# Table of Contents

A cross-cultural and change management perspective on mergers & acquisitions ........................................... 449  
*Alejandro Flores, Kerstin Bremser*

Decision Support System in Senior High School Student Specialization Using Weighted Product Method ................................................................................................................................. 460  
*Subiyanto, Nurul Fartindyyah*

The need to improve the educational process in high education institutions in the Republic of Macedonia by applying management methods and techniques .............................................. 467  
*Elizabeta Mitreva, Nako Taskov, Julijana Sazdova, Hristijan Gjorshevski*

A study on language tourism. Spain and Germany ........................................................................................................ 475  
*Maria Isabel Castillo Arredondo, Maria Isabel Rodriguez Zapatero, Tomas Lopez-Guzman*

Blogs and Its Influential Effects on Foreign Language Writing Proficiency ............................................................... 488  
*Elham Kavandi*

Hybridized Scenario of M-Learning ............................................................................................................................. 502  
*Syed Faizan Haider, Daniyal Alghazzawi, Naif AlJohani*

Assessment of the energy efficiency practices in the hotel industry ........................................................................ 509  
*Vlatko Cingoski, Biljana Petrevska, Nikola Trajkov*

The Effect of Holding In-service Training Courses for Adults on the Performance of Iranian Elementary Schools’ Principals ....................................................................................................... 517  
*Faranak Omidian*

Study on Assessing ABET Student Learning Outcomes and Courses Learning Outcomes By Selected Courses and All Related Courses Techniques Using CLOSO Software in Civil Engineering Program – Najran University ............................................................................................................................. 523  
*Ahmad Salah Edeen Nassef, Mohammed A. Dahim*

Entrepreneurial transformation in the Middle East: Experiences from Tehran Universities ........................................... 533  
*Guerrero Maribel, Urbano David, Salamzadeh Aidin*

Nutritive Business Models of Consumer Behavior when Purchasing Foodstuffs ......................................................... 538  
*Sasko Martinovski, Rozita Spirov ska Vaskoska*

Instructions for the authors ........................................................................................................................................ 550
A cross-cultural and change management perspective on mergers & acquisitions

Alejandro Flores¹, Kerstin Bremser²

¹ Universidad del Pacifico - Lima, Peru,
² Hochschule Pforzheim – Pforzheim, Germany.

Abstract

The purpose of this paper is to develop a management perspective on the influence of cross-cultural management (CCM) and organizational change (OC) as an inorganic growth strategy in the processes of mergers and acquisitions (M&A). It is common practice for companies to expand internationally based on inorganic growth strategies, for which mergers and acquisitions are of great significance. However, the results of these processes have not been successful. This review indicates that M&A processes are influenced by elements linked to cross-cultural management, organizational change and cultural factors. It delves into the issue of organizational change variables, describing possible scenarios in which M&A processes may have a better performance and how cross-cultural management will influence the whole process. We propose a model that connects cross-cultural management, organizational change and corporate culture to create a situation of positive synergy that ensures the generation of value to shareholders in inorganic growth projects.

Key words: Merger and acquisitions, M & A, strategy growth, cross cultural management, intercultural management, change management, organizational change, corporate culture, learning process.

1. Introduction

In a global and complex world, companies achieve international expansion based on inorganic growth, and mergers and acquisitions are continuously increasing in relevance [1]. The need for business expansion based on inorganic growth strategies has increased dramatically in recent decades [2]. However, empirical evidence shows that many of these processes end in failure by not taking into account the proper integration of the businesses.

Failure rates are estimated to be between 45% and 82% of the mergers and acquisitions of the last forty years [3]. Other indicators of failure indicate that 7 out of 10 mergers fail to deliver on the promises of the merger process [4]. The main factors influencing the failure of growth strategies correspond, on one hand, to issues related to stability, order and control and, on the other hand, to the capacity for integration, collaboration and exchange [5], which is generated by the growth process itself [6]. These aspects are often ignored in the attempt to gain immediate profits from the merger or acquisition.

2. Literature review

The existing literature on inorganic growth has addressed the processes of mergers and acquisitions, primarily highlighting the failures of these processes [3, 4, 7, 5] and in other cases analysing the factors for success [8, 9, 10, 11] and contributions from the world of academia [12, 13, 2, 1, 14, 15, 6], as well as the world of practice through reports and major consulting firms [16, 17, 18].

Inorganic growth is the result of the need for companies to expand their operations to (1) increase productive or commercial capacity in a given geographical area, (2) secure the supply chain for greater quality control of raw materials or control of delivery time, (3) ensure the distribution chain for customer nearness and service, or (4) integrate related businesses immediately [19, 11]. In either case, inorganic growth creates a new organization that is the result of integration and the cohesion of resources and capabilities. In any case, inorganic growth is mainly due to the implementation of a growth strategy of diversification [20], whether vertical integration or horizontal diversification, whereby the method of controlling operations involves the merger or acquisition of companies; thus, we are referring to growth
strategies of the corporate type. In this regard, we note that not all growth strategies correspond to this type of corporate asset; they can also be developed under the strategic alliance model, which has a contractual nature, with agreement among the parties to cooperate closely to achieve a goal [12]. Additionally, not all growth strategies are developed in an inorganic form, as they can also be developed organically [21]. However, for the purposes of this study, we specifically address inorganic growth, either from mergers or acquisitions or through a strategic alliance.

Inorganic growth, as in the case of mergers and acquisitions, is a highly complex and dynamic process that requires the understanding, integration and cohesion of the parties [14] to generate change [22]; the aim is to generate value (positive synergy) for stakeholders [8, 23]. It is born of a deliberate and intentional initiative from the chief executive officer and his senior management team (CEO and SMT), who are aligned with the pursuit of competitive advantage. Thus, it responds to a plan with different stages for its realization: the deal closure (between one and six months) and core integration delivery (between twelve and eighteen months) [24]. In the deal closure phase, a preliminary analysis is carried out to identify assets, resources, capabilities and the business model of the firm that is being merged or acquired. In addition to the due diligence process, the main processes of migration and integration are defined. The deal closure determines the future business model and how the process of the merger and acquisition will generate value [25], which involves processes of change, adaptation and adjustment for various operating and support units; the planned integration is performed during the core integration delivery stage, which involves changes in the cultural patterns of the organizations involved [22]. Despite the work involved in planning, many of the processes of inorganic growth fail due, among other factors, to obstacles such as a lack of cultural integration, changes in leadership, a lack of understanding of the target customer and trouble in the governance of the firm [16].

In view of this, we put forward the following propositions:

P1: Inorganic growth is the result of a deliberate intention by the CEO and SMT to generate a new value proposal.

P2: Inorganic growth implies that the CEO and SMT implement a process of change as a mechanism to integrate people, talents, values, processes and assets from another organization into the company in an attempt to find positive synergy.

P3: Conducting a process of change demands unlearning certain routines to learn new ones within the context of a new corporate culture that the CEO and SMT promote with the intention of combining the parties that are seeking integration.

In this context, we present our perspective on change and corporate culture as the key elements that ensure the viability of any inorganic growth process.

3. Organizational Change Perspective

The modification of the essence and conditions of a routine situation, caused by the action of certain variables that have a direct or indirect effect on a structure, on some activities, on a set of processes and relationships, and a number of types of behaviour or conditions previously defined or established, corresponds to what we refer to as a process of change.

3.1. One-Dimensional Perspective of Change

Change within organizations is achieved by the direct and indirect intervention of certain variables, whose origin and direction may or may not be known – let alone controlled – by the CEO and SMT. When the company has no control of the variables that produce change and the direction of the mutation is unknown, the change forces a series of adaptation processes on the organization. On the other hand, when you have some control over the variables and certainty about the direction and target of the mutation, the CEO and SMT suggest the courses of action to follow to reach the desired situation; that is, they direct the change. In this vein, every manifestation of change is presented either as a non-expected change (which happens randomly) or desired change (which happens on purpose). So, the randomness of change represents the quality of the unexpected occurrence that presents the change, while the intent of change represents the opportunity for organizations to generate or stimulate change with a certain objec-
ative. In our view, all manifestations of change take place between the two boundaries (within a continuum between “unexpected change” and “wanted change”) that are developed from the qualities identified: randomness and intentionality. We can represent this perspective in Figure 1.

![Figure 1. Setting or scope of change within organizations (Source: own elaboration)](image)

Under the same perspective but with greater complexity, we can perform bi-dimensional analysis on change, which addresses the influence of each of the qualities (a greater or lesser influence of randomness or a greater or lesser influence of intentionality).

3.2. Bi-Dimensional Perspective of Change

Analysis of change from the bi-dimensional perspective addresses the qualities of randomness and intent, which correspond to the way that change is generated in accordance with its level of influence (greater or lesser) over change. Each possible alternative – a result of the double-entry matrix generated – becomes a stage for the occurrence of change according to the degree of influence of each variable, as shown in Figure 2.

3.2.1 Random Generation of Change

The occurrence of random change occurs, obviously, in an unexpected, unforeseen manner and corresponds to the idea of unexpected change. In the face of this change, the directors of a company have no control; most members have no preliminary information, let alone knowledge of the course of the variables that determine the direction of the change. Given this, the CEO and SMT provide a response that is directed at the following:

- Adapting the organization to non-expected change, preparing it for the incorporation and establishing a new predefined order from the outside.
- Neutralizing the influence of such change through actions that avoid destabilizing the status quo that prevails in the organization.

This response must occur at the earliest opportunity for the purpose of avoiding disorder, instability and uncertainty in the activities of the organization. Otherwise, uncontrolled imbalance is generated, which is produced from the outside, thus breaking the status quo or the existing order and leading to unintended changes in the organization being imposed from without, in addition to initiating an irreversible period of discontinuity. Therefore, a random change requires that the CEO and SMT formulate and implement a series of actions that enable the organization to refocus its efforts and organizational resources on the new conditions that have been imposed, whether they choose full acceptance of change, adaptation to the conditions imposed, or neutralization of the conditions of change.

In this context, we must consider the following:

- Increased influence of random changes: This conditions all types of individual initiatives and generally affects every economic agent and its relationships. The force with which change emerges demands a rapid response from the CEO and SMT, causes change to be implemented by imposition, produces a non-controlled imbalance and generates a new order, to which companies react by adopting the new conditions and incorporating a predefined change, as their ability to neutralize their influence is almost zero or, at any rate, restricted to certain occasions.
- Reduced influence of a random change: This does not have such a strong impact on economic agents and their relationships, making it feasible to formulate strategies to neutralize this influence.
3.2.2 Intended Generation Change

An intentional change creates an institutional commitment when a firm defines its own vision for its long-term plausible future. It involves the strengthening of the enterprise and its internal cohesion, aimed at the search for and realization of a sustainable competitive position. The intended change begins with a deliberate and systematic quest for opportunities. The company creates the conditions for stability, order and control, so that intended change takes place in a context of unbalance, which is controlled by the CEO and SMT, to reach a new order; however, in this case, it is generated from within the organization.

The object of this entire process is to ensure that an organization is able to differentiate itself from competitors based on unique and peculiar criteria defined by the organization; the purpose is to look for and create opportunities and pose new challenges and goals to the human component, thus challenging the status quo to create a situation of continuous improvement.

In this context, we must consider the following:
- Greater influence of an intended change: It promotes the creation and realization of a plausible future, departing from a deliberate and systematic search for improvement, whether regarding products, processes, management tools, market relations or technology.
- Reduced influence of an intended change: It undermines the ability of the organization to transform itself in accordance with its own interests. While it is true that there is the intention to change, a decrease in influence occurs as a result of failed attempts to change, for example, due to the resistance of the human component, individually or collectively, and incorrect assessment and selection of opportunities. Therefore, an organization’s only alternative is adapting to the conditions imposed by the external influence.

3.2.3 Determinants of Change Matrix

Under the context of the two-dimensional approach to generating change, we can shape a matrix for the Determinants of change, in which change will take place according to the degree of randomness and the degree of intentionality. This double-entry matrix allows us to identify plausible options for the incidence of change and that an organization can implement at any given time; thus, we have “predefined” change, “deliberate” change, “converging” change and also the option not to initiate any process of change. In Figure 2, we present the plausible options of change occurrence, where the randomness and intention variables are the determinants of change.

Thus, on the horizontal axis, we represent the randomness dimension, namely, a lesser/greater randomness in the occurrence of change that, in short, means a lesser or greater influence on the organization, which requires a specific response from it; in the vertical axis, we represent the dimension of intentionality, that is, a lesser/greater intent with which the organization seeks to achieve change, resulting in a lesser or greater influence of the organization – as it departs from its resources and capabilities – on environmental conditions.

The implementation of change in a company, whether the predefined, the deliberate or the convergent type, is a natural way for organizations to act and respond to influx within the sector, which, ultimately, represents the array of strategies that they deploy and implement to steer the attainment of the objectives and achieve the results projected by the CEO and SMT, in addition to mitigating the impact of the change variable in the normal functioning of organizations. These strategies are related to the organization’s ability to meet changing conditions and the mechanisms they adopt to implement a certain type of change. For the purposes of this work, despite the large and diverse classification of strategies, we will use three of them: the dependent strategy, the offensive strategy [26] and the emergent strategy [27].

For that reason, we note that the implementation of change can represent for an organization one of the following:
- Dependent strategy, one that seeks the adoption of predefined change.
- Offensive strategy, or final strategy, which places a greater emphasis on the formulation process and promotes the generation of deliberate change.
- Emerging strategy, or instrumental strategy, which places greater emphasis on the implementation and promotes adaptation to convergent change [28].
In summary, we present in Table No. 1 the main features of the types of change that a company can implement in its organization, departing from the conditions under which change has a chance to occur in accordance with a greater or lower intensity of the influence of the intent or randomness variables.

In this sense, from the perspective of organizational change, the following propositions are put forward:

P4: The firm seeking inorganic growth through a merger and acquisition process generates deliberate change.

P5: The firm under a merger and acquisition process faces a course of predefined change.

P6: Both companies are facing a process of change; however, as both are aiming for a common target, they must move toward a convergent process of change.

4. Corporate Culture Perspective

The launching of any business initiative demands from the owners an interpretation of their vision of the project they wish to implement. Years

<table>
<thead>
<tr>
<th>Type of change</th>
<th>Predefined</th>
<th>Deliberate</th>
<th>Convergent</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ASPECTS</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Variable:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Intent</td>
<td>Small intent</td>
<td>Large intent</td>
<td>Large intent</td>
</tr>
<tr>
<td>• Randomness</td>
<td>Large randomness</td>
<td>Small randomness</td>
<td>Large randomness</td>
</tr>
<tr>
<td><strong>Reach</strong></td>
<td>Transformation of the company into new standards, products, services and values defined by the environment.</td>
<td>Process to transform the company from within, after the formulation of a strategic purpose.</td>
<td>Process of finding a common point to transform the company and reduce the gap between vision and environment.</td>
</tr>
<tr>
<td><strong>Results</strong></td>
<td>Non-desired change</td>
<td>Wanted Change</td>
<td>Concurrent change</td>
</tr>
<tr>
<td>• Limited and restricted</td>
<td>• A new order or paradigm</td>
<td>• Integrate, build and shape internal capacities</td>
<td></td>
</tr>
<tr>
<td>• Imitating spirit</td>
<td>• Creative Spirit</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Strategy applied</strong></td>
<td>Environment analysis:</td>
<td>Environment analysis:</td>
<td>Resource analysis of:</td>
</tr>
<tr>
<td>• Dependent</td>
<td>• Low costs</td>
<td>• Differentiation</td>
<td>• Dynamic capacities</td>
</tr>
<tr>
<td>• Generic: Leader in costs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Competitive advantage</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Environment analysis:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Differentiation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>‘Factor’ Role</strong></td>
<td>Implantation of change by external imposition.</td>
<td>Implantation of change by external imposition, thanks to the identification with entrepreneurial vision and the ‘strategic purpose’.</td>
<td>Managerial routines favor internal cohesion, formalization of behavior and implantation of change.</td>
</tr>
<tr>
<td>• Culture organizational</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Intercultural management</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Knowledge:</strong></td>
<td>Dragging costs generated by expiration of knowledge.</td>
<td>The development of organizational and technological knowledge favors differentiation and implantation of a new order.</td>
<td>The flux of dynamics capacities increases organizational knowledge preparing the organization for new opportunities.</td>
</tr>
<tr>
<td>• Systematizes learning</td>
<td>Possibility to acquire new abilities and competence.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Structure:</strong></td>
<td>By costs: Adjusted production Size reduction Subcontracting Systems and processes rationalization.</td>
<td>By differentiation: Products and services Creation of value from the analysis of essential and support activities.</td>
<td>By combination: Costs, differentiation and distinguishing capacity. Adjustment of the structure in accordance with the flux of dynamic capacities.</td>
</tr>
<tr>
<td>• Efficiency, productivity</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Own elaboration based on literature review
later, this interpretation may be articulated, explicitly detailing in a tacit form the set of values and beliefs that underpin the company. Thus, the main goal of corporate culture is to bring together the main intentions of people, while it also generates its own dynamics, evolves and develops; it becomes enriched but is also questioned, especially when the answers provided by the company are ineffective in meeting the requirements of the environment. Then, an opportunity appears to introduce change in the cultural structure, and the opening for a process of corporate renewal presents itself.

4.1. The Cultural Process in the Company

The effort to reflect on the business plan depends on the set of basic assumptions and beliefs held at one point by its owners regarding the future of the company, which helps employees to comprehend their actions as well as how they approach and interpret a particular situation [29]. The business owners share their interpretations and ways of looking at life with the other members (collaborators), strengthening the link of the “individual-group” or “individual-company,” which is derived from the contractual relationship that binds them together from the start. The collaborators accept and reinforce those beliefs daily. It is a process that sanctions the validity of basic assumptions, to the extent that its use fosters positive results for the company.

Thus, corporate culture fulfils a dual role:
- To unify the intentions of the members of the organization (owners and employees).
- To provide a uniform initial pattern of response to situations arising from the environment and the business project itself.

The point of departure, origin and genesis of what is generally known as corporate culture lies in this process, which makes it possible to identify the three key aspects that comprise it: the spiritual-ideological (components), the human-sociological (actors) and the material-technological (process) aspects, whether they participate as owners or collaborators in the business project. From these three aspects – components, actors and processes – the cultural structure of an organization is designed. Its main feature will be its dynamic nature, the origin of which lies in the incremental accumulation of interactions that ultimately determine its shape and the assessment processes that the various social partners exert on them.

Culture is a dynamic process involving individuals, groups and their beliefs, and its genesis has a particular resemblance to the process of group formation. The formation of a culture is part of the development process of a group, although the owners are instrumental in the design and initial configuration of the corporate culture and therefore crucial for further development [29].

4.3. The Organization’s Cultural Response

Most importantly, corporate culture spawns the construction of a response pattern before the external environment, when the market questions the usefulness of its components, actors and processes or the validity of the owners’ assumptions and beliefs [31], and manages to establish a relationship of mutual dependence between the company and its environment, through which information must flow to:
- The company, so that it interprets the messages of change and adaptation that the market is demanding, and
- The environment, so that the improvements made are considered and incorporated into the questioned items and submitted to a new evaluation and control process.

From this point of view, we understand that corporate culture is a response-generating process that formalizes conditions and predetermines the behaviour of the members of a company. This is a process that has its genesis when the employees of an organization share and adopt the basic assumptions and beliefs of the owners. From that point on, the members of the organization have a set of assumptions and beliefs that are used to regulate and coordinate their personnel’s conduct. Companies regulate and coordinate the behaviour of their
members because the objectives assigned to them and the results thereof place the organization in direct correlation with its environment. If these results do not satisfy consumers, their ineffectiveness is questioned, ushering in a generative process of new responses. The CEO and SMT inspire the organization’s ability to respond correctly and effectively to the challenges of the external environment. For this reason, the answers given by the organization usually correspond to an adaptation mechanism for certain optimal conditions, consisting in reaching a level of internal “integration” in the organization and achieving a level of stability and “subsistence” in the external environment [29].

The organization, with every opportunity to adapt to these optimal conditions, [31] generates a set of experiences that prepare it to face two types of situations: routine and key.

4.4. Learned Cultural Response (L.C.R.)

A situation is called routine when a common pattern of a solution is used to successfully overcome or resolve it. This is, therefore, a situation that requires pre-established and previously learned knowledge, the application of which is known by the members of a company. A routine situation is characterized by an organization knowing how to address it and resolve it. It requires that the organization and its members provide a learned cultural response based on shared assumptions and beliefs, the command of a skill, and a set of prior experiences as a consequence of having successfully resolved similar situations previously.

To the extent that an organization can solve a series of routine situations with learned cultural responses, it strengthens and confirms the validity of its culture because there is no reason to doubt its effectiveness [31]. When learned cultural responses fail to address routine situations, the process for finding new answers is started.

4.5. Cultural Response to Be Learned (C.R.B.L.)

A company faces a key situation when there is no routine solution or prior solution, and therefore, the organization requires that its members create new answers and share the knowledge and experience gained in developing the new solutions and that all the new answers and new knowledge and lessons learned are incorporated into the set of assumptions and beliefs, not only as individuals but primarily as groups [32].

In this case, the organization must learn a new cultural response, enabling it to solve a new problem or new situation. That is, a key situation can only be resolved with a cultural response that must be learned. Thus, the new content of the corporate culture is derived from the combination of converging assumptions and common beliefs with the new learning experiences obtained as a result of solving a key situation [33]. A key situation allows new knowledge to be acquired by the organization and fosters a greater enrichment of the current corporate culture, which involves development, evolution, growth or change in its cultural component for a substantial improvement in any of its three aspects: components, actors and processes.

Only when the new cultural elements satisfactorily solve a key situation and the effectiveness of the proposed solution is recognized does the cultural response to be learned become part of the set of learned cultural responses of an organization. In this case, the members of the organization should definitely incorporate the new criteria and elements that represent the cultural response to be learned and unlearn those processes and elements that are contrary to the new situation of the solution. This is similar to the processes of “two-way learning” or the “double loop” [34].

4.6. Cultural Response Model Builder

Therefore, all organizations that are faced with a routine situation require a learned cultural response (L.C.R.), while in the case of a key situation, a cultural response to be learned will be required (C.R.B.L.).

There are two mutually dependent stages that have managed to constitute a “generating circle” [35] of responses and conduct that promote incremental knowledge in the organization, to the extent that they adapt and resolve the emerging situations. According to the cyclical phase model [36], which explains the reactions of people before change, or the three-stage model – thaw, transform and refreeze – to incorporate and con-
solidate change within organizations [37], the authors assume a growing generating process; bearing in mind that the situation at which you arrive is totally different from the one you departed from [35], we can manage to set up a generating model of cultural responses. This model implies starting from an initial position of certainty regarding the usefulness of a learned cultural response (L.C.R.); however, confronted with certain circumstances, the organization becomes compelled to generate an alternative solution, in this case a cultural response to be learned (C.R.B.L.) due to the uncertainty and complexity of the situations they have to face and try to solve [31]. In addition, upon reduction of the uncertainty and complexity with a C.R.B.L., the organization comes to catalogue and incorporate that response as valid — a process of learning and reinforcement — “becoming part of the set of learned cultural responses that will be enhanced (both in number of alternative responses and the quality of responses), which will encourage, therefore, greater knowledge and a greater organizational capacity to address the environment. Each key situation requires a new cultural response, but this soon acquires the status of “learned,” and this happens when the response has been fully incorporated into the set of assumptions and beliefs shared by members of the organization and they have learned to work with it. Solutions capable of solving problems tend to become part of corporate culture only to the extent that the process of acquiring knowledge for the organization incorporates these responses as valid. This only happens once the response has demonstrated the capacity to successfully solve a key situation; that is, the response created allows the organization to return to a state of certainty and relative stability [31].

The dynamics of business life cause the “generating circle” to expand, so the learning process is endless and generates an enrichment of culture, taking into account that each learned cultural response means successfully handling a key situation.

Therefore, learned cultural responses (L.C.R.), before routine situations, reinforce the existing culture because each time they successfully solve a situation of this type, it confirms and validates the relevance of the assumptions and shared beliefs, as well as the components, actors and processes.

4.7. The Life Cycle of Corporate Culture

Corporate culture generates an array of responses to achieve stability and certainty in company activities. However, the nature of any culture involves the ability to change and evolve and, with it, the organization and conduct of all its members. There are two basic issues by which corporate culture changes and evolves:

- When the culture is likely to be challenged — hierarchically — by the stakeholders and the members of the organization who question its effectiveness, the organization as a whole, or a part thereof, does not provide answers to the needs of the customers and society.

- When the organization incorporates new elements through a learning process, building a new learned cultural response (L.C.R.) will allow the successful resolution of a key situation. This process is carried out for any of the three aspects: components, actors and processes.

Thus, the CEO and SMT are interested in both the mechanism by which the corporate culture formalizes a new cultural response to be learned (C.R.B.L.) and the system that enhances and enriches it [32]. Therefore:

- The evolution of corporate culture is due to the timely and successful solution of the basic problems of the organization while achieving a certain level of relative stability and dynamic balance in company activities.

- The process for solving the basic problems presents, in principle, two alternative consequences: strengthening the existing cultural structure or questioning its effectiveness [38].

- In this sense, corporate culture is a determining factor for success because it provides accurate cultural responses or responses for failure when an inflexible cultural structure is established [39].

- Culture evolves through a process of adaptation to shifting environmental conditions, a process that functions as a regulatory system that directs or restricts the contingencies of the environment [40].

- An ill-fitting culture leads to a reduction in profitability and puts the continuity of the organization at risk [31].

- Implicitly and according to its dynamic nature and the evolutionary cycle, corporate culture car-
ries within itself the potential to generate change in the organization, either by adapting to an external force or by evolving through a cultural response to learn.

In this sense, from the perspective of corporate culture, the following propositions are put forward:

P7: A firm seeking inorganic growth through a merger process or the acquisition of another firm requires generating cultural responses to learn due to the rupture in relative stability and dynamic balance within the organization.

P8: The corporate culture of an organization that is the subject of a merger and acquisition process generates learned cultural responses as a survival mechanism in the presence of an external force that threatens the relative stability and dynamic balance.

4.8. Proposed Perspective

The fact that processes of change are carried out and corporate culture evolves is inherent to inorganic growth. The ideal and recommended situation to achieve positive synergy in a process of change is converging change, especially when the company is trying to integrate resources and capabilities, whereby the negotiating ability and inclusion of people, talent and values creates new cultural responses to be learned, which in the long run will translate into learned cultural responses and will be part of the routines of the new organization. Therefore, inorganic growth to achieve success depends on, among other factors, the capacity of the organization to adopt to change and develop a new corporate culture.

5. Discussion

The pervasive logic in our discourse on the issue of inorganic growth processes focuses on the fact that each company has a set of unique and distinct resources and capabilities – which are inimitable and sometimes hard to amend – that due to cultural processes (learned cultural responses) develop a market performance, and shareholders value them positively under certain paradigms and circumstances [41]. This generation of value is the result of actions by the CEO and SMT directing the destiny of the organization. It does not manage to solely generate shareholder value; it also creates value for customers, collaborators and society. Nevertheless, the ability to control the organization remains in the hands of shareholders. By changing the paradigms and perspectives of shareholders, they may be willing to yield control of the company to other shareholders or, alternatively, increase their ability to control and take over other companies in the search to create greater value. However, this will not occur unless the cultural aspect and the ability to change the new organization are considered and value is generated not only for shareholders but also for the whole array of integrated collaborators, customers and society. It is a matter of integrating and unifying all the resources and capabilities of both organizations, which initially were dissimilar, and this is an instance in which the CEO and SMT must support the processes of change and the integration of both cultures [15].

On the other hand, we base our perspective on inorganic growth as a deliberate attempt by the CEO and SMT. Nonetheless, no distinction has been made in regard to whether the decision to grow inorganically is due to a hostile act or a non-hostile one, where the negotiation component assumes a key factor in the whole process [42]. However, we believe that whether it is a merger option, a hostile or non-hostile merger or acquisition, the considerations of the change perspective and corporate culture are valid.

In addition, we recognize that the success of an inorganic growth process is not based solely on the ability to incorporate change in the organization’s or company’s ability to attain cultural evolution. In any case, these are the factors that support these processes; additionally, there are other fields that contribute to inorganic growth being carried out successfully, such as economics, finance, and human resources, among others [13].

6. Limitations and further research

Some limitations of this study are worth noting. Our perspective is focused on natural inorganic growth such as friendly mergers and acquisitions through convergent change to achieve a positive synergy; however, it does not address situations of
mergers or hostile takeovers. In a hostile situation, it is very difficult to find cultural responses to support the generation of positive synergy. However, our study establishes a framework of decisions for the CEO and SMT, which can be used when they are faced with hostile takeovers.

Another limitation of this study is the temporal alignment between organizational change and the business culture proposed. This alignment is not necessarily coordinated due to cultural factors and workers’ attitudes. This would be a fruitful direction for further research.

Finally, in this paper, we used only a literature review to identify the variables that affect the success of the inorganic growth process, from which we develop our particular perspective.

7. Conclusion

This paper conceptually explores new perspectives of change and corporate culture with the intention of providing the CEO and SMT with new avenues to ensure that the processes of inorganic growth succeed or at any rate manage to achieve the value propositions offered to the stakeholders. It delves into the issue of the organizational change variable describing the possible scenarios for which inorganic growth processes may have a better performance.

On the other hand, as a logical consequence of the process of change, it also looks into the dynamics of corporate culture to understand the mechanisms of cultural response that businesses provide to the environment through well-established routines and the ability to generate new cultural responses to be learned – as a result of an in-motion process of change – that enables organizations to survive the changes that the environment imposes on enterprises. However, each firm faces a process of change that is not aligned with the same target, generating dissimilar cultural responses that prevent them from achieving a new level of relative stability and dynamic balance.

This paper has sought to demonstrate the importance that change and corporate culture wield in the success of processes of inorganic growth based largely on the ability of the CEO and SMT to recognize the resources and dissimilar capabilities that must be combined to achieve greater value not only for shareholders but also customers, collaborators and society as a whole.

References


37. Lewin K. Group decision and social change, Mac- coby EE, Newcomb TM, Hartley EL. (edit.): Read- ings in social psychology, Holt, Rinehart and Win-ston: New York, 1947; 210: 11,


Corresponding Author
Kerstin Bremser,
Hochschule Pforzheim,
Pforzheim,
Germany,
E-mail: kerstin.bremser@hs-pforzheim.de
Decision Support System in Senior High School Student Specialization Using Weighted Product Method

Subiyanto, Nurul Fartindyyah
Department of Electrical Engineering, Faculty of Engineering, Universitas Negeri Semarang, Semarang, Indonesia.

Abstract

Class specialization process of senior high school student has many criteria. Some schools have difficulty to use guidance of Ministry of Education and Culture of Indonesia. This research aims to develop a Multi Attribute Decision Making pilot model using Weighted Product Method as an alternative of decision support system for the class specialization for senior high school students. This developed system is grouping courses of school into three classes which appropriate to the curriculum of Indonesia’s 2013. The data required in this process are students study report and national final exam from their junior high school. The information of interests of each student is also required. The data is used in the computation process using weighted product method to obtain a recommendation in class specialization of students. Results of the developed system have been compared with the manual recommendation from teachers assigned by the school. From this comparison shows the closeness between both of them. So the developed system can be used as an alternative tool in the class specialization for senior high school students.

Key words: class specialization, senior high school, decision support system, multi attribute decision making, weighted product

1. Introduction

Based on previous curriculum, there are major programs for learners in the most of education unit such as the senior high school, and the vocational high school. The majors program was carried out when students in Grade IX, while majors program of vocational high school held simultaneously with the new admissions. The term students’ majoring that is commonly used is no longer exists in the curriculum 2013, a term now is the specialization of learners [1].

Schools act an important role to be able to develop the student’s potential [2]. Implementation of the Curriculum 2013 could cause problems for learner’s senior high schools and vocational high school students if in the deciding are not able to elect specialization. The election is including specialization cross-curricular lessons, specialization and deepening of subjects in the right place. So here, it will cause difficulties and make tendency to fail in learning [1].

Decision Support Systems (DSS) was created as a way to support decision-making in an organization, which process data into information [3]. A decision support system is indicated more to support the management in conducting analytical work in less-structured situations and unclear criteria [4]. One of the advantages of a decision support system is able to support the search for solutions of complex problems [5].

Decision Support System (DSS) are usually built to evaluate opportunities or to support a solution to a problem. DSS is not intended to replace direct decision-making, but to provide interactive tools that enable the decision makers to do an analysis using the existing models [4, 5]. DSS can improve the effectiveness of decision-making, reduce the need for training, improve management control, facilitate communication, save the efforts doing by the users, save costs, and allow a more objective decision making [4, 5].

One method of decision making is Multiple Criteria Decision Making (MCDM), this method is used to establish the best alternative of several alternatives based on certain criteria [6]. One method is Multi-Attribute Decision Making (MADM) which was used to select against sev-
eral alternatives of a problem in a discrete space. MADM is able to provide alternative solutions of several alternatives.

The changes of a majoring system into a specialization of Senior High School has many criteria, so not all schools are able to use a predetermined reference cumulatively. The model of Multi-Attribute Decision Making (MADM) with problem-solving method that is Weighted Product (WP), is able to select against several alternatives of a problem in a discrete space.

The ability of MADM has been widely applied in most of the DCS research [7-12]. They uses a Weighted Product (WP) method in solving the problem of choosing an alternative decision, this method is one of the solving method in MADM. WP capabilities in some of these studies, the researchers use MADM models with WP problem-solving methods into decision support system, to assist in solving the problem concerning students’ decision in High School specialization.

The purpose of this research is to apply the model of multi attribute decision making with weighted product completion method as the basis for building decision support system specialization of High School students in accordance with the curriculum 2013. The benefits of this research for Senior High School is as an alternative or tool help option to simplify the process of specialization in High School students. Scope in this research is a grouping of subjects in the specialization carried to High School with specialization of Mathematics and Natural Sciences (MNS), Social Science (SS), and Linguistic and Culture (LiLu) with the criteria of the value of report cards, the value of National Exam, and interests of students, also the method using is the MADM model with weighted product (WP) completion method. In this research and development will contributes significantly in the process of specialization in High School students, from a manual system to a computerized system, which is one variety of applications in the application of Weighted Product (WP) method.

### 2. Concept and Methodology

The WP method used in this study for the selection of specialization alternative high school students. Alternatives are used in accordance with the group of high school specialization subjects, namely the (1) specialization in Mathematics and Natural Sciences (MNS), (2) specialization in Social Science (SS), and (3) specialization in Linguistics and Cultures (LiLu) [1].

![Figure 1. Flowchart of Weighted Product method](image-url)
Alternative specialization is denoted as A. Alternative specialization is denoted as A. So for group specialization Mathematics and Natural Sciences (MNS) is denoted as A1, group specialization of Social Sciences (SS) is A2, and group specialization Linguistics and Cultures (LiLu) is A3. Flowchart weighted product method in this study is in figure 1.

In the WP method, there are alternatives and criteria needed to determine the specialization class students. In accordance with specialization curriculum guidelines in 2013, alternative groups of subjects for specialization in high school as follows:

- A1 = Specialization in Mathematics and Natural Sciences (MNS)
- A2 = Specialization in Social Sciences (SS)
- A3 = Specialization in Linguistics and Cultures (LiLu)

The criteria used in decision support systems specialization in high school as Cj. The criteria used are as follows:

- C1 = the learning achievement of students in grade VII, VIII, and IX were obtained in junior high school
- C2 = The National Examination achievements obtained in junior high school
- C3 = Interests of learners

Where the interest of learners obtained answers to the questionnaire given to the learners. The interest of learners is measured using a Likert-scale. Data value learning achievement of learners, the value of national exams, and student interest attached.

While alternative and predetermined criteria, then subsequently given value at each alternative on each criterion in accordance with the existing student data, for example, a student with a Student Identification Number (SIN) 146067. Nail Values are presented in Table 1.

<table>
<thead>
<tr>
<th>Alternative</th>
<th>The criteria</th>
<th>C1</th>
<th>C2</th>
<th>C3</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td></td>
<td>73.58</td>
<td>7.67</td>
<td>5</td>
</tr>
<tr>
<td>A2</td>
<td></td>
<td>76.5</td>
<td>7.67</td>
<td>4</td>
</tr>
<tr>
<td>A3</td>
<td></td>
<td>78.12</td>
<td>7.67</td>
<td>1</td>
</tr>
</tbody>
</table>

The next step is to determine the weight of each criterion, usually for any problems to be solved have a predetermined weight. Weighting of the criteria that have been determined based on the specialization curriculum guidelines 2013, as follows:

1. The learning achievement of students in grade VII, VIII, and IX are profiles students’ academic ability, which can be used as the basis of key considerations in the specialization. Profile conditions can be achieved academic achievement as a prediction of the success of the next study.
2. The value of the national exams achieved a reflection of the ability of certain academic subject’s national standard. Learning achievement can be as consideration for the selection of the specialization of students.
3. Statement of learner preferences reflects what is desirable and is an indication of the seriousness in learning because learning activities closely related to their interests.

The level of interest will be weighted criteria are as follows: It is less = 1, Less = 2, Pretty = 3, High and Very High = 4 = 5. Based on the things that have been mentioned in determining the weight and value of the interest rate criterion, the weight of each criterion is determined as follows: C1 = 4, C2 = 3, and C3 = 5.

The initial weight that has been determined to be repaired so that the total weight of \( \Sigma W_j = 1 \), in a way that given in equation 1.

\[
W_j = \frac{w_j}{\Sigma w_j} \quad \ldots (1)
\]

So the weights are obtained as follow:

\[
W_1 = \frac{4}{4+3+5} = \frac{4}{12} = 0.33
\]
\[
W_2 = \frac{3}{4+3+5} = \frac{3}{12} = 0.25
\]
\[
W_3 = \frac{5}{4+3+5} = \frac{5}{12} = 0.42
\]

After determining the weight of each criterion, then the next step is to calculate the value of the vector \( S \), then each criterion is multiplied by other criteria previously criteria has been raised to advance with their respective weights. The results were calculated using equation 2 as follows:

\[
S_i = \prod_{j=1}^{n} x_{ij}^{w_j} \quad \ldots (2)
\]
Therefore is obtained values of the vector as follow:

\[
S_1 = (73.58^{0.33}) \times (7.67^{0.25}) \times (5^{0.42}) = 13.51
\]

\[
S_2 = (76.50^{0.33}) \times (7.67^{0.25}) \times (4^{0.42}) = 12.46
\]

\[
S_3 = (78.12^{0.33}) \times (7.67^{0.25}) \times (1^{0.42}) = 7.01
\]

Then after getting the value of the vector \( S \), then the next step is to find the value of the vector \( V \) is calculated by equation 3. The value used for ranking the vector \( V \), and the results of the final value of the vector \( V \) compared to find the best alternative sequences that will be a decision.

\[
V_i = \frac{\prod_{j=1}^{n} x_{ij} \cdot w_j}{\prod_{j=1}^{n} (x_{ij} + 1) \cdot w_j}
\]  

(3)

So, it is obtained values of the vector \( V \) as follows:

\[
V_1 = \frac{13.51}{13.51 + 12.46 + 7.01} = 0.40
\]

\[
V_2 = \frac{12.46}{13.51 + 12.46 + 7.01} = 0.37
\]

\[
V_3 = \frac{7.01}{13.51 + 12.46 + 7.01} = 0.21
\]

Results of the vector \( V \) shows the value of \( V_1 \) is the highest value of \( V_1, V_2, V_3 \), so that it can be said that the suggestion of specialization for students with NIS 146 067 is the first alternative (A1) is the best alternative, so the proficiency level students enroll in classes MNS specialization.

3. Result and Discussion

The Testing system in this study was done to see the performance of decision support systems specialization in high school made by the method of weighted product to recommend specialization in high school. This comparison is done to review the extent to which the truth of the system created by the results of the manual specialization in high school that has been done in Senior High School 13 Semarang. The calculation of percentage of accuracy is done in a way as in equation 4.

\[
\text{accuracy} (\%) = \frac{jumlah\ specialization\ result\ by\ system}{\text{number\ of\ sample}} \times 100\%
\]

(4)

In this research used the data as much as 103 students for all specializations tested in the system developed. The sample taken were 35 students of specialization MNS, 34 students specialization SS, and 34 students specialization LiLu. System test showed 93.2% according to the specialization process is done manually High School 13th Semarang, with 96 results specialization of students who performed with the same system with the manual, and 7 students are not appropriate.

The system was developed to provide recommendations specialization of students in the group of specialization Mathematics and Natural Sciences (MNS) is presented in Table 2, Table 3 for groups of specialization of Social Sciences (SS) and Table 4 for group specialization in Linguistics and Cultures (LiCu). For comparison of the results of these tests are presented in Table 5.

**Table 2. List of Students Results Recommendations Class Specialization MNS**

<table>
<thead>
<tr>
<th>No</th>
<th>ID No.</th>
<th>Name</th>
<th>Nilai Vektor V MNS</th>
<th>Nilai Vektor V SS</th>
<th>Nilai Vektor V LiLu</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>146067</td>
<td>Adillah Safiynuha</td>
<td>0.58</td>
<td>0.25</td>
<td>0.17</td>
</tr>
<tr>
<td>2</td>
<td>146068</td>
<td>Agung Buana</td>
<td>0.59</td>
<td>0.24</td>
<td>0.17</td>
</tr>
<tr>
<td>3</td>
<td>146069</td>
<td>Ahmad Fauzi</td>
<td>0.58</td>
<td>0.25</td>
<td>0.17</td>
</tr>
<tr>
<td>4</td>
<td>146070</td>
<td>Amelia Dwi Lestari</td>
<td>0.5</td>
<td>0.07</td>
<td>0.43</td>
</tr>
<tr>
<td>5</td>
<td>146071</td>
<td>Anggita Saraswati</td>
<td>0.59</td>
<td>0.24</td>
<td>0.17</td>
</tr>
<tr>
<td>6</td>
<td>146072</td>
<td>Anif Machfiroh</td>
<td>0.59</td>
<td>0.24</td>
<td>0.17</td>
</tr>
<tr>
<td>7</td>
<td>146073</td>
<td>Bagus Salahudin Yusuf</td>
<td>0.5</td>
<td>0.07</td>
<td>0.43</td>
</tr>
<tr>
<td>8</td>
<td>146074</td>
<td>Bayu Sangaji</td>
<td>0.49</td>
<td>0.07</td>
<td>0.44</td>
</tr>
<tr>
<td>9</td>
<td>146075</td>
<td>Clara Jeshinta Rahmawati Ramad</td>
<td>0.58</td>
<td>0.25</td>
<td>0.17</td>
</tr>
<tr>
<td>10</td>
<td>146076</td>
<td>Diana Eka Saputri</td>
<td>0.58</td>
<td>0.25</td>
<td>0.17</td>
</tr>
</tbody>
</table>
### Table 3. List of Students Results Recommendations Class Specialization SS

<table>
<thead>
<tr>
<th>No</th>
<th>NIS</th>
<th>Name</th>
<th>Value of Vector, V</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>MNS</td>
<td>SS</td>
</tr>
<tr>
<td>1</td>
<td>146213</td>
<td>Achmad Yamrochni</td>
<td>0.38</td>
<td>0.45</td>
</tr>
<tr>
<td>2</td>
<td>146217</td>
<td>Annisa Ayu Pradhanini</td>
<td>0.37</td>
<td>0.44</td>
</tr>
<tr>
<td>3</td>
<td>146218</td>
<td>Candra Adi Prayogo</td>
<td>0.37</td>
<td>0.44</td>
</tr>
<tr>
<td>4</td>
<td>146219</td>
<td>Denny Rosa Galih Patriawan</td>
<td>0.37</td>
<td>0.45</td>
</tr>
<tr>
<td>5</td>
<td>146220</td>
<td>Desi Evayanti</td>
<td>0.38</td>
<td>0.44</td>
</tr>
<tr>
<td>6</td>
<td>146221</td>
<td>Dicky Kurniawan</td>
<td>0.37</td>
<td>0.45</td>
</tr>
<tr>
<td>7</td>
<td>146222</td>
<td>Eko Sugati</td>
<td>0.38</td>
<td>0.44</td>
</tr>
<tr>
<td>8</td>
<td>146223</td>
<td>Erland Triwidya Harjono</td>
<td>0.37</td>
<td>0.45</td>
</tr>
<tr>
<td>9</td>
<td>146225</td>
<td>Galang Yudha Utama</td>
<td>0.37</td>
<td>0.44</td>
</tr>
<tr>
<td>10</td>
<td>146229</td>
<td>Ilham Arif Rizky</td>
<td>0.38</td>
<td>0.44</td>
</tr>
</tbody>
</table>

### Table 4. List of Students Results Recommendations Class Specialization LiLu

<table>
<thead>
<tr>
<th>No</th>
<th>NIS</th>
<th>Name</th>
<th>Value of Vector, V</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>MNS</td>
<td>SS</td>
</tr>
<tr>
<td>1</td>
<td>146320</td>
<td>Ade Laurita Harvisa</td>
<td>0.1</td>
<td>0.21</td>
</tr>
<tr>
<td>2</td>
<td>146321</td>
<td>Afin Takwisti</td>
<td>0.28</td>
<td>0.06</td>
</tr>
<tr>
<td>3</td>
<td>146322</td>
<td>Ahmad Zainuri</td>
<td>0.1</td>
<td>0.21</td>
</tr>
<tr>
<td>4</td>
<td>146323</td>
<td>Ainun Asmah</td>
<td>0.1</td>
<td>0.21</td>
</tr>
<tr>
<td>5</td>
<td>146324</td>
<td>Alfiyani</td>
<td>0.27</td>
<td>0.06</td>
</tr>
<tr>
<td>6</td>
<td>146325</td>
<td>Andhika Bagas Dewandaru</td>
<td>0.11</td>
<td>0.4</td>
</tr>
<tr>
<td>7</td>
<td>146326</td>
<td>Arni Oktia Pratiwi</td>
<td>0.1</td>
<td>0.2</td>
</tr>
<tr>
<td>8</td>
<td>146329</td>
<td>Avi Rizki Ramadhani</td>
<td>0.11</td>
<td>0.4</td>
</tr>
<tr>
<td>9</td>
<td>146330</td>
<td>Bela Arian</td>
<td>0.1</td>
<td>0.21</td>
</tr>
<tr>
<td>10</td>
<td>146332</td>
<td>Dani Faisal Yunanto</td>
<td>0.1</td>
<td>0.2</td>
</tr>
</tbody>
</table>

### Table 5. Specialization Test Results

<table>
<thead>
<tr>
<th>No</th>
<th>NIS</th>
<th>Spec by System</th>
<th>Real Spec</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>135783</td>
<td>MNS</td>
<td>MNS</td>
</tr>
<tr>
<td>2</td>
<td>135784</td>
<td>MNS</td>
<td>MNS</td>
</tr>
<tr>
<td>3</td>
<td>135785</td>
<td>MNS</td>
<td>MNS</td>
</tr>
<tr>
<td>4</td>
<td>135786</td>
<td>MNS</td>
<td>MNS</td>
</tr>
<tr>
<td>5</td>
<td>135787</td>
<td>SS</td>
<td>MNS</td>
</tr>
<tr>
<td>6</td>
<td>135788</td>
<td>MNS</td>
<td>MNS</td>
</tr>
<tr>
<td>7</td>
<td>135789</td>
<td>MNS</td>
<td>MNS</td>
</tr>
<tr>
<td>8</td>
<td>135790</td>
<td>MNS</td>
<td>MNS</td>
</tr>
<tr>
<td>9</td>
<td>135791</td>
<td>MNS</td>
<td>MNS</td>
</tr>
<tr>
<td>10</td>
<td>135792</td>
<td>MNS</td>
<td>MNS</td>
</tr>
<tr>
<td>11</td>
<td>135793</td>
<td>MNS</td>
<td>MNS</td>
</tr>
<tr>
<td>12</td>
<td>135794</td>
<td>MNS</td>
<td>MNS</td>
</tr>
<tr>
<td>13</td>
<td>135795</td>
<td>MNS</td>
<td>MNS</td>
</tr>
<tr>
<td>14</td>
<td>135796</td>
<td>MNS</td>
<td>MNS</td>
</tr>
<tr>
<td>15</td>
<td>135797</td>
<td>MNS</td>
<td>MNS</td>
</tr>
<tr>
<td>16</td>
<td>135798</td>
<td>MNS</td>
<td>MNS</td>
</tr>
<tr>
<td>17</td>
<td>135799</td>
<td>MNS</td>
<td>MNS</td>
</tr>
<tr>
<td>18</td>
<td>135800</td>
<td>MNS</td>
<td>MNS</td>
</tr>
<tr>
<td>19</td>
<td>135801</td>
<td>MNS</td>
<td>MNS</td>
</tr>
<tr>
<td>20</td>
<td>135802</td>
<td>MNS</td>
<td>MNS</td>
</tr>
<tr>
<td>21</td>
<td>135803</td>
<td>MNS</td>
<td>MNS</td>
</tr>
<tr>
<td>22</td>
<td>135804</td>
<td>MNS</td>
<td>MNS</td>
</tr>
<tr>
<td>23</td>
<td>135805</td>
<td>MNS</td>
<td>MNS</td>
</tr>
<tr>
<td>24</td>
<td>135806</td>
<td>MNS</td>
<td>MNS</td>
</tr>
<tr>
<td>25</td>
<td>135807</td>
<td>MNS</td>
<td>MNS</td>
</tr>
<tr>
<td>26</td>
<td>135808</td>
<td>MNS</td>
<td>MNS</td>
</tr>
<tr>
<td>27</td>
<td>135809</td>
<td>MNS</td>
<td>MNS</td>
</tr>
<tr>
<td>28</td>
<td>135810</td>
<td>MNS</td>
<td>MNS</td>
</tr>
<tr>
<td>29</td>
<td>135811</td>
<td>MNS</td>
<td>MNS</td>
</tr>
<tr>
<td>30</td>
<td>135812</td>
<td>MNS</td>
<td>MNS</td>
</tr>
<tr>
<td>31</td>
<td>135813</td>
<td>MNS</td>
<td>MNS</td>
</tr>
<tr>
<td>32</td>
<td>135814</td>
<td>MNS</td>
<td>MNS</td>
</tr>
<tr>
<td>33</td>
<td>135815</td>
<td>MNS</td>
<td>MNS</td>
</tr>
<tr>
<td>34</td>
<td>135816</td>
<td>MNS</td>
<td>MNS</td>
</tr>
<tr>
<td>35</td>
<td>135817</td>
<td>MNS</td>
<td>MNS</td>
</tr>
<tr>
<td>36</td>
<td>135926</td>
<td>MNS</td>
<td>SS</td>
</tr>
<tr>
<td>37</td>
<td>135927</td>
<td>SS</td>
<td>SS</td>
</tr>
<tr>
<td>38</td>
<td>135928</td>
<td>SS</td>
<td>SS</td>
</tr>
<tr>
<td>39</td>
<td>135929</td>
<td>SS</td>
<td>SS</td>
</tr>
<tr>
<td>40</td>
<td>135930</td>
<td>MNS</td>
<td>SS</td>
</tr>
<tr>
<td>41</td>
<td>135931</td>
<td>SS</td>
<td>SS</td>
</tr>
<tr>
<td>42</td>
<td>135932</td>
<td>MNS</td>
<td>SS</td>
</tr>
<tr>
<td>43</td>
<td>135933</td>
<td>SS</td>
<td>SS</td>
</tr>
<tr>
<td>44</td>
<td>135934</td>
<td>SS</td>
<td>SS</td>
</tr>
<tr>
<td>45</td>
<td>135935</td>
<td>SS</td>
<td>SS</td>
</tr>
<tr>
<td>46</td>
<td>135936</td>
<td>SS</td>
<td>SS</td>
</tr>
<tr>
<td>47</td>
<td>135937</td>
<td>SS</td>
<td>SS</td>
</tr>
</tbody>
</table>
The graphical illustration of test results compared with specialization in the manual system is presented as pie diagram as shown in figure (2). From Figure 2, the 93.2% according to the specialization process is done manually by a high school teacher in the 13 Semarang Indonesia or as many as 92 students. The numbers of students who do not conform are as many as 7 students or 6.8% of the overall percentage of the test system.

Comparison of percentage of success of specialization grouping subjects using the system developed in this study to manually by the teacher specialization is presented in figure (3). From Figure 3 it is shown that specialization in using the system and the manual is very close, although there are slight differences.

This research has not been able to see what is truth and recommendations to development or recommendation system manually. Differences and similarities results not to see what between them are true. Future studies are expected to compare the results of the manual process of specialization and use the system, the parameters of which can be accounted for, for example, using the results of the students’ grades after manually specialization.
4. Conclusion

Based on the research that has been done, it can be concluded that the method of weighted product showed 93.2% according to the specialization process is done manually, so it can be used to build Decision Support Systems Specialization School. Truth or effectiveness which is better between the specialization process is done manually or using the weighted product-based system is recommended to use the parameters of success or achievement of results of studies of students who had undergone specialization recommendations for several years.

References


2. Clark N. Education in Indonesia, 2014.


Corresponding Author
Subiyanto,
Department of Electrical Engineering,
Faculty of Engineering,
Universitas Negeri Semarang,
Kampus Sekaran Gunungpati,
Semarang,
Indonesia,
E-mail: subiyanto@mail.unnes.ac.id
The need to improve the educational process in high education institutions in the Republic of Macedonia by applying management methods and techniques

Elizabeta Mitрева1, Nako Taskов, Julijana Sаздова1, Hristijan Gjоршевски2

1 University “Goce Delcev” Stip, Macedonia,
2 Faculty of Computer Science and Engineering (FCSE), UKIM, Skopje, Macedonia.

Abstract

This paper is focused on practical explanation of the implications from the introduction of the Bologna Declaration principles in the high education system in Republic of Macedonia as a comparative analysis between the quality of work of the state and private high education institutions in the country. This problem was analysed from two aspects: theoretical and practical, incorporating the analysis of the students’ and teachers’ attitudes. The purpose of this paper is to detect some fundamental changes within the educational frame initiated by the seemingly “superficial” Bologna reform.

Hereinafter the outcomes arising as a result of the “inside look” will be exposed, i.e. consider the academic environment as a relatively autonomous entity. The analysis does not exhaust the elements of comparison, but opens questions and offers recommendations that are expected to be further processed. The intention is to cause an incentive for continuous evaluation in order to improve the quality of high education in Republic of Macedonia.

Key words: Bologna Declaration, reform, education system, high education in Republic of Macedonia.

1. Introduction

The high education is an integral and conjoined part of each country’s development. It is not only the most powerful drive determining the socio-economic development internally, but also a quality that a country uses to legitimize itself externally [1]. The countries’ political and economic globalization, primarily the European ones, implies the need for educational globalization as the essence of their sustainability [2]. The question of continuous high educational development is not a matter of good faith, but an obligation from which fulfilment it depends whether the country will be in the role of an inert or active participant in the processes of globalization [3, 4]. The global architecture triggered a pronounced need for accelerated transformation of the overall high education structure in Republic of Macedonia and establishing its quality appropriate to the needs of the country [5].

During the last decade of the last century and the beginning of this century the education system in Republic of Macedonia is facing a multitude of innovations, caused by changes in the environment. On one hand, there was a profound change in the social order, and on the other hand, technological developments underwent expansion. Such trends are partly dictated by the accelerated globalization in the economic sphere, i.e. the movement of goods, capital and people across national borders. The public universities in the past were representing quality and meeting the labour market needs through the high education staff. Today, globalization as a process and the introduction of free education market led to the creation of privately hold high education institutions. At the same time, the state-owned high education institutions were conditioned to transform their placement to date and to develop a new organizational structure that will meet all requirements and needs of the labour market, which are constantly changing.

The National Programme for the Development of Education in Macedonia [5] expresses the desire of the state to make changes in the education system that will enable compatibility of the study programs, identification and recognition of the
qualifications acquired at all levels of education in the European educational space and greater employability skills for the European labour market.

The key to success for these reforms is characterized by innovations in teaching as well as by developing and implementing new methods of learning. These learning systems need to be agile because of the constant changes in the environment and lifestyle. It is these moments that initiate the need for a full review and radical reform in the high education system in Macedonia, as a condition for successful training of students for the jobs in the labour market.

2. Globalization in Education – Implications from the Bologna Declaration

At the meetings in Prague (2001), Berlin (2003) and Berg (2005) various decisions in communications’ form, which represent an addition to the Bologna Declaration [1], were adopted - Prague Communiqué, Berlin Communique, Berg Communique.

Conflicting views about the possible implications of these reform initiatives occurred among the protagonists who had an active role in the transformation of the education system and the participants who think theoretically. On the one hand there is the view that the Bologna Declaration and the Bologna process represent a “product” of the European universities themselves. They simply represent recognition of the need to change the university, to adapt to the new economic, social and ethical paradigms of the XXI century. The adjustment is not a simple response to the needs and demands of the society, but it represents a way for the university to influence the relations between elements in modern days [1].

On the other side, there are scholars who see the Bologna Declaration as purely political instrument and consider that behind the whole project there is a predominant political initiative, rather than a desire for fundamental connection and cooperation.

The transformation of the education systems in most European countries has seen a lot of progress, while in some countries such as the Republic of Macedonia it is at its beginnings.

2.1. The education and reform tendencies in it in the Republic of Macedonia

Ever since the beginning of this problem, there is a question on the relationship between the social reform and the reform in the educational system. In the Republic of Macedonia one may notice a tendency to neglect the educational reform in comparison to the economic and the political system reforms. This tendency is somewhat expected if considering the fact that these kinds of reforms and radical changes are interconnected and conditioned. The ultimate result of the economic and wider social reform success is extremely problematic without making a quality reform in the educational system. Therefore, when radical changes occur, as of changes of structural character in the global social system it is needed to accommodate such changes in the subsystem - education, if the system is intended to take place. This dependence of the educational system as a subsystem of the global social system today is raised in the contemporary sociology of the education.

If we consider these assumptions, then the question is: why Macedonia has no clear conception of the reform, the changes in the educational system, or conception of changes which is not exhausted with the so called reintroduction of grammar schools in secondary education, as well as with certain changes in the curricula, especially in the high education? Why education comes almost at the last place in the social reform? Why adopting such socially important decisions such as reforms, is still based on voluntary basis and improvisation which were typical for the real-socialist system.

The high education over the last twenty years has been subjected to numerous reforms that basically resulted in changing the curricula and educational programs, and introducing “free” admissions. Virtually all applicants which applied at the universities, regardless of their high school success and without any checks were enrolled in the universities in the Republic of Macedonia. Thus a tendency of mass studying emerged. The mass studying and high level of democratization in terms of representation of different social strata at the universities led to a sharp decline in the quality and standards of study and evaluation, as well as poor performance in the studies.
The changes in the high education, particularly with the introduction of tuition fees, or student’s payment of funds for their education, as well as with the expansion of the private sector, significantly reduced the pressure to study. At that time it was supposed to consider and primarily resolve the financial problematic for those students who demonstrate above-average success and talent to get exempted from the tuition fees or to be awarded scholarships in the amount that is sufficient to enable their schooling in the high education. Otherwise, strong tendency of negative selection in the high education will appear that will lead to the demise of the national intelligence.

In the high educational changes it is necessary to complete a radical change of the enrolment policy which appears to still prefer the criterion of getting points from high school success and results of the state exam [6]. Such enrolment policy in high education implies endeavour to have an excellent student success (5) on all subjects in secondary school. With great success, but with one or two grades with very good success from unrelated subjects for the chosen study field or university, significantly reduces the chances of success in enrolment. With this depraved enrolment policy, a number of talented students in certain areas and skills fall out for having a very good or good success in unrelated skills. The enrolment policy of universities in the developed countries gives preference to the talented students from the appropriate group subjects from a certain science or group of related sciences and not from all items as is the case with the enrolment policy in Macedonia. Therefore, in the developed countries from this perspective there is a constant positive selection in the education system.

The universities in Macedonia are terribly poorly equipped, not only with technical means, but with the necessary minimum of scientific literature, especially foreign periodicals and other publications. Without overcoming this, of course, it is illusory to insist on quality study. Also, the universities in the country are not functionally related with the economy and are not sufficient generators of new knowledge and technologies, as is the case in developed countries. The new scientific achievements, undeniable technological and structural changes in the production and society have placed a request for a new model of university, with new enrolment policy, a new way of organizing work and a new way of studying and connection with the economy and social activities.

One segment of this paper is devoted to the analysis of the Bologna Declaration and its implications for the educational systems in the Republic of Macedonia.

3. Analysis and evaluation of results

The subject of this research is a comparative analysis of the performance and results of the educational process in the public and private high education institutions in Macedonia.

The aim of the research is to determine the quality and conditions in the public and private high education institutions in Macedonia.

The intent is to encourage continuous comparative evaluation and proposing practices for continuous development and growth of quality in the high education in the country.

Table 1. Display of graduated students in the public and private universities in the period 2005 – 2013

<table>
<thead>
<tr>
<th>Institution</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>UKIM (The “Ss. Cyril and Methodius” University)</td>
<td>3980</td>
<td>5006</td>
<td>5224</td>
<td>6145</td>
<td>5259</td>
<td>3898</td>
</tr>
<tr>
<td>UGD (“Goce Delčev” University, Štip)</td>
<td>/</td>
<td>/</td>
<td>/</td>
<td>/</td>
<td>274</td>
<td>1145</td>
</tr>
<tr>
<td>SUT (State University of Tetova)</td>
<td></td>
<td>543</td>
<td>682</td>
<td>436</td>
<td>820</td>
<td></td>
</tr>
<tr>
<td>UKLO (The University “St. Kliment Ohridski”-Bitola)</td>
<td>905</td>
<td>1229</td>
<td>1288</td>
<td>1317</td>
<td>1582</td>
<td>1352</td>
</tr>
<tr>
<td>The FON University</td>
<td></td>
<td></td>
<td>135</td>
<td>189</td>
<td>468</td>
<td>357</td>
</tr>
<tr>
<td>SEEU (The South East European University)</td>
<td></td>
<td></td>
<td>285</td>
<td>693</td>
<td>1270</td>
<td>887</td>
</tr>
<tr>
<td>UACS (University American College Skopje)</td>
<td></td>
<td></td>
<td></td>
<td>87</td>
<td></td>
<td>226</td>
</tr>
</tbody>
</table>

Source: State Statistical Office, 2010
3.1. Analysis of the situation in the high education in the Republic of Macedonia

When it comes to the circumstances and the available facilities in the field of high education in Macedonia, there are five state and twelve private universities available. According to the Statistical Office of the Republic of Macedonia, the total number of graduates in 2013 was 9480, or 7307 at the state universities and 2144 at the private, which unlike in 2012 marked a decreased by 8.8%. From the total number of graduates 82.3% are regular, while 17.7% are part-time students [7], Table 1.

The data presented in Table 1 is based on graduates of undergraduate studies at universities in the Republic of Macedonia in the period from 2005 to 2013. Because of the high rate of unemployment, attending university often represents only a fictitious prospect in the form of temporary exit from unemployment. Before the establishment of private universities, many high school students did not continue their education to college or enrol in the universities where the conditions for entry were not so rigorous.

According to data from the State Statistical Office, the number of graduates at the undergraduate studies at universities increased by 34.6% in 2007 in comparison with 2006. In 2008, this number of graduates increased by 29.6% compared to 2007. The number of graduates at the undergraduate studies in 2009 decreased by 5.6 compared to 2008, and in 2013, this number compared to 2012 decreased by 8.8% [7].

The presence and development of increasingly attractive areas as business, management, marketing, information technology, resulted in the opening of many private colleges with less rigorous selection process which contributed to overabundance at the market with staff from non-commercial areas.

3.2. The competencies of the ideal candidate for the needs of the labour market

When it comes to modern and liberal market, the university degree is not a single element or criterion to get a job. The companies or the employers beside the diploma require other skills such as knowledge, particular skills and personal characteristics that are essential criteria for a candidate. The large companies recruit their staff through selection and evaluation in order to select the best candidate.

According to data from the Agency for Employment and their analysis, the most important elements when hiring potential employees are: knowledge of the language (English, German, etc.), computer skills, communication skills, organization and readiness for teamwork.

From the analysis of the public job announcement we came to the following results. For less than half (46%) of the positions required in the labour market a criterion for employment knowledge in foreign languages is not stated, while in all other advertisements the necessary knowledge of at least one foreign language is stated. Typically, a sound knowledge of English is required (42% of advertisements), while only 3% of them required the candidate to know at least one more language besides English. Knowing a foreign language is one of the conditions of employment in the 60% of the private and 40% of the public companies [8].

Other important criteria that employers seek from the applicants are work experience and knowledge of computer skills. Not less important are the interpersonal skills as the ability for effective communication and ability to negotiate, which criteria are present in 15% of the total number specified listings, or 25% of the ads in which the required personal characteristics are listed.

When it comes to jobs in finance, economics, and public administration an important characteristic required from the candidates is the ability for teamwork [8].

Interpersonal features are considered very important for the Macedonian companies because they are listed as a prerequisite in the public job announcements in 24% from private companies, 20% from public companies and 44% from non-governmental and international organizations. Here, we should mention the need for analytical and leadership skills of the candidates that are more important and required in 11% of the job announcements from the private companies, while at the state institutions in 1% to 2.7%. Responsibility as a criterion is one of the priority qualifications and more present in the ads from the state institutions (18.6%), and at significantly lower percentage in private companies (6%).
As a result of the analysis of the current state of high education in Macedonia it was concluded that due to the insufficient focus of the educational programs, which are often outdated and difficult to adapt to the modern trends in the industry and the market, many professionals in various sectors, especially in those who tend to develop rapidly, have difficulties in mastering their field of interest. Most of the teaching staff at the state and private universities does not have enough practical experience in the field of their lecturing. The professors’ and associates’ staff at large number of universities, after completing their education cycle, have no individual practical experience of transferring practical knowledge and experience to the students.

3.3. Rating the quality of high education through the applied methods and techniques in the high educational process

This complex and problematic question depends on many factors. The assessment of the quality of high education is comprised of several elements such as the manner of instruction, methods that are used during the teaching process, methods for assessment of teaching, methods to assess the knowledge, the ratio between the theoretical and practical training, etc. All these elements or indicators were investigated through analysis of curricula, creating focus groups and conducting surveys with the students during the academic year.

3.4. Analysis of the curricula at the high educational institutions

The roads that lead to the acquisition of new skills such as knowledge, skills, abilities, building new attitudes, should be clearly set out in the curriculum. Thus, they would serve as guidelines for the teaching staff regarding the way of teaching and assessment of the achieved results with the students. The clear set of objectives and strategy in the implementation of these serve the students to adapt to studying and always have in mind the competencies to be acquired. Unfortunately, only a fraction of these universities have set specific goals and the same applies to the specific competencies that the students need to learn, which are little represented in the curriculum.

On the other hand, the universities which have set such goals, only partially pay attention to accomplish them, except in the curricula and programs at the university SEEU where methods and results measurement of learning, knowledge and skills were set. In some programs at UKIM goals that are usually at the level of knowledge and analysis are set, but the means of achieving them are still lacking.

Also, the goals for the study program - in Marketing at UKIM these are quite practically set, with emphasis on the application of specific knowledge and skills. However, such goalsetting without beforehand established plan for implementation is not a sufficient prerequisite for teaching in which it is necessary to adopt certain competencies. Also, it is very important to determine whether the objectives and competencies are only formally given or the teaching staff actually implements the methods provided for their achievement. The analysis of this situation indicates that at the faculties, the focus is still set on memorizing and reproducing the taught material (or the written in textbooks) while the quality of the acquired knowledge expressed through flexibility, dynamics, durability, application, comparability, etc., is marginalized as a process component in teaching.

3.5. Analysis of the attitudes and practices of the teaching staff towards students acquiring competencies

The perceptions of the teaching staff in terms of which skills should the students gain during the study period were analysed from several aspects. Firstly, we analysed the attitudes of the teaching staff in view of the most important skills that the students in high education need to acquire, as well as the ways in which they practice to transfer / shape these skills (through methods of teaching and assessment).

Most of the teaching staff interviewed responded that they seek to bring together the theory, applicability and practice in the teaching process. Some of the most commonly mentioned skills that teachers seek to transfer to the students are: critical thinking; practical implementation of knowledge in real terms; individual and team work; communication skills; basic knowledge of scientific disciplines.

Although almost all members of staff said that it is important for the students to gain specific ap-
Applicable knowledge, teaching and orientation towards acquiring theoretical knowledge versus specific skills is still dominant in the teaching methods. Because of the tendency towards application of the Bologna principles, part of the teachers over the last few years are trying to bring changes in their methods, throughout occasional practice of initiating discussions with students, presentations on specific topics by the students and so on. These methods often serve as the basis for defining the part of the assessment based on the activity of the student during class. However, their application is very often formal and comes down to the students teaching part of the textbook. These methods are applicable only to define the final evaluation of the student that must be a result of his activity. However, although this method is acceptable and serves to encourage students to be more interested in the topic and subject of study, it guides them to focus at best only on part of the material. ‘Clinical teaching’ (lecture by an expert - practitioner of a particular area), and methods of solving problems through simulation of real or fictitious cases are very rarely hold, although these methods are considered to be most useful by the students. One of the reasons for the poor application of interactive methods are the large study groups. Particularly worrying is the fact that at some departments (usually in the field of information sciences) the number of students is increasing rapidly in recent years, while the resources of faculty (classrooms, computers, professors) remain the same. This largely prevents interaction during teaching and reduces the possibility of individual approach and “teaching to fit the student”.

Some faculties (usually the private) practice occasional visits to the institutions in order for the students to gain insight into the ways of their functioning. This is a good practice that should not be taken formally, but the institutions should offer information to the students who otherwise might not get them at the university. According to the students, these visits are seen as particularly useful, but rarely implemented.

The methods of assessment are largely aligned between different universities and colleges because of the implementation of European Credit Transfer and Accumulation System (ECTS), which generally involves the evaluation to be derived 70% from concrete subject knowledge, 10% from attendance, 10% from activity in class and 10% from projects (although the teaching staff can make small changes in the ratio of these aspects). However, in accordance with the ways in which it is estimated, each of these aspects can vary significantly. The comments from the students indicate that in most of the courses it is required to reproduce material from the textbooks, whether it is in the form of test or essay questions [8].

Generally, the attitude of most students is that only the most basic things for basic understanding of the matter are learnt. The students from certain departments expressed concern that the matter does not include contemporary topics that will be necessary in practice. Students at FEEIT in UKIM (Faculty of Electrical Engineering and Information Technologies) expressed satisfaction regarding the contemporaneity of knowledge. The students of the Faculty FCSE (Faculty of Computer Science and Engineering) at UKIM said they are generally satisfied from the contemporaneity of learning materials and technical resources available in the department.

Throughout their by-laws, the students are given a formal opportunity to influence the curriculum (changing, updating, etc.) by participating in the educational council, but general conclusion is that there is little or no debate among the students about the curriculum of undergraduate studies. Many of them are not considering the possibility to suggest changes to the program because they think their proposals will be rejected.

3.6. Analysis of the relationship between the high education and the labor market

Commonly in the curriculum the practical instruction is treated as a segment of instruction that should be realized during the exercises. However, often the exercises are not practical, but simply repeating the taught theory. On the other hand, student internship programs are typically not provided as a separate segment of instruction. Besides, where the practice is mandatory, it is not usually controlled by the university, but its performance often remains the sole responsibility of the student. The larger part of the teaching staff believes that there is a good alignment between the theo-
retical and practical work and that most students are sufficiently competitive in the job market. According to their claims, the private universities are more competitive in the field of practical teaching and for them it is a comparative advantage over the state universities. When it comes to the public schools, the students practice represents a “bottleneck” of the teaching that is mainly down to the activities of the exercise on the acquired theoretical knowledge within the department through the work of project tasks, preparation of papers, etc. The common problem of the state and private universities is that none of them has control over the execution of student practice and there is a serious lack of evaluation of these activities. Often, the contents of the log of practical teaching do not undergo any evaluation by the company that conducts the practice nor by the faculty where the student studies.

The teaching staff at “Goce Delcev” University in Shtip critically addresses the activities of the University in the area of linking theoretical and practical training and it has seen results.

At the faculty FCSE at UKIM it is established that the implementation of practical training should be provided using specific equipment in the laboratories, larger student classrooms etc.

Even though the professors at the Institute of Informatics at Faculty of Natural Sciences and Mathematics are mostly satisfied with the terms offered at the faculty, they deem a more channelled enforcement of the professional practice necessary. The students, on the other hand expressed great dissatisfaction from the offered practical work during the studying period, although there are variances depending on the faculty they belong to.

So, students from FON University expressed utmost reliability in terms of their readiness to cope in the labour market because of the good conditions offered at the university and the orientation towards the practical work. However, the dilemmas they mainly have are related to the fact that there is still mistrust and prejudice by the companies towards this private college [8].

The students who conduct internships generally face shortness of time to gain knowledge and skills; insufficient engagement by representatives of the companies; lack of guidance from mentors at the universities; weak interest from the universities and companies to conclude mutual contracts for practice.

However, the opportunities for practical work largely depend on the openness and cooperation of the institutions and companies. In general, while the private companies are quite open to cooperation with the educational institutions, the public sector is less flexible, which reduces the opportunities for practice for many students (mostly from the social sciences). Most of the interviewed representatives from the companies stress that they offer lots of opportunities for student practice.

Although the companies which have achieved effective communication with the educational institutions are satisfied from the cooperation, there are several detected problems:

– the practical training is not detailed and thoroughly established by law;
– part of the employers are not familiar with the opportunities and benefits of employing students - interns;
– it is usual practice for the students to visit the companies during the summer when the workload is lower, and thus competences that could be earned are reduced;
– a number of companies working with confidential information do not run internships precisely because of safety and confidentiality of the information at their disposal.

4. Conclusion

The need for radical changes in the high education aims for the present and future students to develop their knowledge and skills more closely correlated with the needs of the labour market, but also to increase their mobility ie to allow the acquisition of knowledge and experience at other European universities. The new scientific achievements, undeniable technological and structural changes in the production and in the society place a request for a new model of university management, new enrolment policy, a new way of organizing work, studying and connecting with the economy and social activities [9-11].
References


Bibliography


3. Taskov N, Mitreva E. The motivation and the efficient communication both are the essential pillar within the building of the TQM (Total Quality Management) system within the Macedonian higher education institutions. In: The 6th International Conference Edu World 2014 “Education Facing Contemporary World Issues”, 7-9 Nov 2014, University of Pitesti, Romania, 2014.


Corresponding Author
Elizabeta Mitreva,
Faculty of Tourism and Business Logistics,
University “Goce Delcev” - Stip, Macedonia,
E-mails: elizabeta.mitreva@ugd.edu.mk; elizabeta.mitreva@gmail.com
Abstract

The main objective of research on tourism in Spain and Germany has mainly focused on analysing the importance of sun and beach tourism. Language tourism, however, is ignored in most cases, even though it evolves positively year after year. Furthermore, we should highlight that language tourism creates jobs and generates new incomes, among other socioeconomic benefits.

Nowadays, many Spaniards are interested in learning German to have better work opportunities and simultaneously the number of German tourists is increasing in Spain due to various factors, including culture, language and geography. This paper has three general objectives: i) provide an overview of language tourism in Spain and Germany; ii) make a SWOT analysis of language tourism in Spain and Germany; and iii) compare both SWOT analyses to get an overview of the current situation of language tourism in Spain and Germany.

Key words: language tourism, economic development, language, culture, strategic sector

1. Introduction

Now, in our current world, travelling to learn a foreign language and culture is more and more demanded - for leisure reasons - not only by students, but also by tourists and travellers due to the existence of a more global world. [1] Tourism includes, among the most diverse modalities, languages as a cultural resource for temporal displacements towards certain destinations. This type of tourism is known as ‘language tourism’. Currently, it is not very renowned in Spain, as shown by research to date published from the year 2000. [2]

Language teaching has become into a more touristic activity when including most of the elements that define tourism (i.e. foreign / inland transport, accommodation and leisure activities). We must add to these previous factors that the choice of destination for language tourism has a process similar to the choice of touristic destinations by traditional tourists. [3, 4] The demand created by language tourism diversifies the offer in the services sector, increases the consumption of cultural services, and fights against seasonality (as language tourism is not bound to holidays periods). At both urban and cultural levels, these benefits also support economic development, as well as the regeneration of different areas and the rehabilitation of buildings in the long term. Additionally, the image of cultural cities and their international projection are also reinforced. [2, 5]

Language tourism is having a remarkable increase when combined with other types of tourism (e.g. beach and sun tourism, gastronomic tourism, etc.). This is because together with the main motivation - learning a language - language tourists have secondary motivations related to holidays or leisure, also relevant for the main motivation. [6]

In recent years, tourism related to people who travel to Spain to learn Spanish as a foreign language (ELE) and at the same time know other elements from the touristic offer (monuments, culture, gastronomy, etc.) is becoming increasingly relevant. We observe, moreover, that those countries, like Germany, with a better position against the crisis have dramatically attracted language students. These students are committed to growth at the professional level, and this has raised the potential market for language tourism.

This paper has three general objectives: i) provide a complete vision of language tourism in Spain and Germany; ii) carry out SWOT analyses of language tourism for Spain and Germany; and iii) compare both SWOT analyses in order to obtain an overview of the current situation. We will study all these elements thanks to a compilation, analysis and interpretation work with information from secondary sources. As a consequence, this paper is organised according to three sections: i)
an analysis of language tourism in Spain and Germany; ii) the SWOT analyses of language tourism in both countries; and iii) the comparison between language tourism in Spain and Germany. When these three parts are completed, we will set out the conclusions of this research.

2. Language tourism

Most studies on tourism only focus on tourism in general, like sun and beach tourism among others. Language tourism, however, is ignored in most cases, even though it evolves positively year after year. [7] According to TURESPAÑA in 2008, which adapts the definition of ‘tourism’ by the World Tourism Organisation (WTO) in 1991, we can define ‘language tourism’ as those activities done by people in their trips and stays outside their usual environment for less than one year with the purpose of having a linguistic immersion in a different language. [8] Language tourism is mainly characterized by having tourists younger than the average, with stays in the destination country longer than the average. Regarding the classification of language tourists, there are two big groups: on the one hand, ERASMUS students who travel to another country in order to continue their university degrees with stays ranging from three to six months; on the other hand, students who travel only to learn a language, mainly on holiday periods, with shorter stays (from three to four weeks). [2]

Most of the approaches consider this linguistic modality of displacements as ‘language tourism’. Others prefer the term ‘linguistic tourism’ or ‘linguistic stays’, following the French term (séjours linguistiques) to call the same phenomenon. The first term, however, is the most widely accepted. [2] Authors like Pawlowska [9] use the term ‘academic tourism’ to refer all the stays for less than one year in higher education centres outside their place of usual residence. The central objective of the stay would be the attendance to courses related to university degrees and/or language courses organised by these educational centres. [10] A new terminological proposal can be found in Ganfornina in 2006 [11], who proposes a new concept ‘tourilingualism’ (turilingüismo in Spanish). This term brings together the three key factors of this phenomenon: language, tourism and, as a consequence, economy. ‘Tourilingualism’, thus, could be defined as the field that develops the relationship between the study of a language and its economic potential - due to its capacity to attract tourism.

Language tourism was not created in Spain. Other countries (i.e. United Kingdom, France and Germany) have included language tourism in their promotional activities for years, as a part of their cultural tourism. [12] Considering that this activity meets the requirements of the World Tourism Organisation (WTO) for the definition of tourism of 1991, language tourism or linguistic tourism is considered as a sub-segment of cultural tourism, whose main motivation is to learn the language and know the Spanish culture, costumes and society. [3,4,7]

We associate, as usual, language to culture, and we often forget the substantive value, economic more specifically, that languages have. Language teaching is a business all around the world. Not only do languages affect to language teaching centres or related jobs, but also other associated industries: production and publishing of teaching materials (books, CDs, dictionaries and grammar books), literature, music, cinema, TV programmes, translation, dubbing of audiovisual products, etc. Spanish students consume in their spare time Spanish products, such as music, books, food or cinema, among others. [13] Language tourism, in the same way, would generate trips to destination countries to improve the knowledge of languages. This has a great economic value, so that a language tourist consumes the same than a ‘classic tourist’: food, accommodation, cultural visits, leisure activities, transport, restoration, etc. Regarding the benefits generated by language tourism, these also contribute to the promotion, and regeneration and rehabilitation of urban areas and buildings. Moreover, it reinforces the cultural image of cities, as well as its international projection, improving the image of cities as tourist destinations and triggering a demand of activities to complement other forms of tourism, including gastronomy, flamenco, sports, culture or rural activities among others. [2, 5] In the light of the previous ideas, language tourism plays a key role in economic development. [14]
3. Language tourism in Spain

The importance of the Spanish language as a touristic resource and its enormous potential in Spain is reflected both in the increase of Spanish language students and in the variety of courses of Spanish as a Foreign Language (ELE). [15] One of the main reasons for this tendency, undoubtedly, is that Spanish language has an enormous international community, with more than 540 million of speakers as a main, second or foreign language. [16] In fact, Spanish is the second language at the international level in terms of native speakers, and the second language for international communication. Spanish-speaking population constitutes an enormous community that shares products, services, and culture, and offers a unique growth opportunity for businesses and institutions. In fact, considering Spanish as one of the biggest international languages of the world makes us to be responsible for its projection. [17]

The displacement to Spain to learn Spanish was not considered as a touristic activity, but as a merely educational and cultural activity, until a few years ago. According to the World Tourism Organisation (WTO) in 1991, a tourist is the person who travels to a place other than that in which he/she has his/her usual residence, for at least 24 hours including an overnight stay; and thus we observe that the displacement motivated by learning a language fits perfectly in this concept. [18] Since 1995, language tourism has constantly increased it demand in Spain, with annual growth rates ranging from 7% to 9%. Spain received approximately 130 000 students in 2000 who travelled with the main purpose of learning Spanish. The age of 63.7% of the students ranged from 20 to 30, and 39.5% intended to study Spanish for professional reasons. [19] In 2007, 237 600 students travelled to Spain, setting aside €176.5 million to Spanish language courses (86% at private language centres, and the rest at university courses) [16]. We can see the outstanding evolution of Spanish language teaching in Spain from 2000 to 2007, a period in which the number of students doubled. In contrast, this figure increased dramatically in 2013, when 858 000 tourists travelled to Spain for academic purposes. [20] Many of these trips form part of language tourism.

Regarding the distribution of language tourists in Spain, we emphasize the importance of Andalusia (62 500 students), Castile and León (45 400), Community of Madrid (38 900), Catalonia (36 700) and Valencian Community (26 700), retaining 88.5% of the demands of Spanish language tourism. [8]

Table 1. Profile of Language Tourists in Spain

<table>
<thead>
<tr>
<th>Profile of Language Tourists in Spain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
</tr>
<tr>
<td>Age</td>
</tr>
<tr>
<td>Region of Origin</td>
</tr>
<tr>
<td>Nationality</td>
</tr>
<tr>
<td>Nationality: Private Centres</td>
</tr>
<tr>
<td>Nationality: Universities</td>
</tr>
</tbody>
</table>

Regarding the origin of Spanish language students that travel to Spain, they are mainly from Germany, USA, France and Italy, among others. [21] We include below a graph with the origin of Spanish language students who travel to Spain.

Table 2. Origin of Spanish Language Students in 2012

<table>
<thead>
<tr>
<th>Language Tourists in Spain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Germany</td>
</tr>
<tr>
<td>USA</td>
</tr>
<tr>
<td>Rest of Europe</td>
</tr>
<tr>
<td>France</td>
</tr>
<tr>
<td>Italy</td>
</tr>
<tr>
<td>Benelux</td>
</tr>
<tr>
<td>UK</td>
</tr>
<tr>
<td>Scandinavian Countries</td>
</tr>
<tr>
<td>Eastern Countries</td>
</tr>
<tr>
<td>Brazil</td>
</tr>
<tr>
<td>Russia</td>
</tr>
<tr>
<td>Canada</td>
</tr>
<tr>
<td>Japan</td>
</tr>
<tr>
<td>Rest of Asia</td>
</tr>
<tr>
<td>African Countries</td>
</tr>
<tr>
<td>Oceania</td>
</tr>
<tr>
<td>China</td>
</tr>
</tbody>
</table>

As we can see above (Table 2), Germany is the main origin of language tourists that travel to Spain. According to the Strategic Plan of Language Tourism (Plan Estratégico de Turismo Idiomático) [21], 71% of language tourists are women; 54% are 20-29 years old; 74% are European, and most of them come from Germany (22%) and USA (17.5%). In
Table 1, we can see that language tourists that require Spanish teaching services in private centres are primarily Germans, while half of those who attend these types of courses at university are Americans. The stay of the students lasts around four weeks, being the accommodation with Spaniard families the preferred option (41%). Rental apartments (22%) are the second option, and studentlodgings (20%) are the third option. [21]

Considering the interest of language tourism, we should emphasize the importance of ERASMUS students. Spain is the most chosen European country by ERASMUS students. Every year, in fact, the number of ERASMUS students increases and the objective, together with attending their university degrees in Spain, also includes learning the language and the cultural traditions. [22] Regarding our subject matter, we will mainly focus on Germany and Spain. We include below Table 3, where we compare the number of ERASMUS students from both Spain and Germany with the purpose of analysing the German students who travel to Spain as language tourists.

Table 3. Spaniard and German ERASMUS Students in 2014

<table>
<thead>
<tr>
<th></th>
<th>Spaniards</th>
<th>Germans</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA</td>
<td>4 247</td>
<td>9 277</td>
</tr>
<tr>
<td>UK</td>
<td>8 531</td>
<td>21 237</td>
</tr>
<tr>
<td>Germany</td>
<td>5 450</td>
<td>-</td>
</tr>
<tr>
<td>France</td>
<td>4 603</td>
<td>7 414</td>
</tr>
<tr>
<td>Spain</td>
<td>-</td>
<td>1 794</td>
</tr>
<tr>
<td>Switzerland</td>
<td>1 546</td>
<td>14 870</td>
</tr>
<tr>
<td>Austria</td>
<td>321</td>
<td>27 753</td>
</tr>
</tbody>
</table>

Spain is one of the countries that attract a higher number of ERASMUS students. However, as we can see in the figures above (see Table 3), in 2014 Spain sent 5 450 students to Germany, while Germany sent 1 794 students to Spain. [23] From these data, we deduce that there are more Spaniard students in Germany than German students in Spain thanks to the ERASMUS Programme. The motivations to travel to Spain to learn Spanish are principally personal (e.g., interest about the Hispanic culture, family links and relationships, tourist stays); the academic purposes are the second reason; and finally, the third reason, is defended by people who travel for working reasons, but these are a minority. [21]

According to the data published in the Second Plan of Spanish as a Second Language 2013-2016 (II Plan del Español como Lengua Extranjera 2013-2016) of the Regional Government of Castile and León in 2013 [24], only 1 over 50 Spanish language students in the world travel to Spain to attend language courses. This shows the lack of alternative offers to improve the market share. In many cases, the problem is that the courses only focus on the competences, and they forget the language tourist, without promoting the Spanish brand, or the Spanish culture and language. The central offer of language tourism is lumped together by educational centres for teaching Spanish as a foreign language, both public and private. These centres are classified according to the following categories: Universities, Official Language Schools, or Private Centres of Spanish as a Foreign Language. All of them include the teaching of Spanish as a Foreign Language at different levels. A high percentage of language tourists choose private centres to learn Spanish, according to the research carried out by the Regional Government of Andalusia in the Strategic Plan of Language Tourism: The Spanish Language as a Touristic Resource for Andalusia (Plan Estratégico del Turismo Idiomático: El Español como Recurso Turístico en Andalucía). [25]

The Cervantes Institute is the most important institution to promote the study of Spanish language. It is a public organism created by the Spanish government in 1991 to support the study and teaching of the Spanish language, the co-official languages of Spain, and the promotion of Spanish and Hispanic-American culture. Among its functions and objectives, we can highlight the following: to organise language courses offering two types - general and special - of Spanish and the co-official languages; offer the Diplomas of Spanish as a Foreign Language (Diplomas de Español como Lengua Extranjera, DELE) on behalf of the Spanish Ministry of Education, Culture, and Sport, and organise the official examinations; to improve and update the teaching methods; to participate in programmes to support Spanish throughout the world; and to promote activities to spread the Spanish language together with other organisations and institutions, among other functions.

Apart from the Cervantes Institute, there are other associations that support quality in Span-
ish language teaching in Spain. That is the case of the Andalucian Association of Spanish Language Schools, ‘Español en Andalucía’ (comprehending 34 private Andalucian Spanish language schools) or the Spanish Federation of Associations of Schools of Spanish as a Foreign Language (comprising 90 schools of Spanish as a foreign language). Furthermore, TURESPAÑA promotes Spain as a language destination. In many cases, language tourism is promoted together with sun and beach tourism. TURESPAÑA is one of the main Spanish organisms directly involved in the promotion of the Spanish language all around the world, as well as in the spreading of Spanish language and culture with the Cervantes Institute. Even though the promotion and teaching of the Spanish language have high expectations of growth, there are still many lacunae and efforts are not enough to date. It is necessary, thus, a professionalization of the sector, as well as a public regulation for teaching Spanish as a foreign language. These measures would guarantee a standard of quality and would also allow the improvement of the work and professional conditions of the teaching staff. [26]

4. Language tourism in Germany

German is an Indo-European language than belongs to the group of West Germanic languages. It is also one of the most important languages of the world, and has the highest number of native speakers in the European Union. Moreover, German is the only official language in Germany, Austria and Liechtenstein, and it is a co-official language in Belgium (together with French and Dutch), Luxembourg (with French and Luxembourgish), Switzerland (with French, Italian and Romanish), as well as in certain regions of Italy (with Italian). [27] Globally, the European Union is home to the highest number of German language students (around 47%) and Eastern Europe has 30%. [28] Germany is one of the European countries with the most touristic interest, due to its historical importance, cultural traditions, festivals and celebrations, monuments, or diverse gastronomy, among other reasons. The touristic sector is, as a consequence, an interesting economic activity. Simultaneously, Germany is an important tourist destination, being the seventh destination of the world in number of tourists in 2012. [29] The table below (Table 4) shows the most significant types of tourism in Germany.

Table 4. Types of Tourism in Germany

<table>
<thead>
<tr>
<th>Types of Tourism</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health tourism</td>
<td>1%</td>
</tr>
<tr>
<td>Other types of tourism</td>
<td>2%</td>
</tr>
<tr>
<td>Educational tourism</td>
<td>2%</td>
</tr>
<tr>
<td>Beach and spa tourism</td>
<td>2%</td>
</tr>
<tr>
<td>Tourism for private reasons</td>
<td>3%</td>
</tr>
<tr>
<td>Beauty tourism</td>
<td>3%</td>
</tr>
<tr>
<td>Cycling tourism</td>
<td>3%</td>
</tr>
<tr>
<td>Winter tourism (sports)</td>
<td>4%</td>
</tr>
<tr>
<td>Active tourism</td>
<td>4%</td>
</tr>
<tr>
<td>Wine tourism</td>
<td>6%</td>
</tr>
<tr>
<td>Amusement tourism</td>
<td>7%</td>
</tr>
<tr>
<td>Tourism to visit events</td>
<td>7%</td>
</tr>
<tr>
<td>Hiking or climbing tourism</td>
<td>10%</td>
</tr>
<tr>
<td>Shopping tourism</td>
<td>11%</td>
</tr>
<tr>
<td>Rural tourism</td>
<td>11%</td>
</tr>
<tr>
<td>Family tourism</td>
<td>12%</td>
</tr>
<tr>
<td>Tourism to visit relatives and friends</td>
<td>17%</td>
</tr>
<tr>
<td>Relax tourism</td>
<td>19%</td>
</tr>
<tr>
<td>Cultural tourism</td>
<td>29%</td>
</tr>
<tr>
<td>Tourism to visit monuments</td>
<td>30%</td>
</tr>
<tr>
<td>Tourism to visit cities</td>
<td>39%</td>
</tr>
</tbody>
</table>

Table 4 shows that the most prominent types of tourism in 2013 are tourism to visit cities (39%), tourism to visit monuments (30%) and cultural tourism (29%). To a lesser extent, we can highlight other types of tourism: relax tourism (19%), tourism to visit relatives and friends (17%), family tourism (12%), shopping tourism (11%), rural tourism (11%), hiking or climbing tourism (10%), amusement tourism (7%), tourism to visit events (7%), wine tourism (6%), winter tourism (sports) (4%), active tourism (4%), tourism for private reasons (3%), beauty tourism (3%), cycling tourism (3%), beach and spa tourism (2%), educational tourism (2%), other types of tourism (2%), and health tourism (1%). [30]

As we can observe, language tourism is not reflected individually as any other type of tourism, but it could be included in ‘cultural tourism’, ‘other types of tourism’, ‘tourism for personal reasons’ or ‘educational tourism’. Regarding the most frequent nationalities that travel to Germany, these are Japanese, American and Spaniard. [30]
is necessary to make a reference to the scarce literature on language tourism in Germany, as almost no importance is given to this kind of tourism. A clear example of this situation is that the German National Tourist Board (Deutsche Zentrale für Tourismus, DZT) does not include language tourism among the offer.

The number of students of the Goethe Institute in the world started to decrease in 2000. [31] However, a sort of renaissance of the German language has taken place in recent years. [32] Learning German means learning a language from a clear perspective. Those who speak German not only can communicate universally with 119 million people in their mother tongue, but they are also setting the bases for a future study in Germany and a further international career. [33] This can be easily checked: even though the number of German language students in the world has diminished in the last five years, the interest in learning German is increasing again. As a result, currently we can state an increasing demand on learning German as a foreign language. In 2011, the Goethe Institute had 234 587 students of German as a foreign language all over the world, and 37 457 attended the course in Germany. In total, there were 21 623 courses of German as a foreign language throughout the world, and 4 818 took place in Germany. 18 289 over 184 027 students of German as a foreign language took the German exam in Germany. [28]

Germany is one of the most chosen European countries by ERASMUS students. Every year, in fact, the number of ERASMUS students increases and the objective, together with attending their university degrees in Germany, also includes learning the language and the cultural traditions. [23] Germany sent 1794 students to Spain in 2014, while Spain sent 5 450 students to Germany. From these data, we deduce that there are more Spaniard students in Germany than German students in Spain thanks to the ERASMUS Programme.

Germany also offers, as Spain does, German language courses in educational language centres, both public and private. This centres can be academies, universities, or private language centres, among others. The Goethe Institute is the main German public institution whose mission consists of the promotion, spreading and support of German language and culture. Furthermore, this public institution, equivalent to the Cervantes Institute in Spain, tries to improve the external relations between Germany and the countries where the Goethe Institute has centres. The Goethe Institute offers the possibility of attendance to different types of courses adapted to most situations: intensive courses, Premium courses, German for specific purposes, or courses for children and teenagers. All the courses include a varied cultural and social programme; give the opportunity of using libraries and audiovisual resource banks to the language tourist; provide accommodation; and offer the possibility of taking the official exams in all their courses. There is also the possibility of studying online German as a foreign language, thanks to the website of the Goethe Institute.

The most affordable possibility to learn German in Germany is Volkshochschule, public institutions that offer a great variety of courses and learning programmes in all areas of knowledge and to the general public. In the German state of Bavaria, we can highlight Bildungszentrum Nürnberg (http://www.bz.nuernberg.de/), the biggest public educational centre in northern Bavaria, with a huge variety of language courses, seminars, workshops, conferences, lectures, excursions, guided visits, exhibitions, educational tours, forums and cultural events, among many other activities. Another possibility consists of studying German at university. The offer of German language courses at German universities is abundant, diverse, and of a high quality. Summer courses are specially interesting, as they offer seminars on German language and culture.

Furthermore, all foreigners with long stays in Germany can attend an integration course, partially financed by public sources. According to the Bundesamt für Migration und Flüchtlinge, [34] the integration course includes the acquisition of both German language and a basic knowledge on everyday life topics (labour market, jobs, health, German history and culture, and rights and obligations for living in Germany). The integration course lasts 660 hours, and the attendants only pay €1.20 per hour. The requirement for attending the integration course is that students must report to the registration office.

The Bundesamt für Migration und Flüchtlinge offers the free course ‘German for Professional Purposes’. This course is organised according to
two modules: German language (written and oral skills for a daily working routine) and professional qualification (specialization subjects, internships and company visits), although there are several requirements to attend the course.

Together with the possibilities to learn German in Germany mentioned above, the German Government and the Federal Government Agency (have set in motion the programme MobiPro-EU, with the objective of encouraging - even more - cross-border mobility of young people from other countries of the European Union.

The German language is a key factor even for personal competitiveness, and its learning process is commonly associated to the hope of obtaining a better job on future situations. This idea is based on the fact that Germany is the world’s leading exporter, and many German companies operate overseas. Furthermore, there are other relevant reasons to learn German, although to a lesser extent, that include travelling and meeting people, discovering cultural traditions, or simply personal motivation, self-development, and sense of achievement. [33]

It is necessary to mention, thus, Spain as one of the countries that currently show a higher and higher demand on learning this language: in 2010 there were 102,750 students of German as a foreign language in Spain, but this number has significantly increased to 153,076 students in 2015. [33]

5. SWOT Analysis. Language Tourism in Spain

After analysing the whole offer in Spain to learn Spanish as a foreign language, we are in the position to carry out a SWOT analysis. This tool may allow us to study the current situation of language tourism in Spain, so that we can further compare it to the situation of language tourism in Germany. The SWOT analysis is shown below as a Table.

In general, the level of satisfaction related to the educational centres is positive. Moreover, factors as the location and the quality of the centre are very well valued as a general rule. However, the variety of courses, the computer facilities of the centres and the complementary programmes offered are the most criticized aspects and/or have the lowest rates in the assessment.

Another element to reflect about is the high number of (public and private) that promote Spanish as a foreign language courses in Spain with no coordination among them, and a limited offer of promotional material (catalogues, videos, CD-ROMs) at the national level. [19] Finally, there are no official diplomas accepted in Europe offered by Spanish (public and private) language centres.

6. SWOT Analysis. Language Tourism in Germany

The promotion and teaching of German is a field with prospects of growth. [33] Currently, the German government is encouraging the idea of learning the German language and culture, thanks to institutions like the Goethe Institute and the Deutscher Akademischer Austauschdienst (DAAD - the German Academic Exchange Service). The Table below shows the SWOT analysis of teaching German as a foreign language in Germany, in order to deepen the sector.

As can be seen in Table 6 above, one of the strengths of Germany is all the initiatives led by the government to promote German language and culture worldwide. The economic situation of Germany also plays a key role. Moreover, factors like the training process and the great variety of courses are well valued by the students in Germany. [35] In fact, the Goethe Institute offers complete courses with accommodation and a cultural programme, including catalogues as promotional material. [33]

7. Comparison of the SWOT analyses. Language tourism in Spain and Germany

After presenting the SWOT analyses of language tourism in Spain and Germany, we will carry out a comparison in this section. In the SWOT analyses of language tourism in Spain and Germany, we could see the limited number of studies on language tourism in both countries. [2] This sector is not considered as important as it should be in the context of both countries. If we focus on Germany, we can see for instance that the National Tourist Office of Germany includes a wide range of types of tourism, such as health and beauty tourism or gastronomic tourism among
Table 5. SWOT Analysis of Language Tourism in Spain

<table>
<thead>
<tr>
<th>Weaknesses</th>
<th>Threatens</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Lack of agreement among public and private institutions</td>
<td>• Competition with other Spanish speaking countries</td>
</tr>
<tr>
<td>• Teaching of non-regulated private educational centres</td>
<td>• Lack of teaching quality</td>
</tr>
<tr>
<td>• Small size and dimension of the businesses in the sector, which impedes external promotion</td>
<td>• Scarcе investment in teacher training</td>
</tr>
<tr>
<td>• Lack of regulation norms on the quality of teaching Spanish as a foreign language</td>
<td>• Lack of professionals trained in management of language business</td>
</tr>
<tr>
<td>• Lack of official diplomas accepted in Europe by Spanish language teaching centres</td>
<td>• Rivalry among (private and public) educational centres</td>
</tr>
<tr>
<td>• Lack of coordination among administrations in terms of regulation and promotion of the language sector</td>
<td></td>
</tr>
<tr>
<td>• Lack of computer resources in Spanish language teaching centres</td>
<td></td>
</tr>
<tr>
<td>• Lack of subjects in English at Spanish universities for ERASMUS and international students</td>
<td></td>
</tr>
<tr>
<td>• Lack of research on language tourism</td>
<td></td>
</tr>
<tr>
<td>• Economic situation in Spain</td>
<td></td>
</tr>
<tr>
<td>• Institutions devoted to the teaching and promotion of German as a foreign language</td>
<td></td>
</tr>
<tr>
<td>• Scarcе awareness of the importance of language tourism in our current society</td>
<td></td>
</tr>
<tr>
<td>• 1 over 50 Spanish language students in the world travels to Spain to attend Spanish courses</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Strengths</th>
<th>Opportunities</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Number of speakers</td>
<td>• Close relationship with publishing products and services to teach Spanish</td>
</tr>
<tr>
<td>• Spanish is one of the most studied and spoken languages both in Europe and the world.</td>
<td>• Encouragement and improvement of the Spanish brand</td>
</tr>
<tr>
<td>• Teaching of Spanish as a Foreign Language</td>
<td>• Internationalization of the Spanish educational offer as a whole</td>
</tr>
<tr>
<td>• Cervantes Institute</td>
<td>• Creation of more educational services, with a higher added value, according to the necessities of language tourists</td>
</tr>
<tr>
<td>• Image-country</td>
<td>• Diversification of Spanish language courses for foreigners</td>
</tr>
<tr>
<td>• Geographic location of Spain</td>
<td>• Expansion and diversification of complementary activities offered by training and educational centres</td>
</tr>
<tr>
<td>• Teaching professionals in Spain</td>
<td>• Cooperation among public and private entities of the language sector</td>
</tr>
<tr>
<td>• Educational Centres</td>
<td>• Creation and development of marketing offices abroad, so that they can promote Spanish as a foreign language</td>
</tr>
<tr>
<td>• Spanish Culture</td>
<td>• Official diplomas accepted in Europe by Spanish (private and public) language teaching centres</td>
</tr>
<tr>
<td>• Weather</td>
<td>• Coordination among administrations in terms of regulation and promotion of the language sector</td>
</tr>
<tr>
<td></td>
<td>• Promotion of language tourism together with other types of tourism (gastronomy, health, etc.)</td>
</tr>
<tr>
<td></td>
<td>• Increase of subjects in English at Spanish universities for ERASMUS and international students</td>
</tr>
<tr>
<td></td>
<td>• Encouragement of deseasonalisation of tourism with the promotion of language tourism</td>
</tr>
<tr>
<td></td>
<td>• Development of studies on language tourism</td>
</tr>
</tbody>
</table>
Table 6. SWOT Analysis of Language Tourism in Germany

<table>
<thead>
<tr>
<th>Weaknesses</th>
<th>Threats</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Lack of agreement among public and private institutions of each Federal State</td>
<td>• Competition with other German speaking countries</td>
</tr>
<tr>
<td>• Lack of regulation norms on the quality of teaching German as a foreign language among the Federal States</td>
<td>• Quality of language teaching</td>
</tr>
<tr>
<td>• Different education policies in each Federal State</td>
<td>• Rivalry among (private and public) educational centres</td>
</tr>
<tr>
<td>• Lack of official diplomas accepted in Europe by German language teaching centres</td>
<td>• Competition among Federal States</td>
</tr>
<tr>
<td>• Lack of research on language tourism</td>
<td></td>
</tr>
<tr>
<td>• Lack of coordination among administrations in terms of regulation and promotion of language tourism</td>
<td></td>
</tr>
<tr>
<td>• Scarcity awareness of the importance of language tourism in our current society</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Strengths</th>
<th>Opportunities</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Number of speakers</td>
<td>• Close relationship with publishing products and services to teach German</td>
</tr>
<tr>
<td>• German is one of the most studied and spoken languages both in Europe and the world.</td>
<td>• Opportunities to promote and support Germany</td>
</tr>
<tr>
<td>• Teaching of German as a foreign language</td>
<td>• Internationalization of the German educational offer as a whole</td>
</tr>
<tr>
<td>• Goethe Institute</td>
<td>• Creation of educational services, with a higher added value, according to the necessities of language tourists</td>
</tr>
<tr>
<td>• Initiatives of the German government</td>
<td>• Diversification of German language courses for foreigners</td>
</tr>
<tr>
<td>• Image-country</td>
<td>• Cooperation among public and private entities of the language sector</td>
</tr>
<tr>
<td>• Geographic location of Germany</td>
<td>• Cooperation among the Federal States</td>
</tr>
<tr>
<td>• Teaching professionals in Germany</td>
<td>• Encouragement of deseasonalisation of tourism with the promotion of language tourism</td>
</tr>
<tr>
<td>• Education and training in Germany</td>
<td>• Development of studies on language tourism</td>
</tr>
<tr>
<td>• German culture</td>
<td>• Promotion of language tourism together with other types of tourism (gastronomy, health, etc.)</td>
</tr>
<tr>
<td>• Marketing offices abroad that promote Germany as a tourist destination</td>
<td>• Official diplomas accepted in Europe by German (private and public) language teaching centres</td>
</tr>
<tr>
<td>• Diversity of institutions devoted to teaching and promoting German as a foreign language</td>
<td>• Coordination among administrations in terms of regulation and promotion of the language sector</td>
</tr>
<tr>
<td>• Economic situation in Germany</td>
<td></td>
</tr>
<tr>
<td>• Wide range of subjects in English at German universities for ERASMUS students</td>
<td></td>
</tr>
</tbody>
</table>

others, but language tourism is not incorporated. Furthermore, market research studies promote other types of tourism, like events and business tourism, but language tourism is not considered at all. On the other hand, if we focus on language tourism in Spain, mention should be made to the work of the national organism TURESPAÑA. Furthermore, we also should highlight the work of the Regional Department of Culture and Tourism thanks to the Second Plan of Spanish as a Foreign Language 2013-2016 (‘II Plan de Español como Lengua Extranjera 2013-2016’) of Castile and León; and the Strategic Plan of Language Tourism (‘Plan Estratégico de Turismo Idiomático’) of Andalucia, among others. These initiatives show that the Spanish society is more and more conscious of the importance and impact of language tourism in the country. Nevertheless, this is not enough. We see, moreover, that many studies refer to language tourism as academic tourism, linguistic tourism, cultural tourism or ‘tourilingualism’.

The current situation of education in Germany is complex due to the great autonomy of the Federal States. In fact, each Federal State has a Min-
istry of Education. The organisation of the education system also offers a great autonomy to centres and teachers, so they can define the contents and syllabi, the structure of the courses and the assessment methods. [36] Probably as a result, we observe the lack of agreement among public and private authorities in each Federal State. Regarding Spain, there is also a lack of agreement among public and private authorities. This is in addition to the lack of official diplomas accepted in Europe by Spanish and German educational centres. Many students, unfortunately, take language courses that are not officially recognised at the European level.

Germany, as Spain, offers language courses in its German language centres, which can be public and/or private, such as academies, universities, or German language teaching centres, among others. In Spain, we should highlight the work developed by the Cervantes Institute, while in Germany they have the indispensable work of the Goethe Institute. One of the main differences between the Cervantes Institute and the Goethe Institute is accommodation. The Goethe Institute offers ‘all-inclusive’ packages, with the possibility of having all the services or only those that the student really needs. The Cervantes Institute, however, offers throughout its network of centres all around the world a wide range of courses on Spanish as a foreign language, while the different centres choose the services they want or are able to offer. In many cases, for instance, the language centre looks for the accommodation; in other occasions, however, the centres do not offer this service, so the language tourist has to book their accommodation. This has a direct impact on the number of sales, as many language tourists do not know the language or the country, and they do not know where to look for the accommodation. In general, language tourists prefer all-inclusive packages and good value for money.

One of the strengths of Germany is based on the initiatives led by the German government, as previously mentioned. The German Ministry of Foreign Affairs coordinates many programmes from diverse intermediary organisations at an international level, according to their Foreign Policy for Culture and Education (AKBP). This policy promotes the German language together with the Goethe Institute (GI), the German Academic Exchange Service (DAAD), the Central Agency for Schools Abroad (ZfA), the Educational Exchange Service (PAD), the Institute of International Cultural Relationships (ifa), and the Deutsche Welle (DW). These institutions encourage, with their international partners, the development and expiation of the German language abroad. Currently, more than 270 million euros are being invested in these activities, mainly in foreign schools, universities and in the area of adult education. [28] Spain, nevertheless, does not promote as many programmes at the international level as Germany does. In Spain, the Cervantes Institute stands out over the rest of associations, such as the Andalucian Association of Spanish Language Schools, ‘Español en Andalucía’ (comprehending 34 private Andalucian Spanish language schools) or the Spanish Federation of Associations of Schools of Spanish as a Foreign Language (comprising 90 schools of Spanish as a foreign language), which promote the quality of learning Spanish in Spain. Moreover, TURESPAÑA promotes Spain as a language destination.

The interest in learning and, thus, the value of teaching a language are closely related to the possibilities of professional promotion. Learning a language offers the knowledge of the language and the increasing interest in the creative capacity of the science and culture of the recipient country. As a consequence, Germany attracts more and more language tourists from Spain, which encourage a professional interest in their careers. Spain, however, need to focus on other markets like Germany, so that the country can attract language tourists, disclosing the importance of Spanish as a language, as well as the interest in Spanish culture, literature, music or arts, among many other aspects. In this context, the ERASMUS programme may play as a key role, as a mobility programme organized by the European Union in order to facilitate the exchange and learning in other European university or education institution in Europe for a specific time and validating completely in the origin country the academic performance carried out abroad. Germany sent 1 794 students to Spain in 2014, while Spain sent 5 450 students to Germany in 2014. [23] From these data, we deduce that there are more Spaniard students in Germany than German students in Spain, thanks to the ERASMUS Programme. All these elements have an impact and influx on the number of language tourists,
as ERASMUS students are not considered as real language tourists. [2]

Due to the importance of language tourists for the economy of a given country, who behave and require the same type of services than classic or traditional tourists, [1] it would be convenient to diversify the teaching courses as well as the complementary programmes. This diversification would allow meeting all the requirements of language tourists. Among the necessities of language tourists who travel to Spain, it is remarkably relevant the use of computer applications in the Spanish centres, which is one of the most criticised aspects. [37]

Conclusions

Nowadays, we can mention the increasing demand of German as a foreign language by a high number of Spaniards. This situation is due to the idea of getting a better job in the future. Furthermore, we are also witnessing the increasing arrival of language tourists from Germany in Spain, motivated by the Spanish culture, the country, and the importance of this language at the international level. Thanks to this comprehensive analysis of language tourism in Germany and Spain, we should emphasize the importance of language tourism in the recipient country. It is necessary, thus, the implementation of adequate policies for the promotion of language tourism, with an indispensable and unavoidable coordination between public and private centres of the same country. This should be done, moreover, with the promotion of European policies, in order to establish official diplomas to be accepted at least in all the Member States of the EU. It is also important to reinforce the sector, by offering and guaranteeing a higher quality teaching, as well as by diversifying both the courses offered by the educational centres and the complementary activities.

Another element that should be taken into account is the scarce offer of language courses and complementary activities, as only one over 50 Spanish language students in the world travel to Spain to attend Spanish language courses. This is one of the main weaknesses reflected on the Second Plan of Spanish as a Second Language 2013-2016 (II Plan del Español como Lengua Extranjera 2013-2016). This situation entails that Spain should diversify its tourist model, and adapt itself to the new tendencies in order to attract more language tourists to Spain. The strengthening of everything related to Spanish and German languages teaching may open up new business opportunities, and entail the creation of new jobs. The language and the culture are two factors to be promoted abroad in order to give a good image of Spain and Germany. We should not forget that language tourism is experiencing a remarkable increase when combined with other types of tourism, such as sun and beach tourism or gastronomic tourism, among others. In fact, together with the main motivation of learning the language, language tourists also have secondary motivations, leisure and relax, which are also relevant when combined with the main motivation.

In short, even though the promotion and teaching of the Spanish and German languages are fields with high expectations of growth, there are still important gaps. It is necessary to carry out research on language tourism in both countries. This would allow a deeper understanding of the specific expectations of language tourists learning Spanish or German, focussing mainly on language tourists rather than on business competition.

References


Corresponding Author
Castillo Arredondo Maria Isabel,
Universidad de Cordoba,
Cordoba,
Spain,
E-mail: l82caari@uco.es
Blogs and Its Influential Effects on Foreign Language Writing Proficiency

Elham Kavandi
Department of English Language Teaching, Farhangian University, Zanjan, Iran.

Abstract
The new trend in computer technology and internet has increased in everybody’s life. Teaching English as a Foreign Language is the same category and has been influenced by web technology nowadays. This study attempts to investigate the effects of using weblogs on the students’ writing proficiency. It also investigates the effects of weblogs on some key qualities of 6+1 trait of writing such as ideas, organization, voice, word choice, sentence fluency, and convention. The total number of 30 students were chosen and divided in two groups of 15. All of the students in experimental group detailed the typical process for each assignment, such as, writing paragraphs, working in groups, posting their assignments to blogs, reading their comments, making corrections and uploading their corrected assignments, and turning in their final assignments to the instructor. The students narrated some major issues for them like working in groups, peer editing, giving and receiving feedback, as well as interacting with classmates and with others. Peer reviews, the giving and receiving of feedback were the biggest issue. Their written products were collected during the term and analyzed according to the rubric. Data analysis indicated that blog-based group outperformed the students who got their materials traditionally. Moreover there was a significant difference in their writing proficiency in terms of idea, organization, word choice, sentence fluency, and convention but it didn’t make significant difference on voice. As a whole, the students found that weblogs were useful improving the students’ writing proficiency and further expressed that they had more opportunities to receive more information. They also believed that weblogs helped them to prepare themselves by collecting suggestions for their writings and to continue their jobs effectively.

Key words: CALL, Blog- based instruction, 6+1 trait rubric, writing proficiency

1. Introduction
One area that has provided much excitement in recent years is the use of advanced technology that supports both synchronous and asynchronous communication. This study focuses on the effect of using blogs on EFL students’ writing skill. As writing proficiency is critical for students in schools and universities and a life-long need in learning a foreign language, it should be developed at least along with other skills. In recent years, developing fluency in writing skill has been considered a fundamental goal of foreign language learning. As such the importance of writing in language learning has led researchers to find methods and ways for effective writing instruction.

On the other hand, distance education makes learning and teaching experiences possible anywhere and anytime. It relieves learning owing to its information abundance, and immediacy of retrieval, however, it introduces viable alternatives to extend the viabilities and minimizes the deficiencies of traditional classroom experiences. Despite the central role of using blogs, human elements including teachers, learners, learning and teaching strategies adopted for postmodern education practices transcend the importance in the classroom.

To continue to forge ahead in the computers and writing community, however, there is always something to peak our interest in how we, as teachers of composition, can use computers to not only enhance our students’ writing experiments, but also to improve student writing and encourage them to write more meaningful texts.

There are numerous possibilities for a blog to be used in the EFL classroom setting. Current research attempts to observe the effect of using blogs on EFL students’ writing skill. The overarching question guiding this study is: How do blogs affect and help learners improve their writing skill?
The major purpose of this study is to investigate the effect of blog using instruction on writing performance. It could help to see not only the impact of technology as a whole and blogs specially but also the process of the learning. Blog-based instruction also allows everybody to access documents anywhere at any time and share documents with others and work on them collaboratively.

2. Literature Review

2.1. Theories of Learning

Vygotsky’s theoretical framework is that social interaction plays a fundamental role in the development of cognition. This theory has profoundly affected the field of education and much of the research on writers and writing.

The important aspect of this social process is the idea that a learner’s developmental potential is influenced by what Vygotsky called the zone of proximal development (ZPD). The ZPD is defined as “the distance between the actual development level as determined by independent problem-solving and the level of potential development as determined through problem-solving under adult guidance or in collaboration with more capable peers” [17]. The implications of ZPD are that the range of skills that can be developed with others, such as adults or peer collaborators, in a social setting exceeds what can be attained alone.

ZPD can be represented through scaffolding; Scaffolding is a technique where an adult continually adjusts the level of his or her help in response to the child’s level of performance. It has been shown to be an effective instructional method [20]. Scaffolding not only produces immediate results, but also instills the skills necessary for independent problem solving in the future [8].

Social cognition theory and situated learning theory both assert that culture and community are prime determinants of individual development, ideas that have greatly impacted the field of education, and have provided an important foundation for research on writing composition specifically.

2.2. Theoretical perspectives on L2 writing to learn

L2 researchers recognize that L2 writers bring with them knowledge and experiences from their L1, but that L2 writers also bring limitations of their knowledge of L2 language and rhetorical organization. They have recognized that there are differences in L2 writing based on linguistic studies that have influenced L2 pedagogy [6][7][9][11][14][21]. The field of L2 writing dynamically relates to and benefits from the convergence of two intellectual directions – composition studies and applied linguistics, and those areas evolved from rhetoric and linguistics [6][7][9][11][14][21].

Writing was considered as a social and cognitive process in the 1980s. The essential dimension of social context was included in the writing process. In the 1990s, social constructivist theories prevailed in composition studies. Social constructivism has been widely accepted as a theoretical basis for understanding language use, and it is a salient aspect of the writing processes.

An important theoretical view of social constructivism is that of Vygotsky. Vygotsky’s concept of the zone of proximal development (ZPD) is relevant to the social aspect of writing. The “zone” is an area where a person can learn when helped by a knowledgeable individual or supported by cultural resources [10][12][18].

3. Blogging in Education

One of newest form of emerging technology in the area of computer-mediated communication is the weblog which is more widely known as the blogs have very quickly captured the attention of mainstream media [13]. As Brascum claims, “if you want reality, forget ‘survivor’. Check out weblogs: public online journals that can be racy, riveting and alarmingly blunt” [2].

As Weblogs are interactive, blogs create classroom community by linking to other blogs and creating groups with common interests. Blogging opens up personal thoughts and ideas and public issues and opinions to a wider audience.

The weblog has a growing impact on writing as it ranges from personal reflections and experiences, to community building, to critical analysis of
segments of blogs, to discourse analysis, to quantitative and qualitative studies of blogging activity. Cole examined the attitudes and perceptions of teachers and their students toward the implementation of blogs into the curriculum and their perceptions regarding their views of using technology in the classroom [5]. Cole found that blogs provided a motivating environment and enabled students to have an audience for their writing as well as to read their peers’ writing.

Another study conducted by Campbell (2003a) on computer supported cooperative learning using Weblogs in a university class showed that Weblogs were beneficial for constructivist learning in a blended structure learning environment and that the public nature augmented students’ interest in writing[3]. He examined the learners’ experiences in the following areas: cooperative learning, blended structure learning environment, Weblog use, and the public nature of writing.

4. Methodology

The purpose of this study was to investigate the effects of using blogs for the writing process approach with EFL students and how students responded to the pedagogical application of blogging in a community college Intermediate EFL writing class.

Cohen and Manion argued that the designs which make use of experimental and control groups but cannot realize random assignment of the subjects are called as quasi experimental designs [4]. This study tries to find out the effect of using weblogs on writing proficiency; as it could not assign the students randomly to experimental and control groups; a quasi experimental design was adopted.

4.1. Research Approach

This study wanted to see and evaluate how the advanced proficiency EFL students performed and improved their writing skills. One of the first online chat tools and synchronous (real-time) communication tool was used. It was serendipitously found that students were writing more and more coherently as time passed in the semester using the word processor and software. The attention was not focused extensively on grammar and error correction. The students managed to help each other with grammar, content, and other problems.

Nowadays, technology evolved to include synchronous and asynchronous forms of communication. These tools ranged from computer-aided classroom discussion (synchronous communication) to asynchronous forms of communication, such as e-mail, bulletin board, and listservs.

4.2. Instruments

This program in the institute is designed to develop students’ language proficiency in the areas of listening, speaking, reading, and writing in order to prepare them for the IELTS and TOEFL. The students enter this program by taking a placement test, Actual TOEFL Test, which is based on listening, reading, grammar, and sentence structures. The writing courses are designed to help students increase fluency and build confidence in writing. The courses focus on writing as a process. Through inventing, drafting, revising, and collaborating with peers, students write for specific audiences and purposes.

4.3. Measures to Determine Students’ Proficiency Level

The placement test had 3 parts consisting of 3 parts: section one (questions from 1-50) measuring listening ability; section 2 (questions from 1-40) about structure and written expression; and section 3 (questions from 1-500 on reading comprehension. The recommendation time for the completion of section 2 was 25 minutes and section 3 was 55 minutes.

The course of this study was intermediate writing course. The students were placed in the intermediate writing course scored between 437 – 473. The goal of this course is to develop paragraph construction skills and to learn the essay format. The students should also learn appropriate capitalization, punctuation, spelling, correct word order, and appropriate transition words. Proofreading and editing paragraphs and essays are the other areas needing emphasis. The classes are offered 2 days a week for one and half hours per meeting during a regular semester. A booklet was proposed by the institute to be taught during the term.
The learning objectives of writing course for this class consist of the following points:

– The learner will produce different types of paragraphs and essays that a writing task requires.
– The learner will plan and develop paragraphs and essays using a variety of sentence structures and vocabulary appropriate to the level. The paragraphs and the whole essay should be written with clarity, coherence, and Standard English.
– The learner will edit writing.
– The learner will use computer word processing skills and internet use
– The learner will execute writing tasks including: comments to the weblog selections, summaries, and e-mails.

The learners had nine writing assignments on different essay topics. The class was conducted with process of peer responding, editing, revising, and publishing their drafts:

1. Peer responding: It is referred to as feedback or commenting and used for students to collaborate and discuss their writing and provide feedback. The feedback can be provided in different formats like face to face (oral and written critiques) and computer-assisted-communication through blog comments;
2. Editing: students can read and analyze input from the comments and incorporate into their writings.
3. Revising: students make changes based on the feedback they receive from the comments
4. Publishing: The students can produce their final draft.

Blogs were used for different aspects of the writing process approach. The researcher examined different free blog sites and decided on www.blogspot.com because it has editing and deleting features accessible to the writer. It supports commenting tools, time date feature, and access to archived entries. It is very similar to word processor and very user friendly. As the word processing feature is similar to Microsoft Word, the students feel comfortable working with it. I had the students sign up the blog and join the blog which is for the entire class. The goal for the students was to present their writing assignments on the blog and have peers give meaningful and critical comments to their writing. The blog was maintained as the central location for the students to their writing tasks like peer responding, editing, revising, and publishing and their writing assignments. They used blog features such as posting to publish their papers that were composed in Microsoft Word or composed directly in their entry space. They used commenting feature to provide feedback on their peer’s writing and reflect on their own writing from the comments and questions posted. Finally they used the editing tool to make changes on their drafts.

5. Measures to Determine the Students’ Self-rating of English Proficiency

A questionnaire was designed to get the general information about the students including students’ name, age, and department, school of graduation, their feelings about new technology and their attitudes on e-mails, internet, and weblogs as a whole. A questionnaire was designed by the researcher to measure the students’ self-rating of English Proficiency.

5.1. Participants

This study took place at an institute in Zanjan, Iran which advocates learning of students as the main goal for the philosophy of students. This institute maintains that all instruction should focus on cooperative and constructivist learning and student-centered active learning. These values exist to produce life-long learning possible.

5.2. Procedure

The main procedures which were involved in this study are data collection, writing instruction, and data analysis.

Data Collection

A pre-test was administered to the participants at the beginning of the term to both groups of control and experimental. During the term control group and experimental group got the same materials...
and topics. Everything was the same in these two groups such as oral communication, brainstorming, feedback and comments but experimental group got these materials through weblog. The only plus in experimental group was the use of weblog and the comments they get from each other. A kind of group collaboration and peer to peer cooperation was administered in experimental group.

Taught by the same instructor, both groups got the same materials according to the same curriculum assigned by the institute on the same topics, however; the experimental group benefited from extra materials in the weblog. After a 14 week treatment the post-test on writing proficiency was given to the students of control group and experimental.

5.3. The Writing instruction

The aim of the instruction is to provide students with opportunities to practice the language effectively in well-organized essays. The writing instruction this term begins with the reviewing of the paragraph writing and in succession it goes on with essay-writing. The instruction was conducted and the students are required to complete 9 assignments. The types of the essay place in the curriculum are descriptive, narrative, critical, compare and contrast essays.

To test the learners’ existing ability, the students in both groups of experimental and control group were asked to perform a writing task as a pre-test on the given topics. They were provided with different topics and given chances to choose the topic they wanted. The same test was repeated at the end of the term as a post-test after the treatment. The time given to the students to do the task was 60 minutes. The evaluators were trained using 6+1 rubric.

Three experienced EFL teachers corrected the writing essays of the learners. To find out whether the compositions are valid or not, the scores were correlated with the scores from the TOEFL test.

First of all, the students are given the theoretical information about the topic and the type of the materials. Each type of paragraph is studied in almost two sessions but not in succession. The curriculum is designed by the staff and the content is followed in accordance with the syllabus and the writings are compiled. The instructor followed the curriculum; however, she had the chance of working some extra materials. After getting the theoretical information and some exercises, they are getting ready to write their first draft. They are given time to write their first draft and get feedback on it to probably writing the second draft and at last the final version. The students were required to complete 9 assignments in a portfolio to be able to pass the course. The basic conditions in both groups of experimental and control were observed.

5.4. Experimental Group and Writing Instruction

This study considers the use of blogging in process-oriented approach and the course design involves the principles of process approach in writing instruction. The writing instruction considered process-oriented when it involves six recursive procedures: prewriting, drafting, reviewing, editing, revising, and evaluating [19]. It is considered as a non-linear activity [15]. The basic purpose of in process approach is to guide students through multiple drafting, stages of getting different feedbacks, and sharing the ideas.

6. Data Analysis

To analyze the quantitative data, the Statistical Packages for Social Sciences (SPSS) was used. To test the hypothesis if there is a significant difference between the writing performances of the learners who got the normal traditional class and those who got blog-mediated process-based in-

<table>
<thead>
<tr>
<th>Groups</th>
<th>Gender</th>
<th>Range of Age</th>
<th>Number</th>
<th>Departments</th>
<th>Educational Background</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td>Male</td>
<td>22-29</td>
<td>11</td>
<td>Engineering-Mathematics-social science</td>
<td>Private &amp; State Schools</td>
</tr>
<tr>
<td>Group</td>
<td>Female</td>
<td>21-29</td>
<td>4</td>
<td>Engineering-Chemistry</td>
<td>Private &amp; State Schools</td>
</tr>
<tr>
<td>Control Group</td>
<td>Male</td>
<td>23-30</td>
<td>9</td>
<td>Engineering-Physics-Chemistry</td>
<td>Private &amp; State Schools</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>23-31</td>
<td>6</td>
<td>Engineering-Business Administration</td>
<td>Private &amp; State Schools</td>
</tr>
</tbody>
</table>
struction. Data were elicited from the students through writing task used both as a pre and post-test. As such the data obtained is in the form of scores which can be considered ordinal scale for writing performance. The analysis of T-test was used to see if there is a difference between two samples or not. There are different types of T-test but to see the difference between two groups from pre-test to post-test separately, paired samples T-test was used. Another test was used to check the difference between groups. The same data were analyzed this time by ANOVA to see whether the difference between two groups is because of the treatment done during the term.

6.1. Writing Performance of Control & Experimental Groups

This study wants to investigate the effect of using blogs on the development of foreign language writing proficiency. To achieve this goal, these research questions arose in the mind that is there any significant difference between the texts produced by the experimental group and the texts produced by the control group? and is there any significant difference between the texts produced by the experimental group and control group in terms of ideas, organization, voice, word choice, sentence fluency, and convention? The hypotheses considered in this research were as the following:

1. There is a significant difference between the texts produced by the experimental group and the texts produced by the control group.
2. There is a significant difference between the texts produced by the experimental group and control group in terms of ideas, organization, voice, word choice, sentence fluency, and convention.

6.2. Interpretation of Writing Performance of Both Groups

The data gathered for the answer of the first question were through the writing performance done during the term. The writing performance task measures the students’ writing proficiency in essay writing. The students were asked to write an essay on the chosen topic in both groups of experimental and control group. The essays were corrected using a rubric called 6-point writers rubric (2010, Education Northwest). The means of the scores of students determined the level of proficiency of the students. The results obtained from this study were calculated in SPSS computer program. To get the results, two different analysis techniques were used: paired sample t-test, and analysis of variance (ANOVA).

Table 2. Paired Sample t-test Results for Writing Performance Score in Experimental and Control Group

<table>
<thead>
<tr>
<th>Groups</th>
<th>n</th>
<th>Pre-test</th>
<th></th>
<th>Post-test</th>
<th></th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td>15</td>
<td>17.67</td>
<td>1.799</td>
<td>21.80</td>
<td>2.210</td>
<td>-7.883</td>
</tr>
<tr>
<td>Experimental</td>
<td>15</td>
<td>17.33</td>
<td>2.160</td>
<td>25.60</td>
<td>2.559</td>
<td>-8.409</td>
</tr>
</tbody>
</table>
Results of the paired sample t-test showed the results of writing proficiency scores in two groups of experimental and control. The results show that the control group increased their mean score from 17.67 to 21.80 and experimental group from mean score of 17.33 to 25.60. The findings showed t =-7.883, P<.001 in control group and t =-8.409, P<.001 in experimental group after the treatment during the term. Both groups of control and experimental had been affected positively getting the instruction during the term.

Subsequently ANOVA was applied to analyze the difference of post-test writing performance scores between control and experimental group and to recognize the source of difference from pre-test scores to post-test scores as a covariate. This test displays the source of changes:

The results of the study show that the treatment done during the term had a statistically significant impact on the post-test result F = 18.953, P<.05. As it was shown in the previous table, the mean score of experimental group (M=25.60) was higher than the mean score of control group (M= 21.80). The findings showed that weblog had a great and significant influence on writing proficiency than the normal class with class instruction and the learners’ writing proficiency has been improved highly in blog-based classroom of experimental group than control group.

<table>
<thead>
<tr>
<th>Class</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Score</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blog-based</td>
<td>15</td>
<td>25.60</td>
<td>2.558</td>
<td>.660</td>
</tr>
<tr>
<td>Normal-class</td>
<td>15</td>
<td>21.80</td>
<td>2.210</td>
<td>.571</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>95% Confidence Interval of the Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lower</td>
</tr>
<tr>
<td>2.012</td>
</tr>
<tr>
<td>2.010</td>
</tr>
</tbody>
</table>

Figure 3. Class blog. Produced by the blog writer
6.3. Interpretation of the Findings in Relation to Hypothesis 1

Another t-test was employed to analyze the difference between control group and experimental group after treatment. The writing performance of the participants were evaluated and analyzed according to idea, organization, voice, word choice, sentence fluency, and convention. These six items are the components of the 6-point Writer’s Rubric (2010, Northwest Education) used in the study.

The descriptive statistics show that mean score in blog-based group (M=25.60) was higher than the mean score in normal, traditional group (M=21.80). T-test analysis showed that the integration of weblogs in the classroom had a statistically significant difference on the score of the writing of the experimental group (.000 < α, p < 0.05). The learners in the blog-based classroom outperformed the traditional group in terms of their writing proficiency. Analyzing the difference between the writings of the control group and experimental group gives us a good idea about the difference between control group and experimental group. The following table shows the differences in mean, standard deviation of both groups.

<table>
<thead>
<tr>
<th>Class</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ideas</td>
<td>15</td>
<td>4.20</td>
<td>.775</td>
<td>.200</td>
</tr>
<tr>
<td>Traditionalclass</td>
<td>15</td>
<td>3.67</td>
<td>.488</td>
<td>.126</td>
</tr>
</tbody>
</table>

Table 6. Group Statistics for Writing Performance: Idea

6.4. Interpretation of the Findings in Relation to Hypothesis 2

Another t-test was employed to check the difference between the control group and experimental group. The writing score of the learners were analyzed during the term after taking their writing assignment. These writing assignments were analyzed considering ideas, organization, voice, word choice, sentence fluency, conventions, and presentation.

**Idea**

The descriptive statistics showed that blog-based learners outperformed the learners in the other class writing traditionally in terms of their mean (4.20>3.67).

The learners in the experimental group used weblogs and put their comments about the topics of the week and helped each other. As the ideas are the main message and the main theme with all the supporting details enrich and develop the theme. The ideas would be strong when the message is clear. The writer chooses the ideas which are important, interesting and informative. These details are the kinds in which the reader would not normally anticipate or predict. As a whole the details shouldn’t be known by the reader. Considering these materials the learners in experimental group got the mean score of 4.20 and control group got the mean score of 3.67.

Using t-test revealed that there is a significant difference in ideas between experimental and control group. As it is shown in Table 7 P-value<0.05 (0.032< 0.05), then the learners in blog-based group outperformed the learners in traditional group. It means that weblogs and, information it gives, the comments they get from each other, and
the help they share, assisted them a lot to write the main message.

**Organization**

The descriptive statistics in Table 8 show that the mean scores of blog-based group is higher than traditional group (4.40 > 4.07).

To understand the difference between these two groups, another t-test was enrolled to find the effect of weblog integration on the organization of the writing proficiency of the learners. Organization is the internal structure of a piece of writing, the thread of central meaning, the pattern and sequence, as it fits the central idea. Organizational structure can be based on comparison-contrast, deductive logic, point by point analysis, development of a central theme, chronological history of an event, or any of a dozen other identifiable patterns. When the organization is strong, the piece begins meaningfully and creates in the writer a sense of anticipation that is ultimately, systematically fulfilled. Events proceed logically; information is given to the reader in the right doses at the right times so that the writer never loses interest. Connections are strong, which is another way of saying that bridges from one idea to the next hold up.

As shown in Table 9 there is a significant difference between blog-based group and traditional group of learners in organization (P-value < 0.05). It means that using blogs in the class helped the students a lot and the learners in the experimental group did better than the students in the control group.

**Voice**

The descriptive statistics in table 10 displays that the mean score of voice in blog-based group which is higher than the mean score in normal group (5.20 > 3.80).

As it is shown, the mean score of voice in blog-based group is 5.20 and the mean score of voice in normal group is 3.80. To find the difference between two groups in their voice of writing proficiency another t-test was applied. Voice is the writer coming through the words, the sense that a real person is speaking to us and cares about the message. It is the heart and soul of the writing, the magic, the wit, the feeling, the life and breath. When the writer is engaged personally with topic, he/she imparts a personal tone and flavor to the piece that is unmistakably his/hers alone. And it is that individual something-different from the mark of all other writers- that we call Voice.

Table 11 shows that there is no significant difference between the groups of this study. P-value is larger than 0.05 (p-value > 0.05). It means that using blogs in the class didn’t help the students a lot in terms of voice and the learners in the experimental group did approximately as well as control group even though the mean in blog-based group was higher than the other class.

**Word Choice**

The descriptive statistics in Table12 shows that the mean in blog-based group shows priority than the normal class (4.33 > 3.20).

<table>
<thead>
<tr>
<th>Class</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organization</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blog based</td>
<td>15</td>
<td>4.40</td>
<td>.828</td>
<td>.214</td>
</tr>
<tr>
<td>Traditional class</td>
<td>15</td>
<td>4.07</td>
<td>.594</td>
<td>.153</td>
</tr>
</tbody>
</table>

### Table 8. Group Statistics for Writing Performance: Organization

<table>
<thead>
<tr>
<th>Class</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organization</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blog based</td>
<td>15</td>
<td>4.40</td>
<td>.828</td>
<td>.214</td>
</tr>
<tr>
<td>Traditional class</td>
<td>15</td>
<td>4.07</td>
<td>.594</td>
<td>.153</td>
</tr>
</tbody>
</table>

### Table 9. Independent Samples Test of Two Groups: Organization

<table>
<thead>
<tr>
<th>Organization</th>
<th>F</th>
<th>Sig.</th>
<th>t</th>
<th>df</th>
<th>Sig. (2-tailed)</th>
<th>Mean Difference</th>
<th>Std. Error Difference</th>
<th>95% Confidence Interval of the Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equal variances assumed</td>
<td>5.408</td>
<td>.028</td>
<td>1.267</td>
<td>28</td>
<td>.021</td>
<td>.333</td>
<td>.263</td>
<td>-.206, .872</td>
</tr>
<tr>
<td>Equal variances not assumed</td>
<td>1.267</td>
<td>25.383</td>
<td>.022</td>
<td>.333</td>
<td>.263</td>
<td>-.208</td>
<td>.875</td>
<td></td>
</tr>
</tbody>
</table>
The mean score of blog-based group is 4.33 which is more than the normal class with the mean of 3.20. Word Choice is the use of rich, colorful, precise language that communications not just in a functional way, but in a way that moves and enlightens the reader. In descriptive writing, strong word choice resulting in imagery, especially sensory, show me writing, clarifies and expands ideas. In persuasive writing, purposeful word choice moves the reader to a new vision of ideas. In all modes of writing figurative language such as metaphors, similes and analogies articulate, enhance, and enrich the content. Strong word choice is characterized not so much by an exceptional vocabulary chosen to impress the reader, but more by the skill to use everyday words well. A t-test was applied to display that whether there is a significant difference between blog-based group and normal group in terms of word-choice. As P-value < 0.05 there is a significant difference between these two groups. Table 13 shows the blog-based group outperformed normal group and got better results in word-choice (0.00 < 0.05). Blog helped the students use rich, colorful, precise language that moves and enlightens the reader. It moves the reader to a new vision of ideas in which metaphors, similes and analogies articulate, enhance, and enrich the content.

<table>
<thead>
<tr>
<th>Table 10. Group Statistics for Writing Performance: Voice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class</td>
</tr>
<tr>
<td>Voice</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Table 11. Independent Samples Test of Two Groups: Voice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Levene’s Test for Equality of Variances</td>
</tr>
<tr>
<td>F</td>
</tr>
<tr>
<td>------------------------------------------------</td>
</tr>
<tr>
<td>Voice</td>
</tr>
<tr>
<td>Equal variances not assumed</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Table 12. Group Statistics for Writing Performance: Word Choice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class</td>
</tr>
<tr>
<td>Wordchoice</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Table 13. Independent Samples Test of Two Groups: Word Choice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Levene’s Test for Equality of Variances</td>
</tr>
<tr>
<td>F</td>
</tr>
<tr>
<td>------------------------------------------------</td>
</tr>
<tr>
<td>Wordchoice</td>
</tr>
<tr>
<td>Equal variances not assumed</td>
</tr>
</tbody>
</table>
**Sentence Fluency**

The table below shows that the mean of blog-based group is more than the mean in normal class in terms of sentence fluency.

It shows that the mean of sentence fluency in blog-based group is higher and the students outperformed the students in normal class with traditional conditions. Sentence fluency is the rhythm and flow of the language, the sound of word patterns, the way in which the writing plays to the ear, not just to the eye. How does it sound when read aloud? That’s the test. Fluent writing has cadence, power, rhythm, and movement. It is free of awkward word patterns that slow the reader’s progress. Sentences vary in length, beginnings, structure, and style, and are so well crafted that the writer moves through the piece with ease.

To show the exact evidence, a t-test was administered to find the cause of difference in mean. Table 15 displays that there is a significant difference between blog-based and normal-class in terms of sentence fluency. In this table P-value is less than 0.05 (0.003 < 0.05), then there is a significant difference between blog-based group and normal group in terms of sentence fluency.

**Convention**

The last point in the 6-point writer’s rubric is

---

<table>
<thead>
<tr>
<th>Sentence Fluency</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blogbased</td>
<td>15</td>
<td>4.33</td>
<td>.724</td>
<td>.187</td>
</tr>
<tr>
<td>Normalclass</td>
<td>15</td>
<td>3.40</td>
<td>.828</td>
<td>.214</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Levene’s Test for Equality of Variances</th>
<th></th>
<th>t</th>
<th>df</th>
<th>Sig. (2-tailed)</th>
<th>Mean Difference</th>
<th>Std. Error Difference</th>
<th>95% Confidence Interval of the Difference</th>
<th>Lower</th>
<th>Upper</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equal variances assumed</td>
<td>.271</td>
<td>.607</td>
<td>3.287</td>
<td>28</td>
<td>.003</td>
<td>.933</td>
<td>.284</td>
<td>.352</td>
<td>1.515</td>
</tr>
<tr>
<td>Equal variances not assumed</td>
<td>3.287</td>
<td>27.507</td>
<td>.003</td>
<td>.933</td>
<td>.284</td>
<td>.351</td>
<td>1.515</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Convention</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blogbased</td>
<td>15</td>
<td>4.13</td>
<td>.640</td>
<td>.165</td>
</tr>
<tr>
<td>Normalclass</td>
<td>15</td>
<td>3.67</td>
<td>.724</td>
<td>.187</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Levene’s Test for Equality of Variances</th>
<th></th>
<th>t</th>
<th>df</th>
<th>Sig. (2-tailed)</th>
<th>Mean Difference</th>
<th>Std. Error Difference</th>
<th>95% Confidence Interval of the Difference</th>
<th>Lower</th>
<th>Upper</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equal variances assumed</td>
<td>1.326</td>
<td>.259</td>
<td>1.871</td>
<td>28</td>
<td>.042</td>
<td>.467</td>
<td>.249</td>
<td>-.044</td>
<td>.978</td>
</tr>
<tr>
<td>Equal variances not assumed</td>
<td>1.871</td>
<td>27.586</td>
<td>.042</td>
<td>.467</td>
<td>.249</td>
<td>-.045</td>
<td>.978</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
convention which is compared in two groups of this study.

Descriptive statistics show that the mean in the blog-based group (X=4.13) is statistically more than the mean in normal class (X=3.67). The information came from this table says that blog-based group performed better than normal class. The Conventions Trait is the mechanical correctness of the piece and includes five elements: spelling, punctuation, capitalization, grammar/usage, and paragraphing. Writing that is strong in conventions has been proofread and edited with care. Since this trait has many pieces to it, it’s almost an analytical trait within an analytic system. As you assess a piece for convention, ask yourself: “How much work would a copy editor need to do to prepare the piece for publication?” This will keep all of the elements in conventions equally in play. Convention is the only trait where we make specific grade level accommodations, and expectations should be based on grade level to include only those skills that have been taught.

A t-test was applied to see the difference between control group and experimental group on convention issue. Table 17 shows that P-value is statistically less than α (P-value < α). As it is obvious there is a significant difference between blog-based group and normal group because 0.042 < 0.05. Then Blog-based students outperformed normal-class in convention and did their job better.

As a whole, we should mention that blog-based writing positively influenced the students’ writing performance. The analysis showed that students in blog-based group outperformed the students in normal class which was run traditionally.

**Conclusion**

This research is arranged to find the potential effects of weblogs on EFL learners’ writing proficiency. Weblog is used as an educational tool in writing course to describe its use and effect on the students’ essays. This study conveyed in two groups and got data from experimental (N=15) and control group (N=15). The subjects were on intermediate level who were preparing for IELTS and TOEFL. To get the data from the learners and collect the necessary data, a pre test and post test was carried out and the results were analyzed. For the analysis of data, descriptive statistics were used as well as the paired sample t-test to compare the writing performance of the control students with that of experimental group. ANOVA was used to find out the source of improvement in the writing performance of the students.

The results showed that the students in experimental group outperformed the students in control group in terms of writing proficiency. The analysis of data attained through writing performance of pre and post test demonstrated that both groups improved at a significant level. However, the differences in post test showed that blog-mediated writing instruction was more effective than normal writing instruction. Using weblogs in this class affected the students’ writing proficiency positively as a whole. It also significantly affected some key qualities of 6+1 trait of writing analytical model for assessing and teaching writing. Blog affected the qualities like Ideas, Organization, word choice, Sentence Fluency, Conventions, and Presentation. However weblog didn’t affect the Voice quality of this rubric significantly. It showed that the personal tone and flavor of the message has not been changed a lot. The main message; the internal structure of the piece; the vocabulary a writer chooses to convey meaning have been improved significantly because of the use of weblogs in the class. The possible explanation of the effectiveness of weblog is choosing the content of the piece and supporting details that enrich and develop the theme. The ideas used are strong because the message is clear. The students used details which are interesting, important, and informative. The learners organized the internal structure of a piece of writing, the pattern and sequence that fits the central idea. The connections are strong that bridges from one idea to the next. The students in the experimental group also have chosen rich, colorful, precise language that communicates not just in a functional way, but in a way that moves and enlightens the reader. They have used the words which clarify and expand ideas. Using strong words, one can enhance and enrich the content. The results showed that the students of the experimental group have used the rhythm and flow of the language, the sound of word patterns, the way in which the writing plays to the ear, not just to the eye. The writings of blog-mediated
group are strong in conventions and include the elements of spelling, punctuation, capitalization, grammar/usage, and paragraphing which are related to the mechanical correctness of the piece. As a whole overall appearance of blog-used group such as balance of white space with visuals and text, graphics, neatness, handwriting, font selection, borders attract the attention. On the other hand, no effect of weblog was discovered on the voice trait. There was no significant difference between the tone and flavor to the piece that is his/hers alone in two groups of study. It shouldn’t be ignored that the students in control group improved their writing proficiency too. However, the improvement in the control group can be considered as the result of process oriented course they had during the term.

The students found that weblogs were useful improving the students’ writing proficiency and further expressed that they had more opportunities to receive more information. They could choose the materials according to their own needs and supply it in language learning and especially in their writing proficiency. Weblogs helped the students to prepare themselves by collecting suggestions for their writings and to continue their jobs. They had a positive feedback on using weblogs in their classes and for improving their writing proficiency. Blogs will make for meaningful learning to take place; pedagogical intervention could encourage students to take their peers’ comments into account so that they can edit their own work with a view to enhancing their writing tasks and producing mistake-free texts [16].

**Pedagogical Implications of the Study**

The significant implication of the present study in educational setting for the EFL teachers should not be ignored. The results of this study show that EFL teachers can make the benefit of using weblogs in their writing courses. As it is obvious the students writing proficiency have been improved significantly. It is an astonishing offer for the teacher to start their writing courses using weblogs in their classes. Weblog is a user friendly technology that can be incorporated by teachers if they desire to make use of it in their classes. It can be used outside the classroom anywhere they would like. It incorporates the learners and the teachers with the tool in every setting without limitation in time and space. The findings of the study displayed that using weblogs in the class improved their writing course more than the other class which didn’t use weblogs. Therefore; it is recommended to extend the use of weblogs in the EFL classes. Authentic situation and real audiences are the motivational factors in this regard and also it is possible for other people to use the weblog and put their comments about different topics. As peer responding is one of the best methods of teaching L1 and L2, this research and the use of peer responding, and peer editing and peer correction in weblog situation will be one of the most effective ways of learning and improving language. On the other hand, it is very important to find some ways to increase the students’ confidence and trust in peer editing. Having interactional collaboration will help the students to benefit from different opportunities to see their classmates’ ideas and comments and also to be seen from other students’ eyes.

**References**


Corresponding Author
Elham Kavandi
Farhangian University
Zanjan
Iran
e_kavandi2000@yahoo.com
Hybridized Scenario of M-Learning

Syed Faizan Haider, Daniyal Alghazzawi, Naif AlJohani
Dept. of Information Systems, FCIT, King Abdulaziz University, Jeddah, Kingdom of Saudi Arabia

Abstract

It is both apt and correct to state that “Knowledge is Power” for it has with it the depth of ocean meanings. The reason that the human beings are blessed with the vicegerenity of the GOD is the knowledge (considered as an entity of supremacy over all the other creations including angles even).

Knowledge can be attributed as the refined learning form and the Data to be in its supreme category. Three forms of C, E, and M-Learning are heading towards the learner’s rapid mental uplift with his knowledge gain via the utility of the smart phone, PDAs along with the current mobiles hybrid technology.

This paper proposes, Success Factors Integrated (SFI) for the mental growth of the taught in the diversified straits, appreciation M-Learning in the hybridized scenario. It further dares to put forward the Risk Triangle (encompassing the social impairing effects) for the researchers to ponder upon in the coming days.

Keywords: Adoption, M-Learning, Mobile Technology, C-Learning, Mental Growth, E-Learning, Hybridized

1. Introduction

The word mobile for its popularity and familiarity, with the uneducated masses even; has given birth to a scenario. It is no more a word instead a mobile phone or simply “a mobile, that has become a widely used common gadget for communication that even a farm worker or a labourer (for whom it is difficult to meet both of his ends) possesses it. Aptly a revol in information dissemination in a ubiquitous fashion, helping the scientists in availing its added values in terms of its quality & utilization in imparting the education known as Mobile learning or for short M-learning.

Its Omni reach and Portability (of course through the internet connection), both are the attributes that distinguish M-Learning than the rest of the other forms of being learned and these two features have further given birth to distinct five characteristics; Instant connectivity, continence, personalization, ubiquity along with services and product localization [1] as shown in the Figure-1 underneath.

![Figure 1. Characteristics of M-Learning Features](image)

The classroom instruction and e-Learning bears a relationship between them. The Mobile learning is in no way having the intention to take a place in lieu of the learning in the classroom. Mobile learning in reality is embedding learning in the day to day life by providing the content delivery in a different form. The nature and the format of the learning materials should be of the small consumable chunks, prepared in the format that could be provided through the wireless network usability. The basic and the fundamental intention of learning using mobile is the consideration of the ways in which the mobile devices could be utilized for harmonizing and strengthening overall learning strategy, instead of the belief of converting all personal computer based contents of learning into the mobile format.

The accessibility, personalized learning activities and flexibility are a few to mention, advantag-
es entrusted by the mobile learning. By the dint of these advantages, it is expected that the learner’s effectiveness and productivity would be enhanced if kept engaged in ongoing learning activities. Special care, in designing the applications for the Mobile learning scenario, had to be taken to accommodate this high technology learning system for its use in the office work. The learning in the mobile environment ought to be adaptive in the contexts of learner (i.e., motivation, style, movement, and the background etc.)[2].

2. Review of Literature

Hafner[3] Commented on the wireless utility feature for the mobile application to be of a couple of years of age. The concept of the mobile learning is growing rapidly[4]. Amongst the first ones embracing this wireless revolution initially this in the year 2000 was the Dartmouth college; until the year 2002, in which it attained its adoptability in full.

Sharma [5] said that the literature has many definitions for mobile learning; Defined as “e-content delivery in digitized way through personal digital assistants (PDAs) or wireless phones hooked into laptops”. Spreading of internet-enabled mobile devices and the continuous evolution of wireless technology, the significant effect in reshaping the new style of learning (M-learning) would be realized in the current scenario.

Grasso [6] stated that for designing mobile learning systems two steps are necessary to be taken:

“Ist. Step: User analysis:
It is imperative to identify characteristics of the user e.g. his/her age, nationality, disabilities or special needs, degree of familiarity with the mobile devices, interest and motivation in learning the use of the mobile devices; the context usage of the application.

2nd. Step: Designing an interface which is usable:
The next step is the design of the interface as per previously available technology, and the analysis and some considerations must be taken in designing this interface.”

Young [7] has expressed that the important issue is the way the content is organized & designed, while the motivational factors, mental processing, and the learning styles must be taken into consideration. Following some guidelines in designing the contents must be emphasized for mobile learning.

“The mobile learning project, (ARIS) Architecture for Integrated Information Systems, [8], fulfill the requirements as follows:

– Learning objects minimized i.e. for the convenience of the user, the learning pieces given to him in the this environment are discrete for enhancing the possibility of the chunks being grasped by him/her until the occurrence of the next distraction.
– Review concepts designing i.e. distractions for the learners in digesting learning new contents. Hence these objects of learning provide the user with a chance to repeat and practice the known content for mobile environments.
– Imperative interactivity minimized meaning that it is crucial, the possibility of reengaging afterwards and to fade out if needed where the learner left off.
– Adaptive interactivity, personalized: Since this learning experience is adaptive in nature to the styles of personal learning. The learner at his own ease should be able to identify the complex nature of the lecture as per her/his personal local situation and the current state of mind.

Roschelle [9] has expressed his view about smart phones, personal digital assistants and the mobile phones that these hand held computers may become, for the classrooms; an increasingly a compelling option of technology because these have enabled the frequent and integral use of the computational technology through a transition from occasional, supplemental use associated with computer laboratories.

Liu [10] reported that both the developing and developed countries of the world are adopting the unparalleled and escalating wireless and mobile technologies. The world is experiencing a modernized renovation in the conventional style of education, to ‘anytime’ and ‘anyplace’ of learning by embracing these new technologies. The wireless technologies have several advantages in the experimental learning environment. e.g. in the classroom, enhancing communication and collab-
orative learning, sustaining team work on projects and the engagement of learners in the activities related to learning.

The worst part about any gadget or mobile phone working on batteries, despite all the affirmative add ons, is their recharging (The constant hassle). The new technology of “Betavoltic Batteries” having a life 25 - 30 years without being charged (if developed) would make the so called "Fuel cells" that promises for providing forty hours of power supply (currently under development) to be useless for the former’s better promise [11]. There would be a new revolution within 2 to 3 years in the mobile phone Technology in enhancing the M-learning environment, when such batteries would be available in the market.

Masud, A. H et. al [12] expressed his concerns about lack of sufficient educational resources along with higher cost to be the hurdles and challenges for the M-Learning to be accessible virtually at any place & from anywhere.

3. Results and Discussion

The model called learning/wisdom model as described [13], the understanding & connectivity bear a relation with one another in such a style that generally in the environment, of course learning, the Data progresses to perception, that then is transformed into information that further head towards the knowledge; ultimately approaching to the learning that in actuality depicts Wisdom. M-learning environment holds well for this model. The learning has even grown stronger via the support of the Wireless Fedelity (Wi-Fi) for the PDAs and smart mobile phones; as it has progressed to electronic and mobile from the conventional environments of learning.

Above figure presents the environment of the conventional learning or C-Learning to be for short, three entities can be noticed as strongly related amongst themselves in the triangular form. The ties between the teacher and the taught are strong and the other relation that exist between the teacher and the parents. The teacher, through his regular feedback about the taught, updates the parents about what is going on. This feedback plays an important role about the taught in helping the parents to fine tune their loved ones involved in the learning process by following the right track for ethical learning. The cost involved in this type of learning is affordable and the tools are simple.

The technology with its advancement, has on the one hand supplemented considerably an ease to

---

**Learning in Conventional Style**

![Diagram showing conventional learning environment with teacher, taught, and parents]

**Figure 2. Learning: A Conventional Environment**
both the distance along with class learning, while onto the other it has let loose the bond between the parents & teacher; making a non direct relation, nevertheless this relationship got an additive power for the taught & the teacher in the dual fashion i.e through multi and Direct media interaction. This gave student more independence, enhanced thinking and more liberty. In the Global Village scenario, the tools became modernized, while the boom in information; backed through the internet rich media and the personal computers, gave birth to the Electronic or E-Learning environment as illustrated in Figure underneath. This has put forward new meanings to the learning (Depending
upon the availability of the internet, where ever is it) with no boundaries in the jurisdiction.

The new avenue opened by the E-learning has put forward for Researchers and Scientists to explore upon its usability and utility aspects and disciplines generally but in the learning field particularly. Mobile Learning or for short M-Learning, is the outcome of the wireless technology that has been pillered by the smart phones, mobile phones, and PDAs. This scenario of new learning has been shown in the Figure 4. The student is enjoying much liberty and ease to learn any where at any time convenient to him, for having these gadgets (Mobile/handheld device) by the dint of the wireless fidelity facilitated places.

There are three modes, like direct, via laptops (wireless) or through the mobile phone of course with Wi-Fi connectivity, of the interaction and coordination in the classroom (instruction) environment. In this type of instructional environment, the function of both the parent and the teacher has taken a new form which is virtual in nature. M-Learning has created a new paradigm, hybrid in its form, providing a self centered an independent, agile, unbounded, globalized full of both quality and quantity knowledge arena, that could be attributed as the hybridized paradigm of the M-Learning.

A contrasting comparison, has been presented underneath as Table-1, of the three learnings along with the necessary constituents in their respective categories and environments. The point to be noted here is that since the ingredients (entities) in the respective categories are not finalized but have changed their shape and form, with the leaning forward of the learnings; in the hybridized fashion and that is the reason of their consideration in the transitional ingredients scenario.

A critically deep view onto the above mentioned Table reveals that with the gradual advancement in the technology over a period of several years and so is the case with the learning evolution. The learning has traced its discourse from Conventional to the Electronic and further to the Mobile phone learning which is currently being appreciated as hybridized paradigm of the Mobile learning but can it be said as the end of the learning! Of course not, because either of the human mind or the technology has stopped its development. With the time passing by and as the technology matures in inventions, it could be possible however that the new and enhanced learning environments may come to the scene. The value of all the C- and E along with M-Learning cannot be undermined and therefore would remain intact because the world can’t be simultaneously upgraded technologically, in total.

Figure-5, shown below is an indicative of the truth about, the suggested “Integrated Success Factor”, what has been discussed in the preceding paragraph for all the three learning environments in the hybridized paradigm as well. The three levels of learning in support of each other have helped in framing a structure resembling a funnel by incorporating the success factors in the growing environment. This is an indication, showing the basic or conventional Learning environment success factors (building blocks) strengthening the building blocks of E-Learning with the fresh success factors addition, hence generating anew and upper learning level scenario named as E-Learning that after supplementing more supportive success factors have given a further strength even to the E-Learning environment transforming it into a totally new environment called the M-Learning or Mobile learning now a days.

Table 1. Transitional Constituents of three: C, E & M Learnings

<table>
<thead>
<tr>
<th>Conventional Learning</th>
<th>Electronic Learning</th>
<th>Mobile Learning</th>
</tr>
</thead>
<tbody>
<tr>
<td>legitimate Situation</td>
<td>Simulated Situation</td>
<td>Realistic Situation</td>
</tr>
<tr>
<td>Travel Consequences</td>
<td>Media-Rich</td>
<td>Lightweight</td>
</tr>
<tr>
<td>Mutual</td>
<td>Collaborative</td>
<td>Networked</td>
</tr>
<tr>
<td>Direct Relation</td>
<td>Hyperlinked</td>
<td>Wireless Connection</td>
</tr>
<tr>
<td>Direct Interaction</td>
<td>Bandwidth</td>
<td>GPRS, Bluetooth, G3, MMS</td>
</tr>
<tr>
<td>On Campus Learning</td>
<td>Distance Learning</td>
<td>Situated Learning</td>
</tr>
<tr>
<td>Books &amp; Note-Books</td>
<td>Computer</td>
<td>Mobile</td>
</tr>
</tbody>
</table>
The above chart provides a clue about the ratio of the learning level versus the success factors, which for M-Learning is 0.90 while for C-Learning it is 1.45 and this ratio clearly indicates that in the environment of the C-Learning though the learning was comparatively low but the taught material was digested and bear cent percent success. The rapid evolution in Learning gave a boost to the Electronic Learning and we see both the factors became strong enough to depict that none of the two is lagging behind but gives a good comparison of success and learning. Now moving towards the mobile learning (M-Learning) for its omnipresent, independent and anywhere reach enhanced learning in the unparalleled facilitating environment that got a win over the first two with much more learning and likewise the success factors. The reasons that came out as hindrances in the success factors i.e. unbounded impendence with the little or no ethical approach, security issues and several others. This has created a new situation to ponder upon the needs for the dire consideration of certain steps to bring a balance in the two things i.e. learning level along with the success factors.

4. Conclusion and Further Research

It is thus concluded that the wireless technologies used at the academic setups could be of much benefit & advantage for all those associated, with the condition that the related policies are in action and necessary instructions are being observed. The areas, consisting of the stakeholders (Students, Teachers and Parents), success factors, mobile devices along with communication infrastructure, have come to the scene as a critical factor adopting m-learning successfully, therefore stresses for their serious consideration.

Deeper observation revealed that M-Learning growth on one side has enhanced the skills, added to the analysis ability, elevated sharpness of mind, increased the interactivity, and catalyzed the straight approach to tackle and solve the problem, whereas on the other side it has supplemented risks, mentioned below in the triangular form for earliest and urgent pondering:

Acknowledgement

The authors hereby acknowledge the funding of this work grant No. (611-016-D1433) along with the technical help extended by King Abdulaziz University’s Deanship of Scientific Research at the Jeddah, KSA., with thanks.
References


11. Newlaunches. Com, Betavoltic batteries can power your laptop for 30 Years without recharging, October 1, 2007.


Corresponding Author
Syed Faizan Haider,
Dept. of Information Systems, FCIT,
King Abdulaziz University,
Jeddah,
Kingdom of Saudi Arabia,
E-mail: shaider@kau.edu.sa
Assessment of the energy efficiency practices in the hotel industry

Vlatko Cingoski¹, Biljana Petrevska¹, Nikola Trajkov²

¹ Faculty of Electrical Engineering, Goce Delcev University - Stip, Macedonia,
² Faculty of Tourism and Business Logistics, Goce Delcev University - Stip, Macedonia.

Abstract

The study evaluates the application of the energy efficiency practices in the hotel industry. It explores the determinants of energy consumption in three and four-star hotels in Macedonia. The research investigates the impacts of several elementary components of the energy practices, by measuring the current level of influence. The data were obtained by an online survey conducted among managers and processed by descriptive statistics and factor analysis. The results point out some alarming facts, i.e. these types of hotels lack policies on general environmental issues. The managers pose some high awareness of the benefits produced by this concept, which is due to the highly positive perception of the environmental protection. The lack of subsidies at local and national level is identified as the most profound constraint along with the technical limits of the hotel facilities and costs increase. The study recommends some new approaches in challenging the hotel industry to decrease the operating costs and suggests that managers are in need for better understanding of the importance of the energy efficiency practices.

Key words: energy efficiency, perception, environmental practices, hotels.

1. Introduction

Hotels are one of the most energy intensive facilities with correspondingly high energy costs. They are ranked among top five in terms of energy consumption in the tertiary building sector (minor only to food services and sales, health care and certain types of offices) [1]. So, there is an inevitable relationship between the hotel industry development and the environmental and energy efficiency impacts. The main intention of the management is to focus its activities to reduce the operating costs by introducing new sources of energy that preserve the environment and create an eco-friendly establishment. Due to the fact that clean and well preserved environment is one of the main preconditions for high quality service generally in the hospitality-oriented facility, the dependent nature of the hotel development may be concluded.

The energy efficient practices are extremely important to hotels since they provide savings of 20 percent or more due to the fact that among all operating costs, those of energy utilities are the ones of the most controllable [2]. Cutting the operating costs increases the profit and allows improved competitiveness on tourism market. The introduction of the energy efficient practices allows enriched guests comfort, increased hotel aesthetic value, reduced maintenance system failures and so forth. These practices enable the environment protection by reducing carbon dioxide, methane, nitrous oxide and other harmful emissions that provoke global-warming and climate changes.

This study is designed to provide information on the extent how the hotel industry meets the energy efficiency practices in terms of the current level of involvement. It investigates the general nature of the environmental protection, solid waste management, resource usage and protection, as well as the benefits and constraints in applying the energy efficient practices. The intention is to pose some valuable findings in the hotel management for cutting the operational costs based on saving energy. In addition, the research aims to increase the energy efficiency and environmental awareness among the hoteliers and other tourism oriented parties.

For that purpose, the paper covers several sections. After the introductory part, Section 2 provides a brief overview on literature addressing the environmental performance and energy practices, as well as benefits for the hotel industry. Section 3 encompasses the methodology and research frame-
work. Section 4 presents the main analysis, discussion and findings, while the future challenges and recommendations are noted in the last section.

2. Literature review

There is a large body of literature arguing the necessity of always having in mind the environment, thus introducing environmental protection programs in the hotel activities in terms of reducing the energy consumption, recycling, composting food scraps etc. [3], [4], [5], [6] and [7]. Even more, some academics put an accent on developing a management system that is in compliance with the legislation, education and economic development policy [8] and [9], while others point to the environmental planning and management [10], [11], [12] and [13]. Moreover, some critical research note that the mode of hotel industry production, distribution and consumption contribute to environmental crises [14] and [15].

Furthermore, it is noted that hotels have noticed the benefits from improving the environmental performance generally by reducing the operational costs [16] and [17] and sustaining the competitive advantage, the increased demand for eco-friendly hotels etc. [18], [19] and [20]. Additionally, various regulations serve as primary instruments of action for hotels in the line of fulfilling obligatory regulations for health and safety, environmental taxes, building standards etc. This leads to the necessity of developing industry benchmarking [21], [22] and [23].

3. Methodology and data

The study took qualitative and quantitative methods. The qualitative approach included literature review on main publications of the interest addressing the application of energy efficiency practices in other countries. Furthermore, a number of publications of interest were carefully followed, along with websites for updates on environmental protection initiatives.

The quantitative approach covered data obtained from an online survey. The data were collected via questionnaires administered by managers of three and four-star hotels in Macedonia. To determine the sampling frame, a list of these hotel types was provided by the Sector of Tourism within the Ministry of Economy upon which, a total of 111 three and four-star hotels were identified. A pilot test was launched in order to check the validity of the questionnaire. The survey was conducted during May-June 2015 with a follow-up reminder to each non-respondent approximately each week. The overall response rate was 31.5% (23.9% of all three-star hotels, and 43.2% of all four-star hotels). Such low response rate was expected due to the lack of personal contact and less binding [24], [25] and [26].

The questions were structured in five section whereas some included two-choice questions, while in others a five-point Likert scale was applied (1 = very low; 5 = very strong). General hotel data are addressed in Section I, while 32 indicators were selected among the indicators that are already applied and discussed by [27], [28] and [29]. The indicators were structured in four sections. Section II comprised of 12 questions defining the environment policy. Section III incorporated 9 questions for measuring indicators for solid waste management. Section IV included 11 questions for assessing the usage and savings of resources. Section V covered 10 questions in the line of measuring the managerial perception on benefits and constraints for applying the energy consumption concept in the hotels.

The statistical evaluation of obtained data was performed by the software package SPSS. The novelty of this study is that the Likert items are observed as ordinal and not interval data, which is a less applied approach in tourism research [30], [31], [32], [33], [34], [35] and [36]. In terms of multivariate data analysis method, we used the Categorical Principal Component Analysis (CATPCA) technique to reduce the number of variables, while the reliability of the components is checked by the Cronbach Alpha. The scores of three perception components were compared by Kruskal-Wallis tests. The hotels’ classification, in terms of indicators for benefits and constraints for applying the energy efficiency practices, is made by establishing medians in the components scores.

4. Findings and discussion

The study found that generally, the surveyed three and four-star hotels have almost the same attitudes towards the investigated questions al-
though they differ in the size and number of employees. Generally, in terms of working history, they are well positioned hotels on tourism market with over 15 years of working experience. On average, the three-star hotels have nearly 10 employees and up to 50 rooms, while the four-star hotels have up to 30 employees and over 50 rooms.

The summarized results from the questions covering the section on general environmental issues are noted in Table 1. Generally, it is found that hotels do not hold a Certificate for energy efficiency, do not prepare reports on environmental protection and do not have an employee responsible for activities related to the environmental protection. The vast majority of the hotels do not have either Eco label (66.3%), or Eco certificate (76.8%). This is not in favor of supporting the European environmental impact assessment regulation. This legislation started to develop in the 1970s and since then, many documents, action plans and standards have been established by the European Union. Besides industry, energy, transportation and agricultural sections, tourism is also introduced as a segment which must conform to the Fifth Environmental Action Program. Due to the fact that Macedonia is a candidate country for EU membership, much attention must be put to the hotels to meet the internationally set standards.

Table 1. Frequency distribution on general environmental issues (%)

<table>
<thead>
<tr>
<th>Item</th>
<th>3-star hotels</th>
<th>4-star hotels</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Certificate for energy efficiency</td>
<td>37.5</td>
<td>62.5</td>
<td>52.6</td>
</tr>
<tr>
<td>Plan for environmental protection</td>
<td>53.3</td>
<td>46.7</td>
<td>73.7</td>
</tr>
<tr>
<td>Reports on environmental protection</td>
<td>26.7</td>
<td>73.3</td>
<td>31.6</td>
</tr>
<tr>
<td>Eco label</td>
<td>20.0</td>
<td>80.0</td>
<td>47.4</td>
</tr>
<tr>
<td>Eco certificate</td>
<td>20.0</td>
<td>80.0</td>
<td>26.3</td>
</tr>
<tr>
<td>Employee responsible for environmental protection</td>
<td>31.3</td>
<td>68.8</td>
<td>47.4</td>
</tr>
<tr>
<td>Award for environmental protection</td>
<td>0.0</td>
<td>100.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Availability of information for guests</td>
<td>68.8</td>
<td>31.3</td>
<td>68.4</td>
</tr>
</tbody>
</table>

Table 2. Summarized key results

<table>
<thead>
<tr>
<th>Component</th>
<th>Sub-component</th>
<th>Item</th>
<th>Loading</th>
<th>Mode*</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. Environmental policy (Alpha = 0.71)</td>
<td>Environmental protection</td>
<td>I1- Employees training</td>
<td>0.724</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>I2- Prevention interventions</td>
<td>0.608</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>I3- ISO 14000</td>
<td>0.554</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>I4- Hotel’s surrounding pollution</td>
<td>0.501</td>
<td>2</td>
</tr>
<tr>
<td>II. Resources (Alpha = 0.66)</td>
<td>Usage and savings</td>
<td>I5- Central control cooling/heating</td>
<td>0.681</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>I6- Changing towels</td>
<td>0.529</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>I7- Key-card control</td>
<td>0.505</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>I8- Saving lights</td>
<td>0.369</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>I9- Solar</td>
<td>0.306</td>
<td>3</td>
</tr>
<tr>
<td>III. Perception (Alpha = 0.82)</td>
<td>Benefits</td>
<td>I10- Environmental protection</td>
<td>0.722</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>I11- Reduced operational costs</td>
<td>0.712</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>I12- Improved image</td>
<td>0.679</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>I13- Enhanced competitiveness</td>
<td>0.634</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>I14- More guests</td>
<td>0.392</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Constraints</td>
<td>I15- Lack of subsidies</td>
<td>0.657</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>I16- Cost increase</td>
<td>0.601</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>I17- Technical limits</td>
<td>0.601</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>I18- Not informed</td>
<td>0.521</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>I19- Not interested</td>
<td>0.521</td>
<td>3</td>
</tr>
</tbody>
</table>

Note: *Mode (level of influence) 2=low; 3=medium; 4=strong; 5=very strong.
Even more, none of the surveyed hotels have ever received an award related to the environmental protection although they have been working for over 15 years. However, the positive impulse is detected in the preparation of written plans for environmental protection and providing information to guests about the environment protection, which points to rather social responsibility of the hotels and the lack of energy efficiency practices.

Table 2 reports the most important summarized results i.e. only those loadings exceeding 0.5 representing the correlations between the items and components. The last column reports the most frequent response to each attitude statement. The findings suggest that in general, the management holds a positive attitude towards the energy efficiency practices. The CATPCA indicates three components accounting for 75.1% of total variance and the Cronbach Alpha coefficients are above 0.6 pointing out to acceptable reliability of each component.

Component 1, in Table 2 referred as Environmental policy, addresses the indicators for interventions and knowledge on environmental protection. The managers perceive the employees’ training as the most important indicator due to the fact that employees are ideally positioned not only to identify drafts, leaks, unnecessary lightening and other signs of the energy waste, but to provide the energy efficiency advice. Yet, this determinant is assessed with medium influence on the hotel’s business, so hoteliers provide limited staff environmental training. This is very disappointing when having in mind that staff training and awareness may cut hotels energy costs from 2-10% in addition to other energy efficiency measures [2: 5].

In the same line there is the finding for the prevention interventions as a factor with medium influence. Furthermore, the management claims to have very low knowledge of the environmental protection standard ISO 14000, which points to the limited environmental awareness and concern. The most surprising element is the final item in this component. It addresses the hotels’ surrounding pollution resulting as the only factor with a very low influence on the hotels’ business. The surveyed hotels stated to have extremely small amount of environmental pollution in the surroundings, so this factor has low impacts when assessing the extent of activities related to the environmental protection.

Component 2, in Table 2 referred as Resources, reflects the managerial perception on the energy use and resource conservation. Due to the fact that the use of energy is a cost factor, it was expected that the hotels take measures to reduce the conventional energy sources and replace it with some renewable sources. However, the findings are alarming since they point out to extremely limited use of alternative sources of energy and new innovative approaches in saving energy consumption. The loadings for the items referring geothermal energy, bio fuel, photovoltaic lighting, “smart rooms”, dimming system and the use of treated water, are far below the critical values so they are missed from Table 2. The low impact of these determinants indicates that they are meaningless for the hotels’ energy efficiency concept. The central cooling/heating system along with the guest demands for linen and towel changes are assessed as very strong factors of an influence on the business. The guests’ awareness of energy efficiency is constantly rising by having the choice to use the same towels and linens for the duration of the stay rather than to incur the environmental costs of laundering them each day. This conservative measure is practiced by each hotel and simultaneously increases the guest satisfaction and loyalty by showing their care for energy efficiency and climate change. Similarly, hotels pay large attention to the use of energy saving systems that control every appliance in rooms and key-card control system that provides no power unless the room-key is inserted. This, along with the energy saving light bulbs, is found as a resource with strong impacts. Not surprisingly is the medium usage of the solar energy.

Component 3, in Table 2 referred as Perception, gathers the benefits and constraints in applying the energy efficiency practices. The first subcomponent identifies the benefits as the most intensive factor with strong impacts on the hotels’ business. More precisely, the managers perceive the items which refer to the environmental protection, reduced operational costs, improved image and enhanced competitiveness as strong determinants, in order to introduce and sustain the energy efficiency practices. So, three and four-star hotels regard these issues as of better interest than the increase of the number of guests. The summarized
results confirm the findings as in [37], [12], [38] as well as [39] that although being aware of the importance of the energy consumption and environmental protection, yet its stewardship is not a top priority. Namely, the problem is the gap between the environmental awareness and the daily practice of the hotels. The transformation from awareness into practice is constrained by the high costs for applying the energy efficient practices. So, the second sub-component of the Perception component, identifies the main constrains by their power of limits. As expected, the lack of subsidies by the local and central government is identified as a factor with a strong influence. It is logical that the hotels will apply the energy saving methods and solid waste management only if they minimize the related expenditures. The study found that an average of 59.2% of total surveyed hotels, make waste selection. It is interesting to note that 100% of the managers responded that their hotel will select the waste only if the local government provides subsidies. This supports the market postulate for minimization of costs and maximization of profit so that for the hotel can survive. All other surveyed indicators in this subgroup (technical limitations of the hotel facility, the increase of costs, as well as the lack of information and interest) are perceived as medium influencing factors for the hotels’ business.

5. Conclusion and recommendations

Hotels, on one hand, consume some substantial quantity of energy, water and other non-durable products, thus provoke some considerable environmental impacts. On the other hand, they rely on the clean nature and unpolluted environment as a core value for the hotel industry. Tourists more often abandon tourism destinations in poor environmental conditions and trace for hotels with eco label, eco certificate and certificate for energy efficiency. Consequently, the hotel industry is becoming increasingly environmentally responsible by taking care of the energy efficiency.

The study assessed the current nature of the energy efficiency practices in three and four-star hotels. It determined and discussed five types of indicators for perception of:
- Activities associated with environmental protection;
- Solid waste management;
- Resource usage and protection;
- Benefits and
- Constraints.

The study found that hotels may benefit from the environmental pro-activeness which is important for the performance and development of the tourism. Yet, among the top management there is a lack of interest regarding the energy efficiency practices. The blame is put on the restricted financial resources and high operation costs for the lim-
limited application of renewable resources. Due to the economic and socio-political problems, the hotels are often faced with existential difficulties. Hence, the environmental issues have just recently come to attention, unlike the Scandinavian countries where the environmental protection is of high importance and quality and has long received political and financial support at local and national level.

Based on the survey findings, the study recommends that managers should focus on shifting the professional ethics, developing and exerting a wide range of the energy efficient practices in the first line by introducing some renewable sources of energy. That will result in the reduction of the energy consumption. Consequently the hotels may benefit from the energy conservation measures not only by saving money, but also in ensuring comfort to the guests and staff. These kinds of measures are good investments in terms of:

- Quick low-cost or no-cost solutions, like: dimming system; HVAC settings in lobbies, offices and peripheral rooms; covering the pools and hot tubs to diminish heat loss; setting housekeeping procedures to motivate the staff; training the registration staff to book rooms in clusters etc.; or
- Longer-term solutions, like: re-commissioning; an upgrade to more-efficient lighting (compact fluorescent lamps, light-emitting diode bulbs, ‘group re-lamping’ etc.); an installment of occupancy sensors; an upgrade of the chiller; the use of smart vent hoods in the kitchen; the use of efficient water heating systems; ozone and tunnel washers; heat-recovery systems; heat pumps in swimming pools; adjusting the building management system; control vending machines, etc.

The study also urges the need for applying the environmental protection as well as the energy efficient concept and more frequent penalties to the environmentally unsound concepts practiced in the hotels. Instead of being focused on some quick economic benefits, the hotels should generate some more pro-environmental attitudes among managers. This is particularly effective if hotels prepare Energy Management Plans as tools that assists them in initiating, monitoring and tracking the energy savings. These kinds of activities are generally focused on measuring the results which cut the operating costs. It is evident that a three-fold approach must be implemented addressing:

- Technological change (to introduce and upgrade technologies that are constantly improving and becoming more efficient);
- Behavioral change (to influence the behaviors of guests and employees as well as to improve knowledge and skills); and
- Organizational change (to set up policies, procedures and practices that can assist in driving down the utility costs).

During the research, several limitations occurred which might be addressed in some future work. Namely, although the presented data are reliable, it is difficult to establish to what extent the information is representative speaking of the overall hotel industry in Macedonia, since the managerial perception of the five-star hotels is missing. The study may be enhanced by extending the sample in the line of increasing the response rate, as well as to spread the target location within other countries. However, it must be taken into consideration that the goal of the study was to identify which indicators can be overcome by hoteliers requiring minimum information input.

Acknowledgement

This study is conducted as part of the research project “Opportunities and methods for energy substitution and energy improvements in the hotel industry” financed by the Goce Delcev University - Stip, Macedonia (Ref. No. 0201-165/6 and 0801-139/26).

References


Corresponding Author
Biljana Petrevska,
Faculty of Tourism and Business Logistics,
Goce Delcev University – Stip,
Macedonia,
E-mail: biljana.petrevska@ugd.edu.mk
The Effect of Holding In-service Training Courses for Adults on the Performance of Iranian Elementary Schools’ Principals

Faranak Omidian
 Department of Education, Dezful Branch, Islamic Azad University, Dezful, Iran.

Abstract
The main objective of this research was to examine the effect of holding in-service training courses for adults on the performance of principals in regard to literacy in Iran. In terms of objective, this is an applied research and with respect to data collection, it is a causal-comparative research. The statistical population includes all principals having participated in literacy course across the country and those having not taken part in literacy course. In order to select the principals participating in the literacy course, multi-stage sampling method was used. Given the principle of homogeneity for the control group in causal-comparative researches and the variable of city along with the selected sample size of the principals participating in the courses, the principals not having participated in the courses were also selected using purposive sampling method. The sample size of the trained principals participating in the current research includes 426 subjects from Fars Province (193), Chaharmahal and Bakhtiari Province (42), Lorestan Province (84), Hamadan Province (48), Alborz Province (23), and Ilam Province (56). The findings of the research, given the statistical analyses, showed that the trained principals’ level of knowledge was higher than the untrained principals’.

Keywords: in-service training course, adult education, principals, performance

Introduction
In-service training has long been the focus of interest among management science theoreticians, employee training being proposed as one of the most important principles of educational management in classical theories and human relationships in management. Employee training is also regarded as a major element in organizational effectiveness in systems theory. It has also been recognized as the main factor in the growth and development of organizations in new management approaches such as organizational learning theory, total quality management (TQA), organizational excellence and human resource development management. Old and new management approaches toward human resources training, in fact, show the evolutionary shift from focus on educating employees in terms of knowledge and skills to applying education to produce and share knowledge in organizations. Education was traditionally considered an instrument for teaching skills and knowledge which were required by employees in order to effectively carry out their tasks. However, based on new approaches to management, education (training), as part and parcel of the system producing and distributing knowledge, provides the conditions for educating knowledge-based people in organizations.

On the other hand, in-service training is a concept which is also rooted in adult education theories. Scholars like Knowles argue that employees are adults who have various abilities and skills with regard to dimensions of cognitive development like crystalized intelligence and creativity, and using their experiences they need self-actualization. In line with the underlying theories of employee training, in-service training has been defined as the systematic and continuous improvement of employees in terms of knowledge, skills and behaviors, which helps in their welfare and organizations [1].

Today, in-service training is the focus of politicians and planners’ attention in many Iranian organizations as a tool of organizational growth and excellence. There is no doubt that the management of human resources training is not separate from this approach in Literacy Movement organization which also tries to develop education. Literacy
Movement is one of the most important educational institutes affiliated with the Ministry of Education in Iran, which has been founded after the victory of Islamic revolution. The administrative and educational structure of Literacy Movement falls into two periods. The administrative structure of the movement has been an independent organization called Literacy Movement in the first period during 1979 – 2011. In the second period, significant changes were made in the administrative and educational structure of the movement under the act of 2011 No. 46489 T/11897 verified by Iranian Council of Ministers of Education. Of the major objectives of this amalgamation are the use of all facilities and capacities of the Ministry of Education, providing an infrastructure for identifying, attracting and training 10 – 49 year-old illiterates and providing the conditions for monitoring the process of implementing and improving educational quality. Therefore, principals are regarded as executives and operations managers who play a key role in fulfilling the new structure of Literacy Movement. Thus, due to the importance of managers’ being familiar with the changes in the movement, a course was held in 2011-12 school year to justify educational institutes’ managers and private schools’ headmasters with regard to why and how literacy course are held on the basis of the letter 165 in 2012 with the code 91400445. In order to perform these courses effectively and realize the task of principals in developing literacy, the following questions are put forth: how has been the way in-service training course has been held? And to what extent this course has affected the performance of the principals?

The review of literature shows that a wide range of training courses have been held for Literacy Movement employees. But, few studies have been conducted to evaluate the effectiveness of these courses.

**Background**

Showed that short-term education programs have been effective in human resource efficiency in Qom Province [2]. The results of his study also suggest that there is no relationship between demographic variables such as work experience, educational level, major, place of work and the effectiveness and efficiency of in-service short-term courses. Examined the effectiveness of in-service courses for Literacy Movement employees across the country [3]. He found that the efficiency of in-service courses for Literacy Movement employees was at a moderate-to-high level from employees and managers’ point of view. Objectives, principles, content and methodology, and educator had the highest efficiency rate while the least efficiency rate, from managers’ point of view, belonged to educational technology; structure and organizations, assessment and evaluation, and from employees’ perspective, the least was related to educational technology; learner, evaluation and measurement. Employees and managers also evaluated the efficiency of the courses to be moderate to high. In regard to prioritizing dimensions of effectiveness for courses, principals believed that employee participation in courses led to increased quality in activity, ability and a higher understanding of tasks and their sociability. However, principals considered the lowest efficiency for employees’ self-management and self-control as a result of these courses. In employees’ point of view, the results also show that the highest effectiveness are related to increased productivity in tasks as a result of the courses, increased forethought and sociability in the course of actions and increased participation and mutual cooperation between employees respectively while increased technical ability in the course of their actions had the lowest priority. Found that teaching assistants and graduate advisors were satisfied with the implementation of associate’s degree course (management, instructors, teaching methods, course content) [4]. The course also promoted professional qualifications of the participants. On the other hand, administrators were satisfied with these two groups who had done their tasks in comparison with the graduates and evaluated their performance to be high. Concluded in his research that apprenticeships and retraining courses had increased efficiency and effectiveness of the Literacy Movement teaching assistants’ performance in Lorestan Province [5].

The above-mentioned studies suggest that in spite of some deficiencies and weaknesses, these courses had a relatively high efficiency and effectiveness. A wide range of studies have been in Iran and other countries in regard to the efficiency and
effectiveness of in-service training for employees working in educational departments.

Indicated that in-service training courses for teachers led to greater adherence to organizational rules, increased cooperation in school, increased teaching ability of teachers and improved educational achievement of students [6]. With a qualitative approach toward, examined in-service training for English teachers in Korea [7]. This study observed and examined educational behaviors of two teachers in five English subjects on a case-by-case basis 6 months before and after in-service training courses. The results suggested that the courses had improved teachers’ teaching. However, the interviews revealed that structural and organizational factors in the Ministry of Education would prevent from effective implementation of all in-service training programs. Carried out a wide range of projects in Croatia in order to evaluate in-service training in education [8]. In this study, 7944 teachers, 546 principals, 1088 school counselors and 71 training courses instructor participated in these courses. The results showed that the content of the courses did not match educational needs of human resources in education. And no attention was paid to training professional skills of teachers based on their needs such as educational and psychological skills, teaching methodology and assessment methods. One of the main reasons for this low effectiveness was that in-service training system was reliant on higher education but not on research and research institutes.

**Methodology**

In terms of objective, this is an applied research and can help educational planners to enhance the effectiveness of training courses. In terms of methodology, this was an ex post facto research (causal-comparative research). A test was used in this research. In order to determine the validity, some questions were omitted and corrected using content-qualitative validity as well as experts’ opinions (course trainer and assessment experts). The reliability was found to be 0.701. The statistical population included all the principals across the country who had or had not participated in the literacy course. In order to select the principals who had participated in the literacy course (to understand why and how these course were held)

### Table 1. List of provinces by literacy rate and development in Iran

<table>
<thead>
<tr>
<th>Region</th>
<th>Provinces</th>
<th>Sampling method</th>
<th>Selected province</th>
</tr>
</thead>
<tbody>
<tr>
<td>Region 1</td>
<td>Isfahan, cities of Tehran province, Semnan, Yazd, Alborz</td>
<td>Simple sampling using lottery method</td>
<td>Alborz</td>
</tr>
<tr>
<td>Region 2</td>
<td>Khuzestan, Kerman, Fars, Kohgiluye and Boyer-Ahmad, Bushehr</td>
<td>Given that the courses had not been held in most of the provinces in region 2, the province, using purposive method, where the course had been completely performed was selected.</td>
<td>Fars</td>
</tr>
<tr>
<td>Region 3</td>
<td>Gilan, Mazandaran, Khorasan Razavi, North Khorasan Province, Chahar and Mahahl Bakhtiai</td>
<td>Simple sampling using lottery method</td>
<td>Chahar and Mahahl Bakhtiai</td>
</tr>
<tr>
<td>Region 4</td>
<td>Qom, Qazvin, Ilam, Kermanshah, Markazi</td>
<td>Given that the courses had not been held in most of the provinces in region 4, the province, using purposive method, where the course had been completely performed was selected.</td>
<td>Ilam</td>
</tr>
<tr>
<td>Region 5</td>
<td>East Azerbaijan and West Azerbaijan, Hamadan, Ardabil, Zanjan, Kurdestan</td>
<td>Given that the courses had not been held in most of the provinces in region 5, the province, using purposive method, where the course had been completely performed was selected.</td>
<td>Hamadan</td>
</tr>
<tr>
<td>Region 6</td>
<td>Sistan and Baluchestan, Golestan, Lorestan, Hormozgan and South Khorasan</td>
<td>Simple sampling using lottery method</td>
<td>Lorestan</td>
</tr>
</tbody>
</table>
in 2011-12 school year with the code 91400445 across the country, multi-stage sampling method was used.

The first stage (selecting the regions covered by the Literacy Movement across the country): Since the regions covered by the Literacy Movement across the country have been divided into six regions based on literacy rate and development, all regions were selected. (Table 1)

The second stage (selecting provinces): Given that the literacy course (regarding why and how) have been held in some provinces in 2011-12 school year with the code 91400445; therefore, a variety of sampling methods, according to the table below, have been drawn upon.

Stage 3: The cities were selected given the distribution of the principals participating in the course in these cities using purposive sampling methods, and simple random (table 2).

Stage 4: The principals in the cities were selected according to the sample size and using simple random sampling method or complete enumeration method, the researcher regarded all principals as the sample by having access to the list of the principals in each county in case the number of the principals was limited. Otherwise, the questionnaires were administered to them using simple random sampling method. Given the principle of homogeneity for the control group in causal-comparative researches and the variable of city along with the selected sample size of the principals participating in the courses, the principals not having participated in the courses were also selected using purposive sampling method. In regard to the principals not having participated in the course, the number of the principals corresponding to the total respondents in each province was taken into account. In total, their statistical sample was 315.

Table 2. Selecting cities based on purposive sampling method, simple random

<table>
<thead>
<tr>
<th>City name</th>
<th>Cities</th>
<th>Sampling method</th>
<th>Selected cities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fars province</td>
<td>Shiraz including four districts, district 1, 2, and 3 District 2: Qir and Kazarin County, Lamerd County, Mohr County, Firuzabad County, Farashband County, Khonj County, Geras County, Darab County, Zarrindasht County, Bananat County, Sepidan County, Estahban County, Marvdasht County, Kharameh County, Kavar County, Khorrambid County, Jahrom County, Mamasani County, Rostam County, Kazerun County, Abadeh County, Pasargad County, Sarvestan County and Eqlid County</td>
<td>Simple random sampling</td>
<td>District 3, Eqlid County and Banavat County</td>
</tr>
<tr>
<td>Shahrekord (Chahar Mahal and Bakhtiari)</td>
<td>Ardal County, Borujen County, Lordegan County, Shahrekord, districts 1 and 2</td>
<td>Simple random</td>
<td>Lordegan, Shahrekord, districts 1 and 2</td>
</tr>
<tr>
<td>Lorestan</td>
<td>Doroud County, Khorramabad, Aleshtar, Pol-e Dokhtar County, Chegeni District, Borujerd County, Kuhdasht County and Azna County</td>
<td>Purposive due to performing the course in a wide range of places in some provinces</td>
<td>Doroud County and Borujerd County</td>
</tr>
<tr>
<td>Hamadan</td>
<td>Asad Abad County, Bahar County, districts 1 and 2 in Hamadan</td>
<td>Due to the distribution of the sample in all cities, all cities were selected</td>
<td>Asad Abad County, Bahar County, districts 1 and 2 in Hamadan</td>
</tr>
<tr>
<td>Alborz Province</td>
<td></td>
<td>Purposive sampling method used due to being performed in one city</td>
<td>Abdanan</td>
</tr>
<tr>
<td>Ilam Province</td>
<td>Abdanan</td>
<td></td>
<td>Abdanan</td>
</tr>
</tbody>
</table>
Results and findings

Descriptive findings in regard to the trained principals indicated that: out of 446 of the trained principals sample size, 44.2% and 55.8% were men and women respectively. In terms of academic degree, 2.2%, 6.5%, 79.6% and 11.7% had high school diploma, associate’s degree, bachelor’s degree, and master’s degree respectively, most of them having bachelor’s degree. Regarding work experience, 5.9%, 23.2%, 71.0% had 1-10, 11-22, and 21-30 years of experience respectively. Concerning their jobs, 76.5%, and 23.5% were principals and complex managers respectively. As it can be seen, the principals have had the highest frequency. Descriptive findings in regard to the untrained principals indicated that: out of 315 of the untrained principals sample size, 49.8% and 50.2% were men and women respectively. In terms of academic degree, 81.1%, 18.2% and 0.7% had bachelor’s degree, associate’s degree and high school diploma respectively. Regarding work experience, 5.20%, 28.8%, and 65.9% had 1-10, 11-22, and 21-30 years of experience respectively.

The results regarding the research questions are as follows:

Table 3 shows that all calculated t-tests in a significance level of 0.001 is below the error level of 0.05. Therefore, there is a significant difference between the mean scores of the trained principals’ knowledge and those of the untrained ones’ across the country and each province. That is; the trained principals have a higher level of knowledge than the untrained ones.

Discussion and Conclusion

Table 3 shows that the trained principals’ level of knowledge is higher than the untrained ones’. These results are in line with those of [3], [4], and [5]. Indicated in a study that short-term training courses had been effective in the productivity of human resources in Qom Province [2]. Examined the effectiveness and efficiency of in-service training courses for the employees of the Literacy Movement across the country [3]. The results revealed that, from employees’ perspective, the highest effectiveness were related to increased productivity in tasks as a result of the courses, increased forethought and sociability in the course of actions and increased participation and mutual cooperation between employees respectively. In another research conducted by [4], the course promoted professional qualifications of the participants. On the other hand, administrators were satisfied with these two groups who had done their

<table>
<thead>
<tr>
<th></th>
<th>Number</th>
<th>Mean</th>
<th>Standard deviation</th>
<th>Difference between means</th>
<th>T-test</th>
<th>Significance level</th>
</tr>
</thead>
<tbody>
<tr>
<td>The trained principals across the country</td>
<td>446</td>
<td>14.34</td>
<td>3.66</td>
<td>6.24</td>
<td>25.99**</td>
<td>0.001</td>
</tr>
<tr>
<td>The untrained principals across the country</td>
<td>315</td>
<td>8.10</td>
<td>2.56</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The trained principals in Alborz Province</td>
<td>23</td>
<td>15.73</td>
<td>4.2</td>
<td>8.65</td>
<td>8.65</td>
<td>0.002</td>
</tr>
<tr>
<td>The untrained principals in Alborz Province</td>
<td>60</td>
<td>7.80</td>
<td>1.7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The trained principals in Fars Province</td>
<td>193</td>
<td>14.34</td>
<td>3.6</td>
<td>6.26</td>
<td>19.12</td>
<td>0.001</td>
</tr>
<tr>
<td>The untrained principals in Fars Province</td>
<td>195</td>
<td>8.12</td>
<td>2.7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The trained principals in Hamadan Province</td>
<td>48</td>
<td>14.02</td>
<td>3.7</td>
<td>5.17</td>
<td>8.38</td>
<td>0.001</td>
</tr>
<tr>
<td>The untrained principals in Hamadan Province</td>
<td>58</td>
<td>8.84</td>
<td>2.6</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
tasks in comparison with the graduates and evaluated their performance to be high. Concluded in his research that apprenticeships and retraining courses had increased efficiency and effectiveness of the Literacy Movement teaching assistants’ performance in Lorestan Province [5].

This finding can be explained by the fact that as the results of the trained and untrained principals’ level of knowledge shows; the trained principals’ awareness and level of knowledge are higher than the untrained ones’ in terms of education structure, curriculum, literacy courses, terms of registration and acceptance, how to perform a test, and educational supervision and guidance. According to system approach, it can also be noted that a variety of factors have been effective in the trained principals’ learning rate. The principals had a positive attitude toward the course and participated in the course enthusiastically in accordance with their educational needs. Meanwhile, the factors like the quality of curriculum content, principals and management have influenced the principals’ attitudes improvement. They regarded the content of the course as useful. In the end, it can be concluded that educational advantages, and those involved in administrative and management tasks have played a key role in boosting confidence, enhancing attitude and increasing the trained principals’ awareness and level of knowledge.

References


Corresponding Author
Faranak Omidian,
Department of Education,
Humanities Faculty,
Dezful Branch, Islamic Azad University,
Dezful, Iran,
E-mail: Omidian.2013@gmail.com
Abstract

This paper presents a study on assessing student learning outcomes and courses, learning outcomes by selecting courses and all related courses techniques using CLOSO software in direct assessment. ABET student outcomes assessment information for a program, can be studied in great detail by mapping course outcome and student outcome for different program satisfaction criteria are presented using rich graphics and bar charts.

Key words: Student outcome, Course learning outcome, Assessment, ABET, Program Satisfaction Criteria.

1. Introduction

One of the great advantages of Outcomes Assessment is that when done in a systematic way, it has benefits for people throughout the program, from our students to the faculty [1], [2].

For students, Outcomes Assessment will:
- Communicate clear expectations about what’s important in a course or program.
- Inform them that they will be evaluated in a consistent and transparent way.
- Reassure them that there is common core content across all sections of a course.
- Allow them to make better decisions about programs based on outcomes results

For faculty, participating in Outcomes Assessment will:
- Facilitate valuable interdisciplinary and Intercampus discussions.
- Provide powerful evidence to justify needed resources to maintain or improve programs.
- Provide reassurance that all faculty teaching a particularly high demand course agree to address certain core content.

The data from assessment in various courses must be collected and evaluated. Data collection and evaluation processes are time consuming and laborious if done manually. These processes involve data collection and evaluation need to be automated to save the time of instructors, accreditation coordinators and chairpersons of the academic program [3].

Civil engineering program in Najran University decided to use software package to achieve the following goals:

1. To cut down the instructor’s time and effort in preparing the course file and data collection.
2. To increase the reliability of the collected data.
3. To allow error-free processing of large amount of data and thus enable the department to analyze and evaluate all courses within a short time after obtaining the data files from the instructors.
4. To obtain faculty’s opinions on a number of issues that may help improve the CLO and SO attainments.
5. To identify any course that has an issue and to take corrective measures.
6. To enable the department council, the ABET coordinator to re-view the SO attainments and “Loop-closing” in each semester.
7. To maintain a unified database for syllabi of all courses.
8. To make the assessment and evaluation system highly sustainable.

The software CLOSO was licensed because it satisfied all the above requirements. The software was extensively used by the instructors in preparing the course files and by the quality coordinator in getting the data.

2. Assessment Plan in Civil Engineering Program:

The attainment of SOs are continually assessed and evaluated through a number of processes. The evaluation system maintains unified database containing the syllabus, CLO-SO maps for all courses, Program Satisfaction Criterion and various other data. The evaluation system is itself being improved continuously [4], [5]. At this time the system has reached a very stable and reliable status with a very high degree of sustainability and the department was quite successful drastically cut down the instructors’ time in preparing the course files and the evaluation of data. The assessment plan is divided into direct and indirect methods as shown in Figure (1).

A summary of these processes is given in Table (1), which describes each professes to help the reader to have a quick view of the processes. One can note that only the exit survey cannot be executed using the software package.

![Figure 1. Assessment Plan for Civil Engineering Program](image-url)
3. Course Learning Outcomes:
Course Learning Outcomes (CLOs) are the basis of all direct assessments of SOs [6]. Each course has a set of outcomes called “Course Learning Outcomes” or CLOs. The CLOs of a course describe the abilities to be attained at the end of the course. The CLOs for each course are specified so that they are non-overlapping and are as few as possible still covering the specified syllabus of the course. The CLOs are updated and revised based on the recommendations of the Course Coordinators, then it is sent to CLOSO software administrator to enter CLOs in software database [7]. A typical set of CLOs is shown in Figure (2) for the course 355CE-3 Steel structures as appeared in the instructor’s screen of CLOSO.

4. Mapping the CLOs with the SOs:
For each course, the Course Learning Outcomes (CLOs) are linked to the SOs that have attained as a result of attaining the CLOs. This implies that the ability attained by a student in a particular CLO represents an ability in the relevant SOs [8], [9]. If a CLO significantly helps in attaining an ability related to a SO, we include the SO otherwise we don’t include it. A typical CLO-SO map is shown Figure (2) for the course 355CE-3 Steel structures as appeared in the instructor’s screen of CLOSO.

5. Direct Assessment:
Course assessment is only considered in this study. Since SOs are linked to the CLOs of vari-

<table>
<thead>
<tr>
<th>NO.</th>
<th>SO assessment process</th>
<th>Type of Assessment</th>
<th>Frequency</th>
<th>Data collected by</th>
<th>Data processing</th>
<th>Evaluated by</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Course learning outcomes</td>
<td>Direct</td>
<td>Each semester</td>
<td>Instructor</td>
<td>CLOSO</td>
<td>Assessment Committee and quality coordinator</td>
</tr>
<tr>
<td>2</td>
<td>Graduation Project</td>
<td>Direct</td>
<td>Each semester</td>
<td>Project advisor</td>
<td>CLOSO</td>
<td>Assessment Committee and quality coordinator</td>
</tr>
<tr>
<td>3</td>
<td>Exit Survey</td>
<td>Indirect</td>
<td>Each semester</td>
<td>Surveys committee</td>
<td>Surveys committee</td>
<td>Assessment Committee and quality coordinator</td>
</tr>
<tr>
<td>4</td>
<td>Course Survey</td>
<td>Indirect</td>
<td>Each semester</td>
<td>Instructor</td>
<td>CLOSO</td>
<td>Assessment Committee and quality coordinator</td>
</tr>
</tbody>
</table>

Table 1. Assessment Processes

Figure 2. Instructor Screen in CLOSO Software
ous core courses through the CLO-SO mapping, so if the CLOs are attained to the required level of satisfaction, the relevant SOs are also assumed to be attained to the required level of satisfaction. Based on this proposition, the most important part of our SO assessment process is to track the attainment and satisfaction of CLOs in various courses. The data obtained for CLO satisfaction are then converted to SO satisfaction data automatically by the software. In the past, the excel spreadsheets were used to evaluate CLOs and SOs, so some courses were specified to evaluate each SO to reduce the time and effort of the analysis which is called Selected Courses Technique. These courses are shown in the following Table (2).

<table>
<thead>
<tr>
<th>Student outcome ID</th>
<th>Student outcome (SO)</th>
<th>Data source and assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a)</td>
<td>An ability to apply knowledge of mathematics, science, and engineering</td>
<td>(Statics GE101 &amp; Strength of Materials CE241)</td>
</tr>
<tr>
<td>(b)</td>
<td>An ability to design and conduct experiments, as well as to analyze and interpret data</td>
<td>(Soil Mechanics (1) CE221, Soil Mechanics (2) CE322, &amp; Properties and Testing of Materials CE342)</td>
</tr>
<tr>
<td>(c)</td>
<td>An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability</td>
<td>(Reinforced concrete (1) CE 352, Reinforced concrete (2) CE 354, Steel Structures CE355)</td>
</tr>
<tr>
<td>(d)</td>
<td>An ability to function on multidisciplinary teams</td>
<td>(Graduation project (2) CE492, Properties and Testing of Materials CE342)</td>
</tr>
<tr>
<td>(e)</td>
<td>An ability to identify, formulate, and solve engineering problems</td>
<td>(Transportation engineering, Hydraulics CE 312, Structure Analysis (1) CE251)</td>
</tr>
<tr>
<td>(f)</td>
<td>An understanding of professional and ethical responsibility</td>
<td>(Graduation project (2) CE492 &amp; Introduction to Engineering Design GE102)</td>
</tr>
<tr>
<td>(g)</td>
<td>An ability to communicate effectively</td>
<td>(Graduation project (2) CE492, Properties and Testing of Materials CE342 &amp; Environmental Engineering CE 472)</td>
</tr>
<tr>
<td>(h)</td>
<td>The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context</td>
<td>(Graduation project (2) CE492 &amp; Environmental Engineering CE 472)</td>
</tr>
<tr>
<td>(i)</td>
<td>A recognition of the need for, and an ability to engage in lifelong learning</td>
<td>(Graduation project (2) CE492 &amp; Reinforced Concrete (2) CE254)</td>
</tr>
<tr>
<td>(j)</td>
<td>A knowledge of contemporary issues</td>
<td>(Steel Structures CE355 &amp; Highway Engineering CE431)</td>
</tr>
<tr>
<td>(k)</td>
<td>An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice</td>
<td>(Structural Analysis (2) CE353 &amp; Computer Applications in Civil Engineering CE381)</td>
</tr>
</tbody>
</table>
Now, due to use software package (CLOSO), all courses related to each student outcome are used in assessing which is called All Related Courses Technique. The assessment data of the selected courses and all courses related to each student outcome will be introduced and compared to study the effect on program satisfaction criteria in the assessment of SOs [10].

6. Student Outcomes Attainment:

The following Table (3) and Figure (3) show the average attainment of ABET student outcomes (program outcomes) [a-k] for program satisfaction criteria 60% of the cases of selected courses and all related courses.

For more detail each student will studied using selected and all courses related for different PSCs as the followings:

Student Outcome (a):
The following Table (4) and Figure (4) show the average attainment of ABET student outcome (a) for different program satisfaction criteria for the cases of selected courses and all related courses.

From above Table (4) and Figure (4), it can be noted that although selected courses and all related courses give the same trend for attainment values, but there are some remarkable differences which may affect the program satisfaction criteria. Where at PSC 65%, all related courses give achieving score but selected courses do not give achieving score.

Student Outcome (b):
The following Table (5) and Figure (5) show the average attainment of ABET student outcome (b) for different program satisfaction criteria for the cases of selected courses and all related courses.

From above Table (5) and Figure (5), it can be noted that although selected courses and all related courses nearly give the same trend for attainment values, but there are some remarkable differences at student outcomes. So, one cannot depend on selected courses in assessment of the student outcomes.
From above Table (5) and Figure (5), it can be noted there are no remarkable differences which may affect the program satisfaction criteria.

**Student Outcome (c):**
The following Table (6) and Figure (6) show the average attainment of ABET student outcome (c) for different program satisfaction criteria for the cases of selected courses and all related courses.

From above Table (6) and Figure (6), it can be noted that although selected courses and all related courses give the same trend for attainment values, but there are some remarkable differences which may affect the program satisfaction criteria. Where at PSC 65%, all related courses give achieving score, but selected courses do not give achieving score.

**Student Outcome (d):**
The following Table (7) and Figure (7) show the average attainment of ABET student outcome (d) for different program satisfaction criteria for the cases of selected courses and all related courses.
From above Table (d) and Figure (d), it can be noted that selected courses and all related courses do not give the same trend for attainment values, and there are some remarkable differences.

**Student Outcome (e):**
The following Table (8) and Figure (8) show the average attainment of ABET student outcome (e) for different program satisfaction criteria for the cases of selected courses and all related courses.

From belowe Table (8) and Figure (8), it can be noted that although selected courses and all related courses give the same trend for attainment values, but there are some remarkable differences which may affect the program satisfaction criteria. Where at PSC 65%, all related courses achieve PSC but selected courses do not achieve PSC.

**Student Outcome (f):**
The following Table (9) and Figure (9) show the average attainment of ABET student outcome (f) for different program satisfaction criteria for the cases of selected courses and all related courses.

From above Table (9) and Figure (9), it can be noted that selected courses and all related courses
do not give the same trend for attainment values, and there are some remarkable differences.

**Student Outcome (g):**

The following Table (10) and Figure (10) show the average attainment of ABET student outcome (g) for different program satisfaction criteria for the cases of selected courses and all related courses.

**Student Outcome (h):**

The following Table (11) and Figure (11) show the average attainment of ABET student outcome (h) for different program satisfaction criteria for the cases of selected courses and all related courses.

From above Table (11) and Figure (11), it can be noted that although selected courses and all related courses give the same trend for attainment values, but there are some remarkable differences which may affect the program satisfaction criteria. Where at PSC 65%, all related courses achieve PSC but selected courses do not achieve PSC.

**Student Outcome (i):**

The following Table (12) and Figure (12) show the average attainment of ABET student outcome (i) for different program satisfaction criteria for the cases of selected courses and all related courses.
Table 12. Percentages of Attainment of Student Outcomes (i) For Different PSCs

<table>
<thead>
<tr>
<th>Program Satisfaction Criteria PSC</th>
<th>Selected Courses</th>
<th>All Related Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSC: 60%</td>
<td>90</td>
<td>77</td>
</tr>
<tr>
<td>PSC: 65%</td>
<td>80</td>
<td>71</td>
</tr>
<tr>
<td>PSC: 70%</td>
<td>77</td>
<td>67</td>
</tr>
<tr>
<td>PSC: 75%</td>
<td>56</td>
<td>57</td>
</tr>
<tr>
<td>PSC: 80%</td>
<td>56</td>
<td>52</td>
</tr>
<tr>
<td>PSC: 85%</td>
<td>52</td>
<td>37</td>
</tr>
<tr>
<td>PSC: 90%</td>
<td>52</td>
<td>35</td>
</tr>
</tbody>
</table>

Table 13. Percentages of Attainment of Student Outcomes (j) For Different PSCs

<table>
<thead>
<tr>
<th>Program Satisfaction Criteria PSC</th>
<th>Selected Courses</th>
<th>All Related Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSC: 60%</td>
<td>79</td>
<td>79</td>
</tr>
<tr>
<td>PSC: 65%</td>
<td>71</td>
<td>71</td>
</tr>
<tr>
<td>PSC: 70%</td>
<td>68</td>
<td>68</td>
</tr>
<tr>
<td>PSC: 75%</td>
<td>57</td>
<td>57</td>
</tr>
<tr>
<td>PSC: 80%</td>
<td>52</td>
<td>52</td>
</tr>
<tr>
<td>PSC: 85%</td>
<td>34</td>
<td>34</td>
</tr>
<tr>
<td>PSC: 90%</td>
<td>32</td>
<td>32</td>
</tr>
</tbody>
</table>

Table 14. Percentages of Attainment of Student Outcomes (k) For Different PSCs

<table>
<thead>
<tr>
<th>Program Satisfaction Criteria PSC</th>
<th>Selected Courses</th>
<th>All Related Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSC: 60%</td>
<td>84</td>
<td>75</td>
</tr>
<tr>
<td>PSC: 65%</td>
<td>76</td>
<td>65</td>
</tr>
<tr>
<td>PSC: 70%</td>
<td>75</td>
<td>62</td>
</tr>
<tr>
<td>PSC: 75%</td>
<td>65</td>
<td>54</td>
</tr>
<tr>
<td>PSC: 80%</td>
<td>60</td>
<td>49</td>
</tr>
<tr>
<td>PSC: 85%</td>
<td>52</td>
<td>38</td>
</tr>
<tr>
<td>PSC: 90%</td>
<td>47</td>
<td>35</td>
</tr>
</tbody>
</table>

From above Table (12) and Figure (12), it can be noted that selected courses and all related courses nearly give the same trend for attainment values, and there are some remarkable differences. One can note that at PSC 70% selected courses achieve PSC but all related courses do not achieve PSC.

**Student Outcome (i):**

The following Table (13) and Figure (13) show the average attainment of ABET student outcome (j) for different program satisfaction criteria for the cases of selected courses and all related courses.

From above Table (13) and Figure (13), it can be noted that no difference where the selected courses and all related courses are the same.

**Student Outcome (k):**

The following Table (14) and Figure (14) show the average attainment of ABET student outcome (k) for different program satisfaction criteria for the cases of selected courses and all related courses.
From above Table (14) and Figure (14), it can be noted that selected courses and all related courses give the same trend for attainment values, and there are some remarkable differences. One can note that at PSC 70% selected courses achieve PSC but all related courses do not achieve PSC.

7. Conclusion

This paper introduces a detailed study of the effect of the selected courses technique used for assessment of student outcomes and consequently courses learning outcomes. It is shown that the selected courses technique may effect on achievement of program satisfaction criteria, which may affect the program satisfaction criteria accepted in the assessment catalogue of the civil engineering program. So all related courses technique may be used in the assessment process in the program, specially software package is available, to give more accurate results and hence the correct decision on improvement plans can be taken.

Acknowledgement

This material is based upon work supported by Najran University under grant No. NU/ESCI/14/51. Further, the authors would like to specially thank the Civil engineering program at the Najran University for data provided.

References


Corresponding Author
Ahmad Salah Edeen Nassef,
Faculty of Engineering,
Najran university,
Najran,
Kingdom of Saudi Arabia,
E-mail: ahmad_nassef@hotmail.com
Abstract

Universities are an important catalyst for regional, economic and social development. Many countries have reformed legislation on academic entrepreneurship, but several research opportunities at the systems, university, and individual levels still exist. The existing literature on entrepreneurial universities provides insights about the entrepreneurial transformation process of universities in developed countries. Our study aims to contribute to a better understanding of the entrepreneurial transformation process of Middle Eastern universities. Adopting the entrepreneurial university framework proposed by Urbano and Guerrero [1], we explore two universities located in Tehran. This study provides insights about exploring the entrepreneurial transformation process, as well as policies that can stimulate the entrepreneurial activity of universities in developing countries and thus foster regional competitiveness.

Key words: Entrepreneurial Universities, Institutional Economics, Resource Based-View, Middle East

1. Introduction

Entrepreneurial universities are natural incubators that provide an adequate atmosphere in which the university community (e.g. academics, students and staff) can identify, explore and exploit innovative and creative ideas that could be transformed into new ventures [2, 3, 4, 5]. Academic entrepreneurship is an interesting phenomenon that occurs at the boundaries of different scientific and professional backgrounds [6]. In U.S., this phenomenon has been for 30 years since the enactment of the Bayh–Dole Act that is linked with the entrepreneurial and economic development activities of the universities. Other countries have reformed the legislations related to academic entrepreneurship, but still, there are several research opportunities at the systems, university, and individual levels [7, 8].

Higher education systems in most countries face similar challenges. The main differences are associated with the limit availability of resources, institutional arrangements, traditions and unique characteristics of each organization. For this reason, entrepreneurial universities phenomenon has gained the attention of academics, governments, and policymakers around the world, who are making efforts to encourage it. Hence, the existing literature on puts forth a strong effort to provide insights about the transformation process of entrepreneurial universities located in develop countries [e.g. U.S. by 9, 10, 11, and Europe by 22, 2, 3, 5, 12, 13]. However, in developing countries, the literature on entrepreneurial universities is somehow limited. The entrepreneurial university phenomenon is more at the normative level [14, 15, 16]. Based on that, the purpose is tries to contribute to a better understanding of the entrepreneurial transformation process of the Middle East Universities.

2. Literature Review

An entrepreneurial university provides internal mechanisms to produce knowledge that could transferred into new ventures [4]. Based on the previous literature, the paper adopts an integral framework that considers the universities’ environmental and internal factors to fulfill their teaching, research and entrepreneurial activities [2, 3, 1]. Particularly,

Environmental Factors (EF): The institutional approach draws attention to institutional or contextual—cultural, social, political and economic—factors as determinants of entrepreneurship [17, 18]. The key environmental factors of
entrepreneurial universities include: (i) a flexible organizational and governance structure; (ii) support measures; (iii) adequate entrepreneurial educational programs; (iv) community members’ favorable attitude toward entrepreneurship; (v) the existence and the diffusion of successful entrepreneurs; and (vi) adequate reward systems.

**Internal Factors (IF):** As a complementary approach, the resource-based view (RBV) helps to explain the internal factors that generate a competitive advantage within an entrepreneurial university [10, 11]. The main internal factors include: (i) human resources; (ii) financial resources from diversified sources of income; (iii) physical resources; (iv) strong networks/alliances; and (v) status and prestige.

**Entrepreneurial University Missions (EUM):** The entrepreneurial university must fulfill three missions simultaneously that otherwise might be at odds with one another: teaching, research and entrepreneurship [2, 3].

### 3. Methods

Methodologically, a robust multiple case-study approach is used to explore this contemporary phenomenon in one of the most important countries in the Middle East region (Iran1); where the boundaries between phenomenon and context are not clearly evident, complex and underexplored [19, 20, 21].

We explore the case studies of two universities: the based broad University of Tehran2 and the technological Sharif University of Technology3. Reliabil-

---

1 With a population of 70 million, Iran is the most populous countries in the Middle East Region and one the most densely country in the world. According with the Organization of the Petroleum Exporting Countries, Iran is the second largest oil producer and the second largest server of gas.

2 UT: Iran’s Oldest University called “The mother University of Iran”. University of Tehran enjoys an old tradition of education dating back to Jondishapour in Sassanid period (224-651 A.D.) and in seminars 700 hundred years ago)

3 SUT. At the beginning was Aryarmehr University of Technology and, at that time, there were 54 faculty members and a total of 412 students who were selected by national examination. In 1980, was renamed as Sharif University of Technology.

---

3. Methods

Methodologically, a robust multiple case-study approach is used to explore this contemporary phenomenon in one of the most important countries in the Middle East region (Iran1); where the boundaries between phenomenon and context are not clearly evident, complex and underexplored [19, 20, 21].

We explore the case studies of two universities: the based broad University of Tehran2 and the technological Sharif University of Technology3. Reliabil-

---

1 With a population of 70 million, Iran is the most populous countries in the Middle East Region and one the most densely country in the world. According with the Organization of the Petroleum Exporting Countries, Iran is the second largest oil producer and the second largest server of gas.

2 UT: Iran’s Oldest University called “The mother University of Iran”. University of Tehran enjoys an old tradition of education dating back to Jondishapour in Sassanid period (224-651 A.D.) and in seminars 700 hundred years ago)

3 SUT. At the beginning was Aryarmehr University of Technology and, at that time, there were 54 faculty members and a total of 412 students who were selected by national examination. In 1980, was renamed as Sharif University of Technology.

4. Results

In this section, we present a brief description of the main entrepreneurial actions implemented during the last three decades. Table 1 summarizes the most relevant evidence obtained of the entrepreneurial transformation in SUT and UT Universities.

In this timeline, during the last five years, we identify a strong effort to fostering entrepreneurship, innovation and knowledge transfer. In general terms, the evolutionary process of both universities has been influenced and motivated by government actions. This means that the transformation have not been a natural process.

Regarding environmental factors, broad-based universities follow a collegium pattern and have a strong link to the government while technological universities overlook their future educational expansion, financial projections, and other major plans like an enterprise with a managerial governance structure used to embrace internal structures, decision making, and leadership roles. Also, these universities present similar strategies about support measures for entrepreneurship and entrepreneurial education programs. The main difference is related to the existence of favorable attitudes toward entrepreneurship. Both universities try their best to make substantial impacts on the formation of attitudes toward entrepreneurship at the regional and national levels.

Concerning internal factors, human resources are the most critical element in their entrepreneurial transformation process. Both universities evidence the lack of talent and well-trained faculty members. In financial terms, traditionally, these universities have been financed mainly by governmental funds and budgets (technological universities have been the first allocated in the government budgets).

Not surprisingly, the main outcomes obtained by each university’s teaching, research, and entrepreneurial activities are linked to the nature of each university, but they will be critical if we ana-
lyze in-depth the relationship between the cost and the benefit related to R&D investment and entrepreneurship. In general terms, UT has better results associated with teaching and basic research, while SUT has better results associated with applied research (e.g., patents, research contracts) and entrepreneurial activities.

5. Discussion and Conclusion

Based on the evidence regarding the entrepreneurial transformation in SUT and UT, we identify a pattern influenced by the implementation of normative for fostering entrepreneurship, innovation, knowledge generation and knowledge transfer. These results are similar to previous studies [14].

In general terms, both universities present several similarities that could be influenced by their

<p>| Table 1. Timeline of Entrepreneurial transformation process of UT and SUT Universities |
|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|</p>
<table>
<thead>
<tr>
<th>Issues</th>
<th>Previous</th>
<th>30s-50s</th>
<th>60s- early 80s</th>
<th>Late 80s- Early 90s</th>
<th>Late 90s- Early 00s</th>
<th>Late 00s- Nowadays</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social context</td>
<td>Dynasty</td>
<td>Reopened and restructuring</td>
<td>Centralized</td>
<td>Promoting entrepreneurial culture</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Higher Education System</td>
<td>Exclusive right for nobility</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Policies for Fostering</td>
<td>Ministry of Education and</td>
<td>• Ministry of Culture and</td>
<td>• Increase the number of</td>
<td>• Science and technology</td>
<td></td>
<td></td>
</tr>
<tr>
<td>entrepreneurship</td>
<td>councils</td>
<td>Higher Education</td>
<td>universities (22 to 98)</td>
<td>strategies</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Foundation of Tehran University</td>
<td>• Essential educational</td>
<td>• Paid attention to research</td>
<td>• Develop postgraduate programs</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>reforms</td>
<td>and postgraduate degrees</td>
<td>• Improve Research</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Contribute to the</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Iranian Context</td>
<td></td>
<td></td>
<td></td>
<td>economy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Environmental factors</td>
<td>Organizational and governance</td>
<td>National plan to fostering</td>
<td>Policies to development of</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>structure defined by the</td>
<td>entrepreneurship at universities.</td>
<td>science, innovation and</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>government</td>
<td>Ministry of Science, Research</td>
<td>technology; streamlined</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>and Technology</td>
<td>infrastructures; synergized</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>collaborations; promotions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Internal factors</td>
<td>Based on public funds</td>
<td>University--industry interaction</td>
<td>Support mechanisms: entrepreneurship centers, tech parks, incubators)</td>
<td>Education programs at</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>was based on education</td>
<td></td>
<td>postage levels</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Knowledge, technology, and</td>
<td></td>
<td>Reward system &amp; incentives</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>innovation (research tasks)</td>
<td></td>
<td>(grants, prizes)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>University missions</td>
<td>Teaching</td>
<td>Teaching &amp; Research</td>
<td>Teaching &amp; Research</td>
<td>Teaching &amp; Research &amp; Knowledge and technology transfer</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Volume 10 / Number 4 / 2015
nature. For example, (i) courses and programmes defined by the Ministry of Science, Research and Technology, (ii) highly esteemed and well-known professors, (iii) the quality of their students, as they are selected from the most talented students of the country, and (iv) the relatively similar context and region the those universities are established at.

Interestingly, as the majority of developing countries, the Tehran’s universities have a strong economic dependence of public funds. These organizations do not tend to follow an entrepreneurial organization and governance structure [10, 11]. Also, these environmental factors are also influenced by the Iranian culture that advocates individual works or family aggregations. Therefore, we do not find evidence of strong favorable attitudes towards entrepreneurship. The main conclusion is that, during the period analyzed, these universities have been defining the main ingredients (environmental and internal factors) of an entrepreneurial university. In this sense, both are in the first stage of the development of an entrepreneurial university) [2, 3, 4].

In this scenario, the main challenges of the universities analyzed are: (i) to reinforce the entrepreneurial culture in the university community, (ii) to build stronger relationship with the national or/and international industry, and (iii) to follow a flexible organizational and governance structure.

An interesting future research lines could analyze the cost-benefit of the government investment (e.g. in all restructuring and entrepreneurship programs) with the socio-economic impacts of universities; as well as, to continue exploring the phenomenon following a stronger qualitative analysis in different Asian countries and another contexts.

Acknowledgement

Maribel Guerrero acknowledges the financial support from the Mexican Council of Science and Technology (CONACYT). David Urbano acknowledges the financial support from the Projects ECO2010-16760 (Spanish Ministry of Science and Innovation) and 2005SGR00858 (Catalan Government Department for Universities, Research and Information Society).

References


Corresponding Author
Aidin Salamzadeh,
Faculty of Entrepreneurship,
University of Tehran,
Iran,
E-mail: salamzadeh@ut.ac.ir
Nutritive Business Models of Consumer Behavior when Purchasing Foodstuffs

Sasko Martinovski, Rozita Spirovskka Vaskoska

University of Bitola “St. Kliment Ohridski”, Faculty of Technological and Technical Sciences–Veles, Veles, R. Macedonia.

Abstract

Nowadays, various methods are used as a support to many companies in the study of the behavior of consumer when they are purchasing food products. The success of the operations of these companies greatly depends on having a lot of information about the consumers that purchase the products and on detecting of the buying patterns of top customers and predicting their behavior.

The subject of research of this paper is the consumer behavior when purchasing food products, its modeling and a particular emphasis is put on the inclusion of the nutrition determinant in the decision making in the modeling. The general objective is to develop a business model of consumer behavior, and the specific goal is to develop a nutritional business model of consumer behavior.

This paper presents an original concept of modeling in order to create business model of consumer behavior when purchasing food products. The model was built using modern technologies such as GIS and methods of data mining. In the second part of the research, a partial validation of the model is made with data collected from a survey conducted on students. The analysis included statistical methods.

Conclusion: Nutritional patterns of consumer behavior will enable obtaining of information on the impact and role of the nutrition determinant on consumer behavior and the need to improve and produce healthy food. The benefits could be threefold: to benefit the companies through greater profits, to benefit the citizens through consumption of healthy and safe food products and in the end, to benefit the country.

Key words: business model, nutritional business model of consumer behavior, modeling, GIS, data mining, nutrition.

1. Introduction

Human beings have always aspired to live in harmony with the environment, society and themselves and to create a balance between the urban development and the environment and between the terms of the sustainability of urban environments and living a healthy life.

In the planning of socio-economic development, the making of profit, the protection of the environment and the planning of a healthy life, a modeling of models is needed (spatial patterns are included more and more), and the obtained anticipated changes at different levels are crucial to efficient management. The inclusion of this approach can be successful in developing effective and adaptive policies with deeper knowledge of complex spatial and temporal relationships between different systems. This means that new methods and designs are needed that are comprehensive, customizable, integrative and effective, and for all of this to be achieved it is necessary to integrate natural and social sciences, to develop them of common ground.

The world is made of many complex systems, and despite their diversity, they have structural and functional characteristics that can efficiently be simulated with the help of dynamic modeling, later on, based on that model, powerful and easy-to-use software can be created. As a result, we can explore the nature of complex systems in all parts of their complexity and to analyze their dynamic behavior in a range of assumptions and conditions. The best solution for the detection of phenomena related to consumer behavior is business models of consumer behavior.

Regarding the economic development and profit, both having structural and functional characteristics, one of the main tasks of large companies is to study the behavior of consumers. This is not an easy task because we do not exactly know how the human brain makes buying decisions, and of-
ten the buyers themselves do not know what influ-
enced their purchase. Therefore, comprehensive
research methods are needed with the main objec-
tive to identify all the key determinants affecting
the purchase. One possibility is modeling and cre-
ating business models of consumer behavior that
can give a lot of answers.

Today, we live in a time of modern technolo-
gies with continuous development of scientific
methods and concepts, and those are ones of the
main prerequisites in modeling and building good
business models of consumer behavior. Good
methodologies and concepts should include: the
use of modern technology, such as Database Man-
agement Systems (DBMS); Geographic Informa-
tion System (GIS), which enables modeling and
creating system models that can describe the cur-
rent situation and to project the future; advanced
analysis of databases by using advanced methods
data mining, that will allow getting good infor-
mation on consumer behavior [1], [2].

The importance of databases for the human
consumer behavior is important, they are inher-
ently geographical, and may contribute to identify
all customers. Also, marketing research (explor-
atory, descriptive and causal research) is an im-
portant component in the identification of custom-
ers, what they buy, their characteristics and their
unique buying habits. One of the common meth-
ods used for descriptive research is via a survey,
which allows collection of primary data that can
be included in the business model.

The prevention of diseases in developed coun-
tries is increasingly directed towards the consump-
tion of a healthy diet. The definition of consumers
in terms of their needs, desires and requirements is
one of the essential components of success for any
marketing strategy and success of the company.
Our research shows that consumers of food prod-
ucts are increasingly considering nutritional prop-
erties of foodstuffs [3], [4], [5]. Therefore, under-
standing of the consumers and their consideration
of the nutritional quality of the food and knowing
the various elements that stimulate the purchase
could help expand the profile of the brand, to
improve and to develop it.

Obtaining a great number of answers to con-
sumer behavior, can be achieved by building a nu-
tritional business model, which will determine the
degree of impact of the determinant - nutritional
properties (vitamins, minerals and other beneficial
ingredients to the body) on the purchase of products
[6]. Building good nutritional model of consumer
behavior when purchasing food products will en-
able companies to get answers to questions about
their marketing strategy, but also for the need of
improvement and production of healthy food prod-
ucts. Also, parallel to this there is a significant de-
velopment in the area of planning in the health sec-
tor, nutrition and prevention of diseases by using
the so-called PSS (Planning Support System), [7],
[8], [9]. In the future, the nutritional business model
of consumer behavior when purchasing food prod-
ucts might be implemented in the PSS systems, in
the part regarding health and nutrition.

2. Nutritional business model for customer
behavior

In theory and practice we meet several types of
consumer behavior models, including:
– deterministic or probabilistic (linear ODE
model),
– continuous valued or discrete valued,
– continuous time or discrete time,
– lumped model or agent model,
– continuous product range or finite number
of brands,
– identical consumers or with different
consumers),
– etc.

These models are built for specific purposes
and cases, whereby in most there are psychologi-
cal and sociological (Markov model) determinants
included, but a very small number of these include
the determinant – nutritional properties of food
products. In these models, the modeling is done
with analytics and statistics (mathematical mod-
els) and by using binary comparison and networks
[10], [11], [12]. In all these models the concept of
modeling is used, where very little or nothing is
done in terms of understanding of the model itself,
i.e. it is reduced to a help section.

The nutritional business model of consumer
behavior we propose isn’t a classic mathematical
model. It can include mathematics, statistics, and
other methodologies (economic, geographic). Our
research has shown that it is necessary for modeling to be raised to a higher level in order to build a better business model. In the text below we will display an original concept of modeling which would improve the business models of consumer behavior.

The nutritional business model, apart from the other known determinants, includes the determinant nutrition, whose influence on the decision of purchasing food stuffs increases further and further.

2.1. Nutrition determinant of the business model

Apart from the other determinants (cultural, social, personal, psychological) the nutrition determinant is included in the nutrition business model and it consists of several elements, including:

- Energy value
- Fats and saturated fats
- Quantity of sugars and proteins
- Carbohydrates
- Vitamins/minerals
- Fibers
- Nutrition and health claims
- Sensory attributes (color, aroma, taste)
- Product safety
- Certification (for example: organic, quality)

Our research shows that consumers of food products are increasingly sensitive to these elements of the determinant nutrition, and therefore, their significance in the business of food products is greater.

2.2. Geographic information system

The Geographic information system (GIS) as an advanced information technology is integrated into a number of systems from several areas [13]. GIS contains a range of tools including: economic and demographic analysis with predictions of the future; spatial analysis of the environment; building GIS models; transport planning; spatial analysis of land use, for organic farming [14] and etc; creation of health regions; for marketing needs by building marketing thematic maps, etc.

GIS can be used to impressively convey the real world into digital form through relations and discrete objects, and then analyze it through spatial and non spatial data in a reference system (geospatial data). The better the real-world formal is represented in the formal system, the better it will be analyzed (Figure 1).

![Figure 1. Representing the real world in a formal system](image)

There are many advantages in the general use of GIS in the field of economy [15], especially in marketing including:

- Using geography can help in the design of appropriate marketing techniques. GIS-based systems may help in the management of campaigns and the measurement of results.
- Spatial and non spatial segmentation and targeting of customers based on geographic and psychographic characteristics may help to identify specific consumer groups categorized by common characteristics.
- GIS can help to define profitable geographical areas, identifying and targeting of best customers.
- GIS can allow better understanding of consumer behavior and demographic patterns of consumers. Socio-economic characteristics and behaviors of customers are essential knowledge in making good business decisions.
- Detecting purchasing schemes of top customers is enabled in order to predict their behavior. In order to achieve this, apart from a GIS, it is necessary to use different databases for consumers and methods of data mining. A thorough knowledge of customers will provide better sales and better response to the loyalty programs and promotion.
GIS can be used to build software solutions for business models.

2.3. Modeling for creation of the nutritive business model of consumer behavior

The modeling stages we propose are represented as entities in a relational model (E-R model), including:

- Stage 1. Output - Methodology - Input
- Stage 2. Conceptual model
- Stage 3. Logical model
- Stage 4. Physical model
- Stage 5. Verification of the model with feedback

In stage 1 and 2 the entities for outputs, methodologies and inputs, as well as their relations are defined, and in stage 3 the logical model is built as an E-R model. On the basis of the logical model, the physical model in stage 4 is built, with a software solution that includes GIS. In stage 5 there is a loopback to stage 1 and stage 4 depending on the results of the verification of the model with the test data.

2.3.1 Stage 1: Output - Methodology - Input

What is specific for this stage is that an entity relational connection is set up in the following order: first the model outputs are defined (for the nutrition business model of consumer behavior the shopper responses correlated with the nutrition determinant and others are specified), second on the basis of the outputs the necessary methodology for obtaining them is defined and finally on the basis of the methodology, the model input is defined and its data sources (Figure 2).

The output can be in the form of analytical data or graphical representations (thematic maps) contained in the GIS layers.

The necessary methodology to be used in obtaining the outputs is an important segment in modeling. This section defines the methodology to be used in the model. This is necessary in building a business model and an important step to get high quality outputs. By using advanced methodology and technology, methods of GIS and data mining are important [16] and they include: basic concepts of mining of frequent forms, association and correlation; classification; decision trees; Bayes classification method; models of evaluation and selection; methods of cluster analysis and evaluation of clustering [17].

The methodology is related to inputs in the model. To get all predefined outputs, it is necessary to define all the necessary inputs. General inputs can be of two types: spatial and non spatial (attribute). Data sources inputs can be different, but for a nutritional business models it is important to use databases on consumer behavior derived from marketing research (surveys, consumer databases) and so on.

![Figure 2. Relational connection of the entities from stage 1 for stage 2](image)

2.3.2. Stage 2: Conceptual model

The conceptual model consists of defining all the points needed to build the model, i.e. the strategies for modeling are defined. Figure 3 shows all the entities related to the conceptual model. GIS functions that can be applied in the model are:

- **Binary models** – for spatial query. A common example of this model is the analysis of localization of elements, (sitting analysis) and maps overlay with a combination of attributes/variables. These models can be used for space tracking of disease sources and making different plans.
- **Logical models** – for spatial collection. There are two types of logical models: vector and raster based logical model. These models can be used for spatial allocation of nutria-agencies and healthy food stores.
- **Index models** - spatial ranking. These models can be used to define the health regions.
- **Regression models** - prediction and assessment. There are two types of regression: linear regression and logistic regression. These models can be used to define the health regions and thematic maps.
Process Models - defining the processes in the real world represented in a set of relations and equations [13], [18].

2.3.3. Stage 3: Logical model

On the basis of all entities of the previous stages, creating a logical model begins by setting relations between them in the E-R model. This modeling concept will enable the business model to be self-explanatory of the process that is embedded in it. That means that for each output there is a specific explanation as to how to obtain it and which models have been used, and thus the model is raised to a higher level of understanding. Also, further development of the model will be very easy and simple.

2.3.4. Stage 4: Physical model

The physical model is the stage of realization of the logical model into a software solution. The design was done in a software development environment, integrating existing GIS software, with integration of DBMS and other required software. For GIS, specialized GIS software can be used, and we did our research in the ESRI company software - ArcMap, where GIS models are created with the ModelBilder (graphics engine) [19]. For non-GIS databases, the DBMS software can be used and we used SQL. For advanced analysis, the data mining software can be used, and the software we used was WEKA [20].

What is specific of the physical model is the implementation of self-understanding. In the modeling entities are used in an E-R scheme, and this provides the opportunity to show the manner of obtaining each output. With it, users can get an answer to their every question about the functioning of the model implemented in software solution.

2.3.5. Stage 5: Verification

In this stage the business model is verified with test data. The output data is analyzed, and this can be done easily now because self-understanding is built into the physical model, i.e. in every output obtained. Verification of the model can cause general changes: minor changes in the model entities and major changes starting from stage 1.

2.4. Marketing research – influence of nutritional properties on consumers when purchasing foodstuffs

A survey was conducted on the impact of nutritional properties on consumers when buying food products. This research was done because: first, all of our previous research shows that consumers of food products are increasingly considering...
nutritional properties of food products in their purchase; secondly, today, the level of nutritional impact is growing; and third, companies are increasingly interested in the nutritional properties of their food stuffs.

2.4.1 Survey on the impact of nutritional properties on consumer behavior

To determine the level of the impact of the nutrition determinant on the behavior in a separate group of consumers of food products - a total of 406 students from Faculty of Technological and Technical Sciences in Veles in all four years of the study program “Nutrition and food technology and biotechnology” were surveyed. The survey consisted of 12 questions. The questions (summarized) relating to the nutrition determinant (others are: gender, age and year of study) (from Table 1 to Table 9) are presented below:

Table 1. Question 4: How much attention do you pay to nutritional properties when purchasing food stuffs? (Single answer)

<table>
<thead>
<tr>
<th>Choice</th>
<th>A little</th>
<th>Degree</th>
<th>A lot</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Question 4</td>
<td>11</td>
<td>13</td>
<td>90</td>
</tr>
</tbody>
</table>

Table 2. Question 5: When you buy a product because of its nutritional properties, how much do the following sources of information on these properties affect your decision? (Multiple answers)

<table>
<thead>
<tr>
<th>Choice</th>
<th>Degree</th>
<th>A little</th>
<th>A lot</th>
</tr>
</thead>
<tbody>
<tr>
<td>Labeling (label) of the product</td>
<td></td>
<td>42</td>
<td>37</td>
</tr>
<tr>
<td>Previous knowledge of nutritional properties of this group of products</td>
<td>24</td>
<td>34</td>
<td>30</td>
</tr>
<tr>
<td>The history of use of the product</td>
<td></td>
<td>41</td>
<td>20</td>
</tr>
<tr>
<td>Promotion (advertising) of the nutritional properties of the product</td>
<td>38</td>
<td>27</td>
<td>39</td>
</tr>
<tr>
<td>Recognition of the brand product</td>
<td></td>
<td>26</td>
<td>38</td>
</tr>
</tbody>
</table>

Table 3. Question 6: How well do you understand (select the degree of how well you understand and interpret the meaning of) the section on the product where the nutrition facts are labeled? (Multiple answers)

<table>
<thead>
<tr>
<th>Choice</th>
<th>Degree</th>
<th>A little</th>
<th>A lot</th>
</tr>
</thead>
<tbody>
<tr>
<td>Declared Energy Value</td>
<td></td>
<td>31</td>
<td>38</td>
</tr>
<tr>
<td>The amount of fats and saturated fats</td>
<td></td>
<td>34</td>
<td>33</td>
</tr>
<tr>
<td>The amount of sugars and proteins</td>
<td></td>
<td>32</td>
<td>37</td>
</tr>
<tr>
<td>The amount of fibers</td>
<td></td>
<td>33</td>
<td>41</td>
</tr>
<tr>
<td>Vitamins / minerals as part of the recommended daily intake</td>
<td>44</td>
<td>36</td>
<td>44</td>
</tr>
<tr>
<td>Nutrition and health claims</td>
<td></td>
<td>47</td>
<td>27</td>
</tr>
</tbody>
</table>

Table 4. Question 7: Select the degree of influence of the given nutritional properties when buying food products (Multiple answers)

<table>
<thead>
<tr>
<th>Choice</th>
<th>Degree</th>
<th>A little</th>
<th>A lot</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy value</td>
<td></td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Fats</td>
<td></td>
<td>26</td>
<td>21</td>
</tr>
<tr>
<td>Carbohydrates</td>
<td></td>
<td>27</td>
<td>23</td>
</tr>
<tr>
<td>Fibers</td>
<td></td>
<td>23</td>
<td>34</td>
</tr>
<tr>
<td>Vitamins / minerals</td>
<td></td>
<td>22</td>
<td>22</td>
</tr>
<tr>
<td>Nutrition and health claims</td>
<td></td>
<td>29</td>
<td>20</td>
</tr>
</tbody>
</table>
Table 5. Question 8: Choose the importance of the given attributes when buying food products (Multiple answers)

<table>
<thead>
<tr>
<th>Choice</th>
<th>Degree</th>
<th>A little</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensory attributes (color, aroma, taste)</td>
<td></td>
<td></td>
<td>19</td>
<td>28</td>
<td>23</td>
<td>132</td>
<td>204</td>
</tr>
<tr>
<td>Price</td>
<td></td>
<td></td>
<td>22</td>
<td>21</td>
<td>25</td>
<td>122</td>
<td>216</td>
</tr>
<tr>
<td>Product safety</td>
<td></td>
<td></td>
<td>22</td>
<td>24</td>
<td>26</td>
<td>158</td>
<td>176</td>
</tr>
<tr>
<td>Brand</td>
<td></td>
<td></td>
<td>31</td>
<td>21</td>
<td>30</td>
<td>124</td>
<td>200</td>
</tr>
<tr>
<td>Certification (for example: organic, quality)</td>
<td></td>
<td></td>
<td>21</td>
<td>35</td>
<td>24</td>
<td>127</td>
<td>199</td>
</tr>
</tbody>
</table>

Table 6. Question 9: Select the level of received information about the importance of nutritional properties of food products for the human organism (Multiple answer)

<table>
<thead>
<tr>
<th>Choice</th>
<th>Degree</th>
<th>A little</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learning at the University</td>
<td></td>
<td></td>
<td>14</td>
<td>20</td>
<td>26</td>
<td>157</td>
<td>189</td>
</tr>
<tr>
<td>Books and scientific publications</td>
<td></td>
<td></td>
<td>17</td>
<td>27</td>
<td>25</td>
<td>147</td>
<td>190</td>
</tr>
<tr>
<td>The Internet</td>
<td></td>
<td></td>
<td>17</td>
<td>28</td>
<td>28</td>
<td>128</td>
<td>205</td>
</tr>
<tr>
<td>Mass Media</td>
<td></td>
<td></td>
<td>23</td>
<td>27</td>
<td>28</td>
<td>125</td>
<td>203</td>
</tr>
<tr>
<td>Experts</td>
<td></td>
<td></td>
<td>19</td>
<td>23</td>
<td>33</td>
<td>134</td>
<td>197</td>
</tr>
<tr>
<td>Scientific conferences - seminars</td>
<td></td>
<td></td>
<td>24</td>
<td>29</td>
<td>18</td>
<td>148</td>
<td>187</td>
</tr>
</tbody>
</table>

Table 7. Question 10: Select the level of influence on your decision to purchase a product of the information obtained about the importance of the nutritional properties of food products for the human organism, presented in a given resource (Multiple answers)

<table>
<thead>
<tr>
<th>Choice</th>
<th>Degree</th>
<th>A little</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learning at the University</td>
<td></td>
<td></td>
<td>26</td>
<td>18</td>
<td>22</td>
<td>145</td>
<td>195</td>
</tr>
<tr>
<td>Books and scientific publications</td>
<td></td>
<td></td>
<td>24</td>
<td>25</td>
<td>24</td>
<td>140</td>
<td>193</td>
</tr>
<tr>
<td>Internet</td>
<td></td>
<td></td>
<td>21</td>
<td>23</td>
<td>30</td>
<td>124</td>
<td>208</td>
</tr>
<tr>
<td>Mass media</td>
<td></td>
<td></td>
<td>20</td>
<td>30</td>
<td>18</td>
<td>128</td>
<td>210</td>
</tr>
<tr>
<td>Experts</td>
<td></td>
<td></td>
<td>19</td>
<td>27</td>
<td>27</td>
<td>134</td>
<td>199</td>
</tr>
<tr>
<td>Scientific conferences - seminars</td>
<td></td>
<td></td>
<td>26</td>
<td>29</td>
<td>17</td>
<td>146</td>
<td>188</td>
</tr>
</tbody>
</table>

Table 8. Question 11: Do you think that other consumers of food products receive enough information about the importance of the nutritional properties of food products for the human organism? (Single answer)

<table>
<thead>
<tr>
<th>Choice</th>
<th>Degree</th>
<th>A little</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Question 11</td>
<td></td>
<td>93</td>
<td>108</td>
<td>135</td>
<td>32</td>
<td>38</td>
<td></td>
</tr>
</tbody>
</table>

Table 9. Question 12: How much do you influence your family and friends, regarding the importance of nutritional properties when buying food products? (Single answer)

<table>
<thead>
<tr>
<th>Choice</th>
<th>Degree</th>
<th>A little</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Question 12</td>
<td></td>
<td>11</td>
<td>13</td>
<td>86</td>
<td>148</td>
<td>148</td>
<td></td>
</tr>
</tbody>
</table>

2.4.2. Results from the survey

A database was created from this survey, and an advanced analysis was used. As an example for the implementation of the model, an analysis is presented of questions 4, 12 and question 7.

In the entity Output (number of output) of the business model, several outputs are defined, and several of them are presented as follows:

- Output (1) = Regression statistics – in order to determine the existence of a relation between
the answers on the degree of influence from questions 4 and 12.

- Output (2) = t test – in order to statistically determine the existence of probability of the answers on the degree of influence from questions 4 and 12.
- Output (3) = Distribution of patterns of answers on the degree of influence from questions 4 and 12 – in order to determine the general consumer behavior.
- Output (4) = Frequency of answers for the degree of influence from question 7 – with the purpose to determine the influence of nutritional properties when purchasing food stuffs.
- Output (5) = Identification of a specific pattern of the degree of influence from question 7 in the order: fats - carbohydrates-vitamins/minerals – in order to identify the same consumers on which these nutritive properties influence simultaneously.

The entity methodology (number of methodology, number of output) defines methodologies which will be used for obtaining the outputs, including:

- Methodology (1,1)= Excel Regression statistics: Multiple R (Correlation), R Square, Adjusted R Square, Standard Error, Observations.
- Methodology (2,2)= Excel data analysis for paired samples (t-test).
- Methodology (3,3)= SQL Query1
- Methodology (4,3)= Data mining, Frequent Pattern Mining / The Apriori Algorithm.
- Methodology (5,4)= Excel FREQUENCY method i Data mining, Frequent Pattern Mining / The Apriori Algorithm.
- Methodology (6,5)= Data mining, Frequent Pattern Mining / The Apriori Algorithm.

In the entity input (number of input, number of methodology) the used inputs are defined, including:

- Input (1,1) = attributes: degree-question 4 and degree-question 12.
- Input (1,2) = attributes: degree-question 4 and degree-question 12.
- Input (1,3) = attributes: degree-question 4 and degree-question 12.
- Input (2,2) = µ, α
- Input (3,4) = attributes of question 7 for the degree of: energy value, fats, carbohydrates, fibers, minerals/vitamins and nutritional health claims.
- Input (4,5) = attributes of question 7 for the degree of: fats, carbohydrates and minerals/vitamins.

In the entity Data source (number of source, number of input) the source is defined, and this source is the student’s survey:

- Data source (1,1)= Database from survey
- Data source (1,2)= Database from survey
- Data source (1,3)= Database from survey
- Data source (1,4)= Database from survey

In the entity Mathematics and Statistics (number of model, number of methodology) (Figure 3) the methods (models) of the entity Methodology are defined. Specifically for Methodology (1,1) the entity Mathematics and Statistics (1,1) is defined (table 10).

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>r</td>
<td>0.842816572</td>
<td>Multiple R</td>
</tr>
<tr>
<td>R²</td>
<td>0.710339775</td>
<td>Sample size</td>
</tr>
<tr>
<td>aR²</td>
<td>0.709622794</td>
<td>Adjusted R Square</td>
</tr>
<tr>
<td>s.e.</td>
<td>0.529469272</td>
<td>Standard Error</td>
</tr>
<tr>
<td>n</td>
<td>406</td>
<td>Observations</td>
</tr>
</tbody>
</table>

Degree (1 to 5) Question 4
Degree (1 to 5) question 12

In the entity output (number of output) the t-test is defined.

Table 11. Output (1)

<table>
<thead>
<tr>
<th>Regression Statistics</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multiple R (Correlation)</td>
<td>0.842816572</td>
</tr>
<tr>
<td>R Square (R²)</td>
<td>0.710339775</td>
</tr>
<tr>
<td>Adjusted R Square (aR²)</td>
<td>0.709622794</td>
</tr>
<tr>
<td>Standard Error (s.e.)</td>
<td>0.529469272</td>
</tr>
<tr>
<td>Observations (n)</td>
<td>406</td>
</tr>
</tbody>
</table>

For Methodology (2,2) the entity Mathematics and Statistics (2,2) is created (table 12) and in it the t-test is defined.
Table 12. Statistical model for t-test

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>( \mu = )</td>
<td>0</td>
<td>Null hypothesis for assumption</td>
</tr>
<tr>
<td>( n = )</td>
<td>406</td>
<td>Sample size</td>
</tr>
<tr>
<td>( \alpha = )</td>
<td>0,05</td>
<td>Significance level</td>
</tr>
<tr>
<td>( df = n-1 )</td>
<td>405</td>
<td>Degrees of freedom</td>
</tr>
<tr>
<td>s.e. = STDEV/√n</td>
<td>1</td>
<td>Standard error</td>
</tr>
<tr>
<td>( \bar{x} )</td>
<td>Is the sample mean</td>
<td></td>
</tr>
<tr>
<td>( t_{tab} = (\bar{x} - \mu)/s.e. )</td>
<td>Test statistic</td>
<td></td>
</tr>
<tr>
<td>( t_{crit} = INV(\alpha, df) )</td>
<td>Critical value of t</td>
<td></td>
</tr>
</tbody>
</table>

\( t_{tab} > t_{crit} \) if the null hypothesis is rejected or the null hypothesis is accepted, i.e. the events are accidental.

Result Output (2): obtained in Excel (Table 13). The relation \( t_{tab} > t_{crit} \) points to the fact that the selection of answer for the degree of questions 4 and 12 are not accidentally statistically and are 95% a logical pair (relation).

Table 13. Excel data analysis for paired samples

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>( \mu = )</td>
<td>0</td>
</tr>
<tr>
<td>( \alpha = )</td>
<td>0,05</td>
</tr>
<tr>
<td>( n = )</td>
<td>406</td>
</tr>
<tr>
<td>( df = )</td>
<td>405</td>
</tr>
<tr>
<td>stdev =</td>
<td>0,525666</td>
</tr>
<tr>
<td>( \bar{x} )</td>
<td>0,157635</td>
</tr>
<tr>
<td>s.e. =</td>
<td>0,026088</td>
</tr>
<tr>
<td>tabs =</td>
<td>6,042372</td>
</tr>
<tr>
<td>tcrit =</td>
<td>1,965839</td>
</tr>
</tbody>
</table>

For Methodology (3,3), the entity Mathematics and Statistics(3,3) is created and the SQL Query is defined in it:

```sql
SELECT Question4, Question12, count(degree4) AS CountOfdegree4 FROM survey GROUP BY survey.degree4,survey.degree12 HAVING (((degree4)=5 Or (degree4)=4) AND ((degree12)=5 Or (degree12)=4));
```

This questionnaire selects answers to questions 4 and 12 with a degree 4 and 5 paired as a pattern, and their frequency is measured.

For the Methodology (4,3), the entity Mathematics and Statistics(4,4) is created, where the methods of Data mining, Frequent Pattern Mining / The Apriori Algorithm are defined.

**Result Output (3):**

1. With Query 1 the frequency of patterns of the answers is obtained, for the degree in questions 4 and 12. The number of patterns: 55, 44, 45 and 54 is 69,7% from the total number of all patterns (406).

2. With the method of Data mining the distribution of patterns is obtained for the answers of the degree in questions 4 and 12 (Figure 4).

From the obtained results of Output (3) a general conclusion can be adopted:

- a high degree of influence of the nutritional properties when purchasing food stuffs,
- a great influence of the surveyed on their family, friends and other persons, for the significance of nutritional properties.

**Figure 4. Distribution of patterns from questions 4 and 12.**

For the Methodology (5,4), the entity Mathematics and Statistics(5,5) is created, where the method of Data mining, Frequent Pattern Mining / The Apriori Algorithm are defined.

**Result Output(4):** Figure 5, points to a high frequency of the degrees 4 and 5 (encompassing together over 80%) of all the answers of question 7. This points to a high degree of influence of the nutritional properties when the surveyed students are purchasing food stuffs.
For the Methodology (6,5), the entity Mathematics and Statistics (6,6) is created, where methods of Data mining, Frequent Pattern Mining / The Apriority Algorithm are defined for the following pattern for question 7: Fats – Fibers - Vitamins / minerals.

**Results Output (5):** Figure 6 identifies the most frequent patterns of the degree of influence of the previously selected pattern. The graph shows that the most frequent patterns are with the degree 4 and 5 (555, 455, 554...) which points to a large influence of the nutritional properties: energy value, fats, carbohydrates and minerals/vitamins at the same time, when the surveyed students purchase food stuffs.

Finally, as an example of the conceptual and logical model, figure 7 shows the entity relation of the needed entities for the previously presented outputs. The only thing shown is the self-explanatory feature of the business model for output 1. Its obtaining is in relation between the entities.

**3. Conclusion**

In many developed countries more and more investments are made in educating the citizens on the significance of a healthy diet and nutritive attributes, through study programs at the higher education institutions. This means that over time the impact of the nutritional attributes in the purchase of food products will be much greater, and the development and use of nutritional business models of consumer behavior shall be an important part in the business of companies which manufacture food products.

For building a good business model, it is necessary to use advanced scientific methods and technologies such as: GIS and DBMS, and advanced data analysis with data mining. The modeling concept which is represented in five stages, where all of the important functions are defined as entities in an E-R model, shall enable raising the business models on a higher level, as well as specifically the nutritional business model of customer behavior. This will make it possible to better understand the modeling process itself and to better implement it into the system, and this will improve the results, will make it easier to use and easier to develop.
All of this shall enable companies to obtain better answers on consumer behavior and create the best strategies for their business.

The benefits can be threefold:
- benefits for the companies for increasing their profits,
- benefits for the citizens in their consumption of healthy and safe products, and
- benefits for the country.

Future steps in modeling and building business models are: the inclusion of expert systems and inclusion of ready-made tools in the software development environment for embedded self-explanation of the process.

4. References


Corresponding Author
Sasko Martinovski,
University “St. Kliment Ohridski” Bitola,
Faculty of Technological and Technical Sciences–Veles,
Veles,
R. Macedonia,
E-mails: sasko.martinovski@uklo.edu.mk
saskomartin2@gmail.com
**Instructions for the authors**

*All papers need to be sent to email: ttem_bih@yahoo.com,*

Every sent magazine gets its number, and author(s) will be notified if their paper is accepted and what is the number of paper. Every correspondence will use that number. The paper has to be typed on a standard size paper (format A4), leaving left margins to be at least 3 cm. All materials, including tables and references, have to be typed double-spaced, so one page has no more than 2000 alphanumerical characters (30 lines). Sent paper needs to be in the form of triplicate, considering that original one enclosure of the material can be photocopied. Presenting paper depends on its content, but usually it consists of a page title, summary, text references, legends for pictures and pictures. Type your paper in MS Word and send if on a diskette or a CD-ROM.

**TITLE PAGE**

Every article has to have a title page with a title of no more than 10 words: name (s), last and first of the author (s), name of the institution the authors (s) belongs to, abstract with maximum of 45 letters (including space), footnote with acknowledgments, name of the first author or another person with whom correspondence will be maintained.

**ABSTRACT**

Second page needs to contain paper summary, 200 words at the most. Summary needs to hold all essential facts of the work-purpose of work, used methods (with specific data, if possible) and basic facts. Summaries must have review of underlined data, ideas and conclusions from text. Summary has no quoted references. For key words, at the most, need to be placed below the text.

**CENTRAL PART OF THE ARTICLE**

Authentic papers contain these parts: introduction, goal, methods, results, discussion and conclusion. Introduction is brief and clear review of problem. Methods are shown so that interested a reader is able to repeat described research. Known methods don’t need to be identified, it is cited (referenced). Results need to be shown clearly and logically, and their significance proven by statistical analysis. In discussion, results are interpreted and compared to existing, previously published findings in the same field. Conclusions have to give an answer to author’s goal.

**REFERENCES**

Quoting references must be in a scale in which they are really used. Quoting most recent literature is recommended. Only published articels (or articles accepted for publishing) can be used as references. Not-published observations and personal notifications need to be in text in brackets. Showing references is as how they appear in text. References cited in tables or pictures are also numbered according to quoting order. Citing paper with six or less authors must have cited names of all authors; if seven or more authors’ wrote the paper, the name of the first three authors are cited with a note “et all”. If the author is unknown, at the beginning of papers reference, the article is named as “unknown”. Titles of the publications are abbreviated in accordance to Index Medicus, but if not listed in the index, whole title of the journal has to be written.

Footnote-comments, explanations, etc., cannot be used in the paper.

**STATISTICAL ANALYSIS**

Tests used for statistical analysis need to be shown in text and in tables or pictures containing statistical analysis.

**TABLES AND PICTURES**

Tables have to be numbered and shown by their order, so they can be understood without having to read the paper. Every column needs to have title, every measuring unit (SI) has to be clearly marked, preferably in footnotes below the table, in Arabian numbers or symbols. Pictures also have to be numbered as they appear in text. Drawings need to be enclosed on a white paper or tracing paper, while black and white photo have to be printed on a radiant paper. Legends next to pictures and photos have to be written on a separate A4 format paper. All illustrations (pictures, drawings, diagrams) have to be original and on their backs contain illustration number, first author last name, abbreviated title of the paper and picture top. It is appreciated if author marks the place for table or picture. Preferable the pictures format is TIF, quality 300 DPI.

**USE OF ABBREAVIATIONS**

Use of abbreviations has to be reduced to minimum. Conventional units can be used without their definitions.