards \$ US)

السنة	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	*2010
الصادرات	13,78	12,34	11,47	14,52	17,59	25,55	28,75	26,20	23,33	41,27	27,94
الواردات	5,25	5,89	6,72	7,77	9,78	10,25	11,82	14,43	20,65	20,98	20,47
الميزان التجاري	8,53	6,45	4,75	6,75	7,81	15,30	16,93	11,77	2,68	20,29	7,47

المصدر: الوكالة الوطنية لترقية التجارة الخارجية (Algex)، مصلحة الإحصاء، 2011.

*فيما يخص قيم سنة 2010 فهي عبارة عن إحصائيات تقديرية (Provisoire)



الشكل(3): تطور المبادلات التجارية الخارجية بين الجزائر والاتحاد الأوروبي (2000-2010)

المصدر: من إعداد الباحثين بالاعتماد على معطيات الجدول (05).

من خلال الجدول والشكل أعلاه نجد أن فاتورة الصادرات الجزائرية إلى دول الاتحاد الأوروبي شهدت انخفاضا بحوالي 2 مليار دولار ما بين سنتي 2000 و2002 إذ بلغت سنة 2000 ما قيمته 13.78 مليار دولار لتتراجع هذه القيمة وتصبح أقل من 11.5 مليار دولار سنة 2002، لكن انطلاقا من سنة 2003 شهدت هذه الفاتورة ارتفاعا محسوسا قارب معدل ارتفاع 50% ما بين سنة 2003 إلى 2006، حيث تزايدت فاتورة الصادرات من 14.52 مليار دولار إلى 28.75 مليار دولار في السنتين المذكورتين على التوالي، ثم ابتداء من أواخر سنة 2007 وبدايات سنة 2008 شهدت هذه الفاتورة من الصادرات انخفاضا محسوسا قارب 5 مليار دولار ما بين هذين السنتين وذلك بسبب إرهابات الأزمة المالية العالمية وما سببته من كساد في غالبية دول الاتحاد الأوروبي والذي انعكس على انخفاض الطلب على الصادرات النفطية الجزائرية لتعاود هذه الفاتورة في الارتفاع بسبب التعافي الذي شهده الاقتصاد العالمي مطلع سنة 2009.

أما بخصوص الواردات الجزائرية من دول الاتحاد الأوروبي فنجد أن فاتورة الواردات في ارتفاع مستمر من سنة إلى أخرى حيث انتقلت فاتورة الواردات وتضاعفت حوالي 4 مرات ما بين سنتي 2000 و2010 إذ انتقلت من 5.25 مليار دولار سنة 2000 إلى حوالي 21 مليار دولار سنة 2010 وهذا كدلالة واضحة على ذلك الضعف الذي لازالت تعاني منه الصناعة التصديرية الجزائرية حتى تجابها بها الواردات من المنتجات الأجنبية إلى الأسواق الجزائرية هذا من جهة، أما من جهة أخرى فنجد أن المتعامل الأوروبي يعتمد في معاملته مع الجزائر على بعض الممارسات الخفية التي تحول دون

وصول صادرات الجزائر إلى دوله على غرار التعتت في تطبيق المعايير البيئية ومتطلبات الجودة في المنتجات خاصة الكهرومنزلية منها.

وحتى لا يفقد المصدرين الجزائريين حصصهم من الأسواق العالمية عموما والأسواق الأوروبية على وجه الخصوص كان لابد من تشخيص حقيقي لمجمل العوائق التي يعانون منها، ومن تم تبيين الحلول الكفيلة بتجاوزهم لهذه العقبات حتى يرفع هؤلاء المصدرين والمتعاملين الاقتصاديين الجزائريين من تنافسية المنتج الوطني وهذا ما سيتم إبرازه في الجزئية المالية من الدراسة.

3.3. المشاكل والحلول الكفيلة بتسهيل نفاذ الصادرات الجزائرية إلى الأسواق الدولية:

1.3.3. عراقيل ومشاكل نفاذ الصادرات الجزائرية:

إن من بين أهم العراقيل التي يعاني منها المصدر الجزائري على المستوى الدولي يمكن ذكر مايلي:

- تزايد القيود الجمركية وتنامي التكتلات الاقتصادية.
- عدم موافقة تقنيات المنتجات في الأسواق العالمية.
- مشاكل ارتفاع سعر البيع مما يصعب مهمة الترويج للمنتجات والتعريف بها.
- مشكل التعبئة والتغليف للمنتجات المعدة للبيع.
- التقدم التكنولوجي والفني وما يثيرانه من تحديات في مجال تطوير الإنتاج، وتدنية التكاليف وأسعار البيع إلى درجة إغراق السوق، والقدرة على التأثير في أذواق المستهلكين باستخدام أساليب علمية حديثة ومتطورة من طرف البلدان المتقدمة.
- مشاكل نقدية: وهي مخاطر أخرى تعاني منها المؤسسات الجزائرية وتكون هذه المخاطر مرتبطة بالمعاملات الدولية التي تتم بالعملة الصعبة بوجود نظام مالي قائم على أسعار صرف متقلبة وكمثال على ذلك مشكلة انهيار أسعار الصرف.

2.3.3. أهم الحلول الكفيلة بتسهيل نفاذ الصادرات الجزائرية:

إن من بين الحلول الكفيلة بتخفيف آثار الاشرطاطات البيئية في العلاقات التجارية والاقتصادية الدولية والتي تحول دون نفاذ صادرات المنتجات الجزائرية إلى الأسواق العالمية نذكر مايلي:

- ضرورة بقاء المؤسسات الاقتصادية الجزائرية على إطلاع شامل حول الأسواق الخارجية لمواكبة التطورات المستحدثة فيها ومحاولة الاستقرار في تلك الأسواق حتى لا تتعرض منتجاتها للمنافسة الحادة والتخلف التكنولوجي وهذا ما يجرها الى الكساد.
- يستحسن للمؤسسات الاقتصادية الجزائرية الاعتماد على الكفاءات والمهارات المحلية للجزائر وكذا مواردها البشرية لاكتساب تكنولوجيا حديثة وتحصيلها والبحث في تطويرها للخروج من التبعية.
- تكييف تعبئة وتغليف السلع المعدة للتصدير حسب وسيلة النقل المستخدمة لنقلها.
- استعمال الوسائل المحفزة على غرار استخدام العبوات الجذابة، إدراج جملة معبرة أو إشارة الى زيادة في الوزن أو تخفيض السعر...، والتي من شأنها إقناع المستهلك الأجنبي على اقتناء المنتج الجزائري.
- إنشاء هيئة على مستوى المؤسسة تأخذ على عاتقها مهام إيداع وتقديم منتج يتحلى بكل المواصفات ومقاييس الجودة التي تتوفر في المنتجات المنافسة الموجودة في الأسواق العالمية، كما تقوم بإعادة النظر في سياسة التسعير لجعل المنتج لا يتأثر بالتكاليف الناجمة عن استخدام الجودة، دون أن ننس المساعدات المالية التي يجب أن تقدمها الهيئات المصرفية.
- إيجاد برنامج تصدير فعال يخدم المؤسسة الاقتصادية من خلال تنمية صادراتها على المدى الطويل.
- تأسيس وكالات تجارية تقوم بما تقوم به الممثلات التجارية والدبلوماسية والتي تهدف أساسا الى ترقية القطاع التصديري الجزائري.
- إنشاء مصلحة التصدير والتي تمثل فرع من فروع مصلحة التسويق، فمصلحة التصدير تتكفل بهيكله عملية التصدير من خلال جمع المعلومات من الأسواق الخارجية، هيكلتها وتزويد كل قسم من أقسام المؤسسة بها.

خاتمة:

لقد خلصت هذه الدراسة الى حقيقة مفادها أن المعايير البيئية تؤثر على وضع الدولة التجاري سواء تعلق بالمنتجات أو بالأساليب الإنتاجية، كما قد تؤثر كذلك على الدول الأخرى المتعاملة معها، ويلاحظ أنه وإن كانت الأهداف المعلنة من استخدام المعايير البيئية لغرض حماية البيئية، فإن غالبها يوظف كورقة حمائية جديدة، ضمنية ومقنعة تقف عائقا أمام نفاذ صادرات الدول إلى الأسواق الخارجية.

وفي ختام هذه الورقة كذلك لا يسعنا أيضا إلا أن نقول أنه رغم مضي أكثر من عشر سنوات من انتهاج الجزائر للسياسة الاقتصادية الانفتاحية، إلا أن مؤسسات الاقتصاد الجزائري لا تزال بعيدة نوعا ما عن تطلعات الدولة الجزائرية نحو التحرير التام للمبادلات التجارية الخارجية في ظل بوادر الانضمام الى المنظمة العالمية للتجارة فمتطلبات الاشرطاطات البيئية كبعد مهم من أبعاد التنمية المستدامة لا زالت تكبل صادرات هذه المؤسسات الى الخارج.

وإذا استمرت غالبية المؤسسات الجزائرية على هذا المنوال ستجد نفسها مجبرة ومضطرة للخضوع الى قوانين جديدة وبيئة متغيرة، وفي النهاية هي في حاجة الى حوض معارك المنافسة التي تفرض عليها شروطا لم تكن قد ألفتها من قبل ولم تكن

تعرفها، وما تلبث أن تجد تلك المؤسسات نفسها عاجزة عن تصريف منتجاتها إلى الأسواق الدولية بسبب حتمية خضوع هذه المنتجات الى المواصفات والمقاييس المحددة في هذه الأسواق من حيث الجودة، التغليف، التعبئة وكيفية تقديم المنتج والتي لا تتحلى بها غالبا المؤسسات الجزائرية.

وعلى ضوء ما سبق يمكن تقديم الاقتراحات والتوصيات التالية:

- تأسيس معاهد مكلفة بتكوين إطارات متخصصة في التسويق الدولي، توكل لها مهمة اختيار الطريقة المثلى لبيع المنتج الجزائري وإيصاله الى الأسواق الخارجية مصمما حسب أذواق المستهلكين الأجبيين مع متابعة نوعيته، كما تقوم بحساب نسبة الخسارة المحتملة.
- يجب على المؤسسات الجزائرية أن تحاول جاهدة على تسليم البضائع سليمة وفي الظروف الحسنة التي يفرضها المستورد الأجنبي بالإضافة إلى إحترام مواعيد التسليم، وهذا كله بغية ترك انطباع جيد لدى المتعاملين الأجبيين.
- يتعين على المصدر في حالة وصول البضاعة الى المستورد تالفة جزئيا أو كليا تقديم مستندات ووثائق تثبت كون البضاعة سليمة لدى مغادرتها ميناء الشحن حتى تتجنب مضايقات مستندة على الاشتراطات البيئية.
- تكييف القانون التجاري بما يخدم مصالح المصدرين ويساعدهم على اقتحام الأسواق الخارجية.
- يجب على الدولة أن تقوم بمتابعات مالية مستمرة للمؤسسات الاقتصادية الجزائرية وكذا تغطية المخاطر من جهة ووضع تسهيلات للبنوك من أجل مساندة المصدرين ووصولهم للهدف المرغوب فيه من جهة أخرى.
- تسهيل آليات العمل بين البنوك والمؤسسات المصدرة من خلال تخفيض أسعار الفائدة بالنسبة للتمويل الموجه للتصدير مع تمديد آجال تسديد القروض الممنوحة له.
- تنسيق عمل البنوك وشركات التأمين في مجال التصدير من أجل تخفيض عبئ التمويل على المصدرين وكذا التأمين، البحث، الترويج... الخ.
- إجراء دراسات وبحوث متعلقة بالأسواق الخارجية، المنتجات المنافسة، الأسعار....، وتقييمها مما يساعد على إمكانية التصدير، وكذا المشاركة في المعارض والصالونات المقامة في الخارج.
- تحديد أسعار بيع المنتجات الجزائرية بطريقة عقلانية بحيث يكون مقبولا لدى المستهلك الأجنبي فلا يكون مرتفعا جدا مما يجعله يقصى من المنافسة ولا يكون منخفضا جدا كذلك حتى يبعث الشك في نوعية المنتج.
- العمل على تسريع وتخفيف الإجراءات الجمركية قدر المستطاع لدى استيراد المواد الأولية المعدة للإنتاج أو تصدير السلع الى الخارج.

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AGRICULTURE AND THE EFFECTIVENESS OF SUPPORT POLICIES IN ALBANIA ON FOCUS: FRUIT PRODUCTION

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Abstract

This study refers to some very important issues regarding the support policies applied generally on agriculture and mainly on fruit production as a developing strategic sector. It aims to analyze the impact of applied support schemes, for a sustainable agriculture sector and evaluate the development of fructiculture. The application of direct support schemes, aiming to intervene on the improvement of agriculture technology, drainage and irrigation, increased numbers of orchards inventory and storage capacities in order to increase production and quality, it looks to be the main trend of development. The study contributes on the increased knowledge over the impact of actual support schemes in the region and gives recommendations on different options over the effects of agriculture support schemes. The research paper will be conducted based on a detailed review of the available literature, in order to determine clearly the situation of the applied support policies and its effects on the development of agriculture and fruit production.

Keywords: Agriculture policies, rural development, policy instruments, Albania

Introduction

Successive reforms of agricultural policy in Albania have progressively and significantly changed the way support is delivered to farmers. Until 2007 agricultural policy support in Albania was characterized primarily by indirect support, focusing mainly on the rehabilitation of infrastructure, establishment of a friendly business environment, support services to farmers and institutional strengthening. Indirect support comprises the relative lack of credit and grants directed by the government to farmers. The direct payment schemes were firstly introduced by the Ministry of Agriculture lately on 2007, consisting mainly in the introduction of new technologies, support of BIO products, greenhouses, fruit production, production of extra virgin oil, citrus fruit, followed by the introduction of interest rate subsidies, loans for agriculture mechanics, etc. Nowadays, a larger financial support is considered a strategic priority for the development of agriculture and agro-business sector, in order to enable and accelerate farm and business modernization to increase productivity and competitiveness. The EU agricultural policy has been considerably improved in the last years, providing a better value for money by supporting and targeting more accurately what taxpayers, consumers and producers have demanded, including more market orientation and increased competitiveness, direct support to producers in order to deliver positive externalities of agriculture and more incentives to improve standards and promote sustainability of rural areas. In this context, Albania as a candidate country that aspires to be a member of the EU, need to familiarize with the agriculture policies applied by this important organism. Therefore, investments and technical assistance are two important pillars in order to develop agriculture sector in Albania.

This paper begins with a brief look of the evolving role of the agriculture in the economy of Albania, followed by the importance of fruit production sector as a developing strategic sector. It also analyses the rural development indicators such as rural population, employment in agriculture, age structure and education, land area, agriculture irrigated land, etc. The last part of the research paper handles different issues such as the transparency of direct support from the respective government institutions and the information of the farmers regarding the application process.

The purpose of the study is to evaluate the impact of support schemes on fruit production and farm structure and to investigate the potential effects of the implementation of direct and indirect support policies in the future. The paper assists farmers with the necessary information regarding the application process for subsidies and the required documentation. The application of direct support schemes stimulates the sustainable growth of agriculture production and affects the income growth of the farms, as a basic step for the development of the sector.

Agriculture Sector Performance & Rural Development Indicators

Agriculture is one of the most important sectors of the Albanian national economy. Actually its contribution it is estimated at 22% of the GDP. Referring to the main development indicators of the World Bank on the Albanian agriculture, it is observed that the % of GDP during the period 2007 – 2009 has been decreased, as shown in Figure 1.

Figure 1: Agriculture value added (% of GDP)

Indicator	2007	2008	2009	2010	2011	2012	2013
Agriculture value added (% of GDP)	17.1	19	19	21	21	22	22

Source: Ministry of Agriculture, Food and Consumer Protection

The decreased contribution of the sector has come because of the slow growth of agriculture and the rapid growth of the other sectors of the Albanian economy. During the period 2011 – 2013, there is an increase in the contribution of the agriculture sector on the Albanian economy, as a result of the effects of the introduction of direct support schemes and the intervene of the Albanian Government in order transform agriculture into a strategic sector of the economy.

During the last five years the real mean growth of agriculture production is estimated to be about 4%. Migration from rural areas, land ownership problems, limited size of farms, product marketing, irrigation and drainage, low and old technology levels and weak organization of farmers are the main problems that the sector is facing for years.

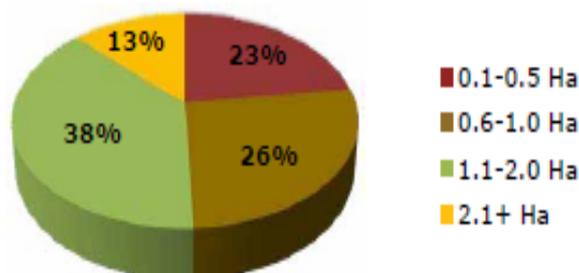
Rural families continue to dominate the national economy and about 50% of the population lives in the rural areas. The rural population is mainly dominated by young people. Official data from INSTAT, suggest that about 15% of the rural population is younger than 15 years old, 73% is between 15 and 64 years old and about 12% is older than 65 years.

Agriculture remains the main working alternative of people that live in rural areas. In the last ten years the contribution of the agriculture sector on the employment has been decreased from 47.6% in 2008 to 44.1% in 2013. Different data show that the working force on agriculture is decreased over the last years, because of migration of young people in urban areas and limited possibilities for young people to follow high school or university.

Regarding the education, there is a huge difference on the level of education between the urban and rural population, of adult people. In traditional rural areas only 1/3 of the population has completed the education of high school or university, while in urban areas this coefficient is very high, counting about 68%.

The farm Structure in Albania is characterized from a high number of agriculture farms but small in size. Even though the number of farms has been decreased from 418 000 in 2000, to 350 916 in 2013, still it is considered to be very high. The figure below shows the average size of household farms.

Figure 2: Agricultural Households



Based on figure 2, the average size of household farms in 2012 was estimated at 1.2 ha, varying from 0.7 ha in mountainous areas to 1.6 in the lowland areas. The agriculture sector in Albania suffers from small size of farms and the fragmentation of farm land, which is considered to be an important barrier of agriculture production and marketing.

The total agricultural land represent 24% of the total (696 000 ha) area of the country, as shown in figure 3. Around 43% of the total agriculture land is in lowland areas, while 23% of the agriculture land is in the mountainous areas and are mainly dedicated to the production of orchards.

Figure 3: Land Structure in (1000 ha)

Description	2000	2005	2010	2011	2012
Agriculture land	699	699	696	696	696
In %	24%	24%	24%	24%	24%
Forestry, pasture	2176	2176	2179	2179	2179
In %	76%	76%	76%	76%	76%
Total Land	2875	2875	2875	2875	2875

Source: Ministry of Agriculture, Food and Consumer Protection

Irrigation and drainage is another important indicator of the agriculture and rural development. The Albanian infrastructure is designed for ensuring irrigation of 360 000 ha, the drainage of 280 000 ha and protection from flood of 130 000 ha. Actually the total area that has been designed to be covered by the drainage system is about 220 000 ha, but there is the need for maintenance every three year. Rehabilitated dams for irrigation are 80, out of a total of 626 dams. Figure 4, shows the total agriculture irrigated land in %. As we see, since 2009 until 2013 the total agriculture land irrigated has been almost the same.

Figure 4: Agriculture Irrigated Land

Indicator	2009	2010	2013
Agriculture Irrigated Land (% of total agriculture land)	16.8	17	17

Source: World development indicators 2013. The World Bank

Even though, the Albanian Government has been focused on improving the irrigation and drainage system by financing different projects, still the situation of the irrigation system and its management does not ensure to the farmers the quantity and duration of water needed.

The Performance of Fruit Sector as a Developing Strategic Sector

In plant production, fruits and vegetables cover 60% of the total production, while the remaining 40% of production is covered from cereals, industrial crops and potatoes. The production of permanent crops, mainly fruits, olives and grapes have undergone through a big

expansion, followed by a consolidated trend that has led to an increase of the cultivated area, production and yields. As shown in figure 5, in 2012 the number of fruit trees was around 11,607,000 with a total production of 210,000 ton and yield of 23.4 kg/tree. The demand for fruits has been increased during the last 10 years. The consumption of fruits has been increased from 75kg/person to 115kg/person. The domestic market of fruits it is expected to grow, while the total value of the whole chain it is expected to undergo to a huge increase in value and volume. The total cultivated area with fruits it is estimated to be 14 500 ha. In terms of contribution on the value of production, apples are the most important with a share of 32%, followed by cherries 20% and plums 12%. The production of fruits is well distributed in most of the country, based on weather conditions and local tradition. Figure 5 represents specific findings on the increased number of fruit trees, yield and production from 2005 – 2012, in Albania.

Figure 5: Number, yield and production of fruit trees

Description	2005	2009	2010	2011	2012
Fruit trees					
Total (000 trees)	7,120	9,882	10,190	11,225	11,607
In production (000 trees)	5,370	7,319	7,439	8,313	8,992
Yield (kg/tree)	17.2	20.5	22.6	22.6	23.4
Production (000 ton)	90	150.4	167.8	188.1	210

Source: Ministry of Agriculture, Food and Consumer Protection

It is to be mentioned that the increase on production of fruits and number of orchard trees, has come as a matter of the ongoing support policies applied by the government in order to transform this sector into a strategic one. Korca region is considered to be the most productive region in terms of production by orchard, estimating 52 236 trees. This region it is mainly known for apple production. Even though the yield of fruit trees has grown permanently, still remains in low levels compared to other EU members. The inappropriate application of the production techniques and inputs are a limiting factor for the sector development.

Actual Policy Instruments Applied

Agriculture and Food Sector Strategy 2007 – 2013 is the main official document of the Albanian Government for the development of agriculture and agro-processing sector. Based on this document the agricultural policy of the government has stated the following strategic priorities:

- To increase the financial support to farms and agricultural businesses with special emphasis on fruit trees, vineyards, vegetables, industrial processing of fruits, vegetables, grapes etc.
- Improve management, irrigation and drainage of land
- Improve the marketing of agricultural products
- Improve agriculture technology level, information and knowledge of farmers
- Increase the quality and safety of agricultural and agro-processing products

The legal framework for Agriculture support and Rural Development is based on the Law for Agriculture and Rural Development No 9817/22.10.2007. It defines the program of the objectives and the support measures for agriculture and rural development. According to the law provisions, every year is prepared a National Action Plan that defines the measures for the implementation of agriculture development policies. According to this law the beneficiaries of the support schemes are;

1. Individual farmers or farmer groups, or any other legal entities involved on the agriculture activity.
2. Legal entities or individuals involved in the agro-processing industry

3. Individuals or legal entities that offer different agriculture services or any other rural activities.

Until 2007, agricultural policy was characterized as an indirect support, focusing mainly on the rehabilitation of infrastructure, establishment of friendly business environment, support to farmer's services and institutional strengthening. The direct payment schemes were firstly introduced by the Ministry of Agriculture, Food and Consumer Protection in 2007. According to this decision, farmers who planted fruit trees, grapes and olives more than 3dynam were eligible to receive 50,000 ALL per dynam for grapes and 35,000 ALL per dynam for fruit trees. During these years a lot of eligible applicants that fulfilled the defined were financially supported, counting 4 milliard ALL, until 2011. Different financial instruments are used for years in order to expand the cultivated area of fruit trees and increase production. Production of orchard has been developed sustainably as a result of the improved technology and support policies of the Albanian Government. A loan scheme with subsidy interest for a period of 7 years was introduced for the first time on the national schemes, for the finance of different projects on agriculture and agro-industry. From this new scheme benefited 10 private entities. Since 2007, the level of support towards the number of schemes applied and the number of farmers that benefited has been increased rapidly. Figure 6, identifies the financial support of agriculture and the number of farmers that applied on the support schemes from 2007 to 2012.

Figure 6: Financial support of agriculture, number of applications

Support schemes	2007	2008	2009	2010	2011	2012
No of schemes	3	13	17	11	17	20
No of applicants	3178	8614	12051	10090	14783	11340
No of beneficiaries	2109	7603	10854	8045	4078	7729
New plants in total (ha)	1169	1772	2536	2523	1929	2763
Planting of olive trees (ha)	337	706	1590	1848	1981	1616
Planting of nuts (ha)	0	0	0	0	465	662
Planting of vineyards (ha)	276	247	201	119	52	66
Planting of fruit trees (ha)	556	819	744	555	206	174

Source: Ministry of Agriculture, Food and Consumer Protection

Referring to figure 6, in 2007 the number of schemes applied by the Albanian Government was 3, supporting mainly the plantation of new fruit trees, olive trees and vineyards, while in 2012 the number of these schemes has been increased to 20, expanding the range of support. The number of farmers applying for support schemes in 2007 was 3178, followed by 2109 beneficiaries, while in 2012 applied 11340 and benefited 7729. If we analyze the data shown in figure 6, we can see that the number of new plantations has been increased, but if we compare the number of farmers that benefited from direct support schemes of agriculture and the amount of support, it can be said that the number of new plantations should have been higher. Almost 70% of the budget for agriculture support during the last 5 years is being used for the plantation of new fruit trees, vineyards, olive trees and the improvement of the irrigation and drainage system.

The actual support schemes of agriculture applied by the government for the development of the sector are as follow:

1. For the planting of olive trees, is supported 250,000 ALL/ha, for the intensive form of planting and 180,000 ALL/ha for traditional plantings
2. For planting of nuts, is supported 250,000 ALL/ha, with grafted seedlings and 180,000 ALL/ha planting without grafting.
3. For extensive plantings of hazelnuts and pomegranate is supported 180,000 ALL/ha
4. For the planting of apple trees, pears, plums, cherries, peaches and quinces is supported 200,000 ALL/ha
5. For the planting of vineyards is supported 250,000 ALL/ha

6. For the drip irrigation method of fruit trees, olives is supported 250,000 ALL/ha. The minimal planted area should be higher than 5 dynym.
7. The support through subsidies of 70% of the interest rate, for 5 years, for agriculture loans up to 25,000,000 ALL that will be used for the storage and processing of agriculture products, livestock, fungus and medicinal plants and agriculture technology.

Impact of Policy Instruments on Sector Performance

Different financial instruments are used for years in order to expand the cultivated area of fruit trees and increase production. The Albanian government allocated about 6.8 million Euros in 2013, for direct support and national investment schemes in agriculture and agro-processing industry. Agricultural production in 2012 increased slightly, mostly due to the improved production in fruit trees and olives. The figure below shows the number of farmers that benefited from the support schemes and the amount in Euros.

Figure 7: Number of beneficiaries and the financing of each scheme during 2013

No	Support scheme	No of beneficiaries	Finance in Euro
1	Planting of olive trees	3,358	2,311,217
2	Planting of nuts	1,092	850,685
3	Planting of fruit trees	433	240,702
4	Planting of subtropical trees	162	156,549
5	Planting of grapes	171	116,717

Source: Ministry of Agriculture, Food and Consumer Protection

The growth of the sector is linked to the government direct support schemes that have encouraged the planting of new trees. The positive impact of the plantings on 2006, 2007, 2008 and 2009 are reflected on the production of 2012 and 2013, because of the fruit trees entering in production in these years. More specifically, the growth of production for 2012 and 2013 has arrived from:

- Constant improvement of crop techniques
- Government financial support
- The entrance of new plants in production, such as 620,000 fruit trees, 150,000 olive trees, 40,000 citrus trees and 296 ha grapes.

Support policies for agriculture and rural development have contributed positively on the economic and social development of the agriculture and rural communities. The application of direct support schemes have resulted effective on the increased area of the arable land, and the increased average size of the agricultural farms. Also support policies have contributed positively on the increased economic efficiency which is expressed through an increase in the productivity and the quality of products. The utilized agriculture area has been increased with 24 000 ha, 6% higher than 2007, because of the support for the plantation of 15,000 ha with new fruit trees. Following the positive trend of the agriculture sector, it is estimated that in the following year's production inputs, such as land, water, genetic resources, fruit trees and agricultural environment will be managed carefully and effectively, due to the increased support measures of the Albanian Government.

Conclusion

Failure to treat agriculture as a priority sector in the last 20 years, has implied the consequence that government support for agriculture to be below the required levels. Based on that, it is necessary more adequate support for economic growth and poverty reduction.

Since the introduction of direct support schemes in 2007 we can say confidently that the introduction of direct payments have accelerated new trends of development of the Albanian agriculture.

Direct support measures have affected positively farm structure, irrigation and drainage systems and increased the contribution of agriculture in the Albanian economy.

The nature of support followed by the Albanian Government in the last 5 years (payment per hectare) has stimulated the restructuring of the agriculture towards an increase of the fruit and vegetable production.

The diversity of rural areas requires approaches that are targeted to specific local conditions. Hence rural development objectives need precise definitions and clearly stated priorities at local levels.

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THE RELATIONSHIP BETWEEN ANTI-THYROIDAL PEROXIDISE ANTIBODIES AND THYROID HORMONES (T3, T4 AND THYROID STIMULATING HORMONE TSH) AMONG PATIENTS WITH AUTOIMMUNE THYROID DISEASE

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Abstract

Objectives: This Study was designed to investigate the role of the auto antibodies against thyroid peroxidase (TPO-Abs) and thyroid Hormones (T3, T4, TSH) in pathogenesis of Autoimmune Thyroid Disease (AITD).

Methodology: Blood parameters of (90) individual who were attended to hormonal centre at AlSadder Medical City, in the period from January 2013 to June 2013 were measured, which includes Triiodothyronine (T3), Thyroxine or Tetraiodothyronine (T4), Thyroid Stimulating Hormone (TSH) and auto antibodies of thyroid peroxidase (TPO-Abs), the biostatic use difference between the maximum and minimum values (range).

Results: the search results showed no significant increase in the rate of thyroid hormones (T3, T4, TSH) ($p>0.2$).

Conclusion: The auto antibodies of thyroid peroxidase has no rule in function of thyroid hormones.

Keywords: Autoimmune Thyroid Disease (AITD), thyroid hormones (T3, T4, TSH), anti-thyroid peroxidase-Abs (TPO-Abs)

Introduction

Autoimmune thyroid diseases (AITDs), including Graves' disease (GD) and Hashimoto's thyroiditis (HT), are caused by immune response to self-thyroid antigens and affect approximately (2–5%) of the general population. Genetic susceptibility in combination with external factors, such as smoking, viral/bacterial infection, and chemicals, is believed to initiate the autoimmune response against thyroid antigens ⁽¹⁾. Autoantibodies to thyroid peroxidase (TPO) are reflections of thyroid disease rather than causative agents . Hence, such thyroid autoantibodies may develop before the onset of clinical (AITD) and have been long known to increase the risk of developing clinical (AITD). Indeed, up to (50%) of the siblings of patients with (AITD) are thyroid antibody positive in contrast to (~15%) in the general

population⁽²⁾. Thyroxine (T4) and triiodothyronine (T3) are vital for normal growth and development and control essential functions , such as energy, metabolism and protein synthesis while reverse triiodothyronine (rT3) is inactive hormone⁽³⁾. TSH (Thyroid Stimulating Hormone) is also known as thyrotropin. which increases thyroid secretion⁽⁴⁾. The secretion of TSH is controlled by:

- Circulating concentration of thyroid hormones.
- Thyrotrophin-Relasing Hormones (TRH)⁽⁵⁾.

The metabolic manifestations of the thyroid disease related to either excessive or inadequate production of thyroid hormones (hyperthyroidism and hypothyroidism, respectively)⁽⁶⁾.

Blood tests: Usually includes measurement of: serum T4 and T3, resin T3 uptake, T4 binding ratio, free T4 index, TSH, and antithyroid antibodies level⁽⁷⁾.

Objectives

Perverse study was performed on (90) individual who were attended to AlSadder Medical City, in the period from January 2013 to June 2013. Three study groups were investigated which included: First group: Thirty patients with Hypothyroidism of both sexes (26 female and 4 male) their ages >15 years old. Second group: Thirty patients with Hyperthyroidism of both sexes (20 female and 10 male) their ages >15 years old. Third group: Thirty people as a control group who had no history or clinical evidence of any acute and chronic disease. All sample were kept for few minutes to allow the clotting form. Serum was separated by centrifugation at (1500) rpm and divided into small (200 µl) aliquots and kept at deep freeze (-20 C°) to be used for different investigations by us ELISA technique.

Results

The result of this study consist of (90) patients, (30) of them having Hashimotos disease and (30) of them Graves disease and (30) controls. The patients enrolled in this study were males and females. They were typical of patients suffering from AITD.

Table (1) showed that there were no significant correlation between anti-TPO-Ab and Thyroid hormones (T3,T4, and TSH)(p=0.954, 0.914, 0.379 respectively) in HT patients.

Table (2) showed that there were no significant correlation between anti-TPO-Ab and Thyroid hormones (T3,T4, and TSH)(p=0.947, 0.790, 0.790 respectively) in GD patients.

Table (3) showed that there were no significant correlation between anti-TPO-Ab and Thyroid hormones (T3,T4, and TSH)(p=0.233, 0.224, 0.204 respectively) among control group.

Table(1) Correlation between Anti-Thyroidal peroxidase A band Thyroid hormones (T3,T4, and TSH) among HT patients.

Hormones	Anti-TPO-antibodies	
	Rang	P value
T3	0.011	0.954
T4	0.021	0.914
TSH	-0.045	0.379

Table(2) Correlation between Anti-Thyroidal peroxidase antibodies and Thyroid hormones (T3,T4, and TSH) among GD patients.

Hormones	Anti-TPO-antibodies	
	Rang	P value
T3	-0.013	0.947
T4	0.051	0.790
TSH	0.232	0.218

Table(3) Relation between Anti-Thyroidal peroxidase Ab and Thyroid hormones (T3,T4, and TSH), among control group.

Hormones	Anti-TPO-antibodies	
	Rang	P value
T3	1.3720	0.233 N.S
T4	1.1144	0.224 N.S
TSH	1.3600	0.204 N.S

Discussion

In recent years, the pathogenic role and the diagnostic value of anti-TPO antibody have been evaluated in (AITD) patients. Most of studies show detection of anti-TPO antibody has high specificity for (AITD) and the presence of anti-TPO antibody has been noted in early (AITD)⁽⁹⁾. Their mean age distribution were in agreement with many studies that have been done before⁽⁸⁾.

Moreover,⁽¹⁰⁾ shows the appearance of anti-TPO antibody in the circulation may occur at several years before (AITD) onset and anti-TPO antibody represents a marker of future (AITD). The importance of anti-TPO evokes in diagnosis of (AITD). However, present data represented these no relationships between anti-TPO antibodies and Thyroid hormones (T3,T4, and TSH). These findings were compatible to the results reported by⁽¹¹⁾ who found that proportional correlation was noticed between anti-TPO and (AITD) marker particularly TSH. The normal levels of T3 is below 1.6 nm/l and for T4 is between (4.2-11.0 nm/l), while, the normal levels of TSH is 0.25 to 5⁽¹²⁾. Serum TSH concentration are considered the most reliable indicator of thyroid function abnormalities, and TSH analysis stands as the primary means of study thyroid function. However, small changes in T4 concentration will provoke very large changes in serum TSH⁽¹³⁾. Because the pathogenesis of (AITD).

It is still not well clear, many studies in relation with it. Therefore, in this study we have analyzed and examined the role of an increase of anti-TPO-Ab serum level in function of thyroid hormones. However, the current findings concerning there was any increase in T3, T4 and TSH serum levels depending on concentration of anti-TPO-Ab. However, These findings were compatible to the results reported by⁽¹⁴⁾ who found that strong correlation was noticed between anti-TPO and AITD marker particularly TSH. Our study was correspondence with previous studies⁽¹⁵⁾ they mentioned, there are no relationship between Serum TSH concentration and anti-TPO-Ab also no association between thyroid hormones (T3, T4) and anti-TPO-Ab. This was expected⁽¹⁶⁾.

Conclusion

There are no relationship between Serum (T3, T4, and TSH) concentration and anti-TPO-antibodies. Anti-Thyroid Peroxidase Antibodies (IgG) a good serological marker for diagnosis of (AITD) and to be used routinely. More than one diagnostic test is required for such diseases .

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RESPONSES OF PNP WOMEN'S DESK OFFICERS' TO VIOLENCE AGAINST WOMEN

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Abstract

The study mainly assessed the responses of WCPD officers on cases of violence against women. Further, the problems encountered during their responses were also highlighted. Survey questionnaire and interview were used to gather data from twenty three WCPD officers and five abused women from each city and municipality in Cavite. Findings revealed that RA 9262 (*Anti-Violence against Women and Children*) is the most common violation committed against women. Also, majority of the perception of the WCPD officers and abused women on the responses of the WCPD officers on cases of VAW are similar. During **initial response**, in terms of **receiving complaint**, officers basically ask the full name and address of the caller/abused women to establish their identity. In contrast, they cannot respond at the scene within 5 minutes due to unavailability of marked vehicle. In terms of **after call/complaint**, WCPD officers immediately call the attention of their co-officers to assist them. However, they do not often coordinate with the involved barangay. In the **arrival at the scene**, in case the abused woman was injured, officers advise her to undergo medico-legal examination, likewise, inquire on the nature of dispute for comprehensive investigation. However, they seldom execute arrest, because sometimes, perpetrator already escaped or the dispute is already settled. Further, in the **conduct of interview**, asking question at a time and free narrative were the strategies of officers to give abused women the time to answer each question. In contrast, WCPD officers seldom use gadgets that would facilitate the interview because of its unavailability. On the other hand, in **filing the complaint**, it indicated contradicting perceptions. For WCPD officers, they acquire copies of marriage contract and birth certificate since most of the cases involved marital violence while for abused women, they highly perceived that medical records is the most requested document. The problems encountered by WCPD officers in responding to VAW cases are: uncooperativeness of the caller/complainant, unavailability of facilities and WCPD officer inadequacy of knowledge on laws result to slow police service.

Keywords: Violence against women, PNP women's desk officers', initial response, receiving complaint, after call/complaint, arrival at the scene, conduct of interview, filing the complaint

Introduction

The Declaration on the Elimination of Violence against Women (1993) defined “violence against women as any act of gender-based violence that results in, or is likely to result in physical, sexual, or psychological harm or suffering to women, including threats of such acts, coercion or arbitrary deprivation of liberty, whether occurring in public or in private life” (p.1 as cited in UNODC, 2010).

It may take place whenever there is an imbalance of power relationship which oftentimes, men imposed of their masculinity and now became their traditional and cultural trademark. Since, then, violence against women is now a global issue of all societies (Handbook on effective police response to violence against women, 2010).

In many societies, it is difficult for a woman to report violence and pursue legal action because of the following reasons: fear for her own safety and safety of her children; fear that her children will be apprehended or taken away by the husband; influence of her extended family, emotional attachment and loyalty to the abuser; low self-esteem and self-blame; religious values or pressure from cultural community; economic dependency on the abuser; and lack of legal information about their rights and laws. On the other hand, authorities are one of the factors why abused woman does not report the crime (Violence against women in relationships: information bulletin for police, 2006). Some people think that police’s action is always characterized by distrust and tension (Sadusky, 2001). Police officers always demand the battered women to give factual information through a thorough investigation to pursue the case. This is because once the case is filed in the court dropping off the case would no longer be possible. This put the abused women in significant dilemmas as they weigh the consequences of their actions (Sadusky, 2001). Furthermore, according to Annan (1999), as cited by Sadusky (2001), abused women only think that police protection and presence may only give negative impact on their communities since violence against women is the most shameful human rights violation.

The police officers are known as being the first respondents of the five pillars of the criminal justice system. They are often called upon to intervene when an act of violence is in progress or shortly after it has occurred. Police officers work with victims, offenders, witnesses and various forms of evidence. Their response can have a dramatic impact on ensuing developments, including the prevention of future violent acts and the protection of victims (Handbook on effective police response to violence against women, 2010). The functions of police officers are very wide in scope. It is hard for them to take all these actions to have positive outcome and giving the victim justice from such abuse.

The roles of PNP in responding to crimes have long been under criticism for not doing enough effort to protect women from violence and for an often a pathetic response towards the problem. Hence, this study found in depth investigation as to how police officers respond to the cases of violence against women so as to design a program for an effective response based on the findings of the study.

Objectives of the study

This study aimed to assess the responses of PNP Women’s Desk officers to cases of violence against women in Cavite.

Specifically, this study intended to:

1. identify the common types of violence committed against women in Cavite;
2. assess the responses of PNP women’s desk officers’ to cases of violence against women as perceived by PNP women’s desk officers’;
3. assess the responses of PNP women’s desk officers’ to cases of violence against women as perceived by abused victims; and

4. determine the problems encountered by the PNP Women's desk officer in responding to the cases of violence against women.

Methodology

Research Design

This study applied descriptive – correlational method in order to analyze data. Correlational method is used to describe what exist at the moment. This includes data gathering in order to determine the extent and relationship of variables (Descriptive research, nd)

Participants of the Study

The study involved abused women and PNP women's desk officers assigned in cities and municipalities in the province of Cavite. This study involved risk since the PNP women's desk officers exposed their actual services in responding to cases of violence against women and abused women assessed the actual services given to them by the PNP Women's desk officers. In the observance of confidentiality, the names of the participants were not mentioned.

Research Instrument

A self-made questionnaire which is based on the Model Strategies of Effective Police Response to Violence Against Women presented by United Nations Office in Drugs and Crime (UNDOC); 2) Domestic Violence: Best Practices for Law Enforcement's Response obtained by North Carolina Governor's Crime Commission; 3) PNP in responding to a Domestic Violence Complaint cited in the Training Manual on the Investigation of Crimes Involving Women and Children, were used in order to identify the responses of the PNP Women's desk officers in terms of their initial response, conduct of interview and the filing of the case in prosecution as perceived by PNP women's desk officers and abused women. It is composed of three parts: Part 1 (Practice on Receiving Calls and Complaints/Initial Response, Part 2 (Practice on Interviewing) and Part 3 (Practice on filing the case to the prosecution). This questionnaire is a checklist wherein all possible ways of responding to an act of violence are included. Another set of questions was given in order to determine the problems encountered by PNP women's desk officers and abused women during the response on cases of violence against women. These questionnaires were pilot-tested by the researchers to gain optimum results from the subjects.

Interview was also used to supplement the data collected from survey questionnaire and to have a deeper and clearer interpretation of subjects' responses.

Validation of the Instrument

The following procedures were observed to test the validity and reliability of the designed research instruments for the subjects:

- a. Content Validation

To evaluate whether the items included in the questionnaires would match the objectives of this study, three experts in the field of women's violence were asked to review and evaluate the instruments.

- b. Reliability

To test the reliability of the self-made questionnaire, three police officers and three officers from Department of Social Welfare and Development (DSWD), were asked to participate in the dry-run of the questionnaire. After a week, the same sets of participants were asked to answer again the questionnaires (post-test). After retrieving the questionnaires, the Wilcoxon Signed Ranked Z-Test was used to compare the pretest and post-test results.

Data Gathering Procedure

A letter of request was prepared by the researchers to ask permission from the Police Provincial Office of Cavite for the conduct of the study. Upon approval of the request, another letter of request was sent to the Chief of Police and the subjects. After securing permission from the subjects/respondents, the schedule of duty of each subject was taken so as to start the data gathering. The researchers explained to the subjects the nature of the study and what they will expect during the conduct of the study. Self-made questionnaire was accomplished by the participants in WCPD office.

Results and discussion

Common Types of Violence Committed Against Women in Cavite

RA 9262 (*Anti-Violence Against Women and Children*) obtained the highest reported cases with 201 complainants. This particular violence refers to any act or series of acts committed by any person against a woman whom he has legal, sexual and/or dating relationship. It may be in the form of physical, sexual, psychological and economical abuse (*Anti-Violence Against Women and their Children*, 2004). The violence roots from relationship of an individual to another. According to Chalabi and Holder (2013) and Heise et al (1999) “domestic violence” is the most common crime committed by an intimate partner or ex-partner to his woman.

Initial Response of Women’s Desk Officer

The initial response of women’s desk officer comprised the following: 1) receiving calls/complaints; 2) after call; and 3) arrival at the scene. In general, it got a verbal interpretation of *Always*.

Receiving calls/complaints

In terms of **receiving calls/complaints**, asking basic information such as the full name of the caller/abused woman and the address where the incident happened got the highest mean score of 5.0 with verbal interpretation of *Always*.

During the initial response, it is a protocol for the WCPD officer to ask for the full name of the caller/abused woman to establish his/her identity. This may also hinder false callers. Furthermore, location where the crime happened is also asked. This will determine: whether or not the PNP station has jurisdiction over the offense committed; patrol officer/s to be contacted who can respond more immediately; and assess the safety of the WCPD officer and her team at the scene (PNP Manual, 2010).

In contrast, responding to the scene within 5 minutes from the time the call assistance was made was perceived to be the lowest, with verbal interpretation of 4.30. Based on the interviews conducted to WCPD officers, the unavailability of PNP marked vehicle is one of their major problems in promptly responding to the scene. Furthermore, the distance and traffic condition going to the location of the scene are unpreventable and cannot be predicted in most cases.

After call/complaint

In terms of **after call/complaint**, WCPD officers *always* call the attention of all responsible people to conduct the operation. It actually got the highest mean score of 4.83. This shows that WCPD officers give their full attention to every complaint especially when it is considered as an emergency or requires immediate response.

On the other hand, coordination with the barangay got the lowest mean score of 4.65 with verbal interpretation of *Always*. This is due to the fact that most of the complaints reported to them do not require an emergency response but fall under the jurisdiction of respective barangay. Thus, WCPD officers opted not to personally coordinate the complaint with the barangay but rather advise the abused women to settle the dispute in their barangays.

Arrival at the scene

In the **arrival at the scene**, in case the abused woman and perpetrator are in physical contact, the advice of WCPD officers to the abused women to undergo medico-legal examination got the highest mean score of 5.00. The fact that most of the cases handled by WCPD officers are forms of abuse such as physical abuse, these should be properly assessed by medico-legal physician to give weight to the injuries inflicted as evidence in the court. In a research titled “Medical Examinations on the Cases of Child Abuse” (1996), undergoing of abused women to medico-legal examination helps in the prosecution of the case by providing evidence of abuse as determined by the doctor.

However, in case of major injury, notification of emergency medical service by the WCPD officers got the lowest mean score of 4.70 with verbal interpretation of *Always*. This is because most of the injuries inflicted to the abused women are minor such as bruises and wounds which do not pose greater injury if not given first aid. That is why, WCPD officers tend not to notify medical service and just proceed with their investigation, giving only emphasis on the wounds in their reports.

In case the perpetrator is not present when the team arrived at the scene, WCPD officers *always* inquire on the nature of dispute. It got the highest mean score of 4.91. Due to the absence of threat to the safety of the abused women, inquiry to the nature of dispute can be done immediately. This gives light in the conduct of investigation

In contrast, arrest of the perpetrator got the lowest mean score of 4.48 but still with verbal interpretation *Always*. The delayed response at the scene prevents the arrest of the perpetrator. Another fact is that, majority of the complaints received by WCPD officers does not necessitate an arrest.

Conduct of Interview of Women’s Desk Officer

The conduct of interview as perceived by WCPD officers got a total mean score of 4.73 with verbal interpretation of *Always*. Giving opening statements such as “Tell me about...” and asking question at a time got the highest mean score of the highest mean score of 4.91 with verbal interpretation of *Always*. As suggested by United Nations Office on Drugs and Crime (2010), interviewing the abused woman follows a specific plan. In most of the cases, free narrative is used so that the abused woman can openly give detailed information without much questions from the interviewer. Hence, the nature of the interview is to make the abused woman talk without interruptions. It is important to note that this idea is practiced and given emphasis by WCPD officers to gather material and accurate statements, thus, lead to the success of the investigation.

On the other hand, the use gadgets in recording the interview such as recorder got the lowest mean score of 3.57 with verbal interpretation of *Always*. Insufficiency of technological equipment could be the reason why it appeared to be the lowest. Also, WCPD officers could have overlooked the importance of the use of recorder during the interview. According to the National Institute of Justice (2014), new technologies make police services delivered easily and effectively.

Filing the Complaint

On filing of complaint, it got a total mean score of 4.90 with verbal interpretation of *Always*, as perceived by WCPD officers. Since, most of the complaints involved marital abuse and violence against children, acquisition of copies of marriage contract of the abused woman and birth certificate of the children involved got the highest mean score of 4.96. According to United Nations Children’s Fund (UNICEF, 2014), birth certificate is an official recording of a child’s existence and by his/her existence, the child is entitled to have his/his/her civil, political, economic, social and cultural rights protected by the government.

However, taking photograph of injuries inflicted to the abused woman got the lowest mean score of 4.83 with verbal interpretation of *Always*. This is due to the insufficiency of technical equipment such as camera. Moreover, since medico-legal examination will be done, the WCPD officers can use the result of such examination as evidence in court which is stronger than mere photographs.

Initial Response of Women's Desk Officer as Perceived by Abused Women

With reference to initial response of WCPD officers on the cases of VAW as perceived by abused women, it has a total mean score of 4.49 with verbal interpretation of *Always*.

In terms of **receiving call/complaint**, basic inquiries on the name of the caller/abused woman and the full address where the incident happened got the highest mean score of 4.75 with verbal interpretation of *Always*. It shows that WCPD officers give more importance in getting the full name of the caller/abused woman. This information is basic and necessary to initially start their actions.

In contrast, responding to the scene within 5 minutes from the time the call/complaint assistance was made got the lowest mean score of 3.79 with verbal interpretation of *Often*. It could be noted that their perception is similar with that of the WCPD officers. This is because they already experienced the unavailability of marked vehicle. Also, the distance and traffic condition from the station to the location of the scene add to their struggle of arriving at the scene on time.

In terms of **after the complaint**, it is significant to remember that abused women who personally proceed to the police station to report their complaint and ask for assistance are the only ones knowledgeable and could perceive what will happen after they complained. Calling the attention of PNP officers before getting at the scene got the highest mean score of 4.75 with verbal interpretation of *Always*. It only implies that WCPD officers are eager to ask the assistance of their co-officers to attend the complaint.

On the **arrival at the scene**, in cases where the abused woman and the perpetrator are in physical contact, assessment of minor injuries inflicted to the abused woman, advice the abused woman to undergo medico-legal examination and notification of emergency medical services in case of major injuries got the highest mean score of 4.58 with verbal interpretation of *Always*. After the inquiries and interviews related to the case and recording of the necessary information, the WCPD officer often advise the abused woman to go to the nearest PNP-Scene of the Crime Operatives (PNP-SOCO) laboratory or government accredited hospital to undergo medical examination. But, in cases where major injury is inflicted, the WCPD officer calls for emergency medical services and bring the abused women to the hospital.

In cases where the abused woman and the perpetrator are not in physical contact, inquiry on the nature of dispute got the highest mean score of 4.61 with the verbal interpretation of *Always*. Inquiring on the nature of dispute is very important for it makes the WCPD officer determines who has the legal authority to handle and settle the case.

Similar with the perception of WCPD officers, abused woman perceived the arrest of the perpetrator to be the lowest mean score of 4.27 with verbal interpretation of *Always*. This is due to the fact that not all complaints necessitate arrest, especially when the dispute can be best handled and settled in the barangay level.

Conduct of Interview of Women's Desk Officer as Perceived by Abused Women

In the conduct of interview of WCPD officer on cases of VAW as perceived by the abused women, it has a total mean score of 4.29 with verbal interpretation of *Always*. WCPD officers' practice of asking question at a time got the highest mean score of 4.55 with verbal

interpretation of *Always*. According to the research titled, “Conducting Effective Interview”, one should possess an active skill on both talking and listening to be an effective interviewer (AICPA, nd). WCPD officer does not just ask series of question but also give the abused woman her moment to answer each question, thus, facilitates the flow of information.

Meanwhile, use of gadgets in recording the interview such as recorder got the lowest mean score of 2.98 with verbal interpretation of *Undecided*. This finding coincides with the perception of the WCPD officers. This could also be attributed to the inability of the abused women to observe the use of these gadgets.

Filing the Complaint of Women’s Desk Officer as Perceived by Abused Women

In the filing of complaint as perceived by abused women, it has a total mean score of 4.45 with verbal interpretation of *Always*. It is interesting to note that acquisition of medical records of the abused woman got the highest mean score of 4.58 with verbal interpretation of *Always*. This is because WCPD officers know that on cases of violence, medical record is material evidence.

On the other hand, acquiring of the copies of marriage contract of the abused woman got the lowest mean score of 4.35 but still with verbal interpretation of *Always*.

Common Problems Encountered by WCPD Officers

During initial response, in terms of **receiving complaint** one of the major concerns of WCPD officers is the uncooperativeness of the caller/abused woman. WCPD officers revealed that some of the abused women are hesitant to open the full details of information. This is because most of the abused women were still in the state of shock after they experienced violence. They also consider this event as a humiliating part of their lives, thus, they find it difficult to reveal the private issue (UNODC, 2010).

With regard to **after call/complaint**, when emergency response is needed, both WCPD officers and abused women stated that unavailability of marked mobile hinders speedy response and arrest of the perpetrator. They have to wait for the marked vehicle to come before they could conduct the emergency response. According to Hess and Wroblewski (2006) marked vehicle do add speed to the response because it can be easily identified in the road when used.

During the **conduct of interview**, WCPD officers find it a challenge to gather factual information from the abused women because of the physical settings of the WCPD office. They admit that their office lacks the atmosphere of privacy, for it does not conform with standards set by the law. Further, some officers answered that patience of the officer is indeed a requirement that contributes to the success of the interview.

With respect to the **filing of the complaint**, WCPD officers stressed that the lack of financial resources of the abused woman hinders them from filing the complaint. This is because all the required documents to initiate the filing of the case needs to be requested, paid and photocopied.

On the part of the abused women, their lack of interest to pursue the case also hinders the prosecution of crime. Filing of cases has prescribed period of time and this should be followed; otherwise, the arrested person will be freed or the case will be dismissed because of technicalities.

Meanwhile, ability of the WCPD officer to assess the acts committed and to identify the appropriate case to be filed is also an issue. According to an interview with a WCPD officer, there are those officers that have limited knowledge of the law. Thus, results to filing of less serious cases or to the extent that the case will be dismissed. This maybe because some of the WCPD officers were recently assigned to WCPD office, thus, they are not that familiar on how to look at every case.

Conclusion

Based on the findings of this study, the following conclusions were drawn:

Domestic violence is the most common type of crime committed against women by their partner either sexual or not sexual relation. Women were usually abused because of their desire to hold on to their relation.

During the **initial response**, in terms of *receiving call/complaint*, WCPD officers do recognize the importance of asking basic information such as getting the full name and address of the caller/abused woman. However, they failed to respond at the scene within 5 five minutes due to the unavailability of marked vehicle. Added to this is the distance and traffic condition.

In terms of *after call/complaint*, it could be concluded that they are eager to call the attention of their co-officers who will assist them in the conduct of emergency response. But due to the fact that majority of the complaint does not necessitate an emergency response, they opted not to coordinate it with the concerned barangay but rather advise the abused woman to settle the dispute in their barangay.

In the *arrival at the scene*, WCPD officers never forget to advise the abused woman to undergo medico-legal examination because they do know that the result of this examination is material to the case. On the other hand, arrest of perpetrator is not always done. This is because not all cases of violence require an arrest or in some cases, the issue is already settled or the perpetrator has escaped before the team arrived at the scene.

During the **conduct of interview**, WCPD officers do have their own interview strategy used to make the interview successful. On the other hand, there is a need for gadgets to facilitate the recording of interviews.

On **filing of the complaint**, because majority of the complaints involves marital abuse, WCPD officers recognize the importance of obtaining evidence material to the crime such as marriage contract and birth certificate of their child/children. However, lack of necessary equipment prevents them from taking photos of the injuries inflicted to the abused woman.

Abused women have similar perception with that of WCPD officers in all stages of the investigation. On **initial response**, in terms of *receiving call/complaint*, inquiries on the full name of the caller and the address of the incident were highly perceived by them. On the other hand, they identify the incapability of WCPD officers' to respond to the scene within 5 minutes from the time the call was made to be the lowest. This is justified since they also experienced the unavailability of marked vehicle to be used in such emergency response.

Moreover, in terms of *after complaint*, it is perceived that WCPD officer immediately call the attention of their co-officers who will accompany her in the conduct of emergency response.

In the *arrival at the scene*, according to them, WCPD officers first assess the injuries inflicted to them whether it is minor or major to advise them to undergo medico-legal examination or to call for the assistance of other medical services. In case the perpetrator and the abused women are not in physical contact, the eagerness of the WCPD officers to inquire on the nature of dispute was also perceived by the abused women. This is because these facts will help the WCPD officer determine whether the dispute can be settled in their level as a mediator or formally elevate the case on the pillars of criminal justice.

During the **conduct of interview**, they mostly perceived that WCPD officers ask question at a time, to give them enough time to answer the question.

In **filing the complaint**, they highly perceived that WCPD officers obtain medical records from them. This is because WCPD officers know that these documents are material to the case. On the other hand, acquisition of copies of marriage contract and birth certificate perceived to be the lowest.

The problems encountered by the WCPD officers in responding to the VAW cases results to slow response and process of investigation.

Recommendations

If possible, marked vehicle should be provided exclusively in responding to cases of violence against women and children. Assignment of additional co-officers who will accompany the WCPD officer during the emergency response and other operation related to the investigation and arrest is highly recommended.

For PNP-WCPD and barangays, a seminar to be attended by both agencies is recommended to deepen understanding on their scope and limitation as an implementer of justice. Also, establishing an excellent communication system between the two agencies is highly recommended to establish better coordination.

For WCPD officers, to widen their knowledge and provide expertise to successfully perform their function, intensive training on legal aspects related to violence against women is suggested to be undertaken. In addition, first aid training should also be undertaken to provide immediate relief and prevent more serious injury to injured victims.

Availability of technological equipment such as digital single lens reflex cameras to record the physical injuries incurred, recorder to facilitate documentation of the interviews, computer and printer to ease loads of the WCPD officer's work are highly recommended. Improvement of WCPD office physical facility is highly recommended so as to provide atmosphere of privacy and comfort.

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BIOLOGICAL CELL AND MOLECULAR COMMUNICATION TECHNOLOGY: OVERVIEW AND CHALLENGES

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Abstract

This paper outlines the study and overview of molecular and cell communication technology. It provides cell communication as a new paradigm in reference with engineering and communication mechanisms. Unlike current telecommunication paradigm, cell communication uses molecules as carriers of information. This study summarizes the features, characteristics and architecture of molecular communication.

Keywords: Biological Cell, Engineering, Communication, Biological Nanomachines and Nanonetworks

Introduction

The advancement and progress in biotechnology and communication engineering today are the means to design and engineer novel networks and communication systems based on biological materials and mechanisms. A modern technology as a result of nanotechnology and bioscience is molecular or cell communication, which provides the transition from nano to micro scale communication [1]. The evolution of biomedical and Nano science technology has led to biological devices referred to as bio-nanomachines that can interact with biological cells and molecules in nano scale or micro scale environments. The area of nanosystems of cells and molecules is pulling lot of attention and it has also been facing many challenges in present era. One of the challenges faced by this research is to extend the small-scale networks to large-scale networks of bio-nanomachines, which are more robust in application environments. It is anticipated that new novel and robust communication and network protocols for cell communication networks can open the new horizons in this area of research[2].

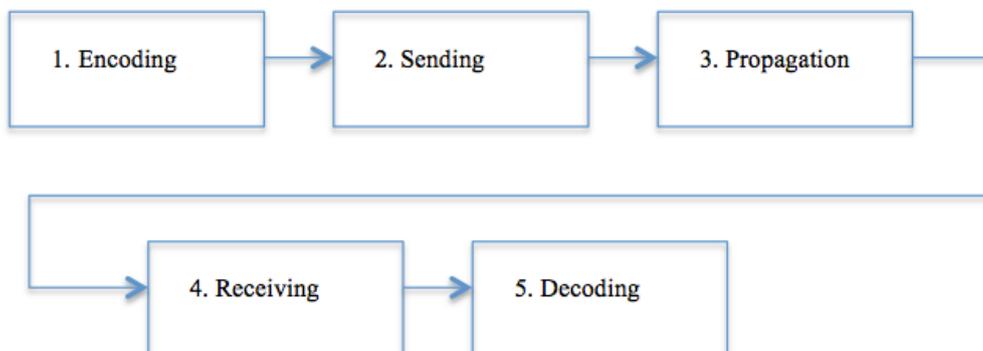
Molecular communication system overview

This section highlights the overview of area of molecular communication, its architecture, communication framework and protocols and possible application environments.

An Architecture of Molecular Communication

The general molecular or cell communication architecture design is shown in Figure 1. The whole communication system comprises different functional components shown such as information molecules that represent the information to be transmitted, sender bio-nanomachines that release the information molecules, receiver nanomachines that detect the information molecules at receiving end and the environments in which information molecules propagate from transmitting nanomachines end to receiving nanomachines end[3]. It is

important to note that this system may include transport molecules that transport the information molecules, guide molecules that provides the guided directional movement of transport molecules, and interface molecules that provides the interface for any type of information molecules to be transported by transport molecule. Figure 2 shows the block diagram of communication phases present in this cell communication model.



Components of Molecular Communication System

This section explains the components or blocks of molecular communication system[4]. The description of each block is as follows:

- **Encoding**
Encoding is the first stage in this communication system where information is encoded and it is translated into information molecules by sender bio-nanomachines. Sender bio-nanomachines encode the information in pattern recognized by the receiving bio-nanomachines. Information encoding depends upon the properties of information molecules such as 3-D structure, composing molecule, or concentration of the information molecule.
- **Sending**
This stage refers to the release of information molecule into related environment. This happens by freeing the information molecule from transmitting bio-nanomachines, or by gate opening that permits the information molecule to diffuse away. It can also happen by the catalytic reaction whose product will be information molecule.
- **Propagation**
Propagation is the stage in which information molecules travel from sending bio-nanomachines to receiving bio-nanomachines. Information coded molecules can propagate by the aid of transport molecules, or they can move passively through the environment without using chemical energy.
- **Receiving**
This is the phase where receiver bio-nanomachines retrieve the information-coded molecules that were propagated in the environment from transmitting nanomachines.

Characteristics and features of Molecular Communication

The molecular communication system derives its characteristics from generic telecommunication system and biological mechanisms. The main focus includes characteristics such as signal types, propagation speed, range and media environments.

Small Scale System

A cellular communication system is nano to micro scale ranging system. The system is three dimensional in nature and depends upon the types of cell and its formation. This

system finds its application in the development of NEMS (Nano-electromechanical Systems) or MEMS (Micro-electromechanical Systems)[3].

Information Coding Flexibility

A molecular communication system propagates the information in terms of chemical signals from transmitting bio-nanomachines to receiving bio-nanomachines. At receiver side, a chemical reaction occurs between incoming chemical signals and receiving nanomachines. This system provides the flexibility of encoding the information through the characteristics such as type, structure, sequence and concentration of information molecules [4].

Speed and Range

A molecular communication system is very low range and low speed system[5]. The speed and range of this system depends upon the type of biological materials, mechanism and environments. Additionally, this type of communication suffers large degradation in SNR (Signal to Noise Ratio) as random motion of molecules makes it longer for the information to get to the receiver. This communication is very unpredictable and at some instances it can have 100% information loss rate.

Biocompatibility

A molecular communication system is biocompatible in such a way that cell can interact with other natural bio-components like cells, tissues and organs. This biocompatibility is due to the fact that biological systems and molecular communication systems use same communication and networking mechanisms[4]. It is highly anticipated that biological cellular communication systems will find its applications in environments where human body interactions are important.

Energy Efficient with Low Dissipation

A molecular communication system is energy efficient and uses chemical energy. Since it involves biological materials and mechanisms therefore it is energy efficient with low heat dissipation. This fact can be explained by considering the comparison of silicon-based systems with molecular systems. The molecular communication networks use chemical energy whereas silicon-based systems use electric batteries. These cells or molecules inherently use energy from environments such as human body thus eliminating the need for external source of energy [6].

Applications of Molecular Communication

The molecular communication finds several functional applications by using bio-nanomachines to sense, modify and transport molecules. These functional applications are found in the fields such as environmental, biomedical, and manufacturing.

Environmental Applications

Bio-Nanomachines to monitor environment

Integration of bio-nanomachines can be performed into large or small-scale environments to locate molecules. The environment is subject to foreign contamination such as toxins or radioactive agents. Information can be obtained from bio-nanomachines associated with molecules[7].

Bio-nanomachines to control pollution/waste

Bio-nanomachines can be deployed to monitor molecules in the environments to identify the location of foreign contamination or toxins. This can help to identify and amplify molecular signals, which will be helpful to remove toxins or contamination[8].

Biomedical Applications

- Bio-nanomachines are made of living cells that can be divided or grown to form functional cell structure. Such nanomachines can be used for regenerative medicine. Molecular communication provides the modes to control ways of communication and thus affect the growth and progress of bio-nanomachines in specific functional structures.
- Molecular communication can be used in monitoring of organism to identify the existence of specific molecules in the body[9]. Bio-nanomachines are implanted in the body and cellular communication provides means for gathering, manipulating, and transmitting the information to external devices.
- Molecular communication is also used in lab-on-a-chip applications[10]. Molecular communication gives techniques to transport specific molecules to particular location in a biomedical chip. This is helpful particularly in determining a certain disease or in the study of biological samples.

Current issues and challenges in molecular communication

The field of molecular communication is facing several challenges. Some of those challenges include implementation of Body Area Networks (BAN) and Molecular Area Networks (MAN). Unlike the computer or wireless network systems, molecular communication involves nanomachines and it is hard to apply physical and network layer protocols to those bio-nano machines. There is a need to first put together the standards for these protocols and then start implementing this type of communication models [11]. It also includes security, information loss and bit error correction trials to be tested on early stage molecular networks. This field is still under development and researchers are working to overcome those challenges [12].

Conclusion

This paper has highlighted the characteristics and features of molecular communication with open research issues associated in this area. This field and area is very robust as per the theoretical progress due to small size of bio-nanomachines and their mobility. But this field still requires simulations and empirical results under the assumptions that would consider the bio-chemical and bio-medical constraints. The empirical studies have been limited to individual components such as molecular motors but needs to be extended to address system level approach of molecular communication.

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INVESTMENT PORTFOLIO REBALANCING DECISION MAKING

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Abstract

Nowadays financial markets' volatility and significant stock prices' fluctuations allow improving investment return actively managing investment portfolio, rather than choosing long term investment strategy. Active portfolio management also allows personal investor's development and gives opportunity to avoid losses in terms of market instability. However active portfolio management is more risky. Rebalancing the investment portfolio investor incurs real costs for expected return, so actively managing the investment portfolio it is crucial to use a good, investor needs meeting portfolio rebalancing method. Dealing with mentioned problem scientific information sources analysis is made and a new portfolio rebalancing method is suggested in the article.

Keywords: Investment portfolio, active portfolio management, portfolio rebalancing

Introduction

Science 1952, when H. Markowitz published his pioneer work "Investment portfolio selection", portfolio selection problem was analysed by many authors. The main aspects of investment portfolio selection problem analysis are: expected return evaluation (prediction) (for example: Willenbrock 2011; Missiakoulis *et al.* 2010; Dzikevicius and Šaranda 2010; Araujo 2010; Erlwein *et al.* 2012), portfolio risk evaluation (Byrne, Lee 2004; Tvaronavicienė, Michailova 2004; Szego 2005), portfolio diversification (for example: Nanda *et al.* 2010; Xidonas *et al.* 2010; Syriopoulos 2011; Thapa, Poshakwale 2012) and portfolio optimisation objectives and methods (technics) selection (for example: Rutkauskas *et al.* 2009; Stasytytė 2011; Xidonas *et al.* 2011; Ustun, Kasimbeyli 2012). All mentioned aspects are very important selecting the best investor needs meeting investment portfolio. However active portfolio management requires frequent portfolio rebalancing, which increases transaction costs. Active portfolio management can be profitable only in cases, when the benefit of active portfolio management exceeds transaction costs. Most scientists analysing portfolio rebalancing problem suggest portfolio rebalancing decision making by evaluating expected return after transaction costs. However actively managing the investment portfolio investor incurs real costs for expected return and the expected return in most cases cannot be precisely evaluated. So portfolio rebalancing decision making only by subtracting transaction costs from expected return cannot ensure best investor needs meeting decisions. Considering the mentioned problem the aim of this work is to suggest a portfolio rebalancing method regarding excess expected return and incurred costs ratio acceptable to the investor.

Theoretical study

Portfolio rebalancing problem is analysed in scientific literature evaluating two main aspects: portfolio rebalancing strategies and portfolio rebalancing algorithms. Dierkes *et al.* (2010) highlights, that the broad range of investment strategies on fundamental classification can be distinguished between two main categories of investment strategies: forecast-based

and forecast-free strategies. Leung (2011) distinguishes three groups of portfolio rebalancing strategies, which can be relatively classified as forecast-free strategies: fixed asset allocations through time; asset allocations that evolve over time according to a fixed and pre-determined schedule; rebalancing rules, under which the allocation at any future time is not pre-determined, but varies according to the actual investment experience up to that time. Jones and Stine (2010) analyses three main forecast-free portfolio rebalancing strategies: buy-hold, constant mix and constant proportion rebalancing separately for bull, bear and trendless markets using Monte Carlo simulation. Cesari and Cremonini (2003), in addition to the above mentioned strategies analysed option based and technical strategies. O'Brien (2006) distinguished four strategies according to the periodicity of portfolio rebalancing: periodic rebalancing, threshold rebalancing, range rebalancing and active rebalancing.

According to Feng *et al.* (2011), Kozat and Singer (2011), frequent portfolio rebalancing can be unprofitable because of portfolio rebalancing costs, so they proposed to rebalance portfolio not every investment interval. Woodside-Oriakhi *et al.* (2013) also indicate that investment horizon has influence on investment results when rebalancing portfolio with transaction costs. Leunberger Kuhn (2010) found that the loss of the uncommon changes of the portfolio composition is very small, and a good portfolio diversification can reduce the negative uncommon portfolio rebalancing effect.

Actively managing investment portfolio, portfolio rebalancing (transactions) costs have a very significant impact on investment results, thus most of researchers dealing with portfolio rebalancing problem (Holden, Holden 2013; Zhang *et al.* 2012, 2011a, 2011b, 2010a, 2010b; Bhattacharyya *et al.* 2011; Fang *et al.* 2006; Feng *et al.* 2011) pays particular attention to the assessment of transaction costs.

Zhang *et al.* (2012, 2011a, 2010b) and Bhattacharyya *et al.* (2011) use formula 1 to evaluate transaction costs:

$$C_t = \sum_{i=1}^n c_{t,i} |w_{t,i} - w_{t-1,i}|, \quad (1)$$

where C_t is the total transaction cost of the portfolio at period t ; $c_{t,i}$ - the unit transaction cost of risky asset i at period t ; $w_{t,i}$ - the investment proportion of risky asset i at period t .

Zhang *et al.* (2010a, 2011b) proposes more detail formula, which can be used when securities buying and selling costs differ and when new assets can be included in the portfolio:

$$C = \sum_{i=1}^k (c_i^+ w_i^+ + c_i^- w_i^-) + \sum_{j=k+1}^n c_j^+ w_j, \quad (2)$$

where c_i^+ - the unit transaction cost buying risky asset i ; c_i^- - the unit transaction cost selling risky asset i ; j - new asset included in the portfolio.

Zhang *et al.* (2012, 2011a, 2011b, 2010a, 2010b) and Bhattacharyya *et al.* (2011) evaluate the expected return of portfolio (which should be maximised or not less than preferred) excluding transaction costs from expected return. If transaction costs are calculated using formula 2, expected return can be calculated using formula 3.

$$E(R) = \sum_{i=1}^n E(R_i) w_i - \sum_{i=1}^k (c_i^+ w_i^+ + c_i^- w_i^-) - \sum_{j=k+1}^n c_j^+ w_j, \quad (3)$$

where $E(R)$ is expected return after evaluation of transaction costs, $E(R_i)$ - expected return of asset i before evaluation of transaction costs.

Mitchell and Braun (2013) indicate that not only transaction costs, but also market impact costs must be evaluated.

Most of scientists, who deals with portfolio rebalancing problem, prefer fuzzy decision making approach, which usage is broadly analysed in Gupta *et al.* (2013, 2014),

Zhang *et al.* (2012, 2011a, 2011b, 2010a, 2010b), Bhattacharyya *et al.* (2011), Fang *et al.* (2006) and Feng *et al.* (2011) publications. However, to propose a portfolio rebalancing decision making method it is not crucial to select one specific approach, more important is the principle of decision making – which objectives are evaluated in portfolio rebalancing decision making. Yu, Lee (2011) analysing portfolio rebalancing problem highlighted short selling possibilities and analysed five multi-objective portfolio rebalancing models: mean-variance model, which does not involve short selling and four models with short selling – mean, variance, and short selling (MVS); mean, variance, short selling, and skewness (MVS_S); mean, variance, short selling, and kurtosis (MVS_K); mean, variance, short selling, skewness, and kurtosis (MVS_SK). The variety of other scientists suggested portfolio rebalancing decision making objectives is presented in Table 1.

Table 1. Portfolio rebalancing objectives

Source	Objectives, which must be gained making portfolio rebalancing decisions for portfolio rebalancing decisions
Gupta <i>et al.</i> 2014	Maximise credibility when net return and liquidity are equal or higher than the lower limit on the expected return and liquidity of the portfolio.
Gupta <i>et al.</i> 2013	Maximise expected return, minimise risk and maximise liquidity.
Zhang <i>et al.</i> 2012	Minimise the cumulative risk of portfolio and maximize the diversification degree of portfolio, at the same time, the portfolio return at each period must achieve or exceed the given minimum expected level.
Bhattacharyya <i>et al.</i> 2011	Minimise the risk of portfolio, maximise the expected return and skewness of the portfolio.
Zhang <i>et al.</i> 2011a	$Max U(x) = E(R) - 0,005 \times A \times Var$, where A is risk tolerance level, Var – risk.
Zhang <i>et al.</i> 2011b	$Min A \times (-E(R)) + Var$
Zhang <i>et al.</i> 2010a	Minimise the cumulative risk of portfolio ensuring not less than given minimum expected portfolio return.
Zhang <i>et al.</i> 2010b	Minimise the risk and maximise the expected return or $Min - A \times E(R) + Var$
Fang <i>et al.</i> 2006	Maximize return and minimize risk ensuring that the portfolio liquidity is not less than a given constant.

As we can see from Table 1, almost all researchers evaluated two main portfolio characteristics – expected return and risk, and only sometimes are mentioned such characteristics like diversification, skewness and liquidity, only Yu, Lee (2011) included kurtosis and short selling. The special attention should be paid to Zhang *et al.* (2011b) work, which also evaluates risk-free lending and borrowing. Expected return in Table 1 given formula is calculated:

$$E(R_p) = \sum_{i=1}^n E(R_i)w_i + r_-w_- - r_+w_+ - \sum_{i=1}^k (c_i^+w_i^+ + c_i^-w_i^-) - \sum_{j=k+1}^n c_j^+w_j, \tag{4}$$

where r_- – the interest rate of lending capital; w_- – the amount of lending capital after portfolio rebalancing; r_+ – the interest rate of borrowing capital; w_+ – the amount of borrowing capital after portfolio rebalancing.

Risk-free lending and borrowing cost and return evaluation allows more efficient decisions actively managing investment portfolio with financial leverage.

The suggested investment portfolio rebalancing decision making method

Summarising the analysis of scientific literature dealing with portfolio rebalancing problem, we can see that there are not a lot of works analysing this problem. All these works can be divided into two main groups: scientific works analysing portfolio rebalancing strategies and works which authors suggest direct portfolio rebalancing problem solving

solutions. Every investor has to decide himself which portfolio rebalancing strategy meets his needs to a better extent, it is more important to have a method (algorithm) allowing efficient portfolio rebalancing decision making. Evaluating scientific researches made in this field it should be remarked that the most attention in them is paid to transaction costs evaluation and portfolio optimisation after exclusion of transaction costs from expected return. However such portfolio rebalancing approach cannot ensure efficient decision making, because rebalancing investment portfolio investor incurs predetermined costs (losses) and the expected return can be gained or not. It means that in cases when expected benefit of portfolio rebalancing only insignificantly exceeds rebalancing costs, the investor will not be willing to change the composition of the portfolio. The direct application of investment portfolio rebalancing decision making method minimising the cumulative risk of portfolio with not less than given minimum expected portfolio return, proposed by Zhang *et al.* (2010a), cannot ensure efficient decision making because applying this method in some cases investor will refuse higher return portfolio to lower return portfolio. So efficient and investor needs meeting investment portfolio rebalancing method must ensure, that the expected return after transaction costs not only will be higher, but also the difference of expected return between rebalanced and not rebalanced portfolio to some extent will exceed incurred transaction costs.

The proposed investment portfolio rebalancing decision making method is developed using two main portfolio characteristics – expected return and risk, similarly to Zang *et al.* (2011a, 2011b, 2010a, 2010b). No more characteristics like diversification, skewness, liquidity, kurtosis or short selling are included. Skewness and kurtosis are characteristics which also describe risk. Short selling opportunities are allowed not at all financial markets (we cannot use short selling in developing markets). Liquidity must be evaluated selecting securities, which can be included to investment portfolio, because active portfolio management with not liquid securities can be unprofitable due to significant gap between buying and selling prices. Diversification is more important for long term investments, however actively managing the investment portfolio, when investor earns profit from price fluctuations non-diversified investment portfolio can give a higher return than diversified. Wide portfolio diversification can also increase portfolio rebalancing costs.

Let all the amount of money invested in risky assets (for example stocks) of initial investment portfolio (p_0) be equal to w^{t-1} :

$$w^{t-1} = \sum_{i=1}^n w_i^{t-1}, \quad (5)$$

where w_i^{t-1} – amount of money invested in i asset at $t-i$ period.

If the portfolio is not rebalanced its expected return at t period is calculated using formula:

$$E(R_{p_0}) = \sum_{i=1}^n w_i^{t-1} E(R_i^t), \quad (6)$$

where $E(R_i^t)$ – expected return of i asset at t period.

Evaluating risk-free lending return and borrowing costs expected return of not rebalanced portfolio at t period is equal to:

$$E(R_{p_0}) = \sum_{i=1}^n w_i^{t-1} E(R_i^t) + r_- w_-^{t-1} - r_+ w_+^{t-1} \quad (7)$$

The expected return of rebalanced portfolio (p), when transaction costs are evaluated using formula 2, is equal to:

$$E(R_{p_0}) = \sum_{i=1}^n w_i^t E(R_i^t) + r_- w_-^t - r_+ w_+^t - \sum_{i=1}^k (c_i^+ w_i^+ + c_i^- w_i^-) - \sum_{j=k+1}^n c_j^+ w_j. \tag{8}$$

Portfolio risk (variation) is calculated:

$$\sigma_p^2 = \sum_{i=1}^N \sum_{j=1}^M w_i w_j COV(R_i R_j) \tag{9}$$

Portfolio optimisation is made maximising investors utility function:

$$\begin{aligned} \max U(w) = & \sum_{i=1}^n w_i^t E(R_i^t) + r_- w_-^t - r_+ w_+^t - \sum_{i=1}^k (c_i^+ w_i^+ + c_i^- w_i^-) - \sum_{j=k+1}^n c_j^+ w_j - \\ & A \sum_{i=1}^N \sum_{j=1}^M w_i w_j COV(R_i R_j). \end{aligned} \tag{10}$$

or, in cases when investor has predetermined maximal acceptable risk level $\hat{\sigma}_p^2 - \sigma_p^2 \leq \hat{\sigma}_p^2$, maximizing expected return:

$$\max E(R_p) = \sum_{i=1}^n w_i^t E(R_i^t) + r_- w_-^t - r_+ w_+^t - \sum_{i=1}^k (c_i^+ w_i^+ + c_i^- w_i^-) - \sum_{j=k+1}^n c_j^+ w_j, \tag{11}$$

when $w_i^t, w_-^t, w_+^t \geq 0$

$$\sum_{i=1}^n w_i^t + w_-^t - w_+^t - \sum_{i=1}^k (c_i^+ w_i^+ + c_i^- w_i^-) - \sum_{j=k+1}^n c_j^+ w_j = W \tag{12}$$

if risk-free borrowing possibilities are limited, must be satisfied condition $w_+^t \leq w_+^{\max}$, if minimal amount of risk-free lending is pre-determined, must be satisfied condition $w_-^t \geq w_-^{\min}$ and if minimal risky assets trading volume is pre-determined, must be satisfied condition $w_i^t \geq w_i^{\min}$, where A – risk tolerance level, W – total amount of money, which can be invested; w_+^{\max} - maximal amount of money, which can be borrowed with risk-free interest rate; w_-^{\min} - minimal amount of risk-free lending; w_i^{\min} - minimal amount of investment in i risky asset.

Portfolio rebalancing decision making is based on:

- expected return of initial (not rebalanced) investment portfolio;
- expected return of optimal portfolio;
- transaction costs.

Portfolio must be rebalanced when is satisfied condition:

$$K = f(E(R_{p_0}); E(R_p); C) \geq K_{\min}, \tag{13}$$

where K – value of portfolio rebalancing decision making criterion; K_{\min} – the minimal value of criterion, which must be gained to make a decision to rebalance portfolio.

The minimal value of criterion K_{\min} is individual for each investor depends on forecasts accuracy (how reliable forecasting programs and tools uses investor) and investors attitude to portfolio rebalancing.

The specification of formula 13 can be also individual for each investor. One of possible formula 13 specification versions could be excess expected return and incurred costs ratio. Portfolio is rebalanced when is satisfied condition:

$$\frac{E(R_p) - E(R_{p_0})}{C} \geq K_{\min} \tag{14}$$

If investor chooses the minimal value of criterion K_{\min} to be equal to 1, it means, that investor will make decision to rebalance investment portfolio only if the expected increase of

return after transaction costs will exceed transaction costs (the difference between optimized portfolio return before transaction costs and initial portfolio return is twice more than transaction costs).

Using the suggested method investment portfolio would be rebalanced not every period, but only under certain conditions, so this method will ensure implementation of Feng *et al.* (2011), Kozat and Singer (2011) approach to portfolio rebalancing.

Considering the suggested investment portfolio rebalancing decision making method it is important to mention, that it, like and other scientists proposed methods, gives opportunity to evaluate only expediency of option to choose the new optimal portfolio, however it cannot be used for partial portfolio rebalancing. Partial portfolio rebalancing decision could be made based on marginal change of expected return and marginal transaction costs. In this case, investor should sell worst assets and buy best optimal portfolio assets until is satisfied condition:

$$\frac{\Delta E(R)}{\Delta C} \geq K'_{\min}, \quad (15)$$

where $\Delta E(R)$ – marginal change of expected return; ΔC – marginal transaction costs; K'_{\min} – the minimal value of marginal change of expected return and marginal transaction costs ratio criterion, which must be gained to make a decision to rebalance portfolio.

The application of marginal change of expected return and marginal transaction costs approach allows evaluating and making investment portfolio rebalancing decisions, which have the most impact to expected portfolio return, it ensures that no transactions will be made, when the change of expected return only insignificantly exceeds transaction costs. In view of the fact that partially rebalancing the investment portfolio investor chooses not optimal portfolio, which can less or more risky than the level of risk acceptable by investor, portfolio risk can be modified by changing the intensity of the use of financial leverage.

Conclusion

Scientific literature analysis and investigation made preparing this article allow to make some conclusions:

1. The analysis of scientific literature shows that portfolio rebalancing problem is not broadly analysed by scientists, there are two main aspects of mentioned problem investigated: portfolio rebalancing strategies and portfolio rebalancing algorithms.
2. The scientific literature usually propagates the application of the portfolio rebalancing decision making method (algorithm) evaluating expected return after transaction costs, however such an approach cannot ensure best investor needs meeting decisions, because rebalancing investment portfolio incurs real costs for expected return.
3. Investment portfolio rebalancing decision making method based on expected return change and actually experienced transaction costs ratio suggested in the article allows portfolio rebalancing not every period, but only under certain, investor's pre-determined conditions.
4. Even in cases, when using suggested portfolio rebalancing method it is not beneficial to rebalance portfolio, initial portfolio can have assets, which should be sold and purchased new assets from optimal portfolio. Partial portfolio rebalancing should be made based on proposed marginal change of expected return and marginal transaction costs ratio.
5. Partially rebalanced investment portfolio risk can be adjusted by changing the intensity of the use of financial leverage.

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THE DEVELOPMENT OF FREEDOM AS A VALUE IN THE PROCESS OF INDIVIDUALIZATION

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Abstract

In the article the development of the value of freedom in European political thought is considered, the stages to its understanding in the context of group and individual rights are analyzed, the process of individualization and its connection with the freedom is revealed

Keywords: Freedom, liberty, state, governor, individual, rights

Instruction

The consideration on idea of freedom have arisen since the Antiquity times. Freedom at that time was an attribute of the state. It represented the degree of interaction between society and monarch who personified the state. Then the state and society were inseparable, and freedom meant the implementation of laws by a society established by the state. The power of monarch was absolute and he was the only person who could have been free from execution of state laws. Society consisted of the privileged nobles close to the governor, on the one hand, who were endowed with the high status and role within the state and the rest of society, on the other hand, whose lives were managed by the state through subordination and compulsion, and were entirely dependent on the will of the monarch. At that time the inobservance of the laws and civil disobedience led to a person's imprisonment or loss of life and thus meant the deprivation of freedom. In the age of Antiquity relations of domination and subjugation were considered the basis for peaceful coexistence between human beings and guaranteed the sustainability of social order. The main advantage of freedom, according to Plato, is that it depends on the government as well as the child depends on his parents. Citizens do not obey the private individuals, they obey the state-based set of laws, and this is how they get honorable positions in the state. Every other kind of freedom is, according to Plato, the freedom from obeying the laws, which can only belong to governors. [1, 24].

Later, during the Middle Ages, the separation of the authorities from society have arisen. The governor aimed to strengthen his power, thus, the privileged members of society and the rest of society found themselves defenseless to the power of monarchs. Then the state was separated from the society. Trying to keep their power and authority within the state nobles began to appeal to the social needs and interests, and different parts of society rallied round them. So began to form caste society, which comprised of groups of individuals united by a common social background, goals and interests. Consequently, the absolute power of the monarch lost his inviolability due to loss of public support and new social classes did not want to subordinate to it anymore. Then gradually the primary social ties between the human being and his family ruined and the subordination of the person of parental care through the state eroded for the need to expand freedoms and remove the restrictions imposed by the state on the person. Thus began the process of individualization. An individual lost his primary social ties that bound him to the family and integrated with other individuals based on common interests, needs and goals [2, 72-80]. The interest groups began to formulate

their urgent demands and appeal to independence of different social classes, overcoming religious differences and the development of new forms of life. With the formation of interest groups in the period from the eleventh to the sixteenth century the freedom was no longer the embodiment of submission, it was rather determined by the presence of the private privileges that protected the interests of various social groups. For example, in England since the twelfth century the freedom within the law has been considered an inherent privilege of all English society. Since the thirteenth century, in England was formed the understanding that subjects of the state are under the authority of the ruler rather than the owner. The ruler obeys the law along with all other members of society and it cannot be abolished [3, 30]. For example, in the writings of Machiavelli the liberty was limited by the personal benefits and advantages which person used in terms of ordered rule [4, 18]. These liberties have been created over a long period; they were established and changed gradually. As such group privilege could be mentioned the abolition of serfdom. The freedom of the peasant stipulates that between him and the ground there is no any other property that is owned by a seignior, urban dweller or capitalist; the freedom of peasant meant also that the farmer is not dependent on anyone and can sell the excess of the products that he produces without any intermediaries [5, 312-313].

During the Renaissance the understanding of freedom changes due to the isolation of the individual, because his life is not guaranteed by his traditional status anymore, but depends on his own efforts. Getting free from the traditional economic and political shackles, a person gains her liberty, that presupposes the independent and active role of the person in the new system. At the same time, an individual is freed from ties that determined his sense of belonging, his confidence and security [6, 49].

Liberalism appears in Europe in the seventeenth century in response to the strengthening of absolute power of monarchs in order to put the limits of state power and establish the individual rights. It represents people's desire to expand freedom in political and economic spheres, defend their beliefs and thoughts. Liberals emphasized on the distribution of the powers of the state in order to prevent the misuse of power and limitation the privileges of social groups and individuals. They sought for the equality within the law and independence of judicial branch of power from the legislative and executive branches [3, 31].

At the end of the seventeenth century, it was formed the theory of the natural rights and freedoms of the personality. At this time freedom becomes a value. The idea of freedom as a value first became widespread in patristics, when person appealed to God and first called him as "You". An individual began to perceive himself existentially, understanding his own freedom. For example, J. Milton in his work "Eikonoclastes" notes, "no one can disagree with the fact that a human being is born equal in the image and likeness of God" [7, 18]. At the same time the ways to the rights and freedoms of society are identified. The need to protect the individual from the arbitrary power of the state has led to an emergence of the new type of state, which is formed on the basis of the establishment of the rights, freedoms and the protection of basic human needs.

The right became the special complex of conditions that set the limits on actions of the one person towards another person that were determined by the general law of freedom. The concept of the natural law was acknowledged an absolute value of modern times and became the basis for development the rights and human reason, as a prerequisite for all other human rights. This concept has received some features such as inalienability, indigenosity and unconditional belonging to individual. In times of antiquity and the Renaissance there was no reference to human rights, and philosophers of modern times have considered the freedom as an unlimited satisfaction of certain specified individual civil rights. Thus, freedom began to exist as a moral space between the ruling and the ruled.

According to J. Locke, in an ideal society the individual is subject of his own freedom being an independent employee within the state. Wherein the right within the state can serve

an instrument of congruence with freedom of the individual. J. Locke believes that "those who have the legislative or supreme authority in any state should govern according to established permanent laws, which are known to society but not only by the royal decrees. Activities of courts and public authorities should focus on peace, security and social welfare of the people" [8, 120].

T. Hobbes in his writings «De Cive» and "Leviathan" emphasizes that a citizen of a sovereign state is free as a member of the civil association, if he is not restricted in exercising his abilities to achieve his goals and realize interests. The government can only restrict a citizen in violation of the rights of others and do this by forcing the citizens to adhere to the laws equally. Where the law ends there the freedom starts. The person is free as long as the state law does not require the society to act in a violent way and allows the individual to act at his own discretion within the law. [9, 27-28; 10, 84].

J. Milton in his work the "Eikonoclastes" argued that in addition to religious freedom "the rest of freedom consists of civil rights and personal development" and that "it is possible to enjoy them fully only in a free country". The political body loses its freedom as well as the physical body of a human being, when it is deprived compulsorily of the ability to act at its own discretion. On his opinion, the use of such force leads to tyranny. Considering on the freedom of the majority and the minority of society, J. Milton emphasizes that the freedom of the minority should rather have been preserved than the majority was allowed to turn the minority into slaves. Those who seek for their legitimate freedom have to defend it in accordance with their own abilities no matter how many votes are against it [7, 20].

M. Needham points out that only by adopting laws that guarantee the freedom the government can provide high level of life, protect private property and set the good for society [6, 30]. M. Needham said that a free citizen who is the "keeper of personal freedom" is the basis for the formation of a free state, which is the highest form of the state. Later E. Sidney in his paper "Discourses concerning government" draws the analogy between the freedom of states and freedom of individuals. He distributes the well-known thesis, established by the French political thought that "everyone should do his business in its own discretion, and what is right for individuals is a fortiori right for the entire nations" [11, 118]. Hence, it follows a number of conclusions for the constitutional system of the state. At first, if the state or republic is considered free, the laws that govern it and define the rules of social behavior should be adopted with the consent of all its citizens, members of the political body as a whole. If there is no such a consent then the political body does not move as it should and this means that it lost its freedom. J. Harrington in his book "The commonwealth of Oceana: a system of politics" concludes, "the nation taken separately is a set of private interests of individuals, but if to take all the people together, they form the public interest" [12, 64]. However, at the same time in different social groups, there are different interests, so when the authors talk about the will of the people they usually refer to the will of the majority.

S. L. Montesquieu in his writing "The spirit of laws" distinguishes political laws from civil laws and makes a division between the state and civil society in contrast to views of T. Hobbes. Political laws are the laws of civil society, transformed into the state and consolidated by the law. They give to people some freedom of action within the state by limiting their natural freedom. Civil laws are not prescribed in government documents; they are formed by a set of generally accepted rules of social interaction within the society. He also distinguishes civil liberties from political liberties, and determines their protection the main task of the state. The philosopher considers the political freedom the opportunity to do everything that is permitted by the laws and do not do what is prohibited by the laws; otherwise, there is not a freedom. Among civil liberties, the author marks out the sense of individual security, protection of individual from his persecution of the state, humane

criminal law, strict adherence to the rules of justice of both authorities and citizens, preventing the abuse of power by officials [13, 32].

J. J. Rousseau in the book "A discourse upon the origin and foundation of the inequality among mankind" noted that "it is not the nature of things that disturbs us, but the bad will of the people" [14, 78]. Thus, the criterion of violation of personal freedom is interference of other people into the person's free will. So, the higher non-interference is, the higher is degree of freedom. Freedom, in his opinion, should be limited, since people would be free to throw the obstacles in ways of others that would cause social chaos and lead to the fact that even the smallest human needs could not be met without causing harm to another person and violating his freedom. In this case, it would become impossible to achieve the equality between people while unlimited freedom would provide the same rights to the poor and powerful persons. Hence, the poor would be definitely abused by the powerful. Human interests and needs can never become completely the same and come in absolute harmony. The values of justice, equality, welfare, safety and culture are essential to freedom, because they contribute to its shape and definition and that is why freedom can be limited for them.

J. Bentham supposed that concept of freedom is purely negative, because its presence always means the absence of something else, namely a certain degree of restrictions or containment. It is taken for granted that the use of violence or threat of use it through coercion relates to the kind of restriction, which implies the violation of individual freedom. However, the freedom occurs not only as aspiration to get rid of coercion, but also as desire to get free from dependence [15, 56].

F. Voltaire in the work "Philosophical Dictionary" takes a person as a free social being which is surrounded by other free social beings. The individual as a social being is equal to others, and he has the right to exercise his freedom. Individuals granted the state the functions of general management in order to guarantee their rights. Among all the values F. Voltaire asserts the freedom as the biggest gift of God to a human being, as it is "an ability to think what a human being wants and do in accordance with his own will". To preserve the freedom the society should reform constantly, because the stagnation or rejection of reforms leads to a revolutionary explosion of the masses, leading to the destruction of the political system [16, 205].

G. Hegel in the "The philosophy of right" reveals the division between the civil society and the state, arguing that civil society is a realm of freedom, while the state is the area of law and government rule. Thus, the interaction between society and state in terms of values appears in the opposition of "freedom" and "power". Due to this opposition, there were formed different types of political regimes. Since totalitarianism is the personification of the highest concentration of power in one hands, it is characterized with the lowest degree of freedom. Authoritarianism is a transitional type that is described by the struggle between society and state while the level of concentration of state power depends on the rigidity of the regime. Democracy assumes that the state manages only mechanisms of control of laws enforcement in accordance with the rule of law. Also, the state authorities provide a wide range of public freedoms that are independent of each other. And anarchy is considered by complete and all-encompassing freedom and lack of power and the state as such at all [17, 120].

The idea of freedom inspired revolutions in Europe and social development of the national governments. One of peculiarities of freedom was the problem of aligning the diverse goals of people. Individual goals differ considerably; they cause the conflicts at both the individual and the social levels. That is why freedom of choice and need to choose are necessary to avoid conflicts. J. E. Acton considers the freedom an intrinsic value of human, rather than temporary need that arises under the influence of ideas of disordered life.

Freedom is not a disease that can be treated with panacea. In each society the understanding of freedom derives from the moral, religious, intellectual, economic, and aesthetic values that are associated with our understanding of good and evil, the nature of human being and his needs [18, 33-35].

During the seventeenth and eighteenth centuries the freedom was perceived as a "reconciliation" of group interests, such as different denominations. In the end of the eighteenth century the idea of freedom, which theoretically developed from the Renaissance, the Reformation and the French Revolution, gets its consolidation in the Declaration of human rights that was adopted in France [19]. Since then during the nineteenth century the freedom as a value becomes the basis of the ideology of liberalism. In the twentieth century the freedom serves as an alternative to communist and fascist dictatorships. During all that period of time the liberals were looking for the type of political regime that could be compatible with freedom [5, 325; 3, 48].

European history and the history of USA were marked by a constant struggle for different types of freedoms in the political, economic and spiritual spheres. Social classes at a certain periods of time sought for universal freedom, then when they acquired more power, they got new privileges that they had to defend. The desire for freedom was realized in the principles of economic liberalism, democracy, individualism, separation of the church from the state. The elimination of external interference of the state in the functioning of the most important spheres of public relations was not only necessary but also sufficient way to achieve the freedom of every member of society. However, it is important to understand that as long as a person keeps in contact with the outside world he/she is not free. This connection guarantees to a person a sense of belonging to something, as it ensures the safety and security through the values, attitudes and interests shared with others. This correlation between the human being and the external reality can be called the "initial communication". It is natural bond, as it follows from the natural forms of human existence and development. This type of communication is characterized by lack of individuality, however it gives to a person the confidence and stable life orientation. It connects the child with his mother, links ancient people to their tribes, and the citizens of medieval cities to the church [6, 97].

One of the famous philosophers of the twentieth century N. Bobbio in his book "Liberalism and democracy" suggests two main interpretations of the concept of freedom. First is the "positive" or inner freedom and second is "negative" or external freedom. The "positive" freedom means that people obey only those laws that were accepted with their participation. In other words, this internal freedom can be called "freedom for". The "negative freedom" means that people are released from the constraints imposed on them by the state or nature and this is called the "freedom from," which can not be occupied by any authorities or government. Within this type of freedom it is recognized the human right to avoid activities authorized by the state, on the one hand, and maintain the right of others to do their activities on their own discretion. The "negative freedom" formed the basis of liberal political tradition and "positive freedom" made an impact on establishing of democracy. N. Bobbio argues that liberal is a person who seeks to expand the scope of human actions which are not prohibited by the state law. This implies that liberal affiliates to external "freedom from". The democrat is that who aims to increase the number of actions that are managed by the state regulation, thus democracy is trying to create conditions under which it is possible to expand the inner freedom without violating the freedom of others. Both liberalism and democracy are individualistic political theories that determine an individual their main driving force. Liberalism scrutinizes the freedom as a method of activity of isolated individual whereas democracy examines the individual within the group. These two types of freedom are complementary, because the civil liberties are protected by liberalism while the political freedom is guaranteed by democracy. In conditions of absolute regimes these two types of

freedom disappear at the same time. The modern European countries are liberal democracies mainly, they are dominated by the four major types of freedom: personal freedom, freedom of speech and press, freedom of assembly and communication. These values stipulate the functioning of such important values for modern political system as universal suffrage and political pluralism [20, 76; 78-80].

Famous English philosopher I. Berlin, in his paper "Liberty: incorporating four essays on liberty" asserts that freedom should not be mixed up with equality and independence. The freedom, on the author's point of view, is the ability to enjoy something until other people prevent an individual from doing it, that is, as long as others do not interfere in the sphere of human action. However, personal freedom can be realized only in self-organized society. Preservation of freedom does not depend on whether it is concentrated in one hands or not. It depends on the amount of power and authority that is in charge of government officials [21, 96].

Despite the fact that individual is free by his nature, he gives a part of his freedom to authorities and also loses part of his freedom because of his own desire for power. The level of individual freedom requires the freedom of space between society and the state and the legal mechanisms that would guarantee the freedom. The more a person is free within the community the more he/she supports own freedom and independence. Cohabitation with other members of community also imposes obligations on people and restricts their freedom, because the right to swing one's fist ends where the other man's nose begins [22, 160-162].

To be a part of the society and at the same time to be free of it is impossible, thus the public law states: "Do no harm and do not disturb another person". Anyone who violates the freedom of others is not free not only in relation to them, but also in relation to himself. The source of the freedom of modern society is the freedom of each individual. In this sense respect to the law leads to the fact that people within society feel free [23, 49-50].

The modern Western world names itself the world of freedom, thus implies the existence of various kinds of freedoms even to excessive ones. Different freedoms often are in opposition or in conflict with each other, some of them are restricted and might be changed by other freedoms. This interchange of freedoms can be considered one of the secrets of progress in Europe. For example, absolute human rights are reflected in the Universal declaration of human rights of the United Nations Organization on 10th of June, 1948 and in the Charter of human rights of the Council of Europe. These provisions became an integral part of majority of democratic constitutions in Europe [22, 46].

The next level of freedom of self-determination was conceptualized in postwar Europe and actualized during the Cold War period (1946-1991). This degree of freedom is not aimed at gaining power, but on the development of interior potential of a person. Freedom becomes a person's ability to make decisions about his life, change it creatively and determine who he wants to be as a personality. His work thus does not rely on pure consumption, but also on his creative abilities. In a developed civil society, the freedom of choice of profession and creative work are among the most considerable expressions of human freedom.

According to J. Messner, the individual freedom is founded on the rights of self-determination, on identifying the objectives of person's life, his life goals without any interference of other individuals or society as a whole. Only the common good may measure a person with pursuing his own interests. As noted by J. Messner, the source of human freedom lies in existential purposes such as rights and personal development. Therefore, freedom is based on the rights rather than the rights are based on the freedom [24, 85-88].

F. von Hayek in his work "The Road to Serfdom" believes that the value of freedom is in its essence, in what it guarantees and what it opposes. The main issue here is how this freedom can be implemented. In Britain freedom is guaranteed by the institutions that monitor the implementation of laws and guarantee the rights to citizens. Universal freedom

consists of other freedoms that supplement each other: it is a consequence of the separation of church from the state, the rule of law and protection of private property, the parliamentary government and independence of judicial branch of power; it is a consequence of the lack of concentration of power [25,181].

According to Dahrendorf in his book "The modern social conflict: the politics of liberty" creation of an open and free society requires a notion of chance, which is more than the prerequisite of action, but less than the action itself. The conflicts of modern society are associated with life chances of people. The purpose of the policy of freedom should be to provide more chances for more people [26, 33].

At whatever public, group or individual degree the freedom was, people support it because of understanding that some way of life is true and not only for its abstract nature. To realize his own freedom the person always takes into consideration his own values, ideals and goals. Building the life in the conditions of liberty, person should realize the limits of his own activity on the basis of observance of laws and obligations in relation to others. So, a person can realize his freedom successfully and develop it through the adherence to his values, interests and goals, respect of rights of others and be responsible to the state according to the law.

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PERCEPCIÓN DEL ROL QUE DESEMPEÑAN LAS MUJERES EN PUESTOS A NIVEL DIRECTIVO DEL MERCADO LABORAL

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Abstract

Today, the role played by women occupying managerial positions in the workplace is limited by the existence of gender discrimination. Under this premise, and in order to know the perception of the activity of the female sex in this area, was conducted this descriptive study through a questionnaire to 1240 graduates professionals (as) of the Faculty Accounting and Administration of the National University of Mexico (UNAM). The results suggest changes in paradigm shift in terms of employment preference for males.

Keywords: Gender discrimination

Resumen

Hoy en día, el rol desempeñado por la mujer que ocupa puestos directivos en el ambiente laboral está limitado por la existencia de discriminación de género. Bajo esta premisa, y con el objetivo de conocer la percepción de la actividad realizada por el sexo femenino en dicho ámbito, se llevó a cabo el presente estudio descriptivo a través de la aplicación de un cuestionario a 1240 profesionistas egresados (as) de la Facultad de Contaduría y Administración de la Universidad Nacional de México (UNAM). Los resultados obtenidos sugieren cambios en los paradigmas establecidos en cuanto a la preferencia laboral hacia el sexo masculino.

Palabras claves: Género, discriminación

Introducción

El nuevo escenario político mundial, así como la evolución económica mostrada por América Latina durante las dos últimas décadas, han impactado profundamente en la estructura del empleo, afectando de manera distinta a aquellos grupos que conforman la clase trabajadora latinoamericana.

Bajo este contexto, la participación de las mujeres en el ámbito laboral se ha incrementado en forma significativa. En la actualidad, el sexo femenino busca una inclusión más prolongada y estable en dicho mercado; sin embargo, hay que reconocer la existencia de una problemática característica de la mujer profesionista que ocupa puestos de mando.

Asimismo, en el campo laboral es evidente el claro desequilibrio que existe entre mujeres y hombres, cuyos resultados desfavorecen a las primeras al ser menor el índice de participación económica femenina y más alto el correspondiente al desempleo que sobrelleva dicho sexo. Dado lo anterior, la situación de las mujeres en el contexto laboral no puede calificarse como similar a la de los hombres. Esta desigualdad se ve reflejada en la dificultad que encuentran muchas mujeres, aun cuando tienen una carrera profesional, para ocupar

puestos de responsabilidad laboral. Además, son pocas las mujeres que ocupan puestos directivos, tanto en la administración pública como en el sector privado, y todavía es mucho menor el porcentaje de aquéllas que desempeñan cargos de alto nivel.

Marco teórico

De acuerdo con Metz y Tharenou (2001), la discriminación de género constituye una de las mayores barreras para el acceso de las mujeres a puestos de alta responsabilidad. La sociedad moderna actual todavía opera bajo un sistema de desventaja femenina, en el que la estratificación por sexos descansa en la división del trabajo, tanto fuera como dentro de la familia, donde el trabajo generador de recursos económicos es el que se privilegia y permite elevar el *status* del individuo. El acceso de las mujeres a cualquier tipo de actividad remunerada se encuentra restringido por los hombres, sobre todo si se trata de empleos a nivel directivo. (Burke y McKeen 1992; Powell 1999). Por construcciones sociales, para la mayoría de las mujeres casadas, el trabajo doméstico y el cuidado de los hijos son actividades prioritarias y sólo se incorporan al mundo laboral cuando no tienen hijos, éstos han crecido o la situación económica familiar es crítica como resultado de los bajos salarios o el desempleo de los maridos (Martínez 1995, Oliveira y Ariza 2001).

Dadas sus repercusiones económicas, uno de los ámbitos de discriminación de género más analizado es el salarial. Esto ha llevado tanto a diferentes autores (Burke y col. 1992; Guy 1992; Naff 1994; Powell 1999; Van Vianen y Fischer 2002, y Montesinos 2005), como a organismos internacionales (OIT 2004), a mostrar y denunciar la existencia del denominado *techo de cristal*, término acuñado por Segerman-Peck (1991) que alude a esa última barrera, justificada en prejuicios hacia las mujeres, que les impide el ascenso a posiciones de alta jerarquía, quedándose así estancadas en niveles medios de dirección. Dicha barrera imposibilita a muchas mujeres, con capacidad personal y profesional, a alcanzar posiciones en los entornos directivos y promocionarse dentro de los mismos (Sarrió, Barberá, Ramos y Candela 2002).

Si bien durante las últimas décadas, se han producido cambios notables en nuestra cultura con respecto al rol de la mujer en los diferentes espacios de actuación, “los estereotipos de género, las creencias generalizadas acerca de los rasgos que supuestamente poseen hombres y mujeres y que distinguen a un género del otro siguen estando vigentes” (Baron y Byrne 2005; Diekman y Eagly 2000, citado por Agut y col 2007, p. 203). Pese a que obviamente existen diferencias entre hombres y mujeres, la magnitud y el alcance de las mismas es mucho menor de lo que sugieren los estereotipos; sin embargo, estos modelos aún persisten y condicionan el comportamiento masculino y femenino en todas las esferas de la vida diaria, incluida la laboral.

De esta manera, se asume que las mujeres tienen una menor disposición a aceptar puestos de responsabilidad, especialmente aquellos que implican horarios largos de trabajo, disposición para viajar y traslado de residencia. De hecho, existe la convicción de que los hombres son mejores directivos, ya que se cree que ellas siempre le darán prioridad a sus responsabilidades familiares (Sarrió y col. 2002) o preferencia a la estabilidad de un empleo seguro, más que a un cambio en su búsqueda de ascenso o mejoría en un mismo espacio laboral (Erler 1988 y Escobar 1993, citado por Guzmán 2000).

A todo esto hay que añadir la carga que supone el trabajo informal, como lo son el trabajo doméstico, familiar y de cuidado de niños, personas mayores o enfermas, al cual han dedicado y dedican su tiempo las mujeres (Durán, Serra y Torada 2001). Estas actividades continúan estando poco reconocidas, valoradas y contabilizadas en las estadísticas laborales oficiales, centradas fundamentalmente en las actividades realizadas al amparo del mercado regulado del trabajo, quedando el empleo informal a la sombra de las estadísticas (Martínez 1995).

Asimismo, la idea de la mujer como fuerza de trabajo secundaria se estructura, en primer lugar, en torno a una concepción de familia nuclear, en la cual el hombre es el principal/único proveedor del hogar y la mujer es la principal/exclusiva responsable del cuidado doméstico y familiar (Abramo 2006). En este modelo, la inserción de la mujer en el ámbito laboral, cuando la hay, es considerada como un aspecto secundario de su proyecto de vida que ocurre, básicamente, cuando el hombre no cumple con su rol de proveedor por diversas causas: desempleo; disminución de sus remuneraciones; enfermedad; incapacidad temporal o definitiva u otro tipo de infortunios, o cuando en el hogar la figura masculina está ausente por muerte, separación, etc., lo que se traduce en una situación de crisis económica ante la cual es la mujer quien se ve obligada a desempeñar el rol de proveedora (Davidson 1991; Olivera y col. 2001; Burke y col. 1992, y Martínez 1995).

Finalmente, en el imaginario empresarial, esa inserción secundaria, eventual e inestable conlleva, necesariamente, a altos costos asociados a la maternidad, cuidado infantil, altas tasas de relatividad, ausentismo, bajo grado de compromiso con la empresa, así como la imposibilidad de laborar horas extras, turnos nocturnos y viajar, lo que justificaría la exclusión de las mujeres en puestos, funciones y cargos superiores dentro de la jerarquía empresarial (Abramo 2004; Todaro, Abramo, y Godoy 2001, y Lerda, y Todaro 1997).

Todos estos paradigmas imperan en la sociedad mexicana actual, donde la percepción del rol de la mujer está definida por estas mismas situaciones aun cuando, con mayor frecuencia, las mujeres profesionistas alcanzan niveles directivos en el mercado laboral. Dado que en la Facultad de Contaduría y Administración de la UNAM egresa un 60% más de mujeres que de hombres, suscitó gran interés preguntarles si ellas ¿han sido relegadas por este tipo de discriminación?, ¿ocupan puestos directivos?, ¿son ellas mismas las que se han limitado el acceso a dichos puestos por cuestiones sociales y de educación?, ¿los profesionistas egresados de dicha Facultad tienen los mismos prejuicios?, ¿realmente el acceso de las mujeres a puestos directivos se limita por cuestión de género?

Ya que es evidente una diferencia en la percepción de hombres y mujeres respecto al rol que desempeñan estas últimas en el mercado laboral, surgió el interés de conocer la percepción que tienen los (as) profesionistas egresados (as) de esta Facultad con respecto al rol que desempeñan las mujeres en cargos a nivel directivo del mercado laboral.

Para lograr este objetivo se plantearon los tres constructos siguientes:

- **Constructo 1: La mujer como fuerza de trabajo secundaria**

En el contexto laboral actual, ¿se considera a la mujer como fuerza de trabajo secundaria debido a que es el hogar el espacio primordial de su actividad diaria, además de que ingresa a dicho mercado por causa de un fallo del hombre como principal y único proveedor de recursos del hogar, manteniendo un comportamiento laboral limitado, con gran ausentismo, rotación y poco compromiso con la empresa?

H_0 = La percepción que se tiene de la mujer en el contexto laboral actual, **no** es el de una fuerza de trabajo secundaria y complementaria a la del hombre.

- **Constructo 2: Discriminación y desigualdad salarial de la mujer en el mercado laboral**

En la situación actual del mercado laboral, ¿debe pensarse que existe una preferencia al sexo masculino para ocupar puestos directivos, dejando a la mujer en situación de desventaja?, ¿se tiene el estereotipo de rasgos de fortaleza y seguridad en los hombres, y pasividad y sumisión de las mujeres, además de que estas últimas sufren discriminación salarial, acoso sexual, acoso laboral y agresión psicológica?

H_0 = La mujer **no** sufre de desigualdad salarial ni discriminación de género en la situación actual del mercado laboral.

- **Constructo 3: Desempeño laboral por género**

Los directivos en las organizaciones suponen que las mujeres, tienen un menor grado de compromiso con la empresa, ¿resultarían más costosas que los hombres, en lo referente a niveles de ausentismo, rotación y maternidad, además de ser menos disciplinadas y eficientes que ellos?

H_0 = El desempeño laboral de hombres y mujeres **no** es igual en el área directiva.

Método

La presente investigación es un estudio exploratorio y descriptivo, realizado a través del envío de un cuestionario al correo electrónico de 10,600 profesionistas egresados (as) de la Facultad de Contaduría y Administración de la UNAM. Utilizando el software surveymonkey. Se obtuvieron las respuestas de 1,240 de ellos, mismas que se tomaron como muestra para el análisis de los resultados.

El perfil de los participantes fue el siguiente (anexo1): Mujeres 60.2%, hombres 39.8%, solteros 59.6%, casados 33.9%, otros 6.5%. Con edades de 20 a 40 años, 82.2%, de 41 a 55 años 11.1%, y más de 56 años 6.7%. Con la siguiente ocupación: empleado 76.2%, profesionista independiente 17.4%, hogar 2.7%, desempleado 3.7%. Las personas empleadas ocupan los siguientes puestos: operativo 55.5%, gerencial 32.8%, dirección 6.4% y otro 5.3%; Tienen de 1 a 9 años de experiencia el 69.8%, de 10 a 19 años de experiencia el 16.4%, y con más de 20 años de experiencia el 13.2%, no respondió 1.6%. Con nivel de estudios de licenciatura 84.6%, maestría 14.2%, y doctorado 1.2%. El correo electrónico enviado contenía un instrumento separado en tres constructos con un total de 23 reactivos (variables) con escala tipo Likert de 4 rangos, donde: 1= totalmente en desacuerdo; 2= en desacuerdo, 3= de acuerdo, y 4= totalmente de acuerdo, separado por cada uno de los constructos a investigar, además, incluía reactivos de las variables 24 a la 36 para conocer el perfil del entrevistado (a).

Las variables por constructo fueron las siguientes:

- **Constructo 1: La mujer como fuerza de trabajo secundaria**

- V₁ Desigualdad laboral por género;
- V₂ Mujer, cuidado doméstico y familiar;
- V₃ Hombre como proveedor de recursos;
- V₄ Ingresos de la mujer considerados como secundarios;
- V₅ Mujer, trabajo y proyecto personal;
- V₆ Trabajo doméstico y familiar con poco reconocimiento;
- V₇ La mujer como proveedora económica de la familia, y
- V₈ El hombre como colaborador en labores domésticas.

- **Constructo 2: Discriminación y desigualdad salarial de la mujer en el mercado laboral**

- V₉ Desventaja femenina en niveles directivos;
- V₁₀ Barreras de género;
- V₁₁ Estereotipo de la mujer;
- V₁₂ Desigualdad salarial por género;
- V₁₃ Autolimitación de la mujer;
- V₁₄ Estereotipo del hombre;
- V₁₅ Mujer y acoso sexual, y
- V₁₆ La mujer, acoso laboral y agresión psicológica.

- **Constructo 3: Desempeño laboral por género**

- V₁₇ Productividad por género;
- V₁₈ Eficiencia por género;
- V₁₉ La mujer y el compromiso laboral;

- V₂₀ La mujer y su comportamiento laboral;
- V₂₁ Limitantes laborales para la mujer;
- V₂₂ Maternidad y productividad, y
- V₂₃ Apoyo femenino de crecimiento laboral.

Para el procesamiento de los datos se utilizó el mismo software, del que se obtuvieron las medias y el porcentaje de respuesta de cada una de las variables. Para la comprobación de la hipótesis en cada uno de los constructo se aplicó el coeficiente de correlación para contrastar las evaluaciones medias entre hombres y mujeres y de esta forma determinar las tendencias de sus respuestas

Hallazgos

En relación al Constructo 1: *La mujer como fuerza de trabajo secundaria*, se encontró lo siguiente:

- En México existe desigualdad de género en el mercado laboral, y son las mujeres (77%) quienes más percibieron este hecho frente a los hombres (60%).
- Con evaluaciones superiores al 90 %, ambos géneros estuvieron en **desacuerdo** en: cuidado doméstico y Considerar a la mujer como la principal/exclusiva responsable del familiar,

Que el lugar básico y esencial de trabajo de la mujer sea la familia, la casa y el universo doméstico,

económicos en el hogar, y la Que el hombre es el principal/ único proveedor de recursos mujer ingresa al mercado laboral por una falla del hombre en su rol de proveedor

- Más del 85% de ambos géneros estuvo de acuerdo en que el hombre debe colaborar con las labores domésticas y la mujer en la economía familiar, opinión del 96%
- Fueron las mujeres quienes más percibieron (91%) el poco reconocimiento y valor otorgado al trabajo en el hogar y familiar, en comparación con los hombres (81%).
- Las mujeres estuvieron totalmente de acuerdo (93%) en que ingresan al mercado laboral por necesidad propia y proyecto personal; el 88% de los hombres opinó lo mismo
- Por último, el sexo femenino manifestó, en un 70%, que hoy en día está mal visto por la sociedad que ella trabaje y el hombre sea quien realice las labores domésticas; evaluación similar (65%) fue manifestada por el sexo contrario.

Para aceptar o rechazar la hipótesis en este constructo, se procedió a contrastar las evaluaciones medias entre hombres y mujeres para demostrar la tendencia de las respuestas. Cuando el coeficiente sea muy cercano de 1, se entenderá que las medias de respuestas de género se comportan casi igual que la media de las respuestas globales; cuando sea superior a 0.5, significará que las medias de respuesta de género son distintas de las medias de respuesta global. El coeficiente menor que 0.5 y cercano a 0, mostrará que no existe parecido alguno entre las medias de respuesta por género y las globales.

Tabla 1.1 Constructo 1: La mujer como fuerza de trabajo secundaria

	μ Mujeres	μ Global	μ Hombres	μ Global	μ Mujeres	μ Hombres
Constructo 1	0.999		0.926879396		0.92240103	

Existe una uniformidad en las respuestas dadas por ambos géneros, que no difiere de manera significativa de la media conjunta de resultados. Las medias de mujeres y hombres comparadas con la media conjunta son de 0.999 y 0.927 respectivamente, además, el contraste entre ambos géneros también es cercano a la unidad con 0.922. Salvo una diferencia significativa en la variable 9 en lo referente a cómo es visto por la sociedad que la mujer trabaje y el hombre se ocupe de labores domésticas (Tabla 1.1).

Por lo tanto, se acepta la hipótesis **nula** en este constructo donde la percepción que se tiene en el contexto laboral actual de la mujer, *no es el de una fuerza de trabajo secundaria y complementaria a la del hombre, por lo que se asume que hombres y mujeres no perciben a la mujer como fuerza de trabajo secundaria.*

En lo referente al **Constructo 2. Discriminación y desigualdad salarial de la mujer en el mercado laboral:**

- Con evaluaciones superiores al 70%, ambos géneros están de acuerdo en: El estereotipo del hombre como poseedor de fortaleza y seguridad.

Que la mujer sufre de conductas hostiles en el ambiente laboral, como acoso y agresión, con mayor frecuencia que los hombres.

Que **sí existe desventaja femenina barrera de género para el acceso** a trabajos en niveles más la perciben con un 79%, frente al 54% de los directivos, y son las mujeres quienes hombres.

- Respecto al trabajo gerencial, tanto hombres como mujeres manifestaron que **no existe una preferencia masculina; en este sentido, son más los hombres (73%)** que las mujeres (57%) quienes están en **desacuerdo** con esta aseveración.
- El 60% de ambos géneros estuvieron en **desacuerdo** con que es la mujer quien se auto-limita para ocupar puestos directivos.
- El 72% de las mujeres opinó estar de acuerdo con el estereotipo de la mujer como poseedora de rasgos de pasividad y sumisión, habiendo un contraste importante con la opinión masculina, ya que sólo el 46% de ellos estuvo de acuerdo con esta afirmación.
- Finalmente, el 66% de las mujeres estuvo de acuerdo en cuanto a que la percepción de su salario en puesto directivo es menor que la obtenida por el hombre; mientras que el 60% de los hombres opinó lo contrario, ya que ellos manifestaron que no existe desigualdad salarial por género.

Para aceptar o rechazar la hipótesis en este parámetro, se realizó el mismo procedimiento de contrastación utilizado en el anterior, obteniendo para el segundo los resultados que se muestran en la Tabla 1.2.

Tabla 1. 2. Constructo 2; Discriminación y desigualdad salarial de la mujer en el mercado laboral

	μ Mujeres	μ Global	μ Hombres	μ Global	μ Mujeres	μ Hombres
Constructo 2	0.975		0.891068711		0.769562853	

Los resultados obtenidos muestran que en éste constructo hubo una mayor disparidad entre las medias de las respuestas de hombres y mujeres (0.77), siendo los hombres quienes se mostraron más alejados con respecto de la media conjunta (0.975), evaluando con mayor frecuencia “de acuerdo” y “en desacuerdo”, de manera distinta que las mujeres.

También se encontró una mayor diferencia comparativa entre las respuestas de hombres y mujeres; lo que se interpreta como la percepción en forma distinta de uno de los géneros con respecto a las aseveraciones de las preguntas expresadas por el otro.

Por lo tanto, se **rechaza la hipótesis nula** que declara que *la mujer no sufre de discriminación y desigualdad salarial de la mujer en el mercado laboral*, ya que se encontró que las mujeres están de acuerdo con las aseveraciones del constructo, y se determina que: en nuestra sociedad **si existe** una preferencia hacia los hombres para ocupar puestos directivos; la mujer se encuentra en desventaja ante tal situación; existen estereotipos demarcados por la sociedad hacia hombres y mujeres, además de que la mujer sufre de discriminación por género, barreras de acceso a puestos de dirección, acoso sexual y conductas hostiles, en mayor grado que los hombres.

Con respecto a los resultados obtenidos en el Constructo 3: **Desempeño laboral por género:**

- El 74% de ambos géneros opinó que una limitante en el ámbito laboral, para que las mujeres acepten trabajos en el extranjero, es estar casadas.
- En lo referente a maternidad y productividad, el 67% de hombres y mujeres estuvo de acuerdo en que la protección a la maternidad atenta contra la productividad de la empresa, siendo las mujeres (72%) quienes perciben esta situación en mayor medida que los hombres.
- El 63% de ambos géneros estuvo de acuerdo en considerar que las mujeres apoyan al crecimiento y desarrollo de otras mujeres en el ámbito laboral
- El 72% de ambos géneros estuvo totalmente en desacuerdo con el argumento que sostiene que los empresarios consideran a la mujer menos productiva y menos eficiente que el hombre.
- A su vez, el 96% de ambos percibieron a la mujer muy comprometida con su trabajo.
- Finalmente, el 90% de ambos géneros rechazó que la mujer, en su comportamiento laboral, tenga alta relatividad y ausentismo y, además, que no está limitada para trabajar horas extras y en turnos nocturnos.

Tabla 1.3. Constructo 3 Desempeño laboral por género

	μ Mujeres	μ Global	μ Hombres	μ Global	μ Mujeres	μ Hombres
Constructo 3	0.997		0.988688544		0.974398325	

Los resultados obtenidos en el coeficiente de correlación, demuestran que las respuestas de hombres y mujeres tuvieron un comportamiento uniforme (0.989 y 0.974 respectivamente, que no están nada alejados de la media conjunta 0.97), ya que no existe diferencias significantes entre estas.

Por lo tanto para este constructo **se rechaza la hipótesis nula** que determina *que el desempeño laboral de hombres y mujeres no es igual en el área directiva*, debido a que ambos géneros manifestaron su postura contraria a las aseveraciones de esencia negativa correspondientes a las variables 21 a la 25, referentes al costo por género, donde el femenino es mayor al masculino, ya que la mujer es menos eficiente que el hombre y tiene menor compromiso para con la empresa, además de mostrar en su comportamiento laboral alta relatividad y ausentismo, como también poca disponibilidad para trabajar horas extras o turnos nocturnos.

Además de los análisis señalados en cada uno de los constructo, se realizaron estudios comparativos en las respuestas obtenidas en cada una de las variables, haciendo un cruzamiento de datos por edad, nivel de estudios y ocupación, encontrándose la misma tendencia de respuestas con respecto de los resultados presentados.

Conclusion

Los resultados mostraron que frente a las necesidades actuales del mercado laboral, al cambio dinámico de éste y la creciente participación de una mujer cada vez más preparada académicamente en el ambiente productivo, los roles que anteriormente estaban bien definidos en las esferas del hogar y del trabajo, hoy en día se han modificado. Ambos géneros están conscientes de su responsabilidad en el cumplimiento de dichas tareas, eliminando muchos estereotipos que se aceptaron y prevalecieron a este respecto.

Actualmente, en el terreno laboral la mujer es percibida por ambos géneros como responsable, comprometida con la empresa donde trabaja e igual de productiva y eficiente que los hombres. Sin embargo, ellas aún observan la existencia de discriminación de género para alcanzar altos niveles ejecutivos, argumento que se vio reflejado en el porcentaje de mujeres que ocupan puestos directivos y gerenciales, 28% versus un 43% correspondiente al de los hombres.

Aun cuando su desempeño es considerado igual al del hombre, la participación de la mujer como fuente de ingresos puede ser un factor determinante en la construcción de nuevas formas de organización y gestión del trabajo, mismo que se verá reflejado en el desarrollo económico y social de las futuras generaciones.

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LA IMPORTANCIA DEL DISEÑO DE ESTRATEGIAS CONGRUENTES CON EL CONTEXTO LOCAL PARA INCREMENTAR LA INSERCIÓN LABORAL DE JÓVENES: UN ANÁLISIS DEL IMPACTO DE REDES SOCIALES EN EL SURESTE DE MÉXICO

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Abstract

Each day world statistics on youth unemployment increase and there is an apparent lack of clear agreement on strategies to curb the current trends. The International Labour Organisation reported in 2013 that there were more than 73 million unemployed youths between 15 and 24 years old. We argue in this paper that public policy is not always best adapted to local contexts when it comes to actions to raise workplace insertion amongst this segment of the population. With reference to a study of university graduates in a public university in the southeast of Mexico, we evaluate the impact of national public policy which takes pertinence and quality of higher education programmes as the key factors that influence school to work transition; but we also evaluate the impact of a well-known and highly used local factor which is ignored by the public policy models, namely horizontal social networks. Alternative strategies are proposed on the basis of the results of this study and we close by generalising the lessons learned in this study to the problems of youth unemployment in general.

Keywords: Youth unemployment, local contexts, social networks, professional work experience, alternative strategies

Resumen

Cada día las cifras del desempleo juvenil en el mundo se incrementan sin que existan estrategias claras para su disminución. La Organización Mundial de Trabajo señaló en su reporte de 2013 que hubo más de 73 millones de jóvenes entre 15 y 24 años de edad sin empleo. En este trabajo se argumenta que las políticas públicas no siempre están lo mejor adaptadas al contexto local en cuanto a acciones para aumentar la inserción laboral de este segmento de la población. Con referencia a un estudio de egresados de una universidad pública del sureste de México, se analiza el impacto de la política nacional basado en la pertinencia y la calidad educativa como los principales factores que intervienen en la inserción laboral de egresados; pero también se analiza el impacto de redes sociales horizontales, como un factor bien conocido y altamente usado por los habitantes de la región pero ignorado por los modelos públicos para la implementación de estos estudios. Con base en los resultados se proponen estrategias alternativas para auxiliar en este problema. Finalmente se considera la relevancia de este estudio para la inserción laboral de jóvenes en general.

Palabras claves: Inserción laboral juvenil, contextos locales, redes sociales, prácticas profesionales, estrategias alternativas

Introduction

“Los jóvenes son el motor del desarrollo económico”, advertía Juan Somavia en el 2011, exdirector de la Organización Internacional del Trabajo (OIT), al señalar el riesgo en que se encontraba el empleo para los jóvenes. En el informe Tendencias Mundiales del Desempleo Juvenil, se señala que “Desaprovechar este potencial es un desperdicio económico que puede menoscabar la estabilidad social. La crisis es una oportunidad para reevaluar las estrategias para hacer frente a las serias desventajas que enfrentan los jóvenes al ingresar en el mercado laboral. Es importante que nos enfoquemos en estrategias integradas y exhaustivas que combinen políticas educativas y de formación con políticas laborales destinadas a los jóvenes” (Organización Internacional del Trabajo, 2011).

En el 2014, tres años después, encontramos un panorama más grave, pese a esta advertencia la tasa de desempleo de población juvenil en el mundo aumento a 6.1%, lo que equivale a 73 millones de jóvenes sin empleo y las perspectivas de futuro señalan un incremento de tres puntos anuales, las cifras serán alarmantes, estudios señalan este problema sin plantear estrategias de solución eficaces (Organización Internacional del Trabajo, 2013).

La OIT ha advertido sobre el riesgo de una generación de trabajadores jóvenes “marcada” por una mezcla peligrosa de alto desempleo, creciente inactividad y trabajo precario en los países desarrollados, y de un aumento de trabajadores pobres en el mundo en desarrollo. El organismo aseguró que los empleos precarios están concentrados en la fuerza laboral de menor edad, que también sufre proporcionalmente un mayor desempleo, lamentablemente muchos países no están haciendo lo necesario para crear empleos.

En la última reunión del Grupo de los 20, los Ministros de Empleo señalan a España como el país europeo con mayor número de regiones peor clasificadas, en cuestión de desempleo juvenil (Euroactiv.es, 2014). La OIT en su informe del 2013, señala que para el 2012, la tasa de desempleo juvenil en el mundo era de 6.1%, mientras para Europa en países como Alemania es de 8.1, en Bélgica de 18.5%, Dinamarca, 13.4%, en Reino Unido de 21.3%, en Finlandia, 21.3%, España, 25.1% y Grecia, 31.7%. (Organización Internacional del Trabajo, 2013)

Para América Latina y México, las condiciones de desempleo son similares, en Chile, Harold Beyer (Beyer, 1998), señalaba en 1998, que la tasa de desempleo era de 6% y se había incrementado a 16% en los últimos años. Entre las cifras para países miembros de la Organización para la Cooperación y Desarrollo Económico (OCDE), en Chile la tasa de desempleo Juvenil representaba en 2012, 17.8%, en Brasil, 16,2 % y para México la cifra era un poco más baja, 9.7% (Organización Internacional del Trabajo, 2013) Lo interesante de su estudio son sus señalamientos que afirmaban que a “mayores niveles de escolaridad aumentan la probabilidad de estar empleado” (Beyer, 1998). 15 años después la tendencia mundial nos dice lo contrario, de hecho los jóvenes denominados *titi*, con estudios superiores y en algunos casos maestría y doctorado, se encuentran en igual condiciones de desempleo.

En un estudio publicado en la Revista el Cotidiano, escrito por Daniel Téllez, se señala que una porción creciente de desocupados está integrada por profesionistas titulados e incluso con posgrado, conocidos como *titi*, diferente a los *nini*, que son jóvenes que ni estudian, ni trabajan cuya cifra es superior a los 2,600 mil, lo que representa el 6.5% de la población total, cifras 2009. Para el caso de los jóvenes que tienen estudios, *titi*, las cifras no son más alentadoras, según datos relevados por la Secretaría de Trabajo y Previsión Social los licenciados cuentan con una tasa de desempleo que ronda en el 10% mientras que quienes cuentan con estudios de educación media superior tienen un desempleo del 8.8%. (Universia,

2014). Como se puede observar, las cifras señalan que el problema de desempleo es más grave entre los jóvenes que tiene un nivel de educación medio superior y superior.

En México, en cuanto a jóvenes egresados de la educación superior, la Asociación Nacional de Universidades e Instituciones de Educación Superior (ANUIES), argumenta que la pertinencia y calidad educativa son los factores principales que intervienen en la inserción laboral. A partir de lo anterior, se considera que al no existir pertinencia y calidad educativa tendrá como consecuencia la poca o nula inserción de los egresados en el mercado laboral, como consecuencia los estudios de egresados son diseñados como herramientas que miden la inserción laboral con relación a los variables de pertinencia y calidad de los planes de estudio.

Sin embargo un estudio realizado en la Universidad Autónoma de Campeche indicó que en el estado de Campeche, no está definido que el ingreso de los egresados en el mercado laboral dependa de la pertinencia y calidad de sus estudios realizados, y, como consecuencia, que el instrumento nacional de estudio de egresados tampoco logra registrar los principales factores que influyen en la inserción laboral. Sin embargo, el análisis de los resultados desde una perspectiva alternativa, tomando en cuenta el impacto de redes sociales, un factor bien conocido y altamente usado por los habitantes de la región pero ignorado por los modelos públicos de estudios de egresados, logró identificar las redes sociales horizontales como un factor determinante en la inserción laboral dentro del contexto local. .

Propondremos que el análisis del diseño y los resultados de este estudio no solamente indican la importancia de las prácticas profesionales, sino señala uno de los mecanismos determinantes en este hecho así como las razones porque estos mecanismos no son más reconocidos.

Un estudio de inserción laboral de egresados de la educación superior en el sur de México

Contexto global del estudio

El escenario que se conoce como *la economía del conocimiento* argumenta que el incremento en recursos humanos calificados (Bell, 1973) (Reich, 1991) por los avances científicos y tecnológicos en el campo de las comunicaciones ha traído como consecuencia el desarrollo de una economía post-industrializada y globalizada. Se argumenta que países que no pueden competir contra los países asiáticos en mano de obra barata deben aprovechar producir recursos humanos de alto nivel para crear nichos en el mercado de alta tecnología. (Lauder, Brown, Dillabough, Halsey, & Eds, 2006) (Halsey, Lauder, Brown, Stuart Wells, & Eds, 1997) En respaldo a esta opción, las políticas educativas deben reorientar el fin de sus sistemas educativos hacia la formación de recursos humanos de alto nivel para una economía basada en el conocimiento (Reyes Heróles, 2008).

La Organización para la Cooperación y Desarrollo Económico (OCDE), propone un permanente retroalimentación entre las instituciones educativas y el mercado laboral para asegurar que los conocimientos, capacidades y habilidades de los alumnos sean acordes a las necesidades económicas de cada país (OCDE, 2000) (OECD, 2001)

La ANUIES (ANUIES, 2000) retoma para el diseño de sus programas elementos propuestos por la OCDE, , con el objetivo de asegurar que los conocimientos y capacidades de los egresados cumplan con las exigencias económicas del país; así como también, por la necesidad de hacer cambios en las estructuras académicas y en los planes y programas educativo; bajo la premisa que el aseguramiento de la calidad y pertinencia de la educación aumenta la productividad del trabajador.

Bajo este esquema, un indicador de que las Instituciones de Educación Superior (IES) en México han cumplido con los objetivos del nuevo modelo basado en pertinencia y calidad son los resultados obtenidos en los estudios de egresados, donde mayor pertinencia y calidad debe verse reflejado en mayor inserción laboral.

Contexto local del estudio

El estado de Campeche ocupa una superficie de 57 727 km², situado en la parte oeste de la Península de Yucatán, y al sureste de la República Mexicana; el 78 % de la población vive en zonas urbanas y únicamente el 22% en rural, tiene una población total de 822 441 habitantes (INEGI, s.f.).

Campeche es el estado con el menor número de habitantes en el Sur, pero como aportador del PIB nacional ocupa el segunda lugar después de Veracruz; más del 80% de su economía depende del sector secundario con la minería sustentando el 74.81% de ello; la industria y manufacturero aporte menos de 1% de la economía estatal. El sector empresarial en Campeche se dedica mayormente al sector primario y al comercio. El mayor fuente de empleo es por el sector gubernamental o en áreas administrativos o educativos. (Russell & Canul, 2012)

Contexto social del estudio

La importancia del capital social ha sido investigado desde los últimas décadas del siglo XX desde diversos enfoques metodológicos (Castells, 2012; OECD, 2001; OECD, 2001; Putnam, 1993; Russell, 2014; Woolcock, 1998) Sin embargo, dado el tema del presente trabajo, el estudio por Larissa Adler (Adler, 1994) de los redes sociales mexicanos tiene mayor relevancia. Adler describe y explica la forma en que en México se van dando las relaciones interpersonales en las estructuras de la sociedad a través de redes sociales verticales y horizontales. Distingue claramente cómo el capital y el poder se expresan mediante redes verticales visibles, incluyéndose en el sector informal, y también señala, la forma como se conforman jerarquías de lealtad, confianza, estilos de vida, e ideologías. Por otra parte, existen las denominadas redes horizontales que muestran como los diversos sectores de la sociedad logran sobrevivir en su quehacer diario, usando relaciones horizontales de reciprocidad para cumplir con los trámites en su vida particular y laboral que de otra manera debido a la estructura vertical no se puede concluir en tiempos efectivos.

Las redes sociales se definen como campos compuestos por relaciones entre personas de una determinada estructura y la manera en que los vínculos establecen la conducta de los individuos depende de su ubicación en este ordenamiento y la manera en que influyen en los mismos.

La similitud entre el contexto nacional descrito por Adler y el contexto local en el Estado de Campeche; es sustentado por un documento de Redondo (2001), que describe la importancia de los redes verticales en Campeche en la búsqueda de empleo. Establece la probabilidad de que al egresado de la universidad con título profesional, se le dificulte encontrar acomodo profesional si no cuenta con relaciones de poder, económicas o sociales y si no está adherido algún grupo; sólo un determinado grupo goza de intercambios recíprocos en las altas de las estructuras de poder; los pocos empleos alcanzados deberán pagar cuotas de obediencia, en muchos casos económicas. La dominación de estas redes verticales acentúa la importancia de contar con redes sociales horizontales para la búsqueda de opciones alternativas para la inserción laboral.

Una investigación local de la Universidad Autónoma de Campeche (García Domínguez, 2008) pretendió identificar si el instrumento nacional propuesto por la ANUIES para el estudio de egresados logra mostrar que la pertinencia y la calidad educativa son factores que intervienen en la inserción laboral de los egresados de la UACam o si se puede identificar otros factores que tienen igual o más importancia, en particular, el papel de las redes sociales.

Metodología

En el proceso de análisis de los resultados del cuestionario diseñado y propuesto en el Esquema Básico para estudios de egresados recomendado por la ANUIES (ANUIES, 2008), aplicados dentro del Programa Institucional de Seguimiento de Egresados de la UACam, como parte de las actividades de mejora de la calidad, después de un primer análisis que respetan las etiquetas originales del cuestionario, se re categorizan algunos resultados con relación al concepto de redes sociales. La información fue procesada por medio a través del paquete SPSS.

Tipo y diseño de la investigación

La investigación realizada es cuantitativa, no experimental, transversal, así mismo, es exploratoria-descriptiva y podría constituir al preámbulo para otras investigaciones.

Población

Se encuentra conformada por el conjunto de egresados de las diferentes licenciaturas de la UACam, el periodo de 1992 a 2002, tomando las bases de datos recopiladas durante el período comprendido entre los años 2004 a 2005.

Muestra

La elección de los elementos no dependió de la probabilidad sino los sujetos analizados fue una selección informal de tipo no probabilística, denominada grupos disponibles y agrupados de la siguiente forma: 33% de Escuela Superior de Enfermería y de las Facultades, el 27% de Humanidades, el 26% de Contaduría y el 14% de Ciencias Químico Biológicas, para hacer un total de 378 casos.

Variables

Las variables originales son pertinencia, calidad educativa y el variable nuevo introducido en el análisis de resultados es relaciones sociales. Pertinencia es descrita con el grado de coincidencia que existe entre los estudios profesionales realizados, la ubicación laboral, aplicada en dos momentos de la vida profesional del egresado, estas categorías relacionadas entre sí y la satisfacción con su situación laboral; asimismo; la calidad educativa se analizó a través del promedio obtenido por el egresado, si está titulado, si realizó otros estudios, relacionándolos con el nivel jerárquico de los diferentes puestos del egresado; y relaciones sociales se analizó en términos de los factores que influyen en la obtención del empleo y los de mayor peso.

Análisis de resultados

Una vez analizada la información, es posible aseverar que al relacionar la coincidencia que existe entre el perfil profesional del egresado de la UACam con su inserción en el mercado laboral se observa que, con la excepción de algunas carreras, no existe una relación determinante entre estas dos categorías. (Véase tabla 1).

Al referirse a cuál es la relación que existe entre la actividad laboral del egresado con la calidad educativa, es importante señalar que una vez que se analizan las categorías, que en esta investigación se operan para determinar la calidad educativa, promedio general de la licenciatura, título profesional y la realización de estudios posteriores a la licenciatura, se infiere que, para ninguno de los casos, sean factores importantes para la inserción laboral, si bien es cierto, que al comparar estos ítems con el nivel jerárquico de los empleos del egresado, se muestra un leve progreso de su ubicación laboral, pero no existe una constante en el incremento para sustentarlo. (Véase tabla 2).

El título profesional es un elemento que debería ser un pasaporte para el empleo, pero con base en los resultados de esta investigación, no se concluye la importancia del título al momento de la inserción en el mercado laboral del egresado, sólo el 33.8% de los encuestados afirman que el estar titulado es un factor de peso en la consecución del empleo.

Es mínima la influencia de la realización de estudios posteriores para la inserción laboral, si bien es cierto que, existe un porcentaje de aumento en los niveles altos en el empleo actual del egresado, no es posible determinar que se deba a la realización de los estudios posteriores efectuados por el egresado, es más bien por la misma naturaleza del mercado laboral, ya que con el paso del tiempo, el profesionista adquiere experiencia y es permisible participar en procesos de promoción laboral.

Se destaca la importancia de los antecedentes socioeconómicos de los egresados y la educación de los padres como factores que influyen en el desempeño de los egresados y su ubicación laboral, aunque no es determinante según los resultados obtenidos en esta investigación, si se identificó la tendencia que los egresados se ubican en los mismos niveles jerárquicos del empleo del padre.

A diferencia de las otras categorías descritas, en la localidad las relaciones sociales se convierten en un factor determinante en la inclusión del egresado al mercado laboral, el 73% de los graduados, como se muestra en la figura 1, afirma que fue a través de ellas que obtuvo su empleo.

El análisis de los resultados del estudio al indicar el alto impacto que tienen las relaciones sociales en la inserción laboral, indica que este depende menos de la pertinencia y la calidad de los estudios, como propuesto por los modelos internacionales e incorporados en los niveles nacionales, y más por las redes sociales del egresado. Los resultados también indicaron que además de la importancia de las redes sociales de la familia, que tenía impacto los redes construidos por el propio estudiante durante su práctica profesional, especialmente por estudiantes provenientes de zonas rurales y de bajos recursos económicos y con mayor importancia en carreras como enfermería

Conclusión

Los resultados del estudio, al indicar el las relaciones sociales como un factor principal en la inserción laboral, sugiere que más que estrategias dirigidas a la pertinencia y la calidad de los estudios, serán estrategias dirigidos a fortalecer el servicio social y las prácticas profesionales, buscando una mayor coincidencia entre estas actividades y su formación profesional con el fin de fortalecer las redes profesionales de los estudiantes, que tendrán mayor impacto en la inserción laboral de los mismos.

No se pretenda argumentar que la pertinencia y calidad de los estudios no son determinantes en la inserción laboral, sino que los resultados indican que son importantes pero no suficientes, se requiere de otras estrategias que toman en cuenta condiciones del contexto local, en este caso, el contexto económico y político y la relevancia del papel de las redes sociales horizontales en la inserción laboral. En estos contextos, las prácticas profesionales y el servicio social pueden ser de vital importancia para todos, pero en especial por los estudiantes del interior del estado y/o bajo nivel económico que no cuenten con las redes horizontales para la inserción laboral en la ciudad en ámbitos profesionales.

El análisis de los resultados de este estudio también indica que modelos de inserción laboral diseñados a nivel macro por instituciones internacionales no son suficientes en analizar y generar soluciones en contextos locales, requiriendo la identificación de factores locales y el diseño de estrategias más acorde con la realidad específica de cada contexto. (OECD, 2009).

La relevancia más generalizado de los resultados de este estudio reside en el hecho de aun que el estudio fue dirigido a egresados del nivel de educación superior, el factor

identificado como más relevante con respecto a la inserción laboral no es particular a jóvenes egresando de la educación superior, sino su relevancia es con respecto al contexto social en el cual los jóvenes están insertos. En este contexto son los jóvenes los que no cuentan con redes sociales horizontales sólidas que son más vulnerables. Esta situación de inserción social precaria, Durkheim llamaba “anomie”, relacionándolo su predominancia en personas desplazado de su comunidad, mayormente en búsqueda de educación y empleo. En contextos sociales que predominan en ciertas provincias de México, incluyendo el estado de Campeche, esta situación afecta a los que migran del interior del estado y en general a las personas cuyas redes sociales no incluyen personas insertas en el mercado laboral en posiciones de poder.

El diseño de estrategias para mejorar la inserción laboral en contextos locales donde predominen estas formas de capital social, requiere priorizar el fortalecimiento de las redes sociales y profesionales de los jóvenes. Oportunidades de participar en contextos laborales estrechamente relacionadas con su formación profesional, habilidades o preferencias, les permitirá no solamente adquirir experiencia laboral, sino también extender sus redes sociales horizontales y, en ocasiones, también verticales, procurando así una mayor inserción social y como consecuencia abriendo mayores oportunidades de inserción laboral.

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Anexos

Tabla 1
Comparación entre la medida de coincidencia del perfil profesional con el nivel jerárquico del primer empleo y el empleo actual del egresado

		Grado de coincidencia del perfil profesional				Totales
		Nula coincidencia	Baja coincidencia	Mediana coincidencia	Total coincidencia	
Primer Empleo	Alto	0.8	0	1.5	2.3	4.6
	Medio alto	1.5	0	1.9	7.3	10.8
	Medio	6.6	3.9	10.0	23.9	44.4
	Medio Bajo	3.1	0.8	2.7	5.8	12.4
	Bajo	5.4	2.3	6.6	13.5	27.8
	Total	17.4	7.0	22.7	52.8	100.0
Empleo Actual	Alto	1.7	0	2.0	3.0	6.7
	Medio alto	1.0	1.3	3.7	12.1	18.1
	Medio	5.4	2.3	9.0	33.6	50.3
	Medio Bajo	1.3	2.0	1.7	3.4	8.4
	Bajo	4.4	1.0	2.3	8.7	16.4
	Total	13.8	6.6	18.7	60.8	100.0

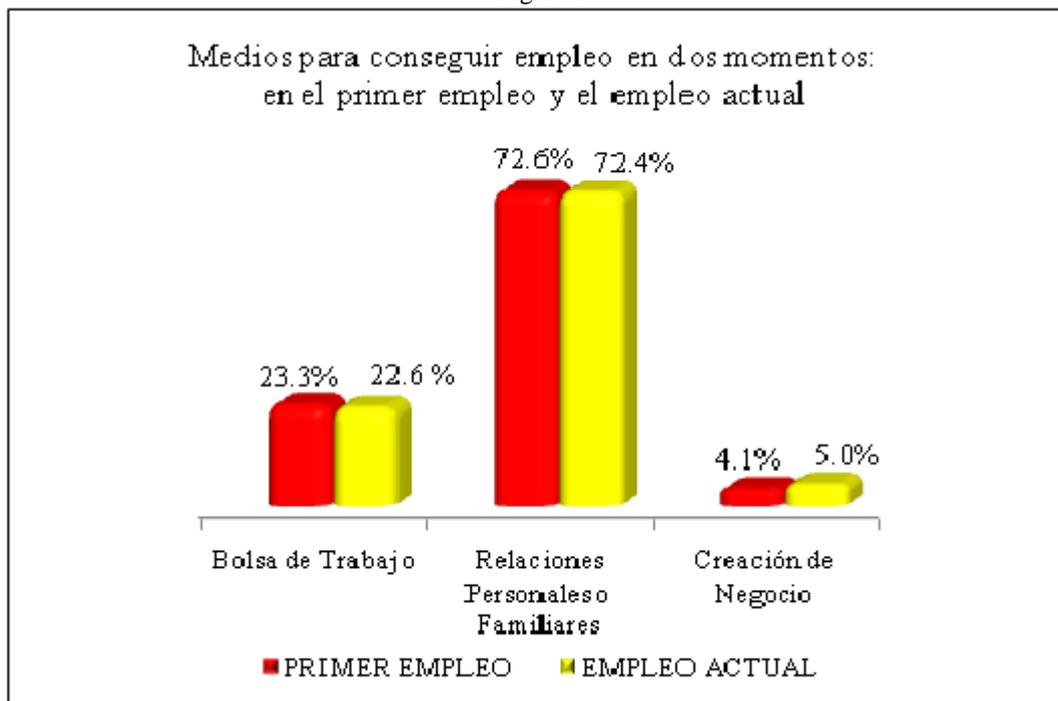
FUENTE: Programa Institucional de Estudios de Egresados. Universidad Autónoma de Campeche.

Tabla 2
Comparación entre el promedio, estar titulado y la realización de otros y el nivel jerárquico del empleo del egresado, en porcentajes

Nivel Jerárquico		Promedio General de la Licenciatura				Titulado		Realizó otros estudios	
		7.0 - 7.5	7.6 - 8.5	8.6 - 9.5	9.6 - 10	Si	No	Si	No
Primer empleo	Alto	0.8%	2.3%	1.6%	0.0%	4.1%	0.4%	3.2%	1.1%
	Medio Alto	1.6%	5.8%	3.5%	0.0%	9.2%	2.2%	5.3%	5.7%
	Medio	6.6%	29.6%	7.4%	0.0%	34.3%	10.3%	19.5%	24.7%
	Medio Bajo	2.3%	5.8%	3.5%	0.4%	9.2%	3.0%	5.7%	6.4%
	Bajo	6.6%	17.9%	4.3%	0.0%	22.5%	4.8%	9.6%	18.8%
	Total	17.9%	61.4%	20.3%	0.4%	79.3%	20.7%	43.3%	56.7%
Empleo actual	Alto	0.4%	4.4%	2.9%	0.0%	5.2%	2.1%	4.7%	2.7%
	Medio Alto	0.7%	10.3%	6.2%	0.4%	17.0%	2.4%	12.3%	6.3%
	Medio	8.4%	30.8%	9.5%	0.0%	37.7%	11.1%	15.6%	33.2%
	Medio Bajo	1.1%	7.0%	0.7%	0.0%	6.9%	1.4%	3.3%	5.0%
	Bajo	6.2%	10.3%	0.7%	0.0%	10.7%	5.5%	4.3%	12.6%
	Total	16.8%	62.8%	20.0%	0.4%	77.5%	22.5	40.2%	59.8%

FUENTE: Programa Institucional de Estudios de Egresados. Universidad Autónoma de Campeche.

Figura 1



FUENTE: Programa Institucional de Estudios de Egresados. Universidad Autónoma de Campeche.

EL DESARROLLO SUSTENTABLE Y LA INSTRUMENTACIÓN DE SU PARADIGMA EN MÉXICO

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Abstract

Since the late 1960s the discussion about the limits of growth fueled the development of sustainable development as a paradigm that has dominated strategies and policies, including the proposal in 2012 of Green Economies. Nonetheless, progress has not been achieved, among other reasons for the absence of integrated public policies. With a general perspective, the experience of Mexico's federal public administration and recent planning instruments is revisited, including the creation of green jobs. With such analysis the conclusion about the importance of integrated public policies is duplicated.

Keywords: Sustainable development, institutional framework, Mexico

Resumen

Desde fines de la década de los años 1970s la discusión sobre los límites del crecimiento impulsó la formulación del desarrollo sustentable como un paradigma que ha dominado estrategias y políticas públicas, llevando en 2012 a la propuesta de la Economía Verde. Sin embargo, los objetivos no se han alcanzado, entre otras razones, por la ausencia de políticas públicas integradas. En el trabajo se hace una revisión de la experiencia de la administración pública federal en México, específicamente de los actuales ejercicios de planeación, incluida la creación de empleos verdes. Lo anterior permite reiterar la relevancia de la ausencia de políticas públicas integradas.

Palabras clave: Desarrollo sustentable, marco institucional, México

Introducción

A partir de observaciones cada vez más críticas sobre el desarrollo de la sociedad humana, en particular el crecimiento demográfico, la reducción de los recursos naturales y la persistencia de la pobreza, el Club de Roma inició en 1968 un proyecto de investigación sobre *El Predicamento de la Humanidad*. En 1970 un grupo de investigación sobre Dinámica de Sistemas del Instituto Tecnológico de Massachusetts, con patrocinio de la Fundación Volkswagen, y dirigido por Dennis Meadows, se sumó al proyecto y en 1972 publicó *Los Límites del Crecimiento*.

En *Los Límites del Crecimiento* se estudiaron, a través de un modelo de simulación, World3, las interrelaciones entre crecimiento de la población, desarrollo industrial y agrícola, utilización de los recursos naturales y contaminación del medio ambiente. La principal conclusión del informe fue: de mantenerse las tendencias actuales el planeta alcanzará los

límites de su crecimiento en el curso del siglo XXI ocasionando un súbito e incontrolable descenso tanto de la población como de la capacidad industrial.

Al inicio de la década de los años 1970 hubiera sido difícil vislumbrar la cantidad de recursos humanos, financieros e institucionales que hoy se orientan a visiones, estrategias, políticas, programas, planes y acciones que buscan incidir en la superación de los límites del crecimiento a través de ejes transversales para la sustentabilidad económica, social y ambiental (cf. Cuervo y Mattar, 2014 y Rodríguez y Cuervo, 2014).

Marco institucional del Desarrollo Sustentable

El posicionamiento y avances del paradigma del desarrollo sustentable ha sido fruto de un intenso proceso liderado por organismos multilaterales, destacando la ONU con sus agencias y programas. Sorprendentemente, *Los Límites del Crecimiento* es un texto poco citado cuando se hace referencia a los antecedentes del desarrollo sustentable. Sin embargo, su impacto científico ha sido reconocido a pesar de debates y polémicas al respecto (ver Cole y Masini, 2001). Fuera del plano académico la influencia de *Los Límites del Crecimiento* fue inmediata, en el mismo año de su publicación (1972) la comunidad internacional adoptó durante la Primera Conferencia de las Naciones Unidas sobre Medio Ambiente y Desarrollo Humano, celebrada en Estocolmo, Suecia, los señalamientos sobre el carácter integral y global de las problemáticas económica, ambiental y social. A partir de ahí la sociedad mundial contemporánea ha visto un sostenido esfuerzo en pro del desarrollo sustentable

En 1976 la Conferencia Mundial sobre el Hábitat, en Vancouver, Canadá, incorporó el concepto de desarrollo sustentable a la problemática de la vivienda. En 1982 en la Conferencia sobre Medio Ambiente, en Nairobi, Kenia, la ONU reafirmó su papel como fuerza fundamental en el impulso al paradigma del desarrollo sustentable. En 1987 el informe *Nuestro Futuro Común* elaborado por la Comisión Mundial sobre el Medio Ambiente y Desarrollo (Comisión Brundtland), definió el desarrollo sustentable como aquel que satisface las necesidades del presente sin comprometer la capacidad de las generaciones futuras para satisfacer las suyas propias.

En 1992 en la Cumbre de la Tierra, cuyo tema central fue el desarrollo sustentable, la Declaración de Río sobre Medio Ambiente y el Desarrollo, hizo explícitos los principios sobre dicho desarrollo, al tiempo que se adopta la Agenda 21. Con la adopción de la Agenda 21 la Comisión sobre el Desarrollo Sostenible, de la División de Desarrollo Sostenible de la ONU, coordinó los trabajos para formular la metodología y definir los indicadores del desarrollo sustentable para cada uno de los capítulos de la Agenda 21.

Durante el año 2000 se promulgaron los Objetivos de Desarrollo del Milenio, metas observables a partir de los indicadores del desarrollo sustentable. En 2002, en la Cumbre de la Tierra (Río + 10) celebrada en Johannesburgo, África del Sur, así como en las reuniones preparatorias para la misma, se reconoció institucionalmente la persistencia de los patrones insustentables de producción y consumo, lo limitado del progreso en reducir la pobreza, la concentración de la riqueza provocada por la globalización y la vigencia de los graves estragos a los recursos naturales y la biodiversidad (ONU, 2002a, 2002b y 2002c).

Frente a este panorama y como resultado de la Cumbre de Johannesburgo se formuló un nuevo Plan para la Implementación de la Agenda 21, con metas concretas y plazos fijos en materia de erradicación de la pobreza, población sin acceso a agua potable, sanidad, disponibilidad y fuentes de energía, salud, agricultura y protección de la biodiversidad.

En 2012 (Río + 20) en la Conferencia de Naciones Unidas sobre Desarrollo, que regresó a Río de Janeiro, Brasil, la persistencia en las limitaciones en materia de desarrollo sustentable (cf. Turner, 2008) dio lugar a una novedad conceptual en relación al desarrollo sustentable (economía verde) y reitero la necesidad de superar la insuficiencia del marco

institucional que pueda superar las limitaciones y obstáculos para el desarrollo sustentable. Actualmente, los esfuerzos en la ONU se ocupan, entre otros, en la definición y posicionamiento de la Agenda de desarrollo post-2015.

La economía verde

El concepto de economía verde aparece en textos académicos de los años 1980 y el número de referencias de trabajos sobre el tema, previos a 2012, es de miles y miles en *google scholar*. Sin embargo, la incorporación del concepto en las políticas públicas y de organismos internacionales se toma como línea estratégica hasta la segunda década del siglo XXI con el 40° Aniversario de la Cumbre de Río.

En la Conferencia de las Naciones Unidas para el Desarrollo Sustentable de 2012 se definió a la economía verde como el camino para un “mejor y más” sustentable futuro, ésta economía se entiende como el resultado de un mejoramiento en el bienestar de la humanidad, que reduce desigualdades a largo plazo, sin exponer a futuras generaciones a riesgos y limitantes ambientales.

La transición hacia una economía verde global requiere alcanzar la seguridad alimentaria utilizando menos recursos naturales e incrementando la eficiencia nutricional por cada unidad de agua utilizada en la producción de alimentos. Por otro lado, también es necesario reducir el consumo de espacio en las ciudades a favor de ciudades compactas para hacer más eficiente el uso de infraestructura y transporte. La conservación y reconocimiento del valor de los servicios ambientales de los ecosistemas es una condición adicional para alcanzar la economía verde, así como el diseño e instrumentación de políticas industriales que mejoren el uso del agua con miras a alcanzar una meta de descarga cero de residuos líquidos. Otras condiciones son ampliar la cobertura en abasto de agua y drenaje y la creación de empleos verdes (PNUD, 2011 y 2012).

Las condiciones o requisitos para transitar hacia la economía verde retoman los planteamientos y temas que en relación al desarrollo sustentable se han venido repitiendo durante las últimas décadas. El señalamiento de los obstáculos y deficiencias ha sido reiterado, pero como son los Estados miembros los que suscriben los acuerdos en el seno de Cumbres, Conferencias y otros foros, no se ha logrado un avance que rebase el diagnóstico institucionalizado y revolucione la concreción del paradigma de desarrollo sustentable.

Sin embargo, en un entorno económico donde la crisis ha agravado y ampliado el carácter estructural del desempleo, puede parecer destacable que se rebase el objetivo tradicional de alcanzar metas en el porcentaje de ocupación de la población económicamente activa y se establezca la creación de empleos verdes.

La aparente relevancia radica en que los empleos verdes, a diferencia de empleos que brindan un servicio ambiental (muchos de ellos informales), están directamente asociados a la connotación que la Organización Internacional del Trabajo (OIT) da a trabajo decente o digno. Se trata, con los empleos verdes, de puestos de trabajos formales, con plena vigencia de la legislación laboral, disfrute de prestaciones sociales y entornos de seguridad jurídica y de prevención de enfermedades y accidentes (Jarvis, 2013; Poschen y Tobin, 2012; PNUD, 2012; PNUD, 2011).

Para las políticas públicas el reto que implica asumir la creación de empleos verdes es mayúsculo, pues se trata de la capacidad político institucional para fijar estrategias, planes y acciones integrados, donde los objetivos no queden subordinados a criterios macroeconómicos, comerciales, financieros, de gobernanza, o al peso específico que los actores relevantes de cada sector tengan en coyunturas determinadas. Y es que ese es precisamente uno de los principales obstáculos que ha estado presente desde el inicio de las políticas para el desarrollo sustentable, razón por la cual destaca la falta de un modelo o esquema que permita presumir que ahora puede ser diferente.

Al margen de la aceptación o crítica al paradigma del desarrollo sustentable es necesario reconocer los avances que en casos específicos ha tenido la adopción o instrumentación del paradigma del desarrollo sustentable y ahora de la economía verde. Para ello adelante nos ocupamos, en líneas generales del caso de México.

México: operación del paradigma

Como estado miembro de la ONU, México ha participado en las Cumbres, Conferencias y demás foros donde se han suscrito acuerdos y compromisos en materia de desarrollo sustentable ante la comunidad internacional.

En términos prácticos la noción del desarrollo sustentable ocupó un nicho en la estructura administrativa relacionada con el medio ambiente, por lo que la actual Secretaría del Medio Ambiente y Recursos Naturales (SEMARNAT) hoy en día es la instancia responsable de orientar o conducir las políticas la conservación, restauración y aprovechamiento sustentable del patrimonio natural del país, para que éste transite hacia un crecimiento verde, sostenido y sustentable (SEMARNAT, 2013).

En política ambiental del gobierno de México un antecedente previo a los años 1970, década en que se globaliza la discusión sobre los límites del crecimiento, es la promulgación de la Ley de Conservación de Suelo y Agua en los años 40 del siglo XX. Posteriormente, en la primera parte de los años 1970 se expidió la Ley para Prevenir y Controlar la Contaminación Ambiental y en 1972 se da la primera reestructuración administrativa del gobierno federal, creando una instancia para atender la problemática ambiental. Sin embargo, ello se hace desde una perspectiva estrictamente sanitaria y se creó la Subsecretaría para el Mejoramiento del Ambiente, dependiente de la Secretaría de Salubridad y Asistencia.

Diez años después, en 1982, se promulga la Ley Federal de Protección al Ambiente y se crea la Secretaría de Desarrollo Urbano y Ecología (SEDUE). En 1989 se crea la Comisión Nacional del Agua como instancia responsable del manejo hídrico y cuya actual visión es hacerlo para lograr el uso sustentable del agua.

En 1992 la SEDUE se transformó en Secretaría de Desarrollo Social y se crean el Instituto Nacional de Ecología (INE) y la Procuraduría Federal de Protección al Ambiente (PROFEPA). Posteriormente en 1994 se crea la Secretaría del Medio Ambiente Recursos Naturales y Pesca (SEMARNAP), para que 6 años después los asuntos de pesca se integren en otra secretaría (ministerio) encargada de agricultura, ganadería, desarrollo rural, pesca y alimentos y la actual dependencia se renombre como SEMARNAT.

Con la Ley General de Equilibrio Ecológico y la Protección al Ambiente expedida en febrero de 1988 y que en su artículo 1º establece que tiene por objeto “propiciar el desarrollo sustentable”, el gobierno de México incorporó en su marco normativo la noción o intención de hacer obligatorio el aprovechamiento sustentable de los recursos naturales.

Paralelo al proceso de atención a la problemática ambiental en el nivel del gobierno federal, como eje transversal para el desarrollo sustentable, en estados y municipios las leyes y administraciones locales también asumieron los principios, políticas, programas y prácticas vigentes.

A lo largo de este proceso, el gobierno mexicano adoptó las recomendaciones específicas en materia de evaluación de los avances del desarrollo sustentable, generando sus informes correspondientes al desempeño de los indicadores del desarrollo sustentable y de los objetivos de desarrollo del milenio (INEGI-INE 2000; ONU-Gobierno de México. 2006). Hoy, México participa en 90 acuerdos y protocolos vigentes en materia de desarrollo sustentable.

Empero, los resultados concretos sobre una transformación en el modelo de desarrollo siguen pendientes. El gobierno de México establece que el crecimiento económico de las últimas décadas no ha reducido los niveles de pobreza. El *Plan Nacional de Desarrollo 2013-*

2018 reconoce (pp. 16 y 76-77) que el 46% de la población vive en condiciones de pobreza, que el 10.4% lo hace en condiciones de pobreza extrema, que persisten, asimismo, el proceso de concentración del ingreso, la violación a los derechos humanos, la discriminación, el limitado acceso a servicios de salud y a una vivienda digna. Adicionalmente, la informalidad en el empleo alcanza al 60% de la PEA ocupada, el costo económico del agotamiento y la degradación ambiental en México en 2011 representó 6.9% del PIB, cerca de 60 millones de personas viven en localidades que se abastecen en alguno de los 101 acuíferos sobreexplotados del país y menos del 50% del agua residual colectada recibe algún tratamiento.

A pesar de ésta situación el paradigma del desarrollo sustentable sigue siendo un referente genérico carente de instrumentos que permitan políticas públicas integrales.

México: la economía verde

Si bien en el caso de México la noción de economía verde aún no es parte del discurso oficial (no aparece en el Plan Nacional de Desarrollo 2013-2018, por ejemplo) el país participa en la Iniciativa *Partnership for Action on Green Economy* (PAGE) y en forma recurrente empieza a utilizarse la referencia al crecimiento verde, por ejemplo en la instalación de la Comisión Intersecretarial para el Cambio Climático y, principalmente, en el *Programa Sectorial del Medio Ambiente y Recursos Naturales 2013-2018*.

Definido desde el gobierno federal el crecimiento verde es el aumento de la productividad, la generación de empleo y la superación de la pobreza, con el cuidado del patrimonio natural y se le vincula con cuatro líneas de acción del programa de gobierno:

Transitar hacia una economía baja en carbono (energía renovable, certificaciones de Industria Limpia y de manejo ambiental y transporte masivo).

Replantear el manejo hídrico del país haciendo del agua un recurso para impulsar el desarrollo sustentable.

Detener la pérdida de biodiversidad y de ecosistemas.

Mejorar la gestión de residuos ampliando la infraestructura para recolectar, separar y reciclar.

La creación de empleos verdes aparece como objetivo explícito en solo uno de los planes sectoriales de la administración pública federal, el de SEMARNAT, que los define como aquellos que permiten la producción de productos o servicios relacionados con el medio ambiente con énfasis en eficiencia, control de contaminación y conservación y/o ayudan al tránsito hacia la sustentabilidad en procesos productivos específicos de cualquier rama de actividad económica.

Para 2018 la meta es alcanzar un millón de empleos verdes, que representa un incremento de cerca del 45% en el número de empleos verdes existentes actualmente y donde la PEA ocupada es cercana a los 40 millones (2011). La estrategia para lograrlo es la promoción de las actividades económicas que tienen algún tipo de contribución a la conservación y mejora del patrimonio natural, trátase de actividades en el sector energético, en el reciclado de desechos, en actividades de educación ambiental, o en la industria del turismo. En algunas de éstas actividades los niveles de informalidad son aún mayores que el elevado promedio nacional del 60%. Por ejemplo, en el turismo, el índice de informalidad llega al 78% (Galhardi, 2013).

Conclusion. Paradigmas e ideologías

El término paradigma es usado en múltiples acepciones pero en un intento de precisar su significado Khun (1982 y 1999) propuso dos definiciones:

Paradigma en sentido amplio. es una constelación de principios científicos que unifican a un grupo de investigadores y divulgadores. Sus componentes son las creencias,

generalizaciones, valores, técnicas, los tipos de problemas a investigar, las soluciones típicas, etcétera. Alrededor de esos componentes se desarrolla el conocimiento.

Paradigmas ejemplares o soluciones prototípicas. Son aquellos en búsqueda de soluciones a problemas específicos o enigmas, con base en los postulados desarrollados por un paradigma en sentido amplio.

En sus inicios el objeto y la problemática del paradigma así como las técnicas y procedimientos de investigación y solución de enigmas, están bien demarcados y son muy fructíferos. Sin embargo, en la medida en que se continúa desarrollando el paradigma éste comienza a idealizar sus propios problemas y soluciones, presentando inconsistencias o anomalías que se suelen minimizar y soslayar o que se consideran errores no atribuibles al paradigma (Hernández, 1999)

Esas anomalías se van acumulando hasta que afectan seriamente la naturaleza del paradigma y generan una crisis científica que se agudiza cuando entra en escena un paradigma rival y antagónico, sencillo, vinculado a la atención de problemáticas sociales inmediatas y con capacidad para resolver enigmas. Este periodo de crisis y de postulación de un nuevo paradigma es el periodo de ciencia revolucionaria. El nuevo paradigma se va consolidando hasta que alcanza hegemonía e inicia un nuevo ciclo.

En la concepción de Kuhn la sustitución de un paradigma por otro no obedece a criterios de racionalidad y los paradigmas rivales son prácticamente imposibles de comparar pues son visiones o enfoques diferentes con vocabulario, formalismos y esquemas metodológicos propios.

Entre los factores que impulsan el posicionamiento, vigencia e influencia de un paradigma no siempre se encuentra la generación de conocimiento científico; se puede tratar de asuntos sociales, políticos, económicos, culturales o de la interacción de varios de ellos. Aún más hay paradigmas ideológicos: una sabiduría convencional cimentada y fomentada por poderosas fuerzas e intereses (Saxe-Fernández 2000). Se trata de construcciones o discursos explicativos o justificantes de una realidad y práctica social que suelen llegar a contar con una elaborada y prolífica estructura conceptual que, sin embargo, esta sostenida en axiomas deductivos y no en principios científicos o históricos.

Alrededor de este tipo de paradigmas se generan importantes recursos y esfuerzos públicos y privados. En foros internacionales, nacionales, regionales y locales proliferan las cumbres, conferencias, seminarios, investigaciones y publicaciones en torno a paradigmas de este tipo. Un ejemplo de este tipo de paradigma puede ser el del desarrollo sustentable, incluida la economía verde.

Es incuestionable que el paradigma del desarrollo sustentable vino a ocupar un importante nicho en la respuesta a los límites e inequidades del desarrollo. En el entorno científico y de opinión pública del periodo 1972-1992 el paradigma del desarrollo sustentable avanzó rápidamente y desplazó paradigmas, principalmente economicistas, al brindar un marco conceptual simple, novedoso, preocupado con la atención a problemáticas sociales inmediatas y con capacidad para resolver enigmas (Cole y Masini, 2001) e inclusive se le ha considerado como una nueva ciencia interdisciplinaria (Mejía Ortiz et al, 2013).

Sin embargo, el paradigma del desarrollo sustentable más que un cuerpo teórico es una visión, es un plan de acción con políticas, estrategias, programas, planes y acciones que representan magnitudes de recursos financieros, tecnológicos y humanos difícilmente cuantificables. Un obstáculo clave en alcanzar el desarrollo sustentable es la ausencia, al interior de los países e incluso entre organismos multilaterales, es la ausencia de políticas públicas integrales. En ese sentido, tomando el ejemplo de México, la creación de empleos verdes tiene un aparente potencial para ser una estrategia prioritaria y transversal para avanzar en las metas del desarrollo sustentable y sin embargo solo aparecen referidos en el

programa sectorial en materia de medio ambiente, totalmente al margen de los planes, estrategias y acciones de otros ministerios que inciden en la generación de empleo.

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EDUCATIONAL PROCESS MODEL DESIGN OF PARTICIPANTS' SUBJECTIVITY IN THE CONDITIONS OF INFORMATION AND EDUCATION UNIVERSITY ENVIRONMENT

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Abstract

The paper considers the issue of students' and teachers' subjectivity while education process at the university in the conditions of new information society. In the conditions of information and education environment of the university two main subjects of the teacher and the student are connected, as the two interconnected systems, each of which runs its own certain phases in development and formation of subjectivity. Although these two systems have significant differences in the level of education, competence, professionalism, availability of subjective experience, and others, though the development of subjectivity of the student and the teacher are interconnected processes that are developing in parallel. The higher the level of the teacher's subjectivity is, the higher level of the student's subjectivity is. And it is not a spontaneous process, it is purposefully controlled. The development process of subjectivity of the main educational process participants in the university can be presented in the form of a spiral. The spiral-shape shows the direction of development. The spiral development is always more complicated than the linear or cyclic. Although on the one hand the process of subjectivity development is a linear process because we move from simpler to more complex forms, and secondly, the development of subjectivity is a cyclical process in which there are certain steps (cycles), step by step alternating.

(Max. 250 words)

Keywords: Subjectivity, subjectivity development, education university environment, cyclic process

Introduction

The modernization of higher education system in Kazakhstan and other CIS countries, due to the Bologna Declaration, in which is planned to create a unified educational space, based subject approach.

However, subjective problems research development in psychological and educational literature begins since 1990s of the twentieth century and is connected with the works of A. Antonova, N.M.Borytko, E.N. Volkova, T.A. Olkhovaya, O.A. Matskaylova, N.V.Nedorezova, N.K.Sergeev, etc.

The data of ascertaining experiment conducted in 2012 at East Kazakhstan State University shows that the majority of university students (75%) try to achieve their goals, 78% are aware of the learning importance as a basis of self-development and self-

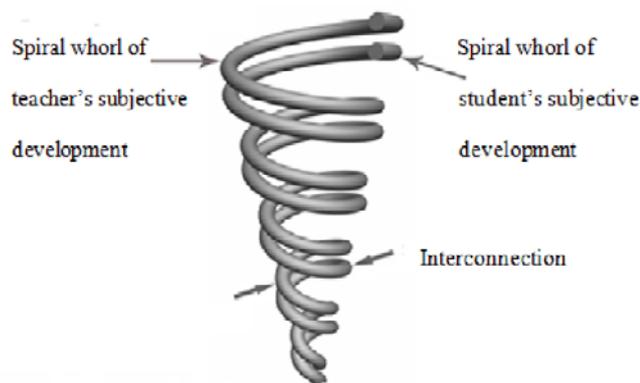
improvement, 64% of respondents indicated that they like partnerships, relationship with teachers, however, only 34% try to take responsibility for themselves in difficult situations, 56% of students consider that in the university everything is going according to the plan in advance, "template" (the existence of programs, plans, syllabus), it is very difficult to take the initiative and independence.

Teachers (47%) of the University during the questionnaire indicated that students (especially 1st and 2nd year students) do not have enough skills of self-organization and self-discipline, in the preparation for the seminars there is no critical approach to the selection of literature, 75% of respondents noted, 78% of teachers indicated that the students do not have a stable reading habits of the basic literature on the course, most students do not have habit to follow all the recommendations specified in the syllabus and do tasks for the self-guided work for the future, 44% of teachers noted.

I.

The content analysis of the psychological and educational research results devoted to the problem of educational process participants' subjectivity, the experimental data allow us to conclude that there is no general concept that allows in a single system of concepts to cover and present a lot of facts accumulated in the practice of education. In pedagogical science, and especially in the practice of teaching, there is underestimation of the possibilities of subjective approach. This is due primarily to the complexity and the insufficient development in theory and practice of education, especially the mechanism of development and the formation of the main educational process participants' subjectivity.

In the conditions of informational and educational environment of the university two main subjects of the teacher and the student connected, as the two interconnected systems, each of which runs its own certain phases in development and formation of subjectivity. Although these two systems have significant differences in the level of education, competence, professionalism, availability of subjective experience, and others, though the development of subjectivity of the student and the teacher are interconnected processes that are developing in parallel. The higher level of the teacher's subjectivity, the higher level of the student's subjectivity is. And it is not a spontaneous process, it is purposefully controlled. The development process of subjectivity of the main educational process participants in the university seems to us in the form of a spiral. The spiral-shape shows the direction of development. The spiral development is always more complicated than the linear or cyclic. Although from the one hand the process of subjectivity development is a linear process because we move from simpler to more complex forms, and secondly, the development of subjectivity is a cyclical process in which there are certain steps (cycles), step by step alternating. A spiraling development is achieved only when the post-cycle occur the quantitative and qualitative increment in the development of subjective qualities and existing acquire new properties and features. However, structural and spiral development "splits" into separate, self-activity phases. The dual spiral of subjectivity development of the student and the teacher is shown in Fig. 1.



The dual spiral of subjectivity development of the main subjects of the university's educational process

Fig. 1 - The dual spiral of subjectivity development of the teacher and the student

We are aware of the fact that each following "whorl" of subjectivity development of the teacher may not be the same with the next whorl in the development of the student. At each stage of study at the university a student based on their individual characteristics, subject experience, level of training, level of motivation for learning, especially the interaction with teachers, members of the student group, goes through certain phases in the development of its subjectivity. We have determined the phases, goals, content of each phase of subjectivity development (Fig. 2).

The first phase (latent subjectivity) (1 course of study), this step requires the student before entering a university a specific subjective experience, perceptions accumulated in the process of learning in secondary general educational institutions, also in the result of communication and activities that they extrapolate to the education and cognitive and other activities at the university. However, the bright subjectivity cannot be shown it is due primarily to the characteristics of the adaptation period to university life.

The aim of the first phase: involves the students' awareness of the necessity of formed ideas about various activities at the university, forming a positive attitude to it, the enrichment of subjective experience of students by including a variety of activities, the development of independence and responsibility, of subjective individual potential.

The main content of this phase is to include in variety of activities (teaching, educational, leisure, research) carried out at the university, to identify the student subjective potential, to give possibility to identify (evaluate) the potential of information and educational environment of the university and its own subjective area.

In this connection, it is necessary to make a "subjective profile" of individual student, teacher or the whole group. Under subjective profile we understand complex of individual and subjective characteristics of the person relevant for joint activities (teaching, research, educational) and are the basis for the development of subjective individual potential.

The second phase in the subjectivity development corresponds to a second course of university training (cognitive subjectivity).

The aim of the second phase is the development of independent skills in the content acquisition of education and the definition an individual educational trajectory.

The main content of this phase is primarily focused on the development of cognitive independence, productive activity, and the ability to further self-improvement, self-actualization and self-realization by including in cognitive activity.

The third phase corresponds to an individual subjectivity that is third and fourth course of study at the university, helping to the subjective orientation, the further development of subjective individual potential of the student.

The aim of the third phase is to identification and widening of their own individual personality subjective space, the further deepening of cognitive interests and abilities, forming its own subjective position, in the sustainable development of the self-education skills.

The content of this phase is an intensive formation of professional abilities on the background of active subjective position of the individual, the strengthening of cognitive interests and the subjective initiative of the individual and necessity of the further education.

The fourth phase in the development of student subjectivity corresponds to the personal subjectivity and corresponds to post-graduate stage of education.

This stage is aimed at continuous improvement and development of subjective and professional and personal potential.

And every following stage in the subjectivity development involves a quantitative and qualitative jump in the development of certain qualities.

The development of teacher of subjectivity in our opinion corresponds to the stages of development of professional growth.

The first phase in the development of subjectivity lasts from 0 to 5 years and corresponds to the primary professional subjectivity.

The aim of this phase is to facilitate the formation of the teacher as a professional, and his adaptation entering into the teaching profession.

The content of this phase is to include teachers in the development process of professional abilities, aptitudes, and pedagogical qualities, using the known techniques and methods of interaction with the students in their own profession.

The second phase in the subjectivity development lasts from 5 to 15 years (professional subjectivity).

The aim: the deepening and widening professional and pedagogical skills, self-affirmation, self-actualization in a profession.

The content of this phase is to use the new, original methods and learning technologies, their successful adaptation in their professional activities, selecting and building up their professional interaction strategies with the students, the selection of subjectivity technologies of communication and interaction.

In the third phase (the universal subjectivity) includes teachers, the experience of which is from 15 to 30 years, their professional independence and professional self-determination characterize them.

The aim of this phase: the skill acquisition of evidence-based estimation and the reflection of new scientific ideas and their creative use in teaching.

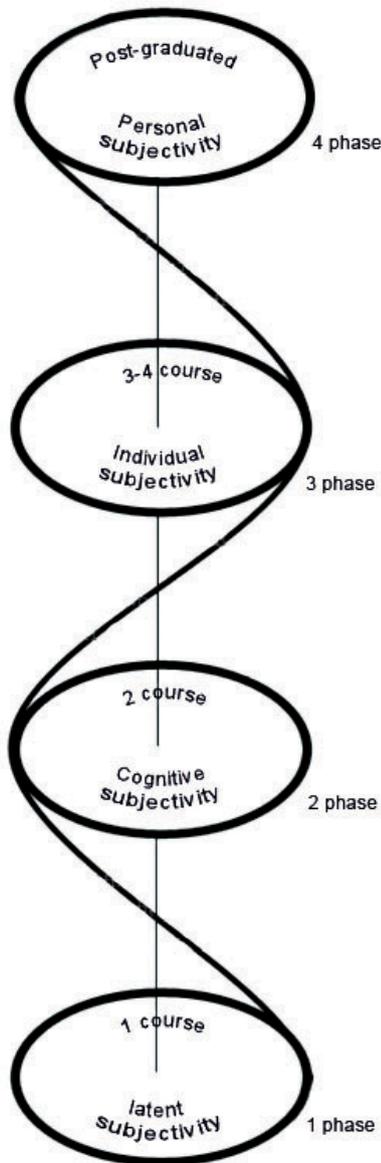
The content of this phase: further development of the personal and professional and important qualities, consolidating the position of the diagnostician, self-diagnostician, researcher and scientist.

The fourth phase post-professional subjectivity belongs to the teachers with teaching experience of 30 and more years those who remained in teaching profession.

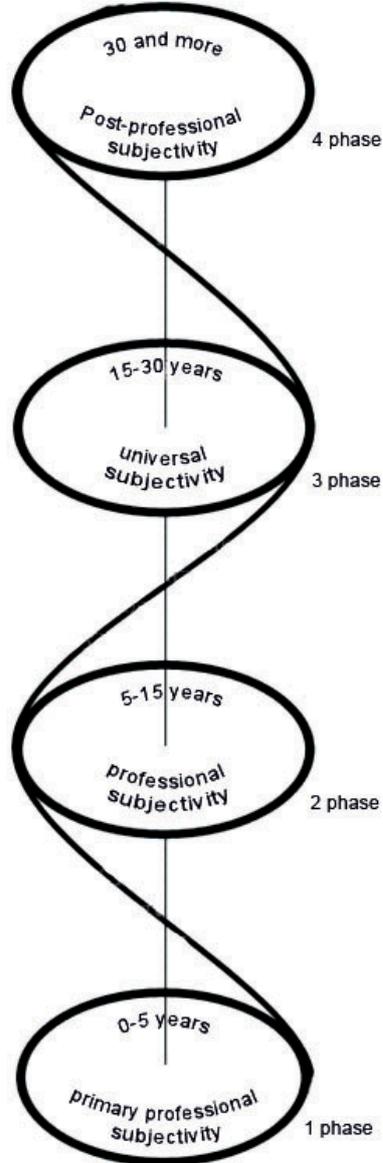
This level allows you to find the new "face" both in the development of professionalism and professional subjectivity. The content of this phase is to provide counseling to other teachers, beginners of professional pedagogical way, sharing its subjective experience with other, more detailed evaluation of their professional activities, meaningful and tolerant attitude to the work of others.

THIS STAGE IS AIMED AT CONTINUOUS IMPROVEMENT AND DEVELOPMENT OF SUBJECTIVE AND PROFESSIONAL AND PERSONAL POTENTIAL

THIS LEVEL ALLOWS YOU BE FIND THE NEW "FACES" BOTH IN THE DEVELOPMENT OF THE PROFESSIONALISM AND PROFESSIONAL SUBJECTIVITY



PHASES OF STUDENT'S SUBJECTIVITY DEVELOPMENT



PHASES OF TEACHER'S SUBJECTIVITY DEVELOPMENT

Conclusion

Thus in the conditions of information environment education at the university today involves interconnected systems. The conducted research proved our idea that two main subjects of the teacher and the student are connected. The results of the research would be useful to provide counseling to other teachers, beginners of professional pedagogical way, sharing its subjective experience with other, more detailed evaluation of their professional activities, meaningful and tolerant attitude to the work of others.

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APPLYING CLEANER PRODUCTION AND OPTIMISING HEAT PROCESS OPERATIONS IN DAIRY PROCESSING PLANTS – A REVIEW

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Abstract

It is often claimed that Cleaner Production techniques do not yet exist or that, if they do, they are already patented and can be obtained only through expensive licenses. Neither statement is true. Applying cleaner production and optimising heat process operations in dairy processing plants is a critical and topical issue in today's global food industry hence the appropriateness of this review article. This review paper discusses issues of cleaner production for the dairy industry, the methodologies and approaches in optimising heat processes. The paper also identifies the cleaner production opportunities for production processes, cites a case study of pasteurization and gives appropriate recommendations for dairy plants.

Keywords: Cleaner production assessment; optimisation; methodologies; process models

Introduction

It is often claimed that Cleaner Production techniques do not yet exist or that, if they do, they are already patented and can be obtained only through expensive licences. Neither statement is true, and this belief wrongly associates Cleaner Production with 'clean technology'. Firstly, Cleaner Production depends only partly on new or alternative technologies. It can also be achieved through improved management techniques, different work practices and many other 'soft' approaches. Cleaner Production is as much about attitudes, approaches and management as it is about technology. Secondly, Cleaner Production approaches are widely and readily available, and methodologies exist for its application. While it is true that Cleaner Production technologies do not yet exist for all industrial processes and products, it is estimated that 70% of all current wastes and emissions from industrial processes can be prevented at source by the use of technically sound and economically profitable procedures (Baas et al., 1992).

Dairy processing occurs world-wide; however the structure of the industry varies from country to country. In less developed countries, milk is generally sold directly to the public, but in major milk producing countries most milk is sold on a wholesale basis. In Ireland and Australia, for example, many of the large-scale processors are owned by the farmers as co-operatives, while in the United States individual contracts are agreed between farmers and processors. Dairy processing industries in the major dairy producing countries have undergone rationalisation, with a trend towards fewer but larger plants operated by fewer people. As a result, in the United States, Europe, Australia and New Zealand most dairy processing plants are quite large. Plants producing market milk and products with short shelf life, such as yogurts, creams and soft cheeses, tend to be located on the fringe of urban centres close to consumer markets. Plants manufacturing items with longer shelf life, such as butter, milk powders, cheese and whey powders, tend to be located in rural areas closer to the

milk supply. The general tendency world-wide, is towards large processing plants specialising in a limited range of products. There are exceptions, however. In Eastern Europe for example, due to the former supply-driven concept of the market, it is still very common for 'city' processing plants to be large multi-product plants producing a wide range of products. The general trend towards large processing plants has provided companies with the opportunity to acquire bigger, more automated and more efficient equipment. This technological development has, however, tended to increase environmental loadings in some areas due to the requirement for long-distance distribution. Basic dairy processes have changed little in the past decade. Specialised processes such as ultra filtration (UF), and modern drying processes, have increased the opportunity for the recovery of milk solids that were formerly discharged. In addition, all processes have become much more energy efficient and the use of electronic control systems has allowed improved processing effectiveness and cost savings.

Since the production of safe products is becoming increasingly important, predictive models for product contamination greatly benefit the food industry, especially if it is possible to optimize the process operation in relation to the desired product quality and safety. In general, three types of predictive models are necessary for optimization and improvement of food heat treatments:

- **Model Type I** : Process models that describe the production chain in terms of model reactors. In general, process models are based on energy and mass balances of the liquid phase and not on the food components or contaminants. For example, a plate heat exchanger can be described by at least four plug flow reactors in series: upstream regenerative section, heater, holding tube and downstream regenerative section. All the plug flow reactors must have the same volume and specific surface area as the equipment itself (De Jong, 1996). The main output of such models is a temperature–time history of the food product. In cases where water is removed (e.g. evaporating, drying), the local water content is important, since an additional concentration change of food components and contaminants is introduced.
- **Model Type II**: Kinetic models that predict the transformation of food components and contaminants related to the food properties recognized by the consumer. These models include, for example, the denaturation and aggregation of proteins, the inactivation of enzymes, bacteria and spore inactivation, contamination and the formation of reaction products (pigments, (off-)flavours). In some cases, the models are quite complex. For example, to predict the contamination of bacteria in the production chain, a predictive model for the concentration of microorganisms as a result of growth, adherence, release and inactivation is needed.
- **Model Type III**: Predictive kinetic models for estimation of the operating costs related to process operation. In many processes, the operating costs are governed by microbial and physical fouling. In cases where it is possible to predict the amount of protein and mineral deposits and the number of adhered and growing bacteria, it is relatively simple to estimate the operating costs.

In order to simulate a heat treatment in the food production chain with respect to food properties and operating costs, the model types II and III are integrated with the process model (type I). All three types of kinetic models have been developed and validated for industrial application. In this section, a general procedure for optimization of the heat treatment in the food production chain is described. The operating costs of many food production chains primarily depend on microbial and physical fouling of the equipment. In general, process operating times at relatively low temperatures (<70°C) are due to adherence and growth of bacteria. The operating time of equipment at temperatures above 80°C is determined largely by the deposition of protein and minerals. The amount of fouling can be

related to the costs due to cleaning, changeover (rinsing losses), depreciation, energy, operator, pollution and product losses (De Jong, 1996).

Description

Impact of Dairy Processing- The need for cleaner production

For many other food processing operations, the main environmental impacts associated with all dairy processing activities are the high consumption of water, the discharge of effluent with high organic loads and the consumption of energy. Noise, odour and solid wastes may also be concerns for some plants. Dairy processing characteristically requires very large quantities of fresh water. Water is used primarily for cleaning process equipment and work areas to maintain hygiene standards. The dominant environmental problem caused by dairy processing is the discharge of large quantities of liquid effluent. Dairy processing effluents generally exhibit the following properties:

- high organic load due to the presence of milk components;
- fluctuations in pH due to the presence of caustic and acidic cleaning agents and other chemicals;
- high levels of nitrogen and phosphorus;
- fluctuations in temperature.

If whey from the cheese-making process is not used as a by-product and discharged along with other wastewaters, the organic load of the resulting effluent is further increased, exacerbating the environmental problems that can result. In order to understand the environmental impact of dairy processing effluent, it is useful to briefly consider the nature of milk. Milk is a complex biological fluid that consists of water, milk fat, a number of proteins (both in suspension and in solution), milk sugar (lactose) and mineral salts. Dairy products contain all or some of the milk constituents and, depending on the nature and type of product and the method of manufacturing, may also contain sugar, salts (e.g. sodium chloride), flavours, emulsifiers and stabilisers. For plants located near urban areas, effluent is often discharged to municipal sewage treatment systems. For some municipalities, the effluent from local dairy processing plants can represent a significant load on sewage treatment plants. In extreme cases, the organic load of waste milk solids entering a sewage system may well exceed that of the township's domestic waste, overloading the system. In rural areas, dairy processing effluent may also be irrigated to land. If not managed correctly, dissolved salts contained in the effluent can adversely affect soil structure and cause salinity. Contaminants in the effluent can also leach into underlying groundwater and affect its quality. In some locations, effluent may be discharged directly into water bodies. However this is generally discouraged as it can have a very negative impact on water quality due to the high levels of organic matter and resultant depletion of oxygen levels. Electricity is used for the operation of machinery, refrigeration, ventilation, lighting and the production of compressed air. Like water consumption, the use of energy for cooling and refrigeration is important for ensuring good keeping quality of dairy products and storage temperatures are often specified by regulation. Thermal energy, in the form of steam, is used for heating and cleaning. As well as depleting fossil fuel resources, the consumption of energy causes air pollution and greenhouse gas emissions, which have been linked to global warming. Dairy products such as milk, cream and yogurt are typically packed in plastic-lined paperboard cartons, plastic bottles and cups, plastic bags or reusable glass bottles. Other products, such as butter and cheese, are wrapped in foil, plastic film or small plastic containers. Milk powders are commonly packaged in multi-layer kraft paper sacs or tinned steel cans, and some other products, such as condensed milks, are commonly packed in cans. Breakages and packaging mistakes cannot be totally avoided. Improperly packaged dairy product can often be returned for reprocessing; however the packaging material is generally discarded. Emissions to air

from dairy processing plants are caused by the high levels of energy consumption necessary for production. Steam, which is used for heat treatment processes (pasteurisation, sterilisation, drying etc.) is generally produced in on-site boilers, and electricity used for cooling and equipment operation is purchased from the grid. Air pollutants, including oxides of nitrogen and sulphur and suspended particulate matter, are formed from the combustion of fossil fuels, which are used to produce both these energy sources. In addition, discharges of milk powder from the exhausts of spray drying equipment can be deposited on surrounding surfaces. When wet these deposits become acidic and can, in extreme cases, cause corrosion. For operations that use refrigeration systems based on chlorofluorocarbons (CFCs), the fugitive loss of these gases to the atmosphere is an important environmental consideration, since CFCs are recognised to be a cause of ozone depletion in the atmosphere. For such operations, the replacement of CFC-based systems with non- or reduced-CFC systems is thus an important issue. Some processes, such as the production of dried casein, require the use of hammer mills to grind the product. The constant noise generated by this equipment has been known to be a nuisance in surrounding residential areas. The use of steam injection for heat treatment of milk and for the creation of reduced pressure in evaporation processes also causes high noise levels. A substantial traffic load in the immediate vicinity of a dairy plant is generally unavoidable due to the regular delivery of milk (which may be on a 24-hour basis), deliveries of packaging and the regular shipment of products. Noise problems should be taken into consideration when determining plant location. Hazardous wastes consist of oily sludge from gearboxes of moving machines, laboratory waste, cooling agents, oily paper filters, batteries, paint cans etc. At present, in Western Europe some of these materials are collected by waste companies. While some waste is incinerated, much is simply dumped.

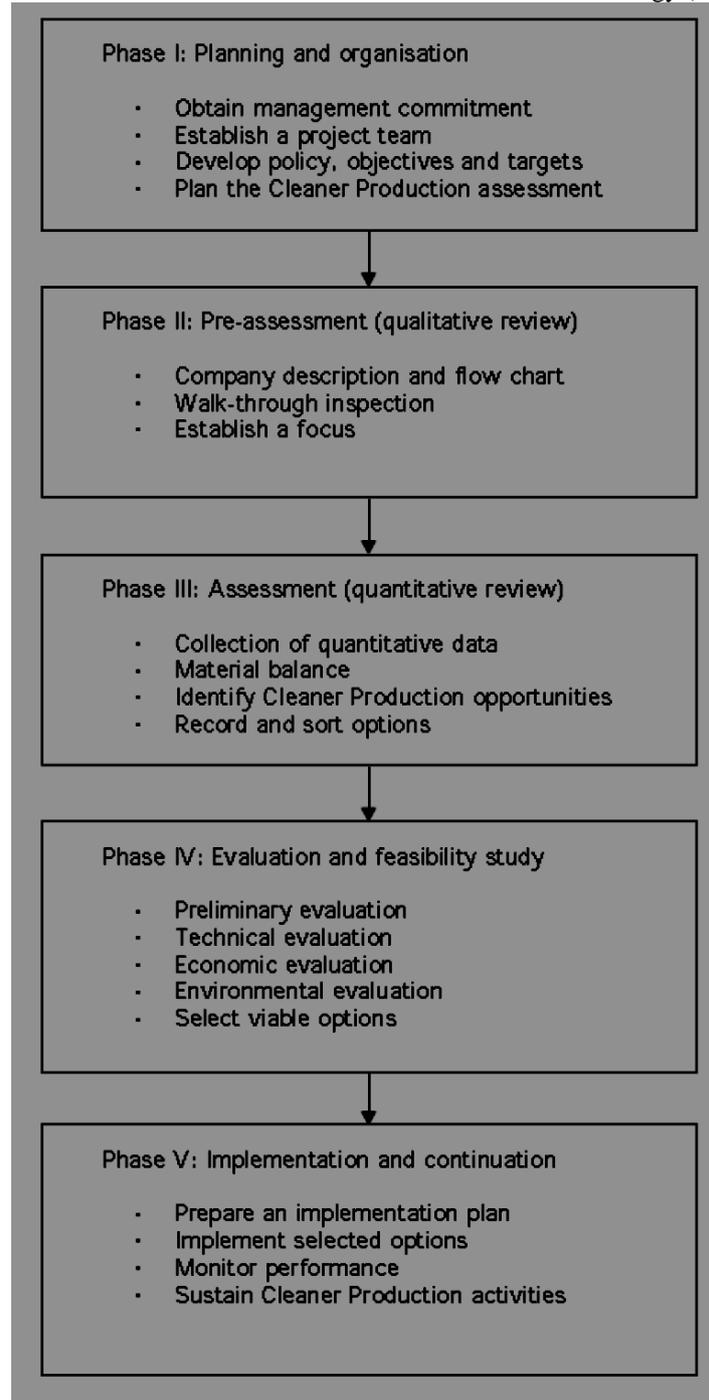
Cleaner Production Assessment

A Cleaner Production assessment is a methodology for identifying areas of inefficient use of resources and poor management of wastes, by focusing on the environmental aspects and thus the impacts of industrial processes. Many organisations have produced manuals describing Cleaner Production assessment methodologies at varying levels of detail. However, the underlying strategies are much the same. The basic concept centres around a review of a company and its production processes in order to identify areas where resource consumption, hazardous materials and waste generation can be reduced. Table 1.0. lists some of the steps described in the more well-known methodologies.

Table 1.0. Methodologies for undertaking a Cleaner Production Assessment

Organisation	Document	Methodology
UNEP, 1996	<i>Guidance Materials for the UNIDO/UNEP National Cleaner Production Centre</i>	Planning and organisation Pre-assessment Assessment Evaluation and feasibility study Implementation and continuation
UNEP, 1991	<i>Audit and Reduction Manual for Industrial Emissions and Wastes. Technical Report Series No. 7</i>	Pre-assessment Material balance Synthesis
Dutch Ministry of Economic Affairs, 1991	<i>PREPARE Manual for the Prevention of Waste and Emissions</i>	Planning and organisation Assessment Feasibility Implementation
USEPA, 1992	<i>Facility Pollution Prevention Guide</i>	Development of pollution prevention programme Preliminary assessment

Figure 1.0: Overview of the Cleaner Production assessment methodology (UNEP, 1996)



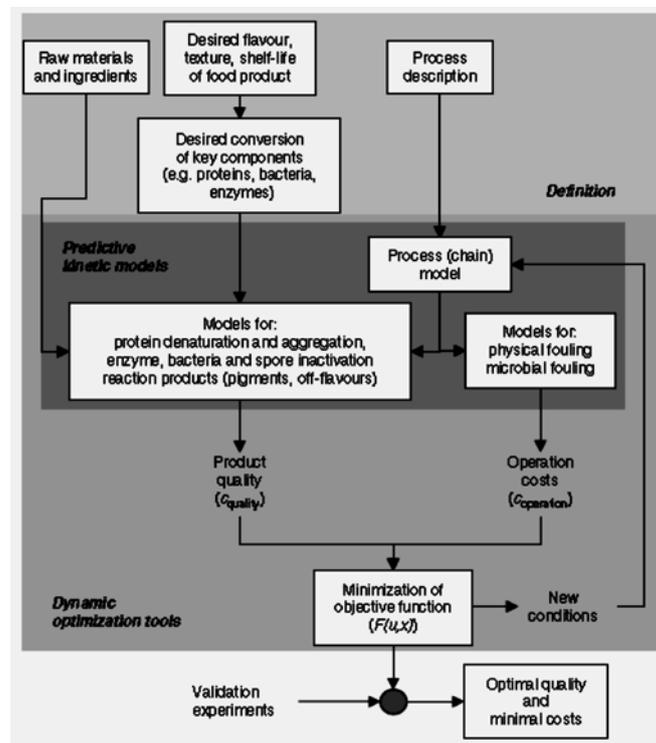
Approach in optimising heating processes

For the application of models in the food industry, an approach is needed that integrates the three types of models (process, product and costs model). Another need is kinetic data. The increasing availability of predictive kinetic models and necessary kinetic data has stimulated a reaction engineering approach to obtain optimal product quality (0). The functional properties of the product and the operating costs of the equipment are largely determined by conversion of so-called key components in the raw materials processed. The main control factors for product and process optimization are the temperature–time relationship and the configuration of the processing equipment. In order to determine the optimal values of the control variables, a general objective function is used:

$F(u,x) = \alpha c(u,x) + \beta c(u)$ quality operation (1.8)

where u is a vector of process control variables (e.g. temperature, flow), and x is a vector of desired product properties related to food quality and safety. The value of c quality depends on the outcomes of the predictive models for contamination and transformation of food components cooperation is related to the operating costs. The optimal configuration and operation of a production chain are achieved by minimization of the objective function. To avoid trivial and undesired solutions, the weight factors α and β are introduced. These weight factors give the relative importance of each term of the objective function. For example, too high a value of β may result in a very clean and cheap production process but an inferior product quality. Figure 2.0. shows a general approach for process and product development by use of predictive kinetic models. In order to optimize a production chain, first the available raw materials and ingredients, the desired product properties and a general process description should be known. Based on the desired product properties, the desired conversion of key components is determined. Embedding the predictive models for product properties (II) and for physical and microbial fouling (III) into the process

Figure 2.0. Schematic representation of process and product development of heated milk products using predictive kinetic models. Source: Britz.J.T and Robinson.R.K. 2008



Model (I), the values of c quality and cooperation can be calculated. Next, the evaluation of objective function results in improved conditions (i.e. control factors) for the production chain and the evaluation of the predictive models is repeated. This process goes on until the minimum of the objective function is obtained, i.e. the optimal conditions are found. Before the optimization results are applied, some validation experiments can be performed. Some examples of recent industrial applications that accelerated the process and product development are:

- improvement of the performance (extended operating time) of a cheese milk pasteurizer; examination of two evaporator designs with respect to bacterial growth;
- determination of critical points in the downstream processing of whey;
- extended operating time (200%) of a production chain for baby food.

For the Dutch dairy industry, it has been calculated that in terms of energy, the reduction of fouling and contamination by predictive models has already a savings potential of 90 million m³ of gas (De Jong and Van der Horst, 1997).

General Analysis

Identifying Cleaner Production Opportunities for production Processes

An analysis of the production processes in Milk and Dairy processing reveals the following:

Receipt and storage of milk

Cleaner Production opportunities in this area focus on reducing the amount of milk that is lost to the effluent stream and reducing the amount of water used for cleaning. Ways of achieving this include:

- avoiding milk spillage when disconnecting pipes and hoses;
- ensuring that vessels and hoses are drained before disconnection;
- providing appropriate facilities to collect spills;
- identifying and marking all pipeline to avoid wrong connections that would result in unwanted mixing of products;
- installing pipes with a slight gradient to make them self-draining;
- equipping tanks with level controls to prevent overflow;
- making certain that solid discharges from the centrifugal separator are collected for proper disposal and not discharged to the sewer;
- using 'clean-in-place' (CIP) systems for internal cleaning of tankers and milk storage vessels, thus improving the effectiveness of cleaning and sterilisation and reducing detergent consumption;
- improving cleaning regimes and training staff;
- installing trigger nozzles on hoses for cleaning;
- reusing final rinse waters for the initial rinses in CIP operations;
- collecting wastewaters from initial rinses and returning them to the dairy farm for watering cattle.

Separation and standardisation

Cleaner Production opportunities specific to this area are related to reducing the generation of separator sludge and optimising its collection and disposal. Ways of achieving this include:

- reducing the frequency with which centrifugal separators are cleaned, by improving milk filtration at the receiving stage or by clarification of the raw milk;
- collecting the sludge and disposing of it along with other waste solids.

Also of importance is the optimisation of cleaning processes, to make them water and energy efficient.

Pasteurisation and homogenisation

Cleaner Production opportunities in this area focus on improving energy efficiency. Ways of achieving this include:

- replacing batch pasteurisers with continuous process incorporating plate heat exchanger (PHE) pasteurisers, where feasible. PHE pasteurisers are more energy efficient than batch pasteurisers because the heat from the pasteurised milk can be used to preheat the incoming cold milk (regenerative counter current flow);

- installing new manufacturing equipment, which will result in less waste of milk products than the equipment currently used in many dairies;
- avoiding stops in continuous processes. The more constant the production, the less milk will be lost, since most waste comes from cleaning of batch process equipment. In the event of upgrades to process equipment, high-volume pasteurising units should be considered;
- reducing the frequency of cleaning of the pasteuriser. Particularly for small dairies, optimising the size of balance tanks before and after the pasteuriser will allow continuous operation of the pasteuriser and reduce cleaning frequency;
- planning production schedules so that product change-overs coincide with cleaning regimes;
- collecting and recovering the milky wastewater generated at start-up of pasteurisation and supplying it to farmers as animal feed.

Also of importance is optimisation of cleaning processes, to make them water and energy efficient. To make possible the reprocessing of excess milk returned from the market, dairy plants may wish to consider developing policies which allow for the reprocessing of milk without affecting the quality of the freshly pasteurised product. The introduction of poorer quality milk into the pasteurisation process can result in milk scale and coagulation problems due to higher acidity.

This may cause higher milk losses in the pasteuriser due to the need for more frequent cleaning in order to remove milk scale. These issues should be weighed against the benefits of reprocessing returned milk. The controlled return and reprocessing of milk from the market may require training of sales representatives. Alternatively, penalties could be applied for inappropriate ordering, or bonuses paid for extended periods of no market returns

Deodorisation

Water used for the vacuum pump can be recirculated to reduce or eliminate the necessity to discharge it.

Storage and packaging

Cleaner Production opportunities in this area focus on improving the energy efficiency of refrigeration systems and optimising CIP processes to reduce both water use and the organic load discharged into the effluent stream. Ways of achieving this include:

- clearing milk residues from the pipes using compressed air before the first rinse;
- collecting the more highly concentrated milk wastewater at start-up and shut-down for use as animal feed;
- optimising the accuracy of filling operations. This will not only result in improved efficiency, but will also reduced potential for waste and spillage. Minor variations in filling performance can have significant cumulative effects particularly for small unit fill quantities;
- improving procedures for recovering milk from wrongly filled containers;
- emptying and collecting product from wrongly filled containers for use as animal feed;
- reducing energy consumption through improved insulation, closing of doors to cold areas, good maintenance of room coolers and regular defrosting;
- using direct ammonia-based cooling systems instead of CFC-based systems.

Butter production

Cleaner Production opportunities in this area focus on reducing water use and loss of product. Ways of achieving this include:

- minimising the number of times the pasteuriser is cleaned. Particularly in small butter dairies, optimising the size of balance tanks before and after the pasteuriser will allow it to operate continuously, resulting in less need for cleaning;
- installing modern pasteurising equipment. This will reduce waste of cream in many dairies, because improvements in plate design now give a more gentle and constant heat treatment. This decreases the build-up of overheated solids on heating surfaces. In the event of upgrades to process equipment, high-volume pasteurising units should be considered;
- collecting the more highly concentrated milk wastewater generated when starting up the pasteuriser, for use as animal feed.

Butter churning

Cleaner Production opportunities in this area focus on reducing loss of product. Ways of achieving this include:

- ensuring that the buttermilk is collected separately and hygienically so that it can be used in other processes, such as a base for low fat spreads;
- collecting all first rinses, and separating the residual fat for use in other processes;
- preventing the build-up of milk scale deposits;
- maintaining butter makers on a regular basis;
- avoiding spills by ensuring that the buttermilk collection facilities are large enough to hold all the liquid.

Butter packaging

Cleaner Production opportunities in this area focus on reducing water use and loss of product. Ways of achieving this include:

- collecting first rinses while still warm and separating the milk fat residues for use in other processes;
- reducing the disposal of packaging material by having personnel constantly optimising operation of the packaging machines.

Butter storage

Cleaner Production opportunities in this area focus on improving the energy efficiency of refrigerated storage. Ways of achieving this include:

- installing insulation;
- keeping doors closed in cold areas;
- undertaking regular defrosting of cold rooms and regular maintenance of refrigeration systems;
- avoiding refrigerants that contain CFCs. Refrigeration systems based on ammonia cooling are preferred.

Cheese production

A number of opportunities exist for the recovery of the valuable high-grade protein from sweet whey. However it has only been in recent years that they have become technically and economically viable. The method used is ultra filtration (UF), followed by spray drying of the protein. This process is costly, so is only worthwhile when large quantities of fresh whey are available. Spray-dried whey powder contains between 25% and 80% protein and is used in food products, where it performs a similar function to egg proteins. Whey powder is

highly soluble, even at high acidity, and is capable of forming stable foams and gels when heated. Whey protein powder is therefore used in the manufacturing of bakery and meat products, where its gelatinous properties are particularly useful. Other options available for whey utilisation are:

Evaporation followed by spray drying to produce whey powder

One of the problems associated with this solution is that the lactose tends to caramelise, making any heating process difficult. Unless special precautions are taken, the resulting product is very hygroscopic due to the high concentrations of lactose (70–75%). Whey powder in this form is not suitable for use as a food ingredient because it is very sticky and absorbs moisture during storage, forming hard lumps. Non-hygroscopic whey powder can be produced by precrystallising the lactose before drying. In this way, most of the lactose is present in the alpha-crystalline form, which is nonhygroscopic. Higher-quality whey powder can be produced by incorporating a secondary crystallisation step after spray drying. Powder is removed from the drying chamber at 8–14% moisture. The moisture remaining in the powder permits almost complete crystallisation of the lactose and the residual moisture can then be removed in a secondary drying system (e.g. a fluid bed) before the powder is cooled and packaged.

Feeding it to animals

In most countries where this is practised, the whey is normally fed to pigs or cows. This is a low-cost solution but the price obtained for whey, after transport costs are considered, is often only a very small fraction of the cost of the original milk. The advantages are that there are no capital costs and no effluent charges.

Demineralisation, or reduction of the mineral content of whey

This increases the range of opportunities for its use as a food ingredient. Ion exchange treatment or electrodialysis is used in the demineralisation process, and demineralised whey is spray-dried in the same way as whey powder. The main use of demineralised whey powder is in the manufacture of infant milk formulations, where it is used in combination with skimmed milk powder to give a similar composition to that of human milk. Another use of demineralised whey powder is in the manufacture of chocolate. Electrodialysis, or ion exchange technology, is comparatively expensive but it does give an end product with a higher value.

Anaerobic digestion and fermentation

Whey can be anaerobically digested to produce methane gas, which can be captured and used as a supplementary fuel on site. Whey can also be fermented to produce alcohol. In addition, there are a number of Cleaner Production opportunities for reducing the loss of product from the process, which include:

- preventing the loss of curds by not overfilling cheese vats;
- completely removing whey and curds from the vats before rinsing;
- segregating all whey drained from the cheese;
- sweeping up pressings instead of washing them to drain;
- screening all liquid streams to collect fines.

Cheese packaging

All cheese scraps should be collected separately from other waste and either used as raw material for processed cheese manufacturing (where possible) or sold as animal feed. Liquid wastes should be treated, together with other effluent streams.

Cheese storage

Methods for reducing energy consumption and minimising the impacts of refrigerant use are:

- installing good insulation;
- keeping doors to cold rooms closed;
- undertaking regular defrosting and maintenance of refrigeration systems;
- avoiding refrigerants that contain CFCs. Refrigeration systems based on ammonia cooling are preferred.

Evaporation in Evaporated and dried milk production

Cleaner Production opportunities in this area focus on ensuring the efficient operation of the evaporators, including:

- maintaining a liquid level low enough to prevent product boil-over;
- using entrainment separators to avoid carry-over of milk droplets during condensation of evaporated water;
- recirculating low concentration milk and other feedstocks until a required concentration is reached;
- prior to scheduled shut-downs, processing rinse waters with solids content greater than 7% or evaporating them during the next run rather than discharging them to the effluent stream;
- draining equipment thoroughly before starting rinsing and washing;
- collecting the first rinse water for animal feed;
- reducing the frequency of cleaning operations as much as possible;
- reusing condensate as cooling water after circulation through a cooling tower, or as feed water to the boiler.

The drying process

Methods for avoiding the release of fine milk powder to surrounding areas include:

- minimising emissions to air by using fabric filters or wet scrubbers;
- undertaking wet cleaning only when absolutely necessary, and plan for it to coincide with a change of product;
- controlling air emissions and taking corrective action if levels are beyond acceptable limits.

Packaging and storage of milk powder

The Cleaner Production opportunities in this area focus on the prevention of emissions of milk powder dust, including:

- ensuring the proper management of storage operations;
- installing exhaust ventilation to minimise dust in the work place.

Cleaning

For dairies without CIP systems, consideration should be given to their installation. CIP systems make the recovery and reuse of cleaning solutions possible, and systems equipped with in-line monitoring can control the quality of cleaning solutions, thereby maximising the use of detergents and minimising water use. For dairies with CIP equipment, it is important to determine and maintain optimum operational settings to reduce the consumption of both water and detergents. Further water reductions can be achieved by providing facilities for the collection of final rinse waters so that they can be reused as the initial rinse water in the next CIP cycle. Detergents and disinfectants can be significant

sources of pollution if too much is used. It is very important, therefore, to monitor their consumption. An optimum detergent concentration for cleaning should be determined. Operators should ensure that tanks, pipes and hoses are as completely empty as possible before they are cleaned. Empty pipelines can be blown with compressed air before cleaning in order to reduce any milk film that may have adhered to the walls of vessels and pipelines. Cleaning of floors and equipment often consumes large quantities of water, due to the traditional cleaning method in which the operator directs a jet of water from a hose onto equipment and floors until the milk and solids float down the drain. Solid wastes, such as curd particles in the cheese making process, can be collected using a brush or broom rather than being rinsed down the drain. The use of pigging systems to remove product residues from the internal surfaces of pipeline prior to cleaning can help to reduce the pollutant load of cleaning wastewaters and also allow for product recovery. Spray nozzles are subject to wear that causes deterioration of the orifice and distortion to the spray pattern. This results in an increased flow rate of water and reduced effectiveness. In general, 10% nozzle wear will result in a 20% increase in water consumption (McNeil and Husband, 1995)

Crate washing

Cleaner Production opportunities in this area therefore focus on reducing the consumption of water. Ways of achieving this include:

- optimising water consumption by monitoring the water pressure and the condition of the water spray nozzles;
- installation of spray nozzles of the optimum dimensions;
- fixing leaks promptly;
- turning off the crate washer when not in use;
- recirculating wash water through a holding tank.

Refrigeration and cooling

CFC-based refrigerants should be replaced by the less hazardous hydrogenated chlorofluorocarbons (HCFCs) or, preferably, by ammonia. In the long run both CFCs and HCFCs should be replaced by other refrigerants according to the Montreal Protocol. Replacing CFCs can be expensive, as it may require the installation of new cooling equipment. Minimising the ingress of heat into refrigerated areas can reduce energy consumption. This can be accomplished by insulating cold rooms and pipes that contain refrigerant, by closing doors and windows to cold areas, or by installing self-closing doors.

If water and electricity consumption in the cooling towers seems high, it could be due to algal growth on the evaporator pipes. Another reason could be that the fans are running at too high a speed, blowing the water off the cooling tower. Optimising the running of the cooling tower can save a lot of water.

Actualisation

Case Study of Pasteurisation (optimisation of heating processes)

To illustrate the application of the described procedure for optimizing food production chains, the following case study has been performed. A heating process with a capacity of 40 tonnes of skim milk per hour consists of a regenerative section, a heating section, two holder sections and a cooler. In Fig. 3.0. , the scheme of the process is shown with some preliminary temperatures and residence times. In order to have a process model, the equipment is transformed to a cascade of model reactors. Details of the characteristic dimensions are given in the literature (De Jong *et al.*, 2002b). The objective is to develop a process that meets the specifications as given in Table 2.0. . The objective function is defined as:

$$F(u, x) = \sum_{i=1}^3 \alpha_i \left(\frac{x_{i,des} - x_i(u)}{x_{i,des}} \right)^2 + F_{cost}$$

Figure 3.0: Scheme of the pre-design of the pasteurization process.

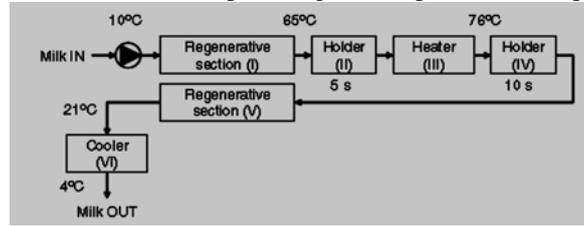


Table 2.0. Product and process specifications of pasteurization (process variables). Source: Britz.J.T and Robinson.R.K. 2008

Process variable	Desired value ($x_{i,des}$)	Weight factor (α_1)
β -Lactoglobulin denaturation	72–80	4–8
Decimal reduction <i>Strep thermophilus</i>	130–145	75–90
Production costs	142–150	60–85

Where

$$F_{cost} = \frac{c_{operation} t_{operation} + c_{solids} t_{production} \iint_{x,t} J_{x,t} dt dx}{t_{production} \phi} \tag{1.1.0}$$

where the integral term is the total amount of deposits after 1 h of production, and ϕ is the capacity of the process in tonnes per hour and:

$$t_{production} = \frac{t_{operation} t_{run}}{t_{run} + t_{cleaning}} \tag{1.1.1}$$

and

$$t_{run} = t \text{ if } (C_{Strep.thermophilus} > 0.0001 \text{ cfu ml}^{-1}) \tag{1.1.2}$$

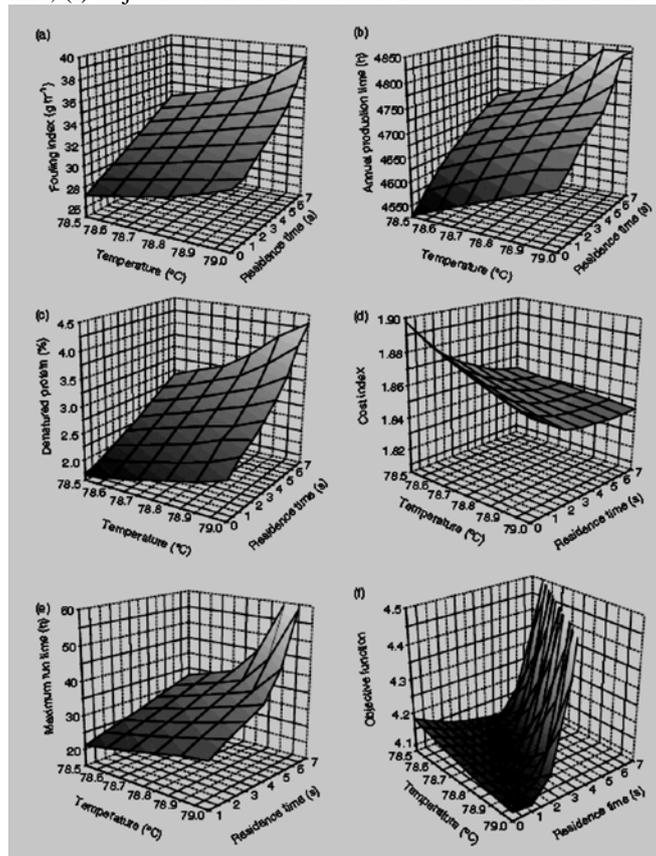
Values of several constants are given in the literature (De Jong *et al.*, 2002b). The weight factor α_1 is introduced to avoid trivial and undesired solutions; for example, a low-cost process resulting in an inferior product quality. The chosen values of the weight factors are determined by the relative importance of the different product properties. However, since the relationship between the weight factor values and the optimization results are not clear beforehand, the determination of the weight factor value is an iterative process in consultation with industrial experts. In this case, the control variables (u) are limited to two, the heating temperature and the residence time at this temperature in the second holder section. With two control variables, surface plots can present the results of the computer model simulations. Figure 4.0. shows the results of the model evaluations. According to Equation 1.12, in this case it is assumed that the maximum run time is limited by contamination with *Strep. thermophilus* and not limited by the deposition of proteins and minerals on the wall surface. At a temperature lower than 79°C and run times shorter than 30 h, the deposition layer does not result in insufficient heat transfer. Related to that, the objective function accounts for the increasing amount of product losses. According to Fig. 4 d, the operating costs per tonne of heated product decrease with temperature and residence time. This is due to the increased operating time (Fig. 4 e) resulting in an extended annual production time (Fig. 4b). However,

at higher temperatures and longer residence times, the amount of denatured proteins exceed the desired value of 2.5% resulting in a substantial contribution to the objective function (Fig. 4 f). Catalase activity was not a key parameter in the temperature and residence time region applied. At a temperature of 78.5–79.0°C and a residence time of 1 s or longer, the activity was <0.1%. In Table 3.0, the optimal values of the control variables and the related process variables are listed. Compared with the initial preliminary design (10 s, 76°C), the operating costs could be decreased by 14%. At an annual production time of 4700 h, this means an estimated cost saving of €8 000.

Table 3.0. Optimization of the pasteurization process Source: Britz.J.T and Robinson.R.K. 2008

Variable	Reference	Optimal
Control variable	760	78.7
Heating temperature (°C)	10	3
Residence time (s)		
Process variable		
Catalase activity (%)	1.6	0.01
β-Lactoglobulin denaturation (%)	0.84	2.46
Decimal reduction <i>Streptococcus thermophilus</i>	6	6
Production costs (€ton ⁻¹)	2.16	1.86

Figure 4.0: Results of the optimization for different aspects of the objective function as a function of the control variables: (a) fouling index; (b) annual production; (c) protein denaturation; (d) cost index (€ ton⁻¹); (e) maximum run time; (f) objective function evaluation. Source: Britz.J.T and Robinson.R.K. 2008



Case study of Cleaner Production - Campina Melkunie Maasdam- The Netherlands

The Cleaner Production assessment for this Dutch company was carried out as part of the PRISMA project (Dutch Ministry of Economic Affairs, 1991). The project identified five Cleaner Production opportunities:

- better emptying of production tanks;
- elimination of rinsing between yogurt batches;

- reduced rinsing at product change-over;
- optimisation of cleaning operations;
- .recovery of low-grade heat.

This case study demonstrates that even when considerable effort has already been made to improve the environmental performance of a company, it may still be possible to identify additional Cleaner Production opportunities through a formal Cleaner Production assessment process.

Company description

Campina Melkunie Maasdam is part of the Campina Melkunie Holland cooperative. The company employs 170 people, who work two shifts. The company produces a wide range of milk, custard and yogurt products. In total 105 million litres of milk is processed per year; 92 million litres for market milk and 13 million litres for other dairy products.

Process description

The milk is delivered to the plant in milk tankers, after which it is separated. Depending on the required end product, the milk may then be mixed with non-separated milk to obtain the correct fat content. The milk is pasteurised and homogenised, and packed into cardboard or glass packaging. A proportion of the milk is processed further into yogurt, custard and buttermilk. During the production process, product clings to the internal surfaces of pipes and equipment, which can lead to reduced product quality. To avoid this, the entire process is cleaned and sanitised after each production day, and specific pieces of equipment may also be cleaned throughout a production day. Cleaning agents containing, among other things, sodium hydroxide, hydrogen peroxide and peracetic acid are commonly used.

Environmental aspects

Like all dairy processing plants, the company generates a warm, liquid effluent stream containing milk constituents and cleaning and sanitising agents. The quantity of effluent discharged per year is 130,000 L. The organic loading of this wastewater averages about 1240 mg COD/L, which is equivalent to 3600 pollution units (pu), where 1 pu equals the organic pollution load generated by one person. The company is not connected to a wastewater treatment plant and therefore discharges treated effluent directly to surface water. The cost for discharging effluent is calculated according to the Dutch Pollution of Surface Water Act and amounts to US\$120,000 per year, based on US\$33 per pu. Emissions to air principally result from the combustion of fossil fuels in the boiler for steam generation. Pollutants emitted include NO_x, CO, CO₂ and PAHs, but the quantities have not been measured. The company has three chemical waste streams: ink, solvents and laboratory waste. About 10 litres per year of each of these wastes are generated. This is taken away to the small municipal chemical waste depot. By far the largest proportion of the company's solid waste stream is of packaging materials, particularly the cardboard containers used to package milk. Approximately 125,000 containers are lost as waste per year, which represents approximately 0.25% of the total number of cartons consumed. The value of this waste stream has been estimated to be about US\$6000. Paper wastes are reused off site wherever possible and reject glass bottles are also recycled off site. The company generates its own steam in an on-site boiler for heating and processing, and other energy needs are met using electricity. Prior to the PRISMA project waste prevention measures had already been taken by the company, driven by financial and efficiency considerations. A lot of energy was used for the production of milk products. With the high energy prices of the 1970s it was cost-effective to take energy-saving measures. A lot of water was also used. For the production of 1 litre of milk ten years ago, 10 litres of water were needed. This has since been reduced to

1.4 litres of water. The preventive measures taken primarily involved reuse options, such as using the cooling and rinse water several times before discharging it. Another measure, to reduce the effluent charge, is to return waste product to the production process or collect it separately and take it away as cattle feed. Only if this is not possible is the product discharged.

The Cleaner Production assessment

Based on previous studies of product losses undertaken by the company, it was possible to identify areas where relatively large amounts of waste and emissions were being produced. The primary sources of pollution load are product loss to the effluent stream and the use of cleaning agents. This is caused by, among other things, batch production processes, which lead to the need for frequent cleaning and subsequent losses during start-up and shut-down.

Another area of concern was the high energy consumption for heating and cooling. To reduce the pollution load fourteen preventative measures were drawn up. Since then, eight of them have been implemented. Three options still have to be looked at more closely and three have been found to be impracticable for various reasons. The result has been as follows:

- a reduction in product loss by 24,000 litres (3.4% reduction);
- a 23% saving in consumption of chemicals;
- a reduction in pollution load by 198 pu./yr (a 5.5% reduction);
- a 138,000 m³/yr saving in natural gas consumption.

Total savings have amounted to US\$68,000 per year, and possibly an additional US\$26,000 in reduced effluent charges. This was achieved by a single investment of US\$32,000.

Table 4.0. Identified Cleaner Production options

	Projects implemented	Projects still to be implemented	Feasibility study required
Loss of product	Improvements to procedures Improvements to tank emptying practices	Replacement of cooling installation	
Cleaning operations	No rinsing between yogurt batches Optimisation of cleansing process Reduced rinsing		Substitution of cleansing agents Reuse of sour products
Energy	Pre-heating milk for buttermilk Custard heating	Pre-heating milk for yogurt production	
Miscellaneous	Replacement of ink injector		

Discussion

The life cycle of milk and milk products commences with the production of fresh cow's milk on dairy farms. Milk is then processed to produce pasteurized and homogenized market milk, butter, cheese, yogurt, custard and dairy desserts etc. It may also be preserved for a longer shelf life in the form of long-life (UHT), condensed, evaporated or powdered milk products. The various products are packaged into consumer portions and distributed to

retail outlets. For fresh dairy products, refrigerated storage is required throughout the life of the products to maintain eating appeal and prevent microbiological spoilage. Following use by the consumer, packaging is either discarded or recycled.

The processing of milk to produce dairy products is a significant contributor to the overall environmental load produced over the life cycle of milk production and consumption. Therefore the application of Cleaner Production in this phase of the life cycle is important. As in many food processing industries, the key environmental issues associated with dairy processing are the high consumption of water, the generation of high-strength effluent streams, the consumption of energy and the generation of by-products. For some sites, noise and odour may also be concerns. Investing in Cleaner Production, to prevent pollution and reduce resource consumption is more cost effective than continuing to rely on increasingly expensive 'end-of-pipe' solutions. When Cleaner Production and pollution control options are carefully evaluated and compared, the Cleaner Production options are often more cost effective overall. The initial investment for Cleaner Production options and for installing pollution control technologies may be similar, but the ongoing costs of pollution control will generally be greater than for Cleaner Production. Furthermore, the Cleaner Production option will generate savings through reduced costs for raw materials, energy, waste treatment and regulatory compliance. The environmental benefits of Cleaner Production can be translated into market opportunities for 'greener' products. Companies that factor environmental considerations into the design stage of a product will be well placed to benefit from the marketing advantages of any future eco labeling schemes.

General recommendations

Recommendations regards Cleaner Production are derived from perceived environmental impacts associated with each production process and they represent a range of available options, from profitable activities that require no investment to other activities that may increase the production plant's costs:

Water pollution

- Site small dumps or waste treatment sites far away from surface or groundwater water sources.
- Separate harmful chemical waste from organic waste, and use more care in handling chemical waste. Dispose of chemical waste in methods in a manner that prevents chemicals from leaching into ground or surface waters (such as clay- or concrete-lined pits).
- If the enterprise stores waste temporarily before transporting it to a treatment facility or landfill, make sure it is not leaking into the ground.

Working Conditions

- Maintain safety equipment and reinforce safety training. Safety measures may already be in place, but workers should be reminded often; designate one person as the safety trainer and have that person train others. Check existing safety equipment regularly, and replace elements like dust filters frequently.
- Create a prevention strategy. Sometimes small changes such as buying a face mask or rubber gloves can dramatically reduce incidences of harm to workers. Find ways of preventing accidents.
- Find ways of reducing harmful by-products. For example, clean the floors in between production cycles to get rid of excess dust, or install drip trays to catch acidic fruit juice.

Spoilage

- Ensure that the building structure is secure not only from people but also from animals. Screens should be placed over drains and windows to keep out disease-carrying rodents and flies.
- Storage areas should be well-ventilated and large enough so that excessive heat and moisture do not cause spoilage in milk products.

Solid waste

- Re-use organic waste. Some organic waste such can be used as animal fodder.
- Modify waste disposal to facilitate faster decomposition/breakdown of organic material. Add layers of dirt and dry organic material to waste pits, or spread waste over large areas of land. This type of composting and “land spreading” can speed up decomposition and quickly lowers waste volume. Ensure material does not attract disease-carrying vectors including birds, rodents and insects.
- Minimize wastes by improving production processes. Identify and change elements of production that may be inefficient or produce excess waste. For example, improved techniques for cutting food produce can reduce waste and yield more product.

Poorly maintained machinery

- Schedule regular machine maintenance checks and repairs. Ensure up-to-date training in operation and maintenance. Do not wait until machinery is broken before checking it; leaks can occur long before serious equipment breakdown and may be costing you money. If possible and cost-effective, replace faulty machinery with more efficient machinery. If machinery is difficult to access, then monitor wastes or emissions to detect leaks. For example, check for puddles underneath machinery or chemical/fuel smells.
- Use wood shavings, drop cloths and/or oil/water separators to catch spills and leaks.
- If you are disposing of organic and chemical wastes separately, ensure that chemical or fuel waste does not contaminate the organic waste.
- If it is not cost-effective to replace or to repair machinery, make sure harmful effects are minimized. Increase ventilation around any machinery that has high gas or chemical emissions.

Water use

- Decrease water usage through “dry cleanup.” Dry cleanup involves an initial cleaning without water (sweeping, wiping down) before washing. This method reduces the amount of water required to dislodge solid wastes from floors or machinery.
- Regulate water flow. Using high-pressure water hoses can ease cleaning and cut water use; usually this only involves adding a new nozzle to the end of a hose.
- Reuse water. Some food processors use steam to purify or clean packaging materials; a closed-loop system can cycle hot water back into the system. This process saves money on both water and energy costs.

Liquid waste

- Practice water reduction strategies mentioned above, including "dry cleanup," to minimize the amount of wastewater created and the amount of waste materials in the wastewater.
- Separate fats, grease and solids from wastewater. Oil separators or oil traps can be purchased or made at relatively low cost and can reduce the amount oil in wastewater

dramatically. Drain stagnant pools of liquid or water away from holding pens and working areas.

- Consider constructing waste treatment ponds. Both solid and liquid waste can be treated in these, which can aid decomposition and reduce disposal costs. Since they may attract mosquitoes and other insects, site such ponds away from animals and places of human activity.

Noises and odours

- Locate waste disposal sites away from housing or town centres.
- Modify waste disposal or production practices to minimize odours. For example, if treating waste in lagoons or compost pits, make sure they are large enough to accommodate the volume of waste that is produced—if too small, the effectiveness of the treatment decreases and smell increases.
- Provide earplugs for workers.
- Repair and maintain machinery so that excessive grinding or squeaking is minimized. This may increase the machinery's efficiency and make it last longer.

Conclusion

Cleaner Production is the most effective way to design and operate industrial processes and to develop and produce products and services. The costs of wastes and emissions, including negative environmental and health impacts, can be avoided or minimised by applying the Cleaner Production concept from the beginning and apply it continuously and throughout the entire life cycle. The costs of the traditional, reactive environmental strategy - the end-of-pipe strategy - are well known. These costs continue to grow, and as regulations become more aggressive and precise will increasingly add to the burden of business. In contrast, when Cleaner Production is applied, processes become more efficient because they require fewer raw materials and/or generate less waste. Cleaner Production approaches recognise that change has to come from within and sustainable change cannot be imposed from external sources against the needs or desires of the firm. Generally with a Cleaner Production approach, there are inevitably substantial economic benefits that can be directly related to the program

Heating of milk has been rationalized to a great extent by introducing the chemical engineering approach. In this approach, the milk is described as a fluid with a number of key components and the equipment is described as a number of chemical model reactors. Processes for heating can be designed on the basis of the desired product specifications. After determination of the optimal temperature–time combination, the appropriate heating equipment can be selected and designed. Although heating is a well-developed and relatively robust preservation technology, there are still a number of challenges for improvement. For example, to improve the nutritional value of heated dairy products, there is a need for heating technologies that realizes hyper-short treatment at high temperature. Developments such as the ISI technology should be encouraged. Also, for a number of products, the (bio)fouling of the heating equipment and its related negative consequences limits the application

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USING BILINGUAL BOOKS TO ENHANCE LITERACY AROUND THE WORLD

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Abstract

This paper focuses on approaches and practices for developing biliteracy and bilingualism across diverse international settings. The authors present a framework for why bilingual books can be used to develop both native language and second or other languages through reading and writing activities. Bilingual books and a basic taxonomy of types of bilingual books are described. A rationale for their use is provided in that bilingual books provide linguistic resources such as vocabulary development for students to develop across two languages (Ernst-Slavit&Mulhern, 2003) while also fostering awareness of cultural and social awareness (e.g. Botelho& Rudman, 2009). The authors provide specific examples of both linguistic and cultural support. Specific activities that promote bilingualism and biculturalism as an aim include read-aloud, shared reading, and writing instruction which can incorporate the use of student-created books in both languages. These student-written bilingual texts can draw on local cultural and linguistic practices in their composition (e.g., Dworin, 2006). Finally, the authors conclude with ways that cross-age reading and family involvement can support bilingual development by using bilingual books.

Keywords: Bilingualism, biliteracy, multilingualism, language

Introduction

Children's books play an important role in children's literacy development because they offer opportunities to expand children's awareness beyond their own places, to see reflections of themselves, their own culture and experiences, and invite them to build bridges to cultures unlike their own. High quality books written for children can lead to cross-cultural understandings, and can foster empathy and new perspectives (Botelho& Rudman, 2009).

More than half of the world's population speaks more than one language and on the continent of Africa, the majority of children use a foreign language when beginning school (UNESCO, 2010). This has widely varying ramifications for students around the world. While some families may send their dominant language-speaking children to a bilingual, dual language, or multilingual school, other families may need to send their child who speaks a minority language to the nearest school, where all teaching is carried out in a majority language that may not be spoken at home. Multilingualism and education has many faces throughout the world, as people cross national and linguistic boundaries for a variety of reasons including greater economic prosperity, displacement due to geopolitical conflict, and the desire to experience the world.

Biliteracy initiatives that use multiple languages increase student achievement, linguistic competency, and empower students as active participants (Baylac-Ferrer, 2009;

Pérez, 2003). Early experiences with books have a positive impact on the language and literacy development of monolingual children. While there is not as much research into the impact of book reading on bilingual children, there is evidence that book reading can facilitate literacy development (Hammer, Miccio, & Wagstaff, 2003; Kalia, 2007).

Multilingualism in an educational setting brings both advantages and difficulties. While affording children new linguistic and cultural perspectives, transitioning entirely from one language to another, especially at too young an age, can be problematic, with the child not being ready for the demands of learning in a new language and simultaneously losing the opportunity to further develop their home language (Hall, 2010). Given the great demands placed on both students and teachers in classrooms with multilingual students, sometimes with more than two or three languages as the children's home languages, educational tools to support the multilingual classes of the world are vital to allow students to either become fully multilingual or to support transition from one language to another.

The purpose of this paper is to present bilingual books as a teaching tool, to explain their potential value, and to provide examples of how they can be used in the classroom. In our experience, the use of bilingual books can provide cultural and linguistic support for language learners. We suggest ways that bilingual books can be used for language and literacy learning, maintenance of the native language, and also as a way to provide culturally relevant experiences for students. Students bring rich cultural and linguistic resources to the classroom such as bilingualism, oral traditions, heritage, and culture. In this paper we draw on a "funds of knowledge" approach that recognizes the richness of literacy practices that come from homes and communities (Compton-Lilly, Rogers, & Lewis, 2012; Dworin, 2006; Gonzalez, Moll, & Amanti, 2009; Moll, Saez, & Dworin, 2001). A funds of knowledge perspective, as well as the strategic use of bilingual texts and stories, can enrich the language and literacy development of all students. We also draw on our own teaching experiences with English language learners in the context of teaching in the United States as we offer ways to use bilingual books in classrooms.

What are Bilingual Books?

Bilingual books, also known as dual language books, are available across genres and age groups, including classics and picturebooks in fiction and nonfiction. Since they involve translations from one language to another, we point out that the quality of translation is an important consideration. Literal translations may not maintain the integrity of a story; the ways that idioms, humor, culture, and syntax are expressed across languages requires special attention so that the *intent* of the story is communicated as naturally and accurately as possible (Hadaway & Young, 2013). Bilingual texts can expose all students to culturally relevant reading that provides opportunities for students to see themselves reflected in what they read, to look into other cultures that may be quite different from their own, and to step into the place of others in a vicarious experience with books set in new places and with new cultures. This mirrors, windows, and doors framework is at the heart of teaching in ways that demonstrate respect and acceptance, while providing rich cultural experiences through books (Bishop, 1990; Botelho & Rudman, 2009).

Here, we offer descriptions of the most common formats for bilingual books for children. Examples of representative bilingual texts that are used in our own context of the Southwest United States, where Spanish is a common spoken language, are listed in appendix 1. We also include in appendix 2 some representative types of bilingual texts in other languages. Additional sources to locate bilingual books include *The International Board on Books for Young People (IBBY)* and *The United States Board on Books for Young People (USBBY)*. The journal *Book Bird: Journal of International Children's Literature* is also a

good source of books and themes that center on internationally-focused children's literature as is *The Journal of Children's Literature*.

Full-Text Translations

In full-text translations, the entire story is presented in two languages. Both languages are placed on one page, or facing pages, often with a graphic to separate the two. Sometimes a different ink color or typeface is used to call attention to the difference in languages. Some issues have been raised about the placement of two languages, and the implication for privileging one language over another. For example, which language comes first on the page? If the orientation (left-right, top-bottom) of the two written languages is different, which orientation will the book use? These books are meant to be read in both languages, page by page, either by one reader who is able to read both languages, or by two readers, each fluent in one of the languages (Sneddon, 2009). Dual language books are available in paper in over 40 languages, and more are available digitally (Cass School of Education, 2008).

Single-Language Translations

Many books are published entirely in one language, with whole book translations into other languages. Sometimes the publication of various translations occurs intentionally and simultaneously, and sometimes a book is published first in one language and translated some time later.

Embedded Text

These books tell a story in one language, with some words and phrases from the second language added. Often, when the second language words are added, they are introduced alongside their first language counterpart (for example, *Hello. Hola*). Books with embedded second language text can rely on illustrations and the context of the story as aids for working between two languages.

Concept Bilingual Books

Concept books focus on a theme, and can use multiple languages within that theme. An example would be a picturebook about colors. The page would have images of objects in a particular color, and the text would be the name of the color in the focus languages.

Wordless Books

Although these books are not bilingual, they can be used as a prop for oral or written storytelling and object-naming in any language while helping children develop creativity.

Bilingual Books as Linguistic Support for Multilingual Classrooms

In addition to the valuable cultural support that bilingual books can provide, these books can also be used to develop children's linguistic skills in both their home and new languages. These linguistic skills can be separated into the three categories of vocabulary, syntax, and sound awareness for the sake of description although they necessarily come together in real-life language use.

Vocabulary

Bilingual books help children transfer conceptual knowledge and skills across languages, and compare and contrast concepts across languages (Taylor, Bernhard, Garg, & Cummins, 2008), and therefore are effective at helping students develop vocabulary across languages. Foreign language learners who are transitioning into their non-native tongue have different vocabulary needs than those of native speakers. Not only do non-native speakers

need to acquire the vocabulary of the new language, but they face the additional task of learning content area vocabulary specific to math, science, social studies, and language arts.

Success in reading comprehension is highly dependent upon vocabulary development (Bauer & Arazi, 2011; Biemiller 2006). Bilingual books support vocabulary in both the first and second languages.

Syntax

By using bilingual books, the comparison of syntactic structures across languages shows how word order varies in different languages. An activity meant to develop vocabulary as children search for parts of speech in text would naturally lead to a recognition that important differences exist between the grammars of different languages. For example, for English and Spanish, the concept of the gender of nouns in Spanish and other languages can be explicitly discussed. Such discussions not only help prevent confusion for children, but it also provides native majority-language speakers with meaningful insight into a linguistic characteristic of another language. Other grammar-based activities could include direct comparisons of a sentence with its match from the other language. Students can examine whether both sentences have the same number of words, whether the words are matched one-to-one and in the same order, and if not, why they are not matched one-to-one. This elevates a student from any linguistic background to the role of expert, being a native speaker of a particular language.

Specific Teaching Practices and Activities with Bilingual Books

There are many ways in which bilingual books can be used. In the following sections, we offer some specific practices that illustrate the role bilingual books can have in teaching. The models we share are part of balanced literacy in any classroom, and can be especially helpful in classrooms with language learners.

Dialogic Teacher Read-Aloud

In teacher read-alouds, the teacher models fluent oral reading while students listen. When teachers read books aloud, they offer children opportunities to participate in reading books that may be beyond their ability to read on their own, especially when the children are not fluent in the language of the text (Krashen, 1995). Often, these read-alouds take on a dialogic nature, as the teacher and students engage in discussions that support and value the sociocultural and linguistic backgrounds of the students (Labadie, Pole, & Rogers, 2013; Pappas et al. 2012; Vásquez, 2014). In a dialogic read-aloud, teachers invite discussion while books are being read. Teachers might lead the discussion by pausing after reading an interesting phrase or viewing an illustration. Children might also initiate discussions by calling attention to new words, to ask questions, or to offer personal connections.

For example, in a read-aloud of the picturebook *Sam and the Lucky Money*, upon hearing the words *leisees* (red envelopes given in China as gifts for holidays and special occasions) and *char siubao* (steamed pork buns), kindergarten children in the U.S. who spoke eight different home languages engaged in conversation about similar things in their own cultures, sometimes using English, the common language of the class, and sometimes using one of their home languages (see Labadie, Pole, & Rogers, 2013 for more about this study). Literacy developed through conversations like this helps elevate reading to more than a set of skills. This kind of dialogue helps build biliteracy as a social practice as children look for connections between multiple languages and cultures, since all children can relate to general themes of childhood, and this perspective of biliteracy helps create bridges between families, communities, and schools.

Shared Reading

Shared reading is another model for teachers reading aloud. In this model, students read along, either silently or out loud as well (Holdaway, 1982; Stahl, 2012). As students read along with the teacher, they learn vocabulary, text structure, and text features (Coyne, Simmons, Kame'enui, & Stoolmiller, 2004; Hadaway, Vardell, & Young, 2001; McKeown & Beck, 2006). This model can be especially helpful for students reading in a second language who benefit from the support that hearing an expert reader while simultaneously following text on their own affords. For very young and less experienced readers, shared reading can occur with big books, which are oversized copies of common trade books that teachers hold open to students. By the time a student has mastered important concepts about print, such as one-to-one matching, they need to hold their own copies of the text and actively participate in reading (Fisher, Frey, & Lapp, 2008; Kuhn, Schwanenflugel, & Meisinger, 2010; Stahl, 2012). This kind of reading is often integrated with vocabulary instruction as words are pulled from the text for special attention, and lessons on the mechanics and skills of reading, including phonemic awareness, phonics, punctuation, sight words, and comprehension. Sometimes shared reading includes rereadings where students read in unison with rhyming text, text that has repeating phrases, or poetry.

Writing: Creating Bilingual Books

In contexts where bilingual books are not as available, bilingual books can be created by students and shared in school and at home to foster appreciation of both languages (Dworin, 2006). Teachers can enlist community translators to help create dual-language books; text can be printed or typed on labels that are affixed to book pages alongside the first language, and dual-language audio recordings can be made as another means of accessing the books (see Rowe & Fain, 2013).

To model the writing of narrative-focused (story-like) bilingual texts, bilingual books which tell a narrative story and/or draw on the life experiences of the author can be used as mentor texts (cite) and as examples for writing lessons. For instance, through a read-aloud, the teacher can point out how an author might get ideas for writing, organize their thinking to tell a story, and draw on their culture to have voice and style. To use these texts effectively, we suggest selecting texts that value the native culture and mother tongue.

For example, a teacher can select the work of a particular author to use as a model. Teachers can discuss the author's life history and how the author embraces bilingualism as an asset. As students write, teachers can discuss recurrent themes of bilingualism, cultural heritage, bilingual and bicultural identity that appear across several of the books written by the author. In our specific context of the Southwest United States (Texas), where Spanish is a key language, Latino/a authors we like and suggest for use include: Carmen Lomas Garza, Alma Flor Ada, Francisco Jimenez, Pam Munoz Ryan, and Juan Felipe Herrera. For instance, in teaching students how to write short auto-biographical pieces about their life, the following ideas can be incorporated into an author study. Carmen Lomas Garza is an author and illustrator from Texas who draws on themes from her own life to write picture books that are bilingual vignettes and paintings depicting mostly family life as a Latina. The themes in her book such as family, traditions, health, celebrations, pride in heritage, and community resonate with many students whose cultural background is similar to the authors. Ideas for an author study of Carmen Lomas Garza follows in Appendix 2. Additional examples of more internationally focused bilingual texts are in Appendix 3.

Cross-age reading and family involvement

Bilingual books can be used to support family involvement when family members do not speak English (Ernst-Slavit & Mulhern, 2003). In such contexts, where children and their

families may be at varying stages of language acquisition, siblings can participate; peer instruction can offer another avenue for scaffolding. Within bilingual and multilingual households, the bilingual books that go home can be used so that parents who speak the native language can still support their children's literacy learning. For instance, parents can read the native language version of the text while the student reads the English version of the text. For instance, teachers can send home bilingual books in a literacy book bag with a bilingual note with tips for reading, writing, and learning at home.

Conclusion and Implications for Practice

The ideas we present here show how bilingual books can be used to support language development when working with multilingual students. Bilingual books can be a useful resource for classrooms with students from different cultural and linguistic backgrounds.

They can be used to support native languages and cultures, to cultivate cultural understanding, to improve linguistic and metalinguistic skills in all students and to provide a basis for activities where all languages are equally valued and all children are recognized as experts.

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Appendices

Appendix 1: Representative Examples of Bilingual Books in Spanish/English, with a Focus on the Southwest United States

- A Movie in My Pillow / Unapelícula en mi almohada by Jorge Argueta, Illustrated by Elizabeth Gomez.
- Calling the Doves / El canto de las palomas by Juan Felipe Herrera, Illustrated by Elly Simmons.
- Magic Windows / Ventanas mágicas by Carmen Lomas Garza
- My Diary From Here to There / Mí diario de aquí hasta allá by Amada Irma Pérez. Illustrated by Maya Christina Gonzalez
- The Upside Down Boy / El Niño de Cabeza. By Juan Felipe Herrera, Illustrated by Simon Silva.
- Where Fireflies Dance / Ahí donde bailan las luciérnagas by Lucha Corpi, Illustrated by Mira Reisberg.

Appendix 2: Other Internationally-Focused Bilingual Books

Jana and Milena Synek (2010). *Gris commeun Loup! Grey like a Wolf!* Bramhall Publishing. (French/English) The authors have other books in the series about wolves.

Iwona Macalka (2009). *Wyciecka do Indii Misiaczki Rosalia/ Rouzanna Bear's Trip to India*. (This book is primarily non-fiction, but narrated through the voice of a stuffed bear who describes her travels through an Indian village. The author also has a second book, *Misiaczka Rozaliana afrykanskim safari/ Rouzanna Bear Goes on an African Safari*. Polish/English.

Alison O'Dornan. (2010). *A B C*. Diglot Books. Dutch/English. This is an alphabet concept book, with each page devoted to a letter of the alphabet. Care was taken to find words that begin with the same letter in both languages (apple/appel, waterfall/waterval), and each page has sentences that illustrate the use of the word in both languages. The publisher has additional dual language books in other languages on their website, www.diglogbooks.com.

Appendix 3: Ideas for using Read-Aloud of a Bilingual Text to Assist with Writing Instruction.: Example with Representative Bilingual Author Carmen Lomas Garza (Spanish/English), Texas, USA

Before reading:

1. Tap into students' prior knowledge about the book by brainstorming students' predictions based on the title and cover.
2. Do a preview of the text and ask open-ended questions: "What is happening in these photos? Have you ever done anything like this? Can you tell about that?"
3. Discuss the details in the art. If possible, have multiple copies available for students to examine closely with magnifying glasses with partners/small groups. Discuss student's responses.

During reading:

1. The teacher can demonstrate a think-aloud about the author's writing style: "I'm noticing that the author uses lots of descriptive and detailed writing here. An example is on p. ____ when she says ____." Make your thinking explicit about the author's use of detail to create good memoir writing.
2. Ask students, "What detail or description did you like?"
3. Encourage students to make connections between the author's memories and experiences and their own. Suggest that they might also want to write about a similar experience.
4. Ask students to take turns reading aloud. Students can read in both languages as long as they are comfortable doing so.

After reading:

1. Encourage students to compare how their life is the same and different from the author's life.
2. Have students close their eyes, step back in time, and visualize their memory. They need to slow down their thinking to really "see" all the details and remember what happened. Emphasize that writing memoir sometimes means filling in the gaps of what we can't remember.
3. Visit the author's web site together using available technology: www.carmenlomasgarza.com. Also, the class can create a memoir bulletin board with photos and collages from the student's own lives as well as the covers of Carmen Lomas Garza's texts.

SERVICES IMPLEMENTED AT SELECTED DRUG REHABILITATION CENTERS IN CAVITE: AN ASSESSMENT

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Abstract

The study mainly assessed the services implemented on drug rehabilitation centers in Cavite. Three out of six drug rehabilitation centers in Cavite gave their consent to conduct the study in their centers. Survey questionnaire and interview of the administrators, program facilitators and patients were utilized to gather necessary data. The findings showed that in terms of operational management, all centers strictly follow the standards set by Department of Health (DOH). On the other hand, most of the program facilitators are on-call. In terms of administrator and program facilitators, they are always on time in performing their duties but the center could not maintain its employees due to lack of provision on security of tenure. In terms of resources, all is properly monitored. They have division of budget for their operation. On the other hand, two of the centers lack financial support from NGO for their trainings. Findings further revealed that, centers established linkages with religious groups. Every phase of their activities often involve religious adoration. In contrast, there is limited linkage with local and non-government agencies in support to the traditional healing of the patient. In terms of physical facility, its privacy and comfort helps in the immediate recovery of the patient. Further, evaluation conducted by program facilitators is indispensable in the formulation of individualized treatment program. Moreover, monitoring of patients is also done through interaction with them. They also keep in touch with their graduated patients.

Keywords: Services implemented, Operational management, Administration and program facilitator, Resources, Linkages, Physical facility, Reception and diagnosis, Treatment program, Monitoring and evaluation, Patient

Introduction

Today, drug dependency is undeniably one of the major problems around the globe. This kind of somewhat called disorder commonly results to suicide, mental illness and violence that can lead to heinous crimes or worst - death. It does not only affect the drug dependent and his families but also the society in a way that it threatens everyone's security and life.

Drug dependency refers to a state wherein an individual can only function effectively with the help of his/her substance of abuse (Le Moal and Koob, 2006). American Psychiatric

Association (1994) emphasized the three stages of drug use such as: occasional/controlled or social use; drug abuse; and drug addiction. Introduction of excessive amount of drugs in the human body cause an abnormal state of physical and psychological dependence. Physical dependence occurs when an intense physical disturbance or withdrawal syndrome upon drug usage was discontinued while psychological dependence is a chronic, compulsive, loss of self control and over-powering desires and craving to use one's substance of abuse (Soriano, 2002).

In the Philippines, the emphasis of combating drug related problems is usually through the establishment and operation of agencies such as Dangerous Drug Board, Philippine Drug Enforcement Agency, National Bureau of Investigation, Philippine National Police and other law enforcement agencies charged with the enforcement of drug related laws. However, intervention, treatment and rehabilitation of drug dependents are slightly given emphasis and funding. This statement is supported by United Nations International Drug Control Programme (UNDCP), emphasizing that drug dependency is one of the major problems of almost all societies and that should also be addressed through giving more emphasis on appropriate intervention strategies, treatment and rehabilitation of drug dependents.

Because of the huge negative effects of drug dependency, intervention and rehabilitation programs were made available by different states. These rehabilitation centers particularly private rehabilitation centers, exist for those who can afford to undergo such treatment. According to the National Survey on Drug Use and Health in 2006, 23.6 million Americans needed treatment for **drug addiction** and only 4 million received that treatment. Of that figure, only 2.5 million received treatment at a specialty treatment facility such as a hospital, drug or alcohol rehabilitation center or a mental health center. The remainder received treatment through self-help groups, jail, private doctors, or other methods (The Importance of Drug Rehabilitation, 2013).

Many of the drug dependents think that they can overcome the addiction and get back to normal lives by themselves but it was proven that dependents need help and professional assistance to get back in their normal lives (Drug and Abuse, 2013).

Rehabilitation centers are the institutions that give service to these drug dependents and are responsible in correcting their over-all behaviour as one of the main purposes of the existence of drug rehabilitation centres is to break the cycle of dependency (The Importance of Drug Rehabilitation, 2013).

Due to increasing number of institutions that cater treatment and rehabilitation of drug dependents, this study was conceptualized to assess the services implemented in selected public and private rehabilitation centers.

Objectives of the study

This study assessed the Drug Rehabilitation Centers in Cavite.

Specifically, it aimed to:

1. identify the existing rehabilitation centers in Cavite;
2. assess the operation and management of rehabilitation centers; and
3. determine the compliance of rehabilitation centers with the standards.

Methodology

Research Design

Descriptive method was used in this study. According to Calderon and Gonzales (1993), this method is concerned on the process of recording, analyzing, classifying, and interpreting data gathered with or without statistical methods. The study gathered, recorded

and analyzed the selected public and private rehabilitation centers concerning their services, thus, descriptive method was applied.

Participants of the Study

The study involved the administrators, program facilitators and patients of selected public and private rehabilitation centers in the Province of Cavite. In selecting the participants the researchers conducted an initial survey wherein the following criteria were considered: 1) approval of the administrators of the selected public and private rehabilitation centers; and 2) accessibility and convenience to the program facilitators and clients.

The list of identified public and private rehabilitation centers in Cavite was based on the Department of Health - Bureau of Health Facilities and Services. Since this study involved risk to the rehabilitation center because of the exposure of its actual operation and management, only those public and private rehabilitation centers who agreed to participate in the study were included. In the observance of confidentiality, the rehabilitation centers and participants' name were not revealed.

Sampling Technique

Only those public and private drug rehabilitation centers that permitted the conduct of the study concerning their services were the participants.

Purposive sampling was used in selecting the participants of the study. Purposive sampling is defined as "a form of sampling in which the selection of the sample is based on the judgment of the researcher as to which subjects best fit the criteria of the study" ("*Purposive sampling*", n.d., para.1).

Research Instrument

To determine the services implemented in selected public and private drug rehabilitation centers in Cavite, survey questionnaire, observation and interview was used in the study.

A self-made survey questionnaire based on the "Manual of Operations" (2003) of the Department of Health was formulated to assess services implemented in drug rehabilitation centers.

Interview supplemented the data collected from survey questionnaire. This also gave the researchers a deeper description and understanding of the participants' answers. This was composed of open-ended questions formulated by the researchers in facilitating systematic interview. Semi-structured interview was used. This enabled the researchers to ask specific questions, also other relevant questions that may fit to the situation was asked.

Also, observation was used to have an accurate interpretation and description of the services implemented in selected public and private drug rehabilitation centers through the use of senses.

As a research strategy, triangulation technique increased objectivity on the part of the researchers by raising the personal biases of the researchers that could stem from using single methodology. Survey instrument was used to determine the perception of the respondents. Direct observation described the services implemented as it occurs and the reasons for its occurrence. This was understood and validated by interview by asking participants to verbally report their services.

Data Gathering Procedure

A letter was sent to public and private rehabilitation centers within Cavite area. Upon approval, identification and selection of participants was conducted.

On each rehabilitation center, researchers set a formal meeting to explain the nature of the study and other matters concerning the extent of their participation. During this time, the participants were also given ideas on what to expect during interview and observation.

Results and discussion

Rehabilitation Centers in Cavite

There were six public and private drug rehabilitation centers in Cavite, namely: Bridgehall Community Foundation Incorporated Treatment Facility, Change and Recovery Treatment & Rehabilitation Center, DOH- Tagaytay City Treatment & Rehabilitation Center, Seagull Flight Foundation Incorporated, Serenity House of Sobriety and The Garden House of Hope.

Extent of Compliance on Operational Management

In terms of program facilitators' perception on **operational management**, adherence to the regulations and standards pertaining to the conduct of their work got the highest mean score of 4.87 with verbal interpretation of *Very High Extent of Compliance*. This is due to the fact that adherence to rules and regulation is considered a way of attaining its goals and mission. Grusenmeyer (nd) affirmed that rules and regulations are considered as the "core values" that serve as the underlying principle in the attainment of mission, vision, values and goals.

On the other hand, assurance that program facilitators involved in the operation of the treatment center are able to undertake their responsibilities appropriately and effectively got the lowest mean score of 4.67 with verbal interpretation of *Very High Extent of Compliance*. This can be explained by the fact that most of the program facilitators like psychiatrist, psychologist, dentist and doctor are called only when their services are needed.

Extent of Compliance of Administration and Program Facilitator

In terms of **administration and program facilitator**, punctuality of program facilitators is commendable. It got the highest mean score of 4.87 with verbal interpretation of *Very High Extent of Compliance*. The finding may imply that in this case, program facilitators are always on time in performing their assigned duties and responsibilities. The centers desire to inculcate the value of time to their patients, that is why, they set themselves as examples to their patients. Brett and Kate McKay (2012) furthered that punctuality builds and reveals discipline of a person. Being prompt and on time makes one organized and is capable of doing things and achieving his/her goals on time.

However, amount of salary and benefit in accordance with the law was interpreted to be the lowest. It got a mean score of 4.27 but still with verbal interpretation of *Very High Extent of Compliance*. Full time program facilitators particularly, the program director, counselor and nurse receive a minimum amount of salary. It also depends on their position and function. They are also entitled to the benefits given by the centers such as bonuses, transportation, seminars and training allowances. But, there are some instances wherein full-time program facilitator chooses to transfer to another institution after the end of his/her contract because of higher salary and greater opportunities. Meanwhile part time program facilitators are paid with an amount of one thousand pesos per every session of each patient.

Extent of Compliance on Resources

In terms of **resources**, a *very high extent of compliance* was interpreted in monitoring finances of the centers with a mean score of 4.87. The finding may indicate that there is a well-organized budget allocation for its operation. According to Bremser (nd), budgeting

plays a significant role in attaining the goals of an institution for it also serves as a planning and controlling system.

However, it was revealed that support of non-government agency in the cost of program facilitators' training got the lowest mean score of 4.50 with verbal interpretation of *Very High Extent of Compliance*. This finding seems to show that NGO agencies do give support to rehabilitation centers but found to be the lowest among the items.

On the other hand, one of the administrators affirmed that the center solely shoulder the cost of training for its employees. She added that some of the seminars required by DOH to be attended amount to 25,000 pesos per session. Training of employees is way of educating its people, thus, it also creates a great impact in a company's success (Brum, nd). Department of Labor and Employment requires institution to train their employees in order to upgrade the quality of its service. Results imply and give highlights to the claim that rehabilitation centers do invest in the training of its employees, specially, to its program facilitators.

Extent of Compliance on Linkages with Other Agencies

In terms of **linkages**, it was revealed that they have established linkages with different religious groups to assist in the spiritual development of their patients. It got the highest mean score of 4.80. This gives rise to the fact that most of the drug rehabilitation centers integrate religious as well as moral values in their program and healing process. In the interviews conducted with the program facilitators, it manifested that in every phase of their patients' activities, religious worship is always done. One of the centers revealed that at 8 o'clock in the morning all patients including the facilitator worship God through singing, bible reading and sharing of their thoughts and realization in relation to the readings.

However, they have limited linkages with local and non-government agencies in support to the traditional healing of their patients; thus, it got the lowest mean score of 4.27 but still with verbal interpretation of *Very High Extent of Compliance*. It implicates that LGUs and NGOs do help in the rehabilitation of the patients by giving support to the patients' traditional healing but found to be lowest. Schools exert their efforts to reach out the patients through visiting them at the center. Also, as revealed by a program facilitator, there are community groups organized to help in the over-all development of their patients.

Extent of Compliance on Physical Facilities

In terms of **physical facilities**, it was proven that they have a *Very High Extent of Compliance* with a mean score of 4.93. Centers offer complete facilities and equipment not only to meet the standards set by DOH but also to make their patients comfortable while regaining their normal lives, since, their aim is the life-long recovery of their patients from substance abuse. Also, privacy is provided by the centers which give their patients the time and space to reflect and internalize. Further, privacy makes their patients and their co-dependents recover and live without worries. According to Schweitzer, et al. (2004), it is of human nature to seek "safe shelter" in which to heal. And privacy is a major element of safety that is provided by drug rehabilitation centers.

Meanwhile, waste segregation got the lowest mean score of 4.73 with verbal interpretation of *Very High Extent of Compliance*.

Extent of Compliance on Reception and Diagnosis

The centers extent of compliance on **reception and diagnosis** revealed that all referrals for medical, psychological and psychiatric examination are seen by DOH-accredited physician within 24 hours. This statement got the highest mean score of 4.93 with verbal interpretation of *Very High Extent of Compliance*. It is mandatory to all centers

through the DOH-accredited physician to assess the physical and mental condition of the patient before they admit him/her. But in an interview with a program facilitator, it was revealed that physical and mental examination is done only after the processing of legal documents such as waiver and court order and after the patient got out from the reflection room wherein he/she needs to stay in for three days. According to them, putting the patient in the reflection room for three days is their initial method of eliminating the substance of abuse from the patient's body.

In contrast, comprehensive description of drug use situation, psychological and social evaluation and identification of priority groups for treatment got the lowest mean score of 4.67 with verbal interpretation of *Very High Extent of Compliance*. Reports, comprehensive description of the problem and identification of priority groups are in general, effectively done. Time and availability of some facilitators to conduct and complete these function are the main reasons why it got the lowest mean score.

Extent of Compliance on Treatment Program

In **treatment program**, it was shown that withdrawal of their patients is achieved in a way that is safe and comfortable. It got the highest mean score of 4.87 with verbal interpretation of *Very High Extent of Compliance*. The finding exposed that the centers treatment program has an organized method of gradually lessening and removing the substance of abuse in the patient's body that is safe and comfortable. Although each center has its own name and method of treatment program, it was found out that in general, each treatment program is similar.

On the other hand, detoxification treatment got the lowest mean score of 3.80 with verbal interpretation of *High Extent of Compliance*. Detoxification is the use of the substance of abuse in a reduced dose to minimize the discomfort of sudden withdrawal (Soriano, 2002). Natural method of detoxification such as physical exercises is utilized by centers to let their patients perspire; thus, remove the substance of abuse from their bodies.

Extent of Compliance on Monitoring and Evaluation

In terms of **monitoring and evaluation**, it is interesting to note that, centers assess their patients' existing problems, stressors and family support. Also, communication with the patients through regular phone contact and scheduled visitation at the center got the highest mean score of 4.80 with verbal interpretation of *Very High Extent of Compliance*. According to a program facilitator, they monitor their patients by attending and interacting with them in their daily activities and counselling. In that way, facilitators are able to identify the problems based on patients' behavior and notice their reactions to recommendations. She furthered that their aim is not just only to address the addiction of their patients but rather address all the areas of their patients' lives – and that is what they call effective treatment.

On the other hand, giving assistance to patients in obtaining work opportunities got the lowest mean score of 4.53 with verbal interpretation of *Very High Extent of Compliance*. They recommend their graduates to companies that they personally know. Also, conducted interviews revealed that most of the program heads and facilitators were once patients of drug rehabilitation centers. Because they personally undergone the process they are very familiar with it, especially on what a patient would actually feel and think. What they only need is proper seminars and training to understand the real purpose of what they have undergone before.

Patients' Perception on the Centers' Extent of Compliance in Terms of Physical Facilities

In terms of the patients' perception on the services implemented in the rehabilitation centers the patients perceived that the centers have a *very high extent of compliance* with the **physical facility** for it gives them privacy and comfort. Also, it contributes to their immediate treatment.

Practice of waste management was also perceived to be the lowest which got the mean score of 3.85 with verbal interpretation of *High Extent of Compliance*.

Extent of Compliance on Reception and Diagnosis

In terms of **reception and diagnosis**, it was proven that the centers have a *Very High Extent of Compliance* in relation with the proper conduct and documentation of psychological, social evaluation and medical results. It got the highest mean score of 4.73. The findings imply that the program facilitators do their function efficiently and effectively. This may also imply that patients have high trust and confidence to their program facilitators.

In contrast, patient's least perception is the used of rapid procedure of the centers to detect individual health disorder which got the lowest mean score of 4.50 with verbal interpretation of *Very High Extent of Compliance*. This is due to the fact that patients are unaware of the purposes or intentions that go with the procedures like interviews and counseling.

Extent of Compliance on Treatment Program

In terms of **treatment program**, they perceived that the centers have a *Very High Extent of Compliance* in helping them to improve their personal and social functioning which got the highest mean score of 4.87. It confirms that the centers are doing their main concern which is to restore their personal and social being, thus, prepares their patients in their return to the community. It was revealed by the program facilitators that officer or other calls it "big buddy" – a patient who shows remarkable change in his/her behavior, has the opportunity to remind and correct the misbehavior of his/her co-patient in a proper and modest way. This is what they call levelling. In addition, in case the misbehavior or action is considered to be grave or a major violation this is the time the officer or "big buddy" gives warning and lesson to his/her misbehaved co-patient. This is what they call "blasting". Through these, the patients feel accountable to the actions of their co-patient, thus, they do have the sense of responsibility while in the center.

On the other hand, substitution and maintenance therapy got the lowest mean score of 4.50 with verbal interpretation of *Very High Extent of Compliance*. Substitution/maintenance therapy is the exercise of replacing the desired substance of abuse by another substance which has the similar effect in the body but is more accepted by the community (Reference.MD). According to the conducted interviews with the program facilitators of different centers, they do not use any of these therapies. They never use medicine or other substance to satisfy their patients but rather, reduce and remove their substance of abuse from their body system by means of natural therapy as earlier discussed.

Conclusion

Based on the findings of this study, the following conclusions were drawn:

1. The program facilitators adhere to the regulations and standards set by the DOH pertaining to the conduct of their work to facilitate the vision and mission of their centers. However, most of them are part-timers at the center. That is why they are only called when their services are needed.

2. Punctuality is widely practiced by the program facilitators to set as an example with their patients.
3. Finances are properly monitored by the centers to divide and allocate the budget for its operation.
4. Different religious linkages are established by the centers to assist the spiritual as well as moral development of the patients.
5. The centers' physical facility provides privacy and comfort to their patients, thus, it contribute to their immediate recovery.
6. Medical, psychological, psychiatric and social examination and evaluation take time to be completed and accomplished but are indispensable to determine the suitable primary care treatment plan for a patient.
7. Natural method like physical exercises and kinetic activities are the methods used by the centers to remove the substance of abused in the patients' body system.
8. Monitoring and evaluation is done through the interaction of the program facilitators with the patients in their daily activities and scheduled counselling. Furthermore, the centers always keep in touch with their graduates and their families to continue monitor their graduates' development.
9. Based on the perception of the patients in terms of physical facility, the privacy and comfort that the centers provide contribute to their immediate recovery.
10. Patients have high trust and confidence in the medical, psychological and social evaluation done by their program facilitators.
11. Patients believe that the centers do improve their personal and social being as preparation in their return to the community.

Recommendations

Based on the findings and conclusions, the following are proposed:

Full-time program facilitators are recommended to be composed of program director, psychologist, social worker/counsellor, nurse, dietician, clerk and security officer.

As much as possible, employees should have the security of tenure in accordance with the laws on labor.

Continuous maintenance and improvement of the physical facility is suggested.

For centers that were not able to assess the suitable individual treatment program of their patient within the specified time upon admission, it is recommended that alternative/general treatment program may be initially and temporarily designed and given to the new patient.

Strengthening their linkages with the local and other non-government agencies by setting terms and conditions through memorandum of agreement/memorandum of understanding that are beneficial on both parties is highly recommended.

For monitoring, it is recommended to have a particular program facilitator whose task is to supervise the regular visitation of their graduate as well as their immediate family in the center.

Additional linkages with business industries are also recommended for some of the graduated patients are jobless after the treatment.

For the local government and non-government agencies it is recommended to give support in the traditional healing of the patients by means of participating in the programs and activities of the centers.

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ENGLISH LEARNING AT A DISTANCE: A CASE STUDY ON SOCIAL-LINGUISTIC AND DIGITAL INCLUSION

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Abstract

Considering that there is a political-digital movement of globalization of which Brazil makes part and for which access to English knowledge is demanded, this paper discusses the theme of social/digital inclusion as an effect of a formal education in English at university level in Brazil. With the understanding that digital and social inclusions can be facets of one same process, a third, linguistic facet, is incorporated in our reflection and made visible, as the three aspects are conceived as interconstitutive of an event that can be, for certain postcolonial, non English speaking countries, of the rising of a social visibility and place. The corpus of analysis chosen for this study is hybrid, composed of a collection of answers to questionnaires and postings in discussion forums by students who participate in a four-year undergraduate long distance course of English and English Literature provided by a Federal University in the Southeast region of Brazil. The course licenses teachers for K-12 schools and is part of a Federal Program do graduate teachers. Our theoretical framework is a discursive one (Pêcheux, 1969, 1975), from which we see both English and ICTs as kinds of knowledge that are practiced within conditions of production related to history, processes of memory and subjectivation, together with post-colonial reflections on language policies and practices (Spivak, 1999), from which we discuss the specific characteristics of teaching/learning English in Brazil.

Keywords: English language, social inclusion, digital inclusion, post-colonial condition, discourse

Introduction

As practiced today, the political movement of globalization may demand, in various circumstances and although arguable¹², certain kinds of knowledge as conditions for being part of it. Two of them are: a certain level of proficiency in the English language and some expertise in the usage of digital technologies. In countries like Brazil, these conditions are posed as quests given our history with foreign languages and our very recent policies and actions for broader access to digital technologies¹³. A broader access to third level education is also relatively new. Considering the size of the country and its internal organization around the biggest urban centers, there has been a need to create and offer more access to undergraduation courses that can reach the farthest areas, being long distance education a possible way of response. In this context, and together with actions that have been expanding

¹² In the globalization context, we see the circulation of the English language as a result of language policies that result from worldly economic and political moves and pressure and not as policies which have been locally discussed and collectively decided, towards what would be the maintenance of local identities.

¹³ The institutionalization of national policies for computer and Internet access begun in 2010. See Decree-Laws No. 6.948, from August 2009, and No. 7.175, from May 2010, which legislated about the creation of the Steering Committee of the Digital Inclusion Program and the National Broadband Program, respectively.

the infrastructure for digital technology access, the Open University of Brazil¹⁴, which covers distance educational courses in different areas of knowledge was institutionalized in 2005. Since its beginning, the creation of long distance courses and also the culture of distance education is still in process, as different private and public universities have been joining the initiative and making use of the Internet and virtual platforms to create pedagogical material and virtual classes. The first and second generation courses in this modality have just reached or are now reaching their finalization.

Researches have been problematizing these new technological conditions of education (Huang et al, 2013; Kenski, 2007; Lemos, 2002; Levy, 1999, 2009), and much has been said about the impact, contributions or disadvantages of technologies in the educational processes and practices, however studies focused on how the technological innovations actually affect them are still new (Bullen, Morgan & Qayyum, 2011; Sancho, 2010). In the area of studies related to the teaching and learning of foreign languages (FL), it is within the transdisciplinary realm of Applied Linguistics that one can investigate the effects of technologies in the development of language teacher education.

In this paper, and considering the Brazilian context, we aim at discussing the theme of social inclusion as a result of digital and foreign linguistic inclusion at the same time, as a process at university level and by a discursive perspective. We understand that being included involves being active and visible in social practices in diverse forms and modalities and that it refers not only to having access to these kinds of knowledge but also to foreign languages in non excluding teaching and language practices that see global and act local. We thus agree with Kleiman (2013), as she defines inclusion as a process in which ‘peripheral knowledge’ is legitimate leading to epistemological decolonization regarding the research production and social participation.

Our considerations in this study are built with the results from a research in which we analyze the representations built by pre-service English teachers from a distance course in a public Brazilian University concerning (i) digital learning practices and (ii) distance English learning. We understand that these subjects’ representations concerning both digital learning practices and distance English learning may affect the relationship they establish with the learning environment they take part in to develop the course (as it is the place where they do the tasks they are assigned; interact with professors, tutors and peers; solve administrative problems etc), and with the language they learn-teach. As an effect of the course and because of its specific characteristics, we believe a social-linguistic-digital inclusion process is taking place for the students. In the lines below, firstly, we discuss the history of the English language in Brazil. Secondly, we present the course under focus, and the issue of spaces and forms of enunciation in foreign languages for countries like ours. Thirdly, we present our research findings.

English as a foreign language in Brazil

The process of learning a foreign language is determined by different aspects that refer to both subjective and historical conditions at play. The answer to why an individual engages into learning a foreign language has to do with desire (working at the unconscious, symbolic order) and personal possibilities (e.g.: economic, logistic etc), and may or may not resonate the broader historical determinations, that is, the political and economical, global and local moves, the national, regional and private language policies, laws and learning trends that result from them. The answer to if an individual actually learns the foreign language and gets to enunciate it, however, presupposes all the previous conditions and has to do with the history of languages and language policies and practices the individual is

¹⁴ In Portuguese: Universidade Aberta do Brasil – UAB.

immersed in, to a historical possibility to enunciate and be heard. Speaking from a post-colonial country that was colonized by the Portuguese, and that has English mostly practiced as a foreign language, learning English and being able to enunciate it are matters that cannot simply be resolved (Rajagopalan & Rajagopalan, 2008).

The question over why or how a language can be considered foreign has been widely discussed in the field of Applied Linguistics and many have been the theoretical perspectives through which it has been theorized. The discussions range from theoretical frameworks that see language as symbolic and discursive orders that build subjectivities and identifications (Revuz, 1998; Serrani, 2005; Bolognini, Oliveira & Hashiguti, 2005; Coracini, 2003; Grigoletto & Carmagnani, 2005) to the ones which consider language as an abstract system of linguistic forms, as a communication tool or as a means of interaction¹⁵. From a discursive perspective, a language is a symbolic materiality that works as a partially autonomous system (Pêcheux, 1975) whose meaning is an effect of its practice in history, as it is related to the exterior conditions that make the rising of meaning possible (Pêcheux, 1983). The political status of being a foreign, second or first language, however, and if and how they remain in such statutes, and which is one of our interests in this study, may also refer to the language policies and laws that result themselves from political and economical relations among countries at different periods in history. These policies and laws force the emergence of foreign language courses, which, at their turn, are also dynamic and reflect other determinations, as epistemological constructions and their effects on the teaching methodologies and pedagogical materials, the development and access to language technologies. We shall examine these circumstances in Brazil.

The 2008 UNESCO & FUNAI report on Brazilian indigenous languages and cultures¹⁶ estimated between 150 to 180 existing spoken indigenous languages. Around 30 other immigrant languages can be added to this number (Oliveira, 2002). The Brazilian national and official language has been Portuguese since 1758 (when it was still an Empire), and the Brazilian Sign Language was institutionalized as a second official language in 2002. Since its creation (dated to 1889), the country has had a tendency for monolingual policies (Wanderley, 2013, p. 131) which silenced many languages and even gave them a status of taboo languages, as they became legally forbidden¹⁷. Formal, institutionalized access to foreign languages has thus been closely related to the national policies and laws that either created and permitted or banished disciplines of foreign languages in the school curriculums. It is noteworthy to mention that access to school itself has also been an issue to a country whose economy was basically agricultural and exploratory until very recently and where schools have mostly been an urban construction. In our history of foreign languages, classical, erudite languages like Latin and Greek were studied by the few people who had access to them at their time, and were followed by French and English, which had stronger investment for the formation of teachers and the creation of chairs in schools. For its mercantile and political importance, with time, English superseded the intellectual reference for French since the imperialist period, and has remained as one of the most relevant taught foreign languages. Although surrounded by Spanish speaking countries, Spanish has only

¹⁵ For further details on conceptions of language and language teaching, check Brown (1994), Canale & Swain (1980), Harmer (2001), Kumaravivelu (2003), Ur (1996).

¹⁶ Farani, M. & Meira, M. F. & Defourny, V. International Technical Cooperation Project Documentation of Brazilian Indigenous Languages and Cultures. Brasília, 2008. Available at: http://www.unesco.org/new/fileadmin/MULTIMEDIA/HQ/CLT/pdf/el_Brasilia_prodoc.pdf. . Access: October, 2014.

¹⁷ Some examples are the 1758 Decree-Law of the Marquess of Pombal; the 1938 Decree-Law No. 406, that extinguished the foreign schools in national territory, and the 1939 Decree-Law No. 1545, during the New State, dictatorial period, forbidding the teaching of foreign languages in schools and their usage in public.

recently been incorporated in the school curriculums, with the creation of MERCOSUL, the Southern Common Market.

English has thus always been economically influential in the Brazilian history with the more incisive English (since the 1800s) and American (since the 1940s) trading policies and presence in Brazil, and it has been very visible in the production of cutting-edge technologies. This influence is materialized in the many lexical terms that have been incorporated or adapted to our daily practices in Portuguese¹⁸ and in our cultural habits as well, with a great circulation of pop American and English songs, American movies and series, clothing and eating styles, for example. The language has been massively taught in private language schools since the 1960s, especially with the proliferation of franchising schools and their marketing campaigns (Bolognini, Oliveira & Hashiguti, op. cit, p. 37), which have helped constitute the imaginary representation that it can only be properly or “truly” learned there, as knowing the language has been represented as synonymous to being able to speak it (Brito & Guilherme, 2012). Their campaigning against the teaching methods in regular K-12 schools has successfully guaranteed their existence so far, as “being able to speak English” has been believed to occur only after attending such courses.

The English teaching/learning processes in these spaces are also strongly tied to educational and colonizing technologies. Countries like Brazil have been consuming a variety of educational materials and courses created by English speaking countries like England and the United States of America. Success in the processes of teaching/learning the language, however, is relatively little. Although vastly read and practiced in sectors like universities and companies, and although it is a discipline in regular schools for at least eight years in K-12 schools, English is not considered as a second spoken language in Brazil. A bilingual Portuguese-English situation is mostly recognized as a reality that refers to families, communities and economically developed centers only.

In this historical context, it seems to us that a kind of blockage to enunciate (in) foreign languages is foundational of our national memory/identity (Hashiguti, 2013) and so is speaking and enunciating in English. Enunciating (in) a foreign language is seen as a matter of historical (symbolic) possibility and not of capacity, and it has to do with the emergence of a voice, in the case of post-colonial countries like Brazil. The emergence of this voice is a result of inclusive practices.

Learning and teaching English at a distance for/as social inclusion

The Plan for Teaching Formation for Basic Level Education¹⁹ was an educational policy created in 2009²⁰ by the Ministry of Education and based on a partnership with the Coordination for the Qualification of Higher Level Staff²¹, the Municipal Secretaries of Education, and universities all over the country in an effort to graduate and license teachers to work in K-12 public schools. The universities were invited to know the policy and to elaborate proposals for participation. The courses could be either presential or at a distance, and they would reflect the reality and needs of the communities and regions focused. Many universities proposed long distance courses following the parameters of the Open University of Brazil, where courses are provided at a virtual platform, and for which specific tailored materials (printed study guide and video-classes) are produced. The course under analysis in this study fits this last kind.

¹⁸ ‘Drive-through’, ‘sale’, ‘escanear’ and ‘salvar’, as adaptations of ‘scan’ and ‘save’ (Comp.), ‘site’ (for websites) are some of the examples.

¹⁹ In Portuguese: Plano Nacional de Formação de Professores da Educação Básica Pública – PARFOR.

²⁰ Federal Decree No. 6.755, from January 29, 2009 and the Ministerial Order No. 9, from June 30, 2009.

²¹ In Portuguese: Coordenação de Aperfeiçoamento de Pessoal de Nível Superior – CAPES

It started in 2011 with 162 adult students from various cities in the State of Minas Gerais, in the Southeast area of Brazil. According to a research carried out with the students in the second term of the course, most of them had attended public schools in high school and were attending university for the first time. Most of the students are married, aged between 18 to 60 years old in the beginning of the course. It was also the first time all of them attended a long distance course. Few of them had had access to private English courses before.

Representations about digital learning

In the beginning of the course, students were asked to read a text about English learning in the cyberspace and to talk about their learning experiences in digital environments as well as their habits regarding the use of Internet. The analyses of the answers posted at the Discussion Forum point out that the discourse concerning the numerous benefits of technology is predominant²² (even if it is sometimes put into perspective by some of its disadvantages), which could lead to the perception that the Forum is a homogenous space that just consolidates hegemonic positions (Brito & Hashiguti, press). Grouped into regularities, the students' opinions about learning at a distance, via the Internet, is firstly seen as a limitless possibility, as freedom without barriers, development and as a reality that is more real²³. However, by unveiling the discursive threads that constitute these subjects' voices, it is possible to see that the images about what it is like to learn in the 'virtual world' is permeated by the singularity of each subject and his memories of learning and history of life. In the answers, differences concerning familiarity with technological tools, digital learning and virtual interactions come about showing that the relation subjects establish with distance learning occurs among conflictive learning practices that are reconfigured along the course, as we may see in the following discursive sequences²⁴.

(DS01) I'm from Y generation. I grew up playing games and I had access to the Internet at 17 years old /.../ My generation likes problems and barriers to be solved fast /.../ I see more positive than negative aspects in English teaching at a distance. We are **free** to study whenever we want. Attending classes is important, because the presence of the teacher can solve doubts, but distance demands more /.../ Without the Internet I'm nothing.

(DS02) Learning English in the web? **The possibilities seem endless.** The only problem I would highlight is the lack of human warmth, visual contact, body language that, in some cases, dismisses the need to use a more sophisticated vocabulary. As well said by my child: **it seems that today nothing more is real, everything is very virtual.**

(DS03) /.../ I took a long time for me to have contact with the virtual world, I'm 48 /.../ The Internet brings the world towards us, **we just have to filter** what is useful for knowledge and learning, because the virtual world can also bring some a bother to those who have no discernment. Regarding the distance course I see more positive aspects because it makes us have more responsibilities, as, although we have no physical contact with teachers and peers, we have the duty of interacting with each other to have our doubts solved.

²² It is important to highlight that this discourse is partly determined by the conditions of production of the task assigned to the pre-service teachers: the fact, for instance, that pre-service teachers read a text in which the author focused on the differences between traditional and virtual classes (drawing attention to the potentialities of the latter) or that as students in a distance course they tend to outline its advantages.

²³ Words and expressions that make these senses visible were highlighted by us.

²⁴ All sequences were translated from Portuguese to English.

(DS04) /.../ technological revolution shows that these relations [between individuals] can also happen virtually. I think this new educational modality is very interesting, because **barriers are broken, distance diminished. Learning isn't restricted to time or places, it is established with broad freedom**, however, also surrounded by rules.

(DS05) First I want to say that, besides my husband and kids, what gave me enthusiasm to take the Letters course was the fact that it is at distance, once here, where I live, there is no college, and also because I like English.

(DS06) It calls my attention the fact that **virtual interaction propitiates much more contexts of real interaction**. The contact with people from different parts of the world inserts us in real contexts leading to collaborative learning.

(DS07) For me, a person who was born in the late 50s there is an enormous difficulty to deal with this infinity of information, but my little grandchildren help me, however I see that interactive virtual communication is the **biggest technological development of men and makes it possible to anybody to get informed about anything**. I believe the virtual English classes can enable the interchange among diverse cultures.

For some of these pre-service teachers being online is just a continuation of their everyday life (SD01), an opportunity to interact in a broader perspective (SD04, SD06) or even the only chance to attend college (SD05). For others it may bring a sense of strangeness not only due to the fact that they have to work with unknown tools (SD07), but also because 'being online' in this context involves being exposed and read by everyone or not having physical contact with teachers and classmates (SD02, SD03). The point is that being 'inserted' into formal distance learning requires movements of dislocations regardless, for example, the age or experience of students. Even though some of them are more familiar with digital literacy (especially in what concerns networking), being a pre-service English teacher in a distance course brings different demands from the ones they may be accustomed to responding, such as: recording videos or audio archives in English and posting it at a forum (which means having to listen to yourself in a FL and also be heard and evaluated by the others); producing collaborative texts (WIKI) based on a topic given by the professor; compiling glossaries regarding the subject being studied; participate in web conferences etc. (Hashiguti & Brito, 2014).

Distance English Learning

The researches that have been carried out in the mentioned distance course (Brito & Hashiguti, press) suggest that the pre-service teachers, when asked, in the beginning of the course, to evaluate their experiences of learning English in this context, inscribe themselves in the *discourse of distance English learning difficulty*, which is sustained by the representation that virtual courses do not enable learners to develop language proficiency (especially regarding oral production) with the same effectiveness of presential courses.

We claim that such representation seems to be built upon two main images: (i) *the image of digital learning practices* and (ii) *the image of 'knowing a language'*. The former involves pre-service teachers' expectations concerning what it is like to learn both a foreign language and how to become a teacher of this language through a distance course. Being a new experience to all the subjects, and given the fact that many of them were not even familiarized with basic digital practices, we argue that to be a 'distance pre-service English teacher' puts them in a position in which they have to dislocate their own learning practices and knowledges, constructing a digital learning culture that brings about the clash between discursive memories regarding the relation of: virtual/presential environments, synchronous/asynchronous interactions, digital/physical bodies, among others. The latter is

mainly based on the idea of language as a 'tool', possible of existing outside its speakers and their practices of verbal interaction and thus possible of being 'acquired' by learners. Our analyses have shown that these images are being problematized by the subjects enabling them to inscribe themselves in discursivities that postulate language as a complex process of constant enunciation determined by historical and political aspects of meaning production.

When enunciating about the course, we also see the emergence of a *discourse of perseverance* in the speeches of the pre-service teachers which diverges from the discourse of difficulty and points out the desire of the subjects to face the perception of lack before the image of English language knowledge as a complete construct and to become enunciators in this language. Besides, by mobilizing voices that resonate meanings of 'determination', 'motivation', 'willpower' and 'victory', they highlight the relevance and importance of the course to their personal and professional development and thus to their social and digital inclusion.

In order to investigate the way these subjects resignify the course itself in the position of preservice English teachers at a distance, now in the penultimate semester, we asked them to answer a questionnaire in which they were supposed to talk about: the place of English language in their lives after they started the course; the way their lives have been affected by the experience of distance learning and by their relation with ICTs since the beginning of the course; and the activities and practices proposed throughout the course that made them feel more comfortable with English and ICTs.

Although students reproduce pedagogical discourses that usually emphasize the idea of 'progress', 'transformation', 'citizenship', it is relevant to notice that, by highlighting the contributions of the course to both their professional and personal development, they outline, for instance, how alterity (it is the relation between the 'I' and the 'others') may provoke discursive dislocation and subjective repositioning. In the way of regularities, what we can understand is that new ways of gazing and being were raised, as new subjectivities in the foreign language, giving room for the repetition of the sense of broadening spaces and breaking limits, which were already present in the representations about the distance learning via the Internet. 'Transformation', 'development', 'being able to enunciate the unspeakable', 'vanishing representations' all say about the constitution of different discursive positions and subjectivities, and of the constitution of a place of enunciation (that is, a social place) as seen in the following sequences:

(DS08) **The course made me see more critically** not only the world but the whole reality that surrounds me, not to mention the readings and beautiful texts that I can't forget until today.

(DS09) **By studying English, my horizons have broadened**, because I started to search for contacts with contents, people and learning situations with which I wasn't concerned before. I made a movement towards this universe and with it I'm reaching new heights in cognitive terms.

(DS10) /.../ with the learning I've acquired, it is possible to say that the English language, through the course of Letters-English/PARFOR has contributed and continues to contribute to the construction of a discursive competence and this way to a much better human and citizen **development** than before, as it has offered **the possibility of being in touch with other ways of feeling, living and expressing**.

(DS11) My practices have changed in the sense that **it was necessary for me to adapt to a specific virtual environment**, learn how to work with new resources and to deal with some limitations, **establish a new routine of studies and contact with new people and situations of learning and interaction**.

(DS12) Distance learning and ITCs have entered my life through the door of indifference and fear. But a week later, **this fear and this indifference vanished and gave place to pleasure and willingness to search for learning more.**

(DS13) Regarding English, I can say that **I've particularly broadened** in a meaningful way my fluency in general terms, and that **I've had significant gains concerning especially the abilities of oral comprehension, writing and reading.**

(DS14) First the practices experienced through the virtual English lab /.../ provided **a real contact of everyday situations in English learning** that is essential for my **development.**

(DS15) I'd like to mention as a positive aspect, the initiative of the lab created in the virtual environment and that offers interesting opportunities of interactions and **broadening of knowledges and competencies.**

(DS16) The course, Letters-English PARFOR, was essential as a **personal and social rescue tool** for me. [...] The contact with the English language in the discursive approach that the course presents provided an opportunity for me and still nurture the cause of **my transformations as a person.**

(DS17) I started to make use of ICTs and all electrical and digital tools in all sectors of my life such as: communicating with people in the pursuit of learning for teacher training in English. Finally, **today** without fear of being exaggerated, **I say the Internet is part of my life.** It is essential because it provides my interaction with the world. [...] The course of Arts-English PARFOR came into my life, providing **opportunities for learning what was an unspeakable world, it freed me [...], (it) revolutionized** my knowledge and reading, not only from the perspective of English language learning, but the human, social and cultural literacy that we may learn from our professors.

We argue that learning and social inclusion can be conceived by the lens of interpellation: when subjects are interpellated by the other (by the *beautiful texts, the contents, people and learning situations with which I wasn't concerned before, the possibility of being in touch with other ways of feeling, living and expressing*), when they are 'open' to the feeling of *strangeness* (to the need of *adapting to an specific virtual environment, to overcome the indifference and fear, which vanished and gave place to pleasure and willingness to search for learning more*), they are then able to meaningfully resignify learning practices (*I've had significant gains concerning especially the abilities of oral comprehension, writing and reading; virtual English lab /.../ provided a real contact of everyday situations in English learning that is essential for my development*) and to 'take' the word in a significant way, assuming an enunciative position which regards power relations and processes of identifications with certain discourses.

It is indeed the significant taking of the word the aspect responsible to affect and transform the subject (SERRANI-INFANTE, 1998). In other words, it seems that the distance language course offered these subjects a place from which they could speak and be heard, which did not exist before, a space of enunciability which legitimate their position as English learners and future teachers. Such an effect is not only socially inclusive, in our perspective, but also of the constitution of a different diverging discourse about the English language though/by which the founding memories of foreign languages as taboo languages can be dislocated and resignified in our history.

Conclusion

Taking into account subjects' heterogeneity and singularity, we state that digital learning practices are not given *a priori*, instead they are constructed along the development

and engagement of subjects in a variety of language practices and discourses that may resignify their beliefs and concepts regarding learning. We argue that this process of commitment and of (*de*)stabilization can lead to digital and social inclusion as a process occurring from the subject in relation to the others and not outside him. In other words, it is from their own heterogeneity as language subjects that these pre-service teachers interact with their peers, tutor, teachers, materials, virtual learning environment and with themselves as subjects that have to build a 'virtual' image before the others.

To be a distance pre-service English teacher demands from the subjects to struggle with matters that vary from logistic aspects of digital learning to issues that involve identity and power relations in this environment. In order to legitimate their own position as future English teachers, they have, for instance: a) to deal with the lack of appropriate technical resources to develop the course; b) to manage the time spent on managing technical aspects of the course (learning how to upload/download a video or finding where in the virtual learning platform tasks should be posted or developed) and the learning activities themselves; c) to deal with the skepticism concerning the quality of online courses (White, 2003); d) to face the historical 'weight' that constitutes the processes of learning/teaching English in Brazil; e) to engage in digital and academic literacy practices; f) to resignify themselves as English learners/future teachers taking into account the relation subject-language-cyberspace.

The concept of inclusion is often used in the literature but not fully problematized (Rawal, 2009) and it is a term that is far from being univocal as it evokes different meanings determined by ideological positions within a capitalist society with its antagonisms and contradictions. Indeed, the discourse of inclusion postulates everybody's access to constitutional rights and shoulder the responsibility of one's success (or failure) over the individual's effort and capacity regardless his social class or economic condition (Maciel, 2009).

We understand both social and digital inclusion not as the mere (quantitative) presence of students in a course as if their simple enrollment in a program could guarantee insertion in legitimate social practices, always mediated by language. We conceive inclusion as a process of engagement which enables subjects to fully participate in such practices in which literacy events occur. And it is important to outline that by saying this we do not defend students' conformation to the *status quo* context, instead we claim that they should be given conditions to resist hegemonic discourses and practices, assuming a political position concerning their own place in the world. That is to say that inclusion involves enabling subjects to problematize and resist the very discourse of social and digital inclusion, which may produce different effects of meaning sometimes mobilized to attend political and economic interests.

As we see it, we arrived at the twenty-first century with movements that enable the provision of methods and materials for teaching English and other disciplines in the digital environment, in short time and with great variety, but also with the presence of glaring social differences around the world. At the same time that this century is characterized by the accumulation of information, the speed of its circulation, by proposals for commercial and cultural globalization, the widespread use of computers, new textual forms and the need to learn at least one foreign language, which usually is English, there are also a large number of inhabitants in countries in development who live in absolute poverty, on the margins of social visibility and very far from any possibility of formal education or legitimacy of the varieties of language they speak. Thus, although we have already been discussing the need for digital literacy and English bilingualism and broader access to foreign languages, traditional literacy and the teaching of the mother tongue itself may still be issues in play, and so is social inclusion, its possible forms of realization and importance.

The way we understand it, a possibility for socially including those who are on the margins of social visibility and to make a meaningful, ethical teaching process to countries like ours is to provide spaces for learning languages and forms of teaching and learning that take into account these historical and methodological conditions, being inclusion a methodological matter itself. That is, teaching a national or foreign language is already an effect of the injunction in certain linguistic policies (Orlandi, 1998) and teaching one way and not another is an effect of political, epistemological affiliations that tell of the concepts of language and subject that language teachers have. Opportunities to learn politically and economically important languages must always be created in a form not to repeat the same globalization discourse, and with the reflection on its status and consequences to social matters. Slides of meaning from common sensical representations should be made historically possible, with the constitution of places and positions of enunciation. Likewise, we understand that learning a foreign language is a practice that changes and moves the subject (Revuz, 1998), and which calls into question his/her relationship with the first language, provoking reflections on languages, the self and his/her social identifications, so it is a much bigger process than only learning what could be an instrumental language.

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MANAGEMENT OF INTERNATIONAL STUDENTS' ACADEMIC ADJUSTMENT: CHALLENGES AND SOLUTIONS

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Abstract

Despite the wide meaning of internationalization and the range of activities and strategies it includes, the coreactivity which promotes internationalization still is student mobility. Mobility means important educational and social benefits, though, in order to gain the benefits, it is significant to study international students' academic adjustment to foster academic achievements. The case study conducted at the University of Latvia, Faculty of Education, Psychology and Art examined the challenges of students' academic adjustment. The findings indicate that students' low English proficiency, involvement in extracurricular activities and wrong course selection criteria eventually leads to lower performance and achievement in academic studies. In the framework of the study practical suggestions are worked out to improve the management of the international students' academic adjustment. The suggestions include adaptation week, peer support programme, study course modules and preparatory courses for international students to foster their academic adjustment at the university.

Keywords: Internationalization, international students, management, academic adjustment

Introduction

International student mobility has become an increasingly significant and indispensable part of the higher education in the framework of internationalization.

According to the UNESCO Institute of Statistics (UIS), international students are defined as those "who have crossed a national or territorial border for the purposes of education and are now enrolled outside their country of origin." The trends of growing student mobility according to the OECD data are that the movement of students can be characterized as a mass movement, and the global population of internationally mobile students was close to 4.5 million in 2011, with the tendency to grow up to 5 million in 2014.

In a broad sense Knight (2004) has defined *internationalization* as the "process of integrating an international and intercultural dimension into the teaching, research and service functions of the institutions". Knight (ibid.) talks about a *process* meaning that internationalization should be an ongoing and continuing effort and should reflect the particular priorities of a country, an institution, or a specific group of stakeholders.

Internationalization in higher education might embrace a broad range of issues, thus it is significant to note that there are several activities and themes most often labeled as belonging to internationalization (Wächter, 2008; Knight, 2004):

1. Academic programmes: student exchange programmes, foreign language study, internationalized curricula, work/study abroad, joint/double-degree programmes, cross-cultural training, faculty/staff mobility programmes and visiting lectures;

2. Research and scholarly collaboration: joint research projects, international conferences and seminars, published articles and papers, international research agreements, research exchange programmes;
3. External relations: domestic and cross-border. Domestic external relations include: community-based partnerships with nongovernment organization groups or public/private sector groups, community service and intercultural project work meanwhile cross-border: international development assistance projects, cross-border delivery of education programmes, contract-based training and research programmes and services;
4. Extracurricular: student clubs and associations, international and intercultural campus events, liaison with community-based cultural and ethnic groups, peer support groups and programmes.

Yet it is usually at the individual, institutional level that the real process of internationalization is taking place. During the past decades, the strategies of internationalization were mostly characterized as separate activities taken by “enthusiasts” rather than a process (Knight, 2004).

Student mobility

Despite the wide meaning of internationalization and the range of activities and strategies it includes and is achieved through, the most visible, even a core international activity which promotes internationalization still is student mobility (Wächter (2008), Teichler (2012), Van Damme (2001)).

The Bologna Declaration states general aims of mobility such as “we call upon each country to increase mobility, to ensure its high quality and to diversify its types and scope. In 2020, at least 20% of those graduating in the European Higher Education Area should have had a study or training period abroad”. Meanwhile, there are no particular descriptions or suggestions for implementation and management of the process of mobility. Thus, it should be concluded that each institution and even each department in an institution manage the student mobility following their own strategies and approaches. There is no single format for international strategy (Taylor, 2010), therefore, the strategy an institution adopts might put emphasis on one or more selected themes from the wide range of internationalization activities: international students, cross-border programmes, curriculum, research and knowledge exchange, staff development, support services and other.

Though, it should be admitted that there might still be a living misconception that having many international students in the classroom equals internationalisation (de Wit, 2011).

Similarly, Sahlberg (2011) is convinced that Internationalization is not measured by the number of mobile students or teachers, nor international projects at the institution. The ultimate criterion for advanced internationalization of education is its influence on student and teacher attitudes, values and habits of mind related to other cultures and countries.

International students’ academic adjustment

The international mobility of students, the promotion of internationalisation in general are important elements of higher education policy. Nevertheless, how international students feel, whether their learning needs are met and their adjustment to the academic environment are as important issues as the benefits student mobility provides.

Academic adjustment refers to the degree of a student’s success in coping with various educational demands such as motivation, application, performance and satisfaction with the academic environment (Baker and Siryk, 1999). It is a process involving psychological and behavioural change as individuals try hard to regulate themselves to achieve balance in their

new academic environment and to meet the new learning requirements of a university (Feng & Li, 2002 in Quan (2014)).

Presumably, many students experience culture shock upon entry into a new country and culture. Just as students might experience homesickness, sadness, fear and frustration, they also might have difficulties integrating into the academic environment as international students face multiple challenges. In most universities it is expected that international students perform in and are assessed against the conventions of the host country's educational values and practices (McLean and Ransom, 2005). Students are expected to handle the same academic demands, to develop relationships with lecturers and professors, to get used to teaching and curriculum differences. Another adjustment concerns for international students are different study techniques, test taking strategies, classroom instruction, and oral communication (Rienties et.al, 2012; McLean and Ransom, 2005).

Academic information of the University of Latvia

The academic year begins in September and is over towards the end of June. As a general rule, it comprises 40 weeks of lectures, seminars and practical work and is mainly divided into 2 semesters. Latvian credit point is defined as a one-week full-time study workload. An average workload of a full-time study year in most HE programmes is 40 credit points. Latvian credit point system is compatible with ECTS. The number of ECTS credits is found by multiplying the number of Latvian credit points by a factor of 1.5.

Semester Examinations

Examination sessions take place at the end of each semester (i.e. in January and in June - July). Students are usually given 3 - 5 days to prepare for each examination. Students are examined separately in each subject and the total number of examinations in a semester is usually between four and six. Candidates who fail in a course (semester) examination can generally try to sit again during the session or afterwards.

Assessment of Knowledge

In Latvia's higher education a ten-point grading system prevails, where 10 is the maximum and 4 is the pass mark.

Table 1. Explanation of the grading system and comparison to ECTS grades.

Meaning of the Grade	Comments	Estimated corresponding ECTS grade
10 (with distinction)	Knowledge of the student is substantially higher than the estimated normal level.	A
9 (excellent)	Knowledge of the student is higher than the estimated normal level.	A
8 (very good)	Knowledge corresponds to the highest expected level. The student has mastered the subject deeply and with understanding, is progressing within the expected limits, but makes minor mistakes.	B
7 (good)	The student has generally succeeded in the course within the required limits, but he or she is either merely reproducing the knowledge rather than actively using it, or making more substantial mistakes	C
6 (almost good)	Awarded to students, who are progressing within the limits of their individual abilities, generally are not behind the appropriate age group, but make substantial mistakes and reproduce the facts rather than analyse them.	D
5 (satisfactory)	The very last positive grade. Awarded to students, who do their best but still make grave mistakes and just reproduce most of the relevant material.	E
4 (almost satisfactory)	Marks of different levels for students whose records are below the expected.	E/F
3-1 (unsatisfactory)		Fail

The Case Study

The purpose of the case study was to explore the international students' experiences at the Faculty of Education, Psychology and Art, Teacher Education Department, University of Latvia; to address the issues concerning the academic adjustment of international students, find out the challenges of both international students and faculty staff, and work out suggestions for better international students' academic adjustment management. The focus of the study are the challenges faced during the student mobility period, especially concerning academic adjustment at the Faculty of Education, Psychology and Art, Teacher Education Department, University of Latvia.

During the 2013/2014 academic year there were 20 incoming students from Europe, China, South Korea, Russia and Turkey.

The case study was carried out at the University of Latvia, the Faculty of Education, Psychology and Art, Teacher Education Department. Data was collected by the means of a questionnaire to incoming students (n=20) studying at the department in 2013/2014 academic year and semi-structured interviews to lecturers (n=3).

The questionnaire to students consisted of questions concerning their motivation for the student mobility, learning needs, adaptation challenges to the new academic environment, academic workload and course requirements, availability of support and administrative services.

The data were collected by the means of content analysis of the questionnaires and interviews.

The findings from the questionnaire indicated that

- most of the international students do not express special learning needs: they expect to gain academic knowledge on the chosen study courses and be awarded the credit points;
- students appreciated the friendly atmosphere of the faculty and the new experience of meeting new students;
- students found the faculty academic staff to be welcoming, patient, and qualified;
- students did not find it difficult to understand the system of education of Latvia;
- students appreciated the creative and effective methods of teaching;
- students found the University library to be very good and databases valuable;
- students benefitted from doing their school practice (English and German language teacher programme) during their mobility;
- students learned a lot from the possibility to present their research paper at the International Students Research Conference (annual conference held at the Faculty of Education, Psychology and Art)

When asked about the motivation/ reasons for mobility, most frequently students named:

- experience new educational and cultural environment;
- improve the English language skills;
- gain new knowledge in the subject area;
- study without tuition fees for a semester or a year;
- gain life and professional experience;
- personality development: become more independent and confident;
- travel and make new friends;
- challenge oneself;
- to have the best time of life.

While language studies, expansion of academic knowledge, cultural experience prevailed as the main reasons, students admitted that travelling and personal interests were strong factors affecting the choice as well.

From the interviews with academic staff it was found out that there are students who are “always away”, in other words, students take the advantage of the mobility and travel. For those students most interests are not related to academic studies, they do not attend classes regularly and experience difficulties in fulfilling the course requirements.

Thus a conclusion can be drawn that students who are more involved in extracurricular activities may devote less time to academic activities, which eventually leads to lower performance and achievement in academic studies. In contrast, students who are less involved in extracurricular activities may demonstrate higher academic achievements/ learning outcomes.

This coincides with the students’ challenge of getting along with others and admitting of having no time for doing the university assignments.

The challenges the students faced were

- adapting to new academic environment and university culture, collaborating with the academic staff;
- for some, especially Russia and Turkish students it took time adjusting to the 10 point grading system;
- heavy academic workload;
- strictly set requirements/demands for the study courses that are expected to be met and fulfilled;
- having course materials in advanced level, especially in such courses as *Foreign Language Teaching Methodology*, *English for Specific Purposes Methodology*, *Interpretation of English Texts*, *English for Psychologists*, *Integrated English Language Course for Teachers*;
- the expected English language knowledge level: advanced;
- feeling not able (or smart enough) to participate in seminars or accomplish the assignments;
- students experienced difficulties dealing with administrative questions (registration for the study courses at the beginning of the study semester, receiving assessment paper after the session)

It can be seen from the findings that student have very different course selection criteria: while one chooses the subjects close to those studied at the home institution, others take such criteria as amount of ECTS awarded regardless the course content and the intended audience. For example, the course *English for Psychologists* (6 ECTS) was chosen by 4 students as it gives many creditpoints, though the content was not appropriate for the particular students to study, thus creating a situation that students were struggling to pass the examination. Another example could be the course *English for Specific Purposes Methodology* meant for the English language teachers: students who do not study to become the English language teachers rather often have a vague idea of the content and have low study achievements due to the reasons that they have not acquired the foreign language teaching methodology, are not familiar with terminology used during seminars and, moreover, have not studied lesson planning before.

As lecturers indicated very often the lack of English proficiency might lead to low academic achievements thus making the adjustment process even more complicated as students hardly follow the classroom instructions and cannot fully participate in oral discussions or seminars where students have to discuss particular issues and questions.

Although, the autumn semester starts in September, there might be students who arrive to the university or start attending classes only in October which also might be one of the factors influencing student study performance and achievements. In such case, professors must spend extra hours with *latecomers* in order to explain the course requirements and assignments.

Suggestions for better management of the international students' academic adjustment

1. International students and also academic staff members need a comprehensive published guide which would include information about the core issues concerning the student mobility;

2. All international students might be asked to arrive during university registration week (one week before the semester starts) which would be adaptation week during which international students are acquainted with the faculty (building) and academic staff, having a chance to discuss the course requirements and content together;

3. Preparatory courses for international students. It is suggestible they take a remedial language course; besides, students from non-European countries would benefit from having a course on academic adjustment issues: to get acquainted with cultural differences, education system, understanding departmental lectures;

4. A module of study courses separately for future English language teachers and students of other programmes (non-language specialists, e.g. primary school teachers, art teachers) as the content of specific courses might not be appropriate for all students who have selected it;

5. Though international students experience difficult period of adjustment and come from different cultural and educational background, they should have equal demands as their host students thus understanding the procedures and practices of course work and assessment;

6. Students-mentors or peer support programmes ("*buddy*" groups) to enhance relationships and help exchange students adjust to the new academic environment and understand the practices of course work and assessment better. Moreover, peers could help international students with fostering their English language skills. The researches in the field suggest the International Peer Programmes have had a significant impact on international students' adjustment. In addition, host students could be trained to teach international students about academic skills and resources needed to succeed (Abe et.al., 1998)

7. The international student coordinators might check on students' achievements/challenges; provide support for both students and academic staff as at the Faculty of Education, Psychology and Art coordinators are working part-time, not always available for students. There should be coordinated actions among the department within one institution in order to gain most benefits of student mobility.

Conclusion

Increasing student mobility has reinforced the conviction that one of the most effective means to prepare future graduates for the needs of an increasingly international professional life in a global economy is to study abroad. Mobility means important educational and social benefits: acquiring new and cross-cultural knowledge and competencies, improving foreign language proficiency, establishing international personal and professional networks, familiarisation with other countries and cultures (Van Damme, 2001). Though, in order to gain the benefits, it is significant that the university draws on students' experience and ensures positive academic adjustment, in other words, international students' challenges should be eliminated to the minimum to foster academic achievements.

Internationalization is characterized as a way to:

- engage in international cooperation;
- gain financial advantage;
- strengthen research and knowledge;
- enhance the curriculum with international content;
- establish English medium programmes and degrees;
- promote student exchange.

Even though internationalization includes many activities, one of the most prominent is student mobility.

Academic adjustment of international students refers to their learning outcomes and fulfilment of course requirements; that is, academic adjustment predicts study-performance in terms of obtained credits.

Different measures can be taken to support international students and manage their academic adjustment: having adaptation week, peer programmes, more unified actions among faculty departments and international coordinators, and worked out modules for students to become English teachers and non-language specialities separately.

The case study has certain limitations. First, data collected were student subjective reports, and, second, the students questioned were those studying at the Faculty of Education, Psychology and Art, Teacher Education Department, University of Latvia, thus no generalizations can be made. This study was focusing on academic adjustment only, therefore, further studies could be examining the international students' social, personal and attachment adjustment management.

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EFFICIENCY ANALYSIS OF POLYCRYSTALLINE AND AMORPHOUS SOLAR CELLS IN CLOUDY SKY CONDITIONS OF QUETTA

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Abstract

Amongst the renewable energy resource solar energy has achieved a high remark. The solar energy being a sustainable energy source is used now-a-days for power generation. There are several ways to employing the solar energy directly. For example the use of PV technology for direct conversion of sunlight into electricity and the other method is the use of solar thermal systems e.g. solar collectors. Researchers around the world showed that the efficiency of the solar cells is greatly affected by the climate of a particular region, such as Omubo-Pepple et al. (2009) showed that there exists a strong relationship between solar irradiance and cell temperature on the efficiency of solar cells. Mieke (1998) compared the efficiency of two different types of solar cells for a hot climate of *Jilkminggan (Australia)*. In this research paper the efficiencies of the p-si and a-si technology are compared in a cloudy sky condition.

Keywords: Polycrystalline, amorphous, efficiency, cloudy sky condition

Introduction

The discovery of photovoltaic effect in 1839 by Alexandre-Edmond Becquerel was the first building block towards the development of photovoltaic (PV) device or solar cells, which showed that when light falls on a metallic plate, electric current is generated (Fraas and Partain, 2010). In 1894, Charles Fritts informed Werner Seimens (a German inventor) about the photovoltaic effect in gold layered semiconductor; however this solar cell had a poor efficiency ($< 1\%$) (Fraas and Partain, 2010). Regardless of its poor efficiency, development of PV devices started from this remarkable achievement and is still going on. Quetta is the capital city of Balochistan (Province of Pakistan), geographically it lies at $30^{\circ} 15' N$ and $66^{\circ} 53' E$, 1,685 meters (5,531 feet) above sea level. The average temperature of Quetta is $13^{\circ}C$, and the winds blow with an average speed of 3m/sec. There has been very little rain fall in the past ten years. The average annual rainfall for Quetta city is 213mm, whereas the average annual relative humidity remains 40% (Pakmet web).

The performance of a various types of solar cells can be evaluated by means of comparison for a particular climate condition. In this paper the performance is analyzed by considering average data in the cloudy sky condition. The three sigma rule is used after finding the standard deviation from the mean value of the individual panel. The greater deviation from the mean value shows the poor performance of the solar panel in the cloudy weather conditions.

Equipment detail

The solar modules used in the experimentation were “Kaneka G-EA 060 thin film amorphous solar cell by Kaneka Corporation” and Q-Cell ASL 65W-12V polycrystalline by “Akhtar Solar Group” solar modules were selected. Details and specification of these two solar modules and equipment used is given in Table (1) and table (2) respectively.

Table (1). Kaneka and Q-cell solar panel specifications

Characteristics	KANEKA (a-Si)	Q-CELL (p-Si)
Peak Power	60 W	65 W
Open Circuit Voltage	91.8 V	21.6
Short Circuit Current	1.19 A	4.2
Dimensions	960mm x 990mm	760 mm x 660 mm

Table (2). Specification of instruments used

Instrument	Measurement	Model	Measuring Range
Solar power meter	Solar irradiance	TES-1333	0-2000 W/m ²
Volt meter	Voltage	Peak Tech 3340 DMM	DCV 400 mV/4/40/400/1000 V - 0,1 mV; ± 0,5% + 2 dgt.
Ampere meter	Current	Peak Tech 3340 DMM	DCA 400/4000 µA/40/400m A/4/20 A - 0,1 µA; ± 1% + 3 dgt.

Method of experimentation

The KANEKA G-EA060 and Q Cell ASL 65-12 solar modules were mounted on the roof of the house located at 30° 10' 43.9" N 66° 59' 07.1" E. The mounting stand was designed for multiple tilt angle adjustments of the solar modules. The modules were aligned south for maximum annual output using a compass. The tilt angle of the mount was adjusted at 44° from the horizontal axis to achieve the maximum possible efficiency. This tilt was calculated using an online solar tilt calculator (solar handbook web). The data was collected manually using the digital equipment. The operating time for the experiment was 8:30 hours in which the data was taken after every 30 minutes. The experimentation was performed for a period of 15 days. The 50W and 24W loads were used for Keneka and ASL solar panel respectively. The circuit connections are shown in fig (1).

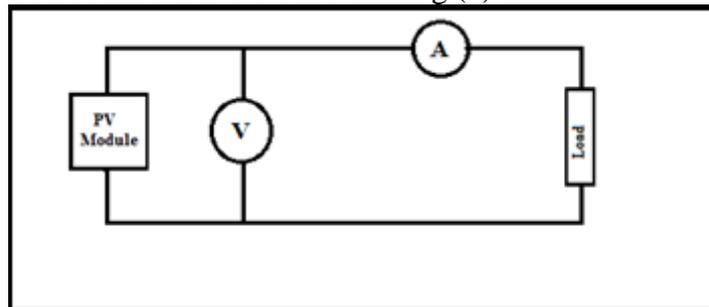


Fig (1). Circuit diagram of the solar cell module connections

The efficiencies of both solar panels were calculated using the formula given below

$$\eta = (V_{\max} \times I_{\max}) / (A \times i) \quad \eta = (V_{\max} \times I_{\max}) / (A \times i) \quad (1)$$

A = area of solar cell module

V_{\max} and I_{\max} are the optimum voltage and current of the solar cell respectively and i is the solar irradiance.

Results

Fig (2) depicts the efficiency calculated by average input parameters for p-si under cloudy sky conditions. The efficiency has a mean of 11.98% and a stand deviation of 4.424. Hence, a standard deviation of 3 will be 7.272. This yields 61 % of the mean value of efficiency for p-si solar cell.

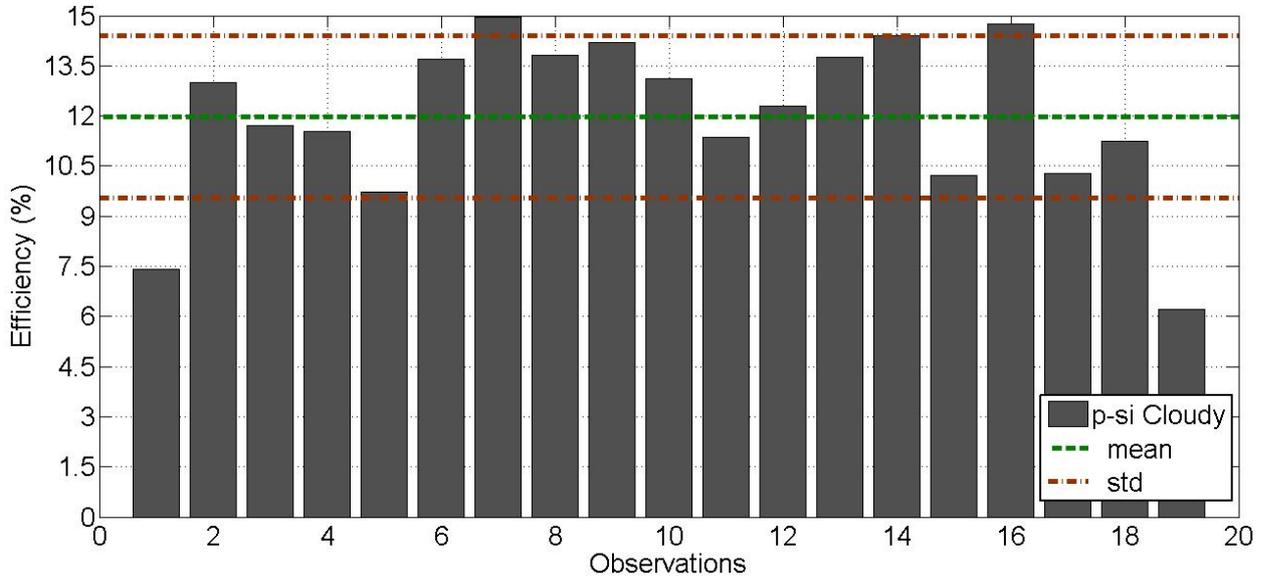


Fig (2). Efficiency deviation for p-si under cloudy sky conditions

Consistent with p-si, efficiency for a-si was obtained and is depicted in Fig (3). It shows that the efficiency has a mean of 3.823. The standard deviation is 0.7674. So, a standard deviation of 3 is 2.3022, which is 60.2 % of the mean value

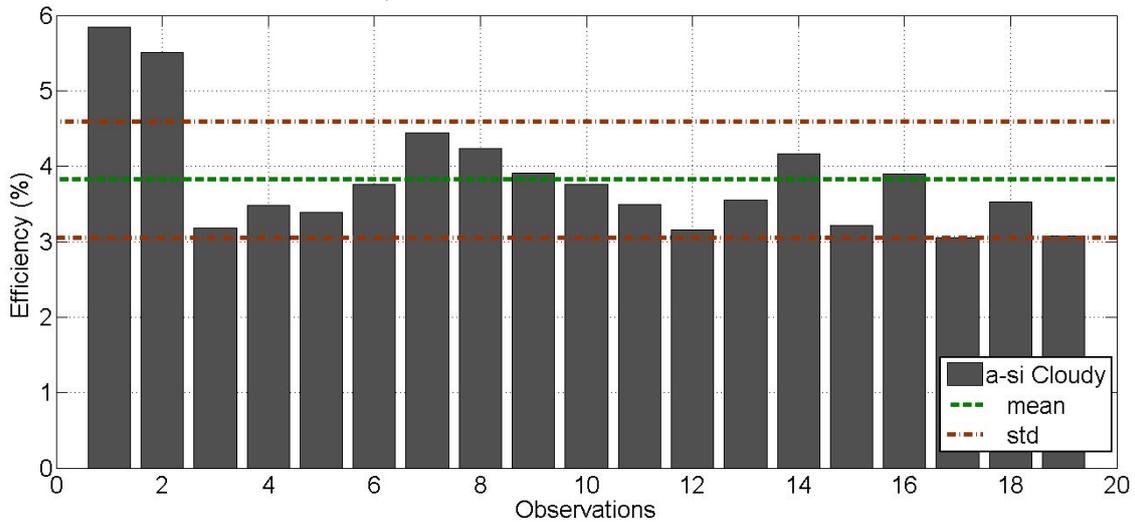


Fig (3). Efficiency deviation for a-si under cloudy sky conditions

The plotted results indicate the significance of this paper. In these graphs fig (2) and fig (3), the variation of the efficiency from its mean value is shown. The results are given in table (3).

Table (3). Comparison of Efficiencies

Solar Module Type	Mean Efficiency		Standard Deviation (SD)		3SD		Tolerance 3SD=X % of mean	
	Sunny	Cloudy	Sunny	Cloudy	Sunny	Cloudy	Sunny	Cloudy
Poly-crystalline	12.09%	11.98%	0.9468	4.424	2.8404	7.272	23.5%	61%
Amorphous	3.82%	3.12%	0.2562	0.7674	0.7686	2.3022	24.6%	60.2%

Conclusion

The deviation in the efficiencies of a-si and p-si panels is actually the tolerance values across the mean efficiency (Bajorski, 2011). Low tolerance indicates value lies near the mean whereas large tolerance means value lie away from the mean (Grafarend, 2006). Thereby low tolerated values suggest high whereas the large tolerance means low efficiency. For cloudy sky condition the results showed that the p-si panel has high tolerance is less efficient. This is because the p-si has a broad spectral response and the impact of this spectrum is not much greater in cloudy days. On the other hand we have the thin film a-si which has a very thin spectral response peaks for low wavelengths. The efficiency of a-si modules is therefore better under cloudy conditions. From table (3) it can be seen that the tolerance level difference of p-si and a-si solar modules is not much i.e. about 0.8%, therefore p-si solar cells can be effectively adopted for power generation in climate of Quetta.

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HEALTH INFORMATION SYSTEMS IN A DEVELOPING COUNTRY (CASE STUDY OF E-HEALTH SYSTEM IN A NIGERIAN HOSPITAL)

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Abstract

Health Information Systems (HIS) are one of the six essential and interrelated building blocks of a health system. A well-functioning HIS no doubt enhances accurate, timely and reliable information on health status and health care determinants required for and efficient and effective clinical and managerial decision making. In developing countries Application of HIS and e-health is in the increase. The analysis of Health Information systems in developing countries highlights areas of Challenges and areas needing Improvement.

Keywords: Health system, Nigeria

INTRODUCTION

BACKGROUND OF THE PROBLEM

The developing countries have a traditional method of Health care delivery with limited application of e-health. The e-health systems if strategically adopted will improve health care systems in a developing country like Nigeria. World health organization (WHO) stated the challenges facing human race in the 21st century is that of lack of access to qualitative care. The greater number of Nigerian population especially in low resource communities, have no access to qualitative care in terms of state of the art diagnostics facilities and technologies. The e- health if adopted and implemented can provide efficient and effective comprehensive health care services for the geographically dispersed people within both the urban and rural areas of the community.

Piette J.D et al (2012) highlighted the fact that difficulties in achieving the millennium development goals influence the innovation by planners to integrate health information systems and improve health and control cost.

AIM

The aim of the study is to analyse the existing operations of the current health information system in Aminu Kano teaching Hospital (AKTH) identify the problems and to propose Improvement.

OBJECTIVES

1. To conduct a literature survey of the Current health information systems,
2. To analyse the current situation of the case study and identify problems,
3. Propose a state of the art solution to address the problems in the HIS current system and model an improved HIS system
4. Evaluate the proposed system.

RESEARCH METHODOLOGY

STUDY DESIGN

The study is a prospective intervention study and will focus on Aminu Kano Teaching Hospital Nigeria. The hospital has the primary functions of treatment, teaching and research. The Implementation of current health information systems is to improve health care delivery across the hospital. Questionnaires were administered so as to obtain information necessary to permit analysis on the soft systems methodology and information on requirements of the current health information system. Interview will also be held Hague (1993) stated that the role of the interview is to derive accurate information.

The information obtained from the interview and the administered questionnaire are to enable the researcher obtain the requirements of the current situation on the operation of the system. The interview was conducted at the place of work which is consisted with the view point of Hammer and Champy (1994).The researcher will also apply observation in the process of data collection; NHS report (2001) support observation and informal discussion; because doctors, nurses, pharmacists hardly admit errors. Soft systems methodology (SSM) approach will be used to analyse the responses from the questionnaire administered, informal discussion and observations gained from the result will be used to evaluate the current system and identify problems leading to the development of solutions. Systems modelling are important because it is the interdisciplinary study of the use of models to conceptualize and construct systems.

LITERATURE REVIEW OF THE ART E-HEALTH SYSTEMS

The draft report of the international telecommunication union (2008) described e-health as a generic term that refers to all digital health related information relevant to health care. Blaya et al (2010) described e-health as the use of information communication technologies (ICT) to support health and related field including health care services, health surveillance, health literature and health education knowledge and research. The World health organization(2005)defined e-health as being the leveraging of the information and communication technology (ICT)to connect the provider ,patients and governments. E-Health system is defined by Althuwajiri (2008) as a patient care system that aid the transfer of information electronically and instantly.

TYPES OF HEALTH INFORMATION SYSTEMS

CLINICAL INFORMATION SYSTEMS

Clinical Information systems is based on technology and applied at the point of care. The system is designed based on the requirement and need for support and processing of information. The CIS systems provide storage with processing capabilities

COMMUNITY BASED HEALTH INFORMATION SYSTEMS

Community health Information network (CHIN) may be conceived as a network that links health care stakeholders throughout a community, region or district. It also facilitate an efficient flow of funds information among various providers ,employers and other stake holders within a specified area(Chiu et al 2008,Puri et al 2009,Ro (Rodrigues J, 2010) .

E-PUBLIC HEALTH INFORMATION SYSTEMS

The e- Public health information systems provide emerging e-technologies to support public health care and bring about improvement in the health care status. Araujo et al (2009) stated that community assessment for example involves in the process of collection, tabulation, analysis and communication of key health statistics

GEOGRAPHICAL INFORMATION SYSTEMS

GIS technologies are useful in epidemiological and public health activities to mapping out certain endemic and epidemic disease among sub population across various regions, states or districts .The information collected will further be used to develop strategies for efficient and effective health care intervention.

HEALTH INFORMATION SYSTEMS TECHNOLOGIES IMAGING TECHNOLOGIES

(Breu R. et al, February, 2009) Discusses that new technologies for health information systems (HIS) offer a transformed way of relationship and interaction among health care professionals

AGENT TECHNOLOGIES

(Rodrigues J, 2010)cited (Nguyen et al 2009) and (Fonseca et al 2005)highlighting agent technology as being an emerging promising area of software development. Data mining technologies in Public health according to Kaur and Wasan (2006) obenshain (2004) and Silver et al (2009), (Rodrigues J, 2010) is applicable in the area of surveillance through automated surveillance system

E-HEALTH APPLICATIONS IN HEALTH CARE TELE-MEDICINE

Telemedicine is defined as the use of video conferencing techniques to deliver consultation at a distance, (Coiera E, 2003)While (Sean Brennan, 2007)defined telemedicine as the use of electronic and information and communication technologies to provide and support health care where distance separates the participants.

SOFT SYSTEMS METHODOLOGY

The Peter Check land's Soft Systems methodology (SSM) is an approach to tackling a messy real life situation. Gupta .A. and Ridhi .M.(2013)described SSM as an attempt to make an inquiry into real world situation, thereby providing a richer basis for understanding situation, it deals with the soft rather than the hard problems.

Step 1 problem situation unstructured

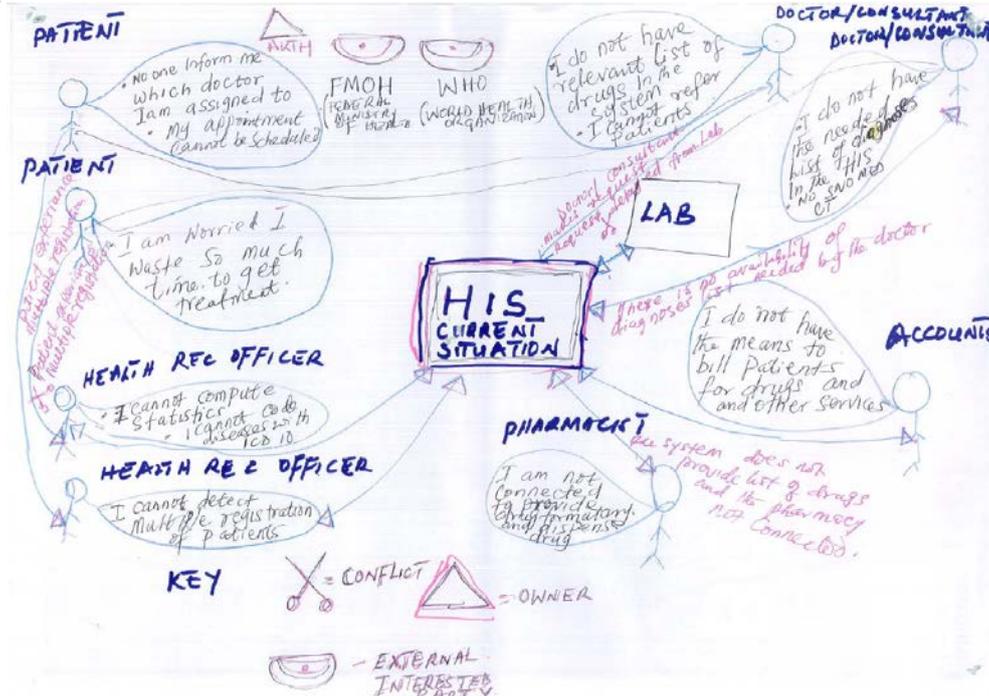


Figure1: RICH PICTURE OF CURRENT SITUATION

STEP2 PROBLEMS APPRECIATION

Issues identified in the rich picture of the current HIS system and further provided the insight for the problems to be captured in the models for the proposed HIS

STEP 3 ROOT DEFINITION

The root definition always ended in an acronym CATWOE .Root definition is also refer to as a problem definition in SSM. The concept of root definition is based on the expression do X by Y to achieve Z. The CATWOE i.e. employed to enrich the Root definition and the conceptual models (Bergvall .B., APRIL 2004). The root definition and the conceptual model are always being condensed statements about a system being investigated; it can be likened to a mission statement..

The PQR answer questions

P-what

Q-How to do it

R-Why we do it

P - Efficient and effective health Information management Systems

Q - Through health Information Systems analysis and design

R - So as to improve the current Health information management system in AKTH

Kano

- To improve patient care service delivery
- To reduce sufferings of patient
- To ease operational services
- To save lives

CATWOE ANALYSIS

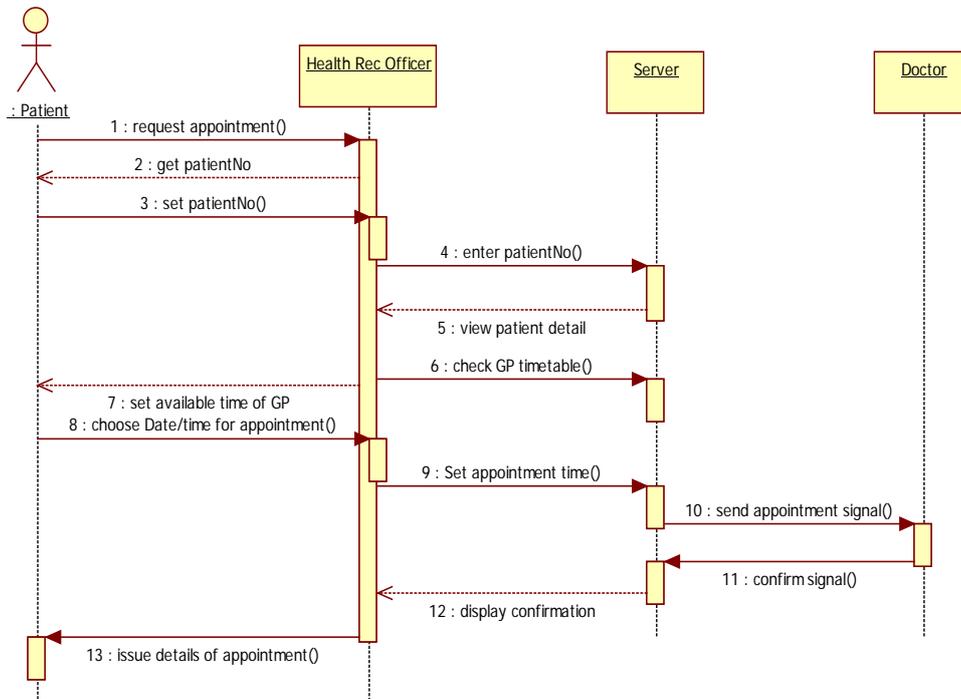
Therefore the researcher, employed CATWOE Analysis and root definition for a core description of a purposeful activity from a particular view point (Flood and Carson 1993 as cited by Suriya (2012)

STEP 4: MODELING AND ARCHITECTURE DESIGN

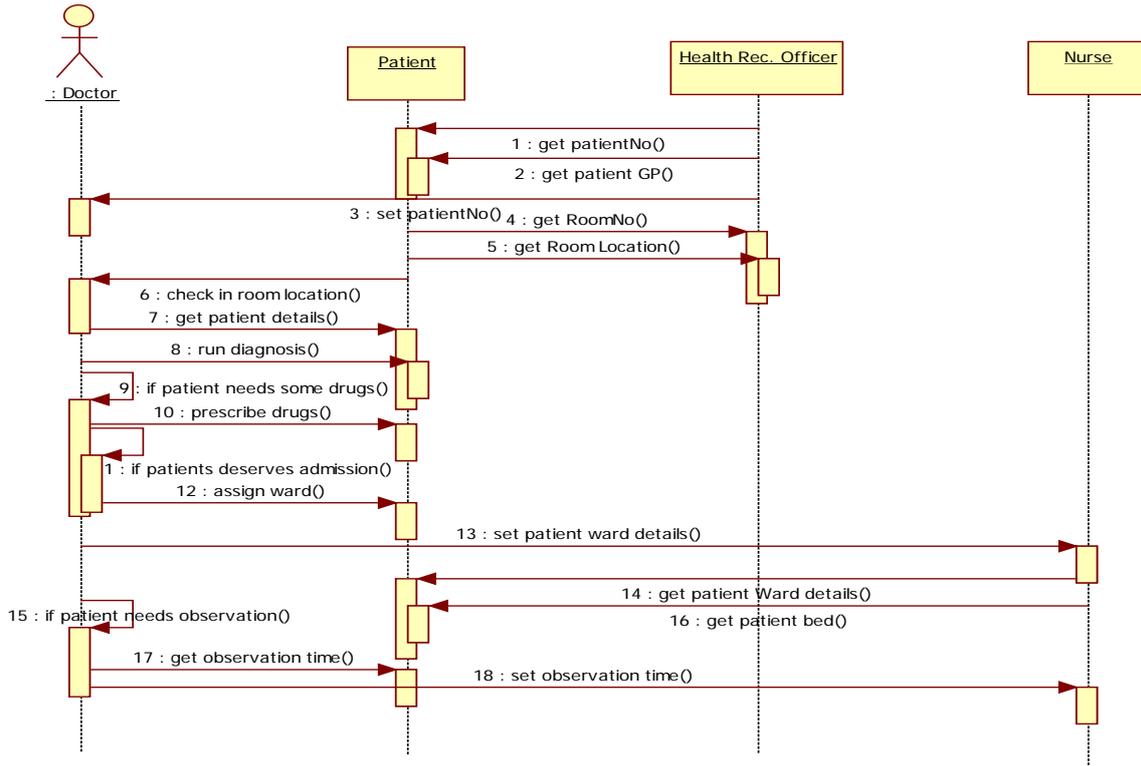
The proposed modelling is towards designing integration and migration Strategy. In consistency with the methodology for this research UML was used throughout



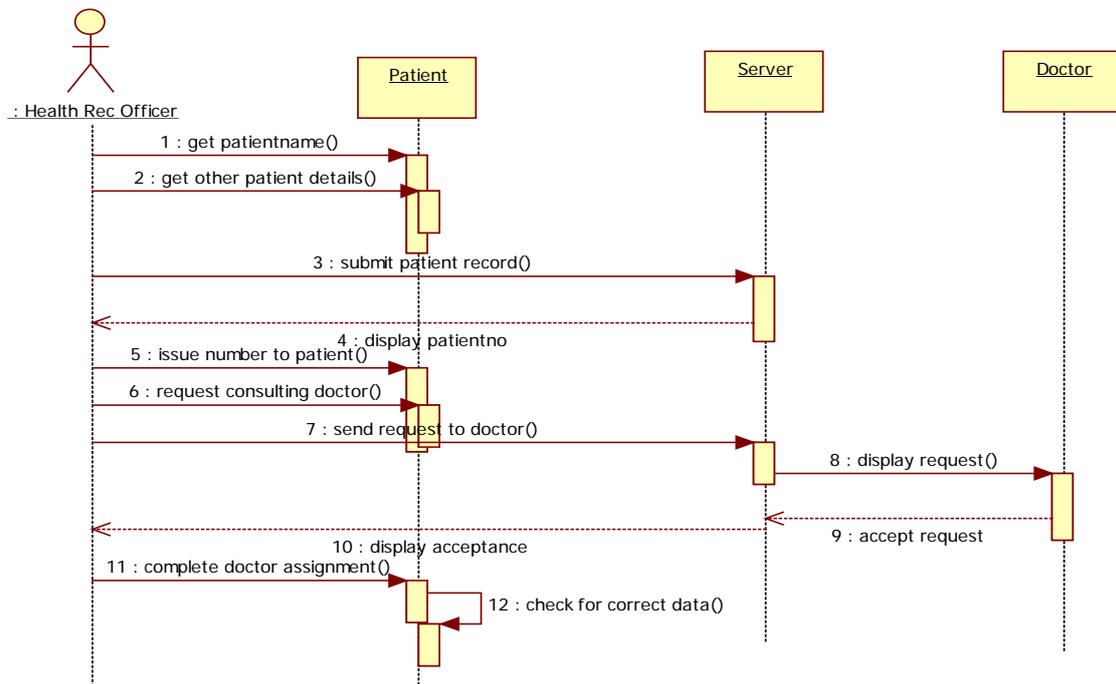
USE CASE DIAGRAM BY THE AUTHOUR



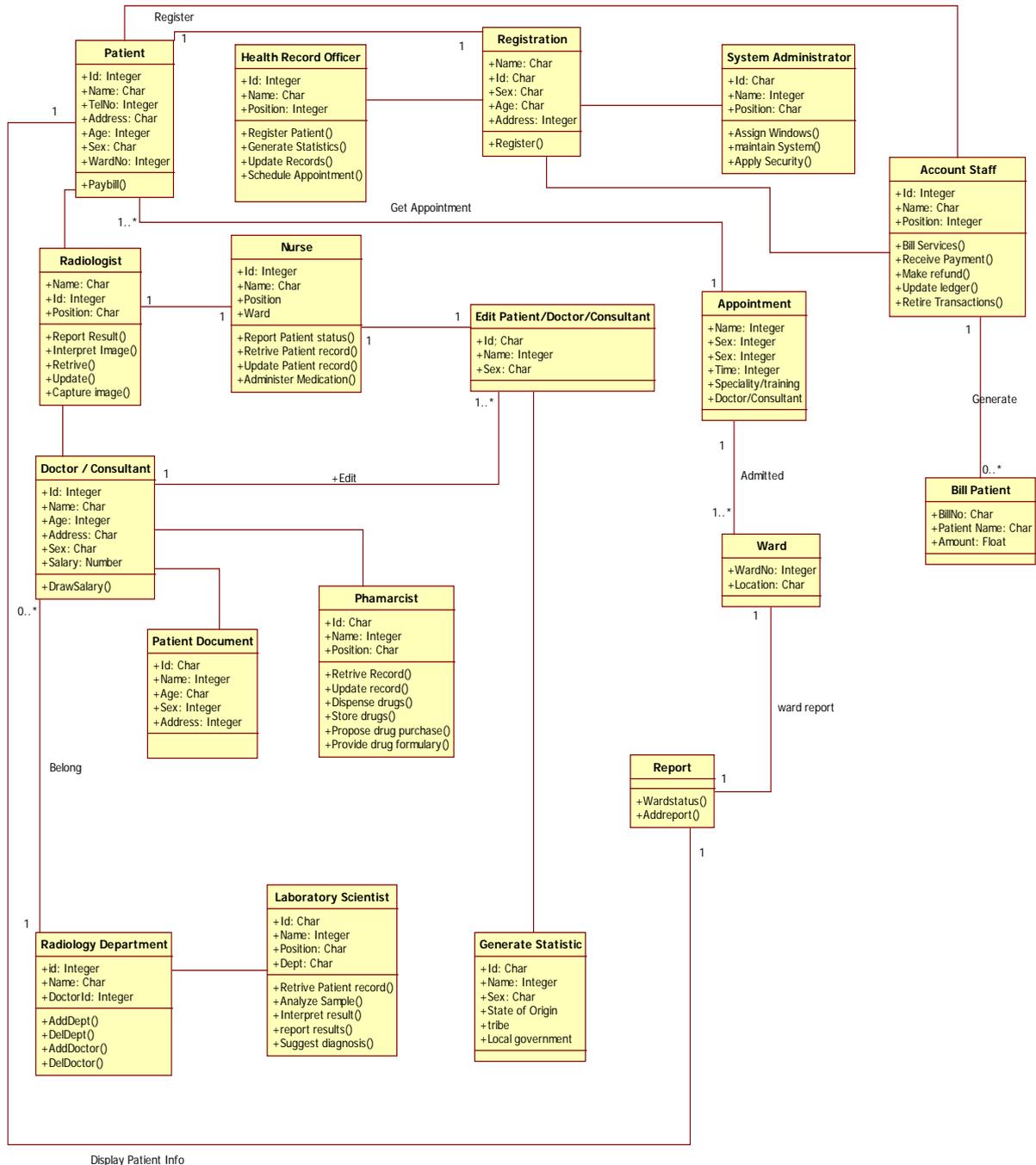
SEQUENCE DIAGRAM PATIENT BY THE AUTHOUR



SEQUENCE DIAGRAM DOCTOR BY THE AUTHOUR



SEQUENCE DIAGRAM HEALTH RECORDS OFFICER BY THE AUTHOUR



CLASS MODEL BY THE AUTHOUR

COMPARISON OF PROBLEMS SITUATION (REAL WORLD) APPRECIATED WITH CONCEPTUAL MODELS

Table 1: Comparison of problems situation appreciated with conceptual models

PROBLEMS APPRECIATED	SOLUTIONS IN THE CONCEPTUAL MODELS DESIGNED
Problem of patient without knowledge of where he was assigned to see a doctor	The model is designed where by health records officer will notify the doctor/consultant via server and doctor/consultant will respond back ready to see the patient and subsequently the patient will be notified.
In adequate and irrelevant list of drugs required for effective prescription.	Integration of pharmacy functions to update required list of drug formulary that can provide a list of drugs with their generic names
Lack of integration of ICD 10 and SNOMED CT	The ICD 10 and SNOMED CT are captured in the models designed.
Irrelevant list of diagnosis	The models have considered integrating ICD 10 and SNOMED CT which is useful in identifying list of diseases, operations, and procedures.
Problem of booking appointment	The model captured provision for scheduling of appointment.
Issue with referral	Model highlight referral functionality
Problem of statistical functionality	Statistics is captured in modelling for the proposed HIS, Software such as SPSS, EPI –INFO can be used to complement in statistical analysis
Lack of billing and costing functionality	Accounts functionality is addressed.
Multiple registration	The model is designed to register only one patient at time and double registration is eliminated using a unique patient ID cardinality consideration could help in this respect.

DESIRABLE CHANGES AND CULTURALLY FEASIBLE

For the transformation of the hospital information systems to be more efficient and effective, this can be achieved through integration strategy of the data bases and effective migration strategy.

CONCEPTUAL ACTIVITY OF MODELS OF SYSTEMS NAMED IN ROOT DEFINITIONS

The conceptual model and the root definition have been condensed to bring a transformation of an effective HIS for AKTH so that the hospital may continue its selfless service to humanity.

CONCLUSION

The main Aim this paper is to analyse the existing current HIS system that is undergoing a phase implementation in a developing country of Nigeria. The methodology approach based on (SSM) and the data collection was the use of open ended questionnaire, this was adapted in order to obtain information necessary for requirement analysis.

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THE PHENOMENON OF SOCIAL DISCRIMINATION NOWADAYS AND THE LEGAL SYSTEMS OF EXTINGUISHMENT

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Abstract

Despite the fact that during the last years, the international and European community has made some important progress in the fight against racism, racial and religious discrimination, xenophobia and related intolerance through the implementation of national and international law systems and the foundation of numerous international human rights mechanisms and organizations, the economical, political and technological progress nowadays encourages the maintenance of the phenomenon of social discrimination and the danger of its future expansion. To fight this issue, the international community needs the improvement of its legal systems through a deep consideration of the problem and the development of innovative and cooperative solutions.

Keywords: Racism, discrimination, law

Introduction

During the last sixty years since the adoption in 1948 of the Universal Declaration of Human Rights, the international and European community has made some important progress in the fight against racism, racial and religious discrimination, xenophobia and related intolerance. National and international laws have been enacted and numerous international human rights mechanisms and organizations, particularly struggling to ban racial discrimination, have been developed. Progress has been made -witness the defeat of apartheid in South Africa, but still the target of a world free of racial hatred and bias remains only half reached.

I.

As economic crisis and unemployment expands, technology brings the people of the world closer together and political barriers tumble, racial discrimination, xenophobia and other forms of intolerance continue to ravage our societies. Horrors such as "ethnic cleansing", reminding the contemporary Nazi race terminology and the genocides of Holocaust and European citizens, have emerged in recent years, while ideas of racial or religious superiority have spread uncontrollably to new media like the Internet, enslaving negatively people's mentality and way of thinking. Proof of that are the recent issues of the action of Jihadists' **Foundation**, in which more and more people, among them many Europeans, are being constantly enrolled. Even globalization in economy, industry and investments carries risks that can lead to exclusion and increased inequality, very often along racial and ethnic lines.

As a result, United Nations and European Union are deeply worried about the maintenance of the phenomenon of racism and xenophobia nowadays, disapprove such

human behaviors that reflect hatred and prejudice and stress the importance of all nations taking measures to combat racial and religious discrimination in solidarity and cooperation.

As racial discrimination and ethnic violence grow in complexity, they become more of a challenge for the international community. As a result, there is an emergency call for new, innovative tools to deal with racism. The fight of hostile stereotypes and arrogance towards other cultures and religions *require a tough legal approach by the state not only towards perpetrators, but at the same time education, media and any other field of public life.*

Considering the Article 18 of the International Covenant on Civil and Political Rights, the Articles 2, 18 of the Universal Declaration of Human Rights, the Article 2 of the Convention of the Prevention and Punishment of the Crime of Genocide and finally the Articles 1,2 of the Declaration on the Elimination of All Forms of Racial Discrimination, there are some strong measures to be recommended.

First of all, there should be a tough, unequivocal approach by the state law not only towards perpetrators (punishment system), but also towards the victims by the provision of compensation in case of "attack" and protection, giving priority and attention on those who are at risk and vulnerable on multiple fronts due to racism and xenophobia. At the same time the states should adopt of substantial measures, based on the causes of discrimination, which not only aim at the present but also at the future (viable measures). This mechanism requires a deep research into the sources, causes, forms and contemporary manifestations of racism, racial discrimination, xenophobia and related intolerance.

Additionally, as it was previously mentioned, the adopted measures should not only improve the states' policy, but also determine the individual's behavior. The only way of succeeding this is by addressing mainly the education, the media and the unemployment. To increase the level of awareness about the scourge of racism and racial discrimination, there should be the empowerment of a healthy, ethnic and cultural identity and at the same time certain guidelines about the promotion of other cultures, races and religions through the media and education in order people to be encouraged to travel and meet other civilizations and finally approve the immigration and respect the diversity in their own homeland. The formulation of a strong social conscience against racism demands also the adoption of objective standards of employment according to capabilities and skills of candidates and not their origin or political and religious belief.

Finally, the states should ensure the effectiveness of the existing measures by the continuous support of the existing institutions, which fight racism and xenophobia by the implementation of all legal mechanisms, which guarantee all civil, cultural, economic, political, personal and social rights.

Conclusion

Elimination of Racism, Racial Discrimination, Xenophobia and Related Intolerance is an issue that concerns the states worldwide. This means that such a serious matter cannot be effectively faced and combated in the restricted borders of a state but the most basic principle of dealing with such a phenomenon is the enhancement of the international cooperation on the subject. As the former Secretary-General, Kofi Annan, stated in the World Conference against Racism in Durban, South Africa 2001 *"Our aim must be to banish from this new century the hatred and prejudice that have disfigured previous centuries."*

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“HYPERTEXT” IN ANCIENT CHINA

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Abstract

Classical Chinese texts, written (mostly) on bamboo strips, have some features that are generally attributed to the uniqueness of modern electronic hypertext, such as non-linear, open-ended, multiaccental, interactive, and networked. Hence the term “bamboo hypertext.” Underlying those textual features is the collective workmanship characteristic of text production in ancient China. For example, Lao Zi’s *Dao De Jing* and Confucius’ *Lun Yu* (Analects) are actually compilations of writings produced and reproduced by generations of disciples over a span of decades or even centuries. While the texts bore the name of Lao Zi or Confucius as its official author, the master himself may never have contributed a single written word to the collection. In short, individual authorship/ownership of the text is basically a non-issue when it comes to the notion of collective workmanship embodied in bamboo hypertext.

Bamboo hypertext also fits into a rhetorical tradition that operates on a different philosophical basis. The fluidity of classical Chinese rhetoric is made possible by the fluidity of production and transformation of bamboo texts, as the latter imposes no physical limits on the motion of rhetoric. On the other hand, bamboo hypertext thrives also because of the open-ended, anti-logical nature of classical Chinese rhetoric, which, without suffering damages to textual “integrity,” permits—and sustains—fragmentation, continual transformation of text, reader/writer interaction, disruption of textual sequence, etc., features typically associated with the modern-day hypertext.

Keywords: Hypertext, classical Chinese text, rhetoric, logic and anti-logic

Introduction

Probably nobody would question that hypertext was first invented in Western industrial countries with the advancement of modern computer technology. Historians of writing may not agree on the exact date hypertext was born, but it seems the general consensus that it somewhere started in the 1960s, when Ted Nelson invented the term “hypertext.” A few years back, when I was in China doing research on classical Chinese rhetoric, somehow I developed a different idea about where and when hypertext was started. And I feel compelled to say hypertext was first invented in China, not in the modern age but, surprisingly enough, over two thousand years ago.

As Jay Bolter defines it, hypertext is “the interactive interconnection of a set of symbolic elements” (27). But we may also describe it as a networked discourse system with its own characteristics, such as multiaccentalism and interaction, which indicates a collective act of discourse creation in Cyberspace among many writers/readers. As a result of this collectivism, a hypertext is typically non-linear and open-ended. Rhetorically speaking, the feature of non-linearity points to the suspension of logic. Structurally, it means the text lacks unity. Because it is a network of many “come-and-go” texts, a hypertext is typically seen as fragmented and non-sequential. Hypertext’s open-endedness also implies a two-level meaning: at the rhetorical level, it suggests the text in Cyberspace is fluid—perpetually

shifting and unstable; at the structural level, it means the text resists closure and therefore has no end.

The reason I believe hypertext was first born in ancient China is because a classical Chinese text matches all those descriptions about hypertext: non-linear, open-ended, collective, multiaccental, interactive, and, above all, networked. In what follows, I wish to make my point by discussing three features of classical Chinese texts: 1) collective workmanship, 2) texts on bamboo strips, and 3) a different rhetorical tradition.

Collective Workmanship

Unlike Western logocentric rhetoric, classical Chinese rhetoric appeared predominantly non-linear. There are probably several reasons for this. One is that analytical thinking had never conquered the Chinese mind in ancient times. Another is that the *Yin-Yang* philosophy, which sees the world as a cosmological duality, had its grip on rhetoric. Still, there is one more reason to account for classical Chinese rhetoric's non-linearity: i.e., the production and circulation process of scholarly works.

Almost all the Chinese classics we have seen today, like Confucius' *Lun Yu* (Analects) and the *Zhuangzi*, can be described as "multiaccental" as they were generally a collection of short essays, paragraphs, and sentences written and rewritten by the disciples, or disciples of the disciples, of Confucius and Zhuang Zi over a span of decades or even centuries. While the texts bore the name of Confucius or Zhuang Zi, as its official author as a token of respect from those disciples, as Mark Lewis suggests (53), the master himself may never have contributed a single written word to the collection (though it is popularly believed that those quotations by Confucius or Zhuang Zi had the master's imprint one way or another).²⁵ The result was, after the texts had passed through numerous hands, they would invariably become inconsistent or self-contradictory in both meaning and purpose (i.e., non-linear rhetorically): Different disciples would use the master as a source of ethos to create their own texts (or agenda, using today's political terminology) with degrees of deviation and variance from the predecessors depending on the then social climate and scholarly trends.

So, we can say Confucius' *Analects* and the *Zhuangzi* were indeed a mixture of fragmented texts created through a collective authorship that transcended both time and space.²⁶ This would help explain why those classical texts are essentially multiaccental. Like modern hypertext, a typical classical Chinese work experienced no such thing as a single author controlling the text (the masters were already dead in most cases), or a single voice or line of argument asserting dominance over others. Because classical Chinese texts are "marred" by inconsistencies and self-contradictions due to the lack of a single authorship, as seen in almost all the classics,²⁷ traditional Chinese hermeneutics, known as *kao zhen* and *xun gu*, is largely a debate about what the author tried to say in a text, which could be interpreted contrarily due to the text's "slippery" nature.

Texts on Bamboo Strips

It is important to know that, before paper was invented, a typical Chinese book was actually written on bamboo strips that were strung together by cords (occasionally on silk), which, for physical reasons, would impose limits on the size of a book: Too many bamboo strips would make the book too heavy to carry around. So, what happened then is that the

²⁵ According to A. C. Graham, the *Zhuangzi* is "a collection of writings of the fourth, third, and second centuries B.C., in which only the Inner chapters can be confidently attributed to Chuang-tzu himself" (*Studies in Chinese Philosophy* 283).

²⁶ I suspect *The Bible* was also created that way in the West.

²⁷ I'm referring to those written during or before the Spring-Autumn and Warring States times (770–464; 463–222 B.C.).

writer had to remove (i.e., delete) some of the strips (i.e., some text) from the original book in order to carry around or to add his own writings to it. (It was very likely that he would sometimes do so deliberately to “cleanse” the text.) Because of this, the book was constantly changing in terms of content creation.

Likewise, the reader would have to remove some portion of a bamboo book (rolled into huge bundles) in order to read with ease. Consequently, there would be three options for the reader to do with that portion afterwards: 1) to “delete” it by dumping it into the trash can for various reasons; 2) to put it back into the book; or 3) to put it back, but not in the original order. Obviously, the last option points to the disruption of textual sequence, which further suggests the integrity of the book, if any, did not depend on sequence. Indeed, because the bamboo book was made of scores of separated bundles, the sequence of reading, which is prearranged by the author in a modern book, now fell completely in the hands of the reader, who could pick up whichever bundle (i.e., section) he (or, occasionally, she) wanted and start the joy of book reading. This may sound primitive to a reader who is used to modern print, but I would call that kind of ancient book “reader oriented” or “user friendly,” as the reader was able to take a more active role in interacting with the text. It was not only the writer who could decide what to keep or how to read; the reader had a say, too. (Does this remind us of a hypertext reader?) We can imagine that the writer did not have to worry about textual sequence, either: He could simply throw his own bundle into the bamboo pile. (Physically, the book looks like a bamboo pile.) Thus, technically speaking, a classical Chinese work had no definitive beginning or ending.

At this point, I probably can say that a bamboo book was a hypertext in itself, because it was indeed a “networked” text with many fragmentary sub-texts (on bamboo strips) bound together through cords (but not through logic). Because of the way the book was bound, a writer/reader could at his disposal remove, add, or rearrange the texts (Lewis 55), or simply connect them to another book, a phenomenon we see only in today’s hypertext. This kind of interaction with the texts would have two implications. First, it means, as mentioned, that the bamboo book was non-linear and non-sequential, just like an electronic hypertext: No matter how you read it, it makes sense (or does not make sense to the logocentric-minded). Second, it means that the bamboo book was fluid and open-ended, with numerous possibilities (it is “endless” in theory) of creating new ideas, new meanings, new interpretations, etc. Paul de Man says, “Rhetoric suspends logic and opens up vertiginous possibilities of referential aberration” (10). I think he has a good example, from the ancient bamboo book in China, to support that view.

It is not hard to see why in ancient China a classic work commonly credited to a particular historic figure could result in numerous “adulterated” versions, because it was literally a social construction featuring an evolving process of textual transformation carried out by many writers/readers over the years. The variances of a text are the imprints of such a transformation, which further suggests that classical Chinese rhetoric was constantly shifting and therefore unstable due to the absence of individual authorship (or control). Like what we have seen in hypertext, rhetoric in ancient China was defined by motion rather than by “momentary location” (Moulthrop 303). Stanley Fish once argued, following Paul de Man, that rhetoric is based on what it aims to dissolve.²⁸ I tend to say classical Chinese rhetoric had done just that, but only two thousand years ago: In its virtually endless motion, it deconstructed itself, making unattainable any new totality in rhetoric.²⁹

²⁸ See his book *Doing What Comes Naturally*. Durham: Duke University Press, 1990 (p. 493).

²⁹ As a matter of fact, the motion stopped sometime during the Han Dynasty (202 B.C.–9 A.D.), when paper was invented. The rulers of the state also realized the need to uncover “orthodox” classics to control ordinary people’s thought.

Rhetorical Tradition

Apparently, the bamboo text fits well into a rhetorical tradition that operates on a different philosophical basis: namely, a tradition that values an anti-logical mode of thinking, typified in the model of *Yin-Yang* duality. In the Western mode of logocentric thinking, A is A and B is B. To the contrary, in Chinese thinking, A exists because of B, and *Yin* exists because of *Yang*, or vice versa; so A can be B, and B can be A. We can see this clearly from an excerpt from the *Zhuangzi*:

... the other arises out of the self, just as the self arises out of the other. This is the theory that self and other give rise to each other. Besides, where there is life, there is death; and where there is death, there is life. Where there is impossibility, there is possibility; where there is possibility, there is impossibility. It is because there is wrong, there is right. . . . Thereupon the self is also the other; the other is also the self.³⁰

There is probably no need for me to interpret Zhuang Zi's "meaning" here, but readers can clearly sense the anti-logical reasoning between the lines. The statement that "the self is also the other; the other is also the self" reflects the *Yin-Yang* principle that could be formalized as "A is B and B is A," as opposed to the logocentric thinking of "A is A and B is B," which is prevailing in Western culture. The *Zhuangzi*, and *Dao De Jing* as well, is one of those classics that have been impacting Chinese culture for over two millennia, so there is no reason to believe that a rhetoric that does not rely on methodical or logical argumentation cannot appeal to an audience.³¹ Little doubt the anti-logical feature of Chinese rhetoric will pose questions about the traditional perceptions, and strategies, of rhetoric in the West, prodding people to explore new areas to expand their conceptions on rhetoric as well as on culture and other issues. I would not say that the Chinese tradition is the right way to understand rhetoric, but at least it shows us an alternative to approaching this particular language art.³²

For instance, reason and logic are very much privileged in the Western tradition of rhetoric, under the assumption that they provide epistemological certainty to the writer/speaker as well as to the reader/listener. Texts as such often appear "ordered, controlled, teleological, referential, and autonomously meaningful" (Alvin Kernan 144). Also, because of the obsession with logos (i.e., logical appeal), the Western tradition tends to treat rhetorical practice as a unilateral action, in which the rhetor argues "single-handedly," from the beginning to end, just to prove he or she is right without yielding space for audience participation (Carolyn Matalene 803). In contrast, classical Chinese rhetoric operates rather paradoxically, with emphasis on understanding through distinction (i.e., between A and B, *Yin* and *Yang*, right and wrong, etc.) instead of logical representation aimed at describing the world as it is. And, because of the collective authorship, the texts of classical Chinese rhetoric are largely dialogic, involving an open-ended process of making and remaking, which in turn allows for more interaction between writers and readers, as seen through the production and transformation of bamboo texts.

Western readers may be struck by the ambiguity of classical Chinese texts. For example, Lee Jacobus has the following to say about *Dao De Jing* (which is generally believed to be a collection of aphorisms contributed by generations of Daoists):

³⁰ The translation is from *Sources of Chinese Tradition* (68–69), compiled by Theodore de Bary et al. New York: Columbia University Press. 1960.

³¹ Unlike the West, which separates rhetoric from philosophy, in ancient China rhetoric and philosophy are one, inseparable. The Chinese classics are philosophical masterpieces. They are also rhetorical masterpieces.

³² Rhetoric is widely defined as the "art of persuasion" in the West.

Sometimes the text seems to be purposely ambiguous—a rhetorical device that promotes examination and careful speculation on the part of the reader. This ambiguity may annoy a reader who is used to having ideas clearly spelled out and explained. [But] Lao-Tzu seems to treat ideas like seeds to be planted in the mind of a listener, to take root and grow as the soil will permit. (18)

The ambiguity of *Dao De Jing* and numerous other classical texts may indicate the lack of control by one particular author in text production, but it may also suggest that logic does not have much say in classical Chinese rhetoric. A. C. Graham has revealed the “curiously familiar-sounding syllogism” in a text by Wang Chong (A.D. 27–C. 100) (*Disputers of the Tao* 168), and many other scholars, both Chinese and Western, have made similar discoveries, so there is no reason to assume that the ancient Chinese did not understand logic or could not think logically. However, it seems safe to say that in ancient China logic, or logical thinking, had never been elevated to such an important epistemological status as it had enjoyed in the West. This is because, points out Graham, Chinese thinking engages in “correlative thinking” (*Unreason Within Reason* 97-119) as opposed to analytical thinking: that is, “in terms of process rather than of static entities” (77).

Rhetoric based on the “process” mode of thinking would appear “mobile” or “fluid,” in the sense of connecting everything with everything else in a constant move (i.e., correlatively),³³ therefore different from rhetoric based on the analytical mode, which would rather perceive the world as separate or divided, in terms of “static entities.” Rhetorical fluidity is an important feature of classical Chinese texts, as exemplified in *Dao De Jing* and *Yi Jing* (Book of Changes). (Graham 97-119).

Apparently, such rhetorical fluidity is made possible by the physical fluidity of textual production and transformation, as discussed in the previous sections, in the sense that those bamboo strips would not restrain or impose physical limits on the motion of rhetorical texts. On the other hand, those bamboo books can thrive in a “hypertextual” manner also because of the open-ended, anti-logical nature of classical Chinese rhetoric, which, without suffering damages to textual “integrity,” would permit—and sustain—features we normally associate with the modern-day hypertext, such as fragmentation, continual transformation of text, reader/writer interaction, disruption of textual sequence, etc.

Conclusion

I wish that I had made a “good case” about my claim that hypertext was first started in China. At least I think the Chinese hypertext fits well with the definition by Bolter: “the interactive interconnection of a set of symbolic elements.” No doubt, not everything matches: The Chinese hypertext was manually linked, off-line, whereas the modern hypertext is electronically connected, on-line. But I feel this is a minor difference. A classical Chinese text is “hypertextual” not just because it is “networked” in the form of a bamboo book. More importantly, it exhibits a “spirit” normally identified with the modern-day hypertext: i.e., multiaccental, fragmentary, non-linear, open-ended, fluid, unstable, and, finally, interactive.

But if someone insists that stuff like “electronic” or “on-line” must be included in the definition, then I can at least say that there existed a “bamboo hypertext” in ancient China.

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³³ The *Yin-Yang* ideology sees the world as an ontological duality that is constantly changing, evolving, and reversing.

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