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Is "Fair Trade" the Solution to Food Insecurity?

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Abstract

The idea of the liberal market in this globalization era somehow creates a dilemma within most of the third-world countries. Market competition worldwide unfortunately creates unfair trade between the developed, developing, and underdeveloped countries. Consequently, food prices are increasing every day and so is the poverty level. Countries where the majority of agricultural products are made are causing the developing and underdeveloped countries to become even poorer; this is the ironic situation in the global unfair trade. International organizations such as the World Trade Organization (WTO) were not able to provide any significant solution for the enhancement of trade liberalization or the fair free trade because the free trade that WTO promotes is somehow not fair. Therefore, this paper will analyze the relations between food security and trade, investigate the fair trade role in international trades and agreements, and discuss how fair trade can be a solution for food insecurity.

Keywords: Fair-trade, food, insecurity

Introduction

International trade in agricultural products plays a critical role in international development. Every country, irrespective of whether it is first-world or third-world, has a role to ensure that third-world countries enjoy the benefits of international trade and food security because every human being is entitled to the right to eat. Through various international initiatives aiming to achieve food security for all, it has become apparent that the proper regulation of international trade and multilateral trade agreements is necessary to attain this goal. About sixty percent of the people in third-world countries engage in food production and therefore ensuring good prices for food commodities in the international market is necessary for their development (Philips, 2000).

According to Fair Trade Foundation (2011), there is more to fair trade than just doing business differently. It is a special international movement with a noble and fearless mission: transforming the manner in which international trade is conducted. It aims at achieving better bargains for people in third-world countries whose efforts are essential in meeting people's daily needs. It continuously grows and utilizes the powers of businesses, producers, shoppers, and campaigners (Fair Trade Foundation, 2011). According to the World Fair Trade Organization (WFTO), millions of people in different parts of the world are victims of high and volatile food and fuel prices resulting in food crises in different parts of the world. Among these are about 450 million small-scale farming households constituting two billion people, or, one-third of the world population that cultivates two hectares of land or less (Curtis, 2009). In addition, about half of the world population suffers from hunger in these farms. This is ironic because these are the people who contribute to the world food basket. Such an unfair situation is the direct consequence of the unfair international practices tolerated by the World Trade Organization. Thus, this study seeks to provide a solution for the current food insecurity through the promotion of fair trade practices. To begin with, the link between trade and food security will be discussed to provide an understanding of the role of trade in food security. Then, a discussion on how fair trade practices can be used to overcome the challenges of food insecurity will follow. Finally, a discussion on how fair trade will result in stability in food security and a fairer world in the long-term will follow.

Food Security and Trade

The year 2008 was characterized by extremely high food prices in the international market. This was mainly caused by production shortfalls, volatile oil prices, changing consumption trends, and the production of biofuels on agricultural land. Robert Zoellick, the World Bank head, warned that the increasing food prices in the international market could push over 100 million people living in poor countries into extreme poverty. Between February 2005 and February 2008, the world food prices, particularly those of wheat, rice, maize, and oilseeds, increased by 83% ("Soaring Food Prices", 2008). This was a big challenge for not only small-scale farmers but also poor urban residents and the landless people in different parts of the world. This is because high international prices are not reflected in the prices paid to the farmers. In most instances, the prices offered to the farmers triple by the time the food enters the international market. Thus, the benefits and the high profits from the high international prices are mostly enjoyed by the businessmen and the food companies as opposed to the farmers.

International food prices have been dropping recently. For instance, the October 2008 global food prices were 28% higher than prices in October 2006.

According to Curtis (2009), the actual global food prices, mainly of cereals, rice, and oilseeds, will be 10%-35% higher in the next ten years compared to the past ten years. This increase is attributed to various structural shifts such as different consumption patterns, rural-urban migration, climatic changes, and inappropriate trade policies that may result in negative patterns, and recession in the financial markets. The long-term global market condition of food commodities like coffee, sugar, tea, and cocoa, which are traded in the global markets but are not part of staple foods for people in the South, is not certain. Another recent forecast suggests that sugar prices will drop by 3% in the next decade although the prices of maize, rice, and wheat will rise by 27%, 9%, and 2%, respectively, over the same period. However, as Curtis (2009) asserts, the future drop in food prices might not be of importance to all because the international food crisis has subjected over 119 million more people to poverty and such a level exposure to the poor and the vulnerable is unacceptable. Such a situation reveals the results of food crises caused by unfair trade practices on poor world populations.

According to FAO (1996), food security is said to exist when there is universal access to healthy and nutritious food to all. In other words, a situation where some people, especially farmers who are engaged in food production, cannot afford a decent living would mean that there is no food security. This is according to the United Nations Food and Agriculture Organization (FAO). Food security can be looked at from three perspectives, namely accessibility, availability, and utilization. Each of these aspects should be looked at for individuals, households, countries, as well as internationally, while assessing the level of food security. The right to suitable food is a fundamental one for every human being. This right is supported by several United Nations conventions, among which are the Universal Declaration on the Eradication of Hunger and Malnutrition adopted on 16 November 1974 by the World Food Conference (United Nations, 1974), article 11 of the International Covenant on Economic, Social and Cultural Rights (United Nations, 1976), and article 25 of the Universal Declaration of Human Rights (United Nations, 1948). However, the impacts of such recognitions are yet to be felt especially among the poor and developing nations. Achieving food security for everyone would call for the cooperation and participation of all the parties in all the sectors in both developing and developed countries to enable the implementation of appropriate policies that will make it a reality. Despite it being a challenge, this is a realistic, achievable goal.

The government has the critical responsibility of handling the trade partners from other countries by engaging in beneficial trade negotiations that will ensure trade with other countries is conducted in a manner that embraces fair trade practices. For instance, agricultural commodities such as oranges and watermelons from China may enter the Indonesian market without any restriction or regulation on the quantities under the free trade agreement enforced by the World Trade Organization (WTO). Since the Indonesian farmers also engage in the production of these fruits, they will be subject to unfair competition in the local market because the Chinese agricultural products are always priced cheaply. Actually, the Indonesian farmers will not be able to compete with the Chinese exporters because China produces in large scale, enabling it to price their commodities cheaply due to the economies of scale. As a result, the Indonesian farmers will suffer from poor sales. Unfortunately, the government may not be able to intervene to remedy this situation because it is a party in the free trade agreement under the WTO.

Fair Trade Role in International Trade and Agreement

The WTO Agreement on Agriculture (AoA) hardly mentions food security. Trade has both adverse and beneficial impacts on food security and therefore a proper understanding of the relationship between the two is essential for the achievement of food security. The relationship between trade and food security can be properly understood by evaluating various principles, policies, and consequences of international conventions and agreements by some parties who treat food security as a very critical issue. For instance, Sri Lanka has, in recent days, witnessed a decrease in the employment of farmers, who are the bulk of the population, as a result of increased import due to the implementation of the Agreement on Agriculture. Consequently, farmers have to rely on imported food, which in turn requires them to look for adequate employment to earn a living. It is therefore important that the implementation of these international agreements takes into consideration the domestic impacts in importing countries to ensure that the food security of the citizens of such countries is not threatened.

A reduction in import duties and tariffs would result in more imports and thus reduced food prices for consumers. Those who believe in trade liberalization presume that this would translate into enhanced food security. However, this is not necessarily so, and such an assumption reveals the prejudice of developed countries in such agreements. To begin with, they make an assumption that the majority of the population is comprised of consumers as opposed to producers whereas most of the people in developing countries are food producers and increased importation of food products would adversely affect them. The country's national economy as well as its food security will be threatened when the farmers' production diminishes. Another presumption that is made is that increased imports will result in stiffer competition and thus better efficiency and increased production. However, it is apparent that farmers should get substantial returns from the current production to be able to adopt better and more efficient production approaches. Thus, too many imports would overshadow the farmers, resulting in lower production and thus increased poverty as opposed to increased efficiency. For instance, in Senegal, about three-quarters of the population earn their livelihoods from agriculture. The country's agriculture economy, including the production of dairy products, onions, rice, and sugar, was adversely affected by increased imports (FAO, 1999). Therefore, competition alone is not enough. The introduction of appropriate technology and fair pricing is necessary to achieve food security in the developing countries both in the short term and in the long term. In other words, local producers should be supported to enhance their production capability without being isolated from the international market.

In its report on a comprehensive four-year international consultation which involved more than 400 scientists in 2008, the International Assessment of Agricultural Science and Technology (IAASTD) recommended a complete transformation of agriculture which incorporates unfair trade practices and dominance by various multinational organizations. In addition, the reports cautioned against the reliance on genetically-developed solutions for increasing food production and stressed the need for using locally-based, agro-ecological techniques in agriculture (Giménez, 2008). Such techniques are beneficial because of their positive effects on the environment. In addition, they ensure that the poor world population has access to food and a means of livelihood by creating a market surplus. According to Curtis (2009), agro-ecological farms which are found in different parts of the world are very productive. In addition, the University of Michigan, through their path-breaking study, noted that these approaches can easily provide adequate food (Curtis, 2009).

This is in contrast with conventional knowledge. Such approaches will be critical in the reconstruction of the dysfunctional world food production systems following the failure of free trade regimes and mechanized agriculture. As a result of unfair trade practices, farmers still get only a small fraction of the price paid for the food by the final consumers. This calls for immediate action in developing fairer and more sustainable global food systems that will guarantee food security for all.

The poor farmers can be greatly relieved during periods of high food prices. However, only the realization and stability of fair international trade can help the farmers come up with long-term plans. Initiatives should be developed at different levels within the Agreement on Agriculture and the multilateral trading system to resolve the food security challenges of third-world countries. To begin with, capacity should be enhanced in the developing countries to enable them to take part in the initiatives of the World Trade Organization. In fact, presently, the developed countries control and dominate the WTO, especially when it comes to decisions over free trade agreements, which hinders fair trade agreements. Although there is a Special and Differential (S&D) treatment program under the WTO, it still does not guarantee the least developed countries and the developing ones express access to markets in the developed countries. In addition, it provides investors in developed countries with a leeway, making direct investments in the developing countries through which they exploit their natural resources and sell them later to the local consumers at inflated prices. Secondly, the manner in which WTO relates with other international bodies should be looked at to ensure that there is cooperation and accountability. An example of such a body is the Fairtrade Foundation, which is an independent non-profit making institution concerned with the licensing of the FAIRTRADE Mark for use on items in the United Kingdom, and which is enforced in line with the globally-accepted fair trade standards. Finally, food security can be incorporated in the Agreement on Agriculture in different ways. Therefore, the developing countries in different parts of the world should join hands now and enter into agreements with developed countries dominating the international market, as well as evaluate the WTO principles to ensure there is free and fair trade throughout the world.

How Does Fair Trade Become a Solution for Food Insecurity?

To resolve the food insecurity challenges in the world today, the global food system should be reviewed. This will involve the minimization of the oligopolistic nature of agro-food organizations, market re-regulation, and the development of agro-ecologically robust family agriculture. The affordability of and accessibility to food for all should be ensured by converting the current food system into an effective tool for economic development in both rural areas and towns. These tasks do not have to be undertaken in isolation. An overhaul of the current food system does not have to be done before market fairness, the viability of farming, and food affordability can be achieved. Actually, the most critical thing is to ensure that trade partnerships are characterized by fair trade practices.

The initial and most important step is to review the Free Trade Agreements and dissociate agriculture from the WTO. The World Food Program needs to be involved in the purchase of food products from local suppliers at fair prices and the distribution of these foods to those people who are in need of them. In this way, dumping cheap grains can be avoided and accessibility to and affordability of food by more people can be ensured. The food policy council in the United States can be involved in the rationalization and localization of the local food systems (Curtis, 2009). To facilitate better access to fresh and healthy food, protection measures for

people in the low-income segment should be reviewed. Programs should be developed at the state level to ensure that food banks are supplied with fresh and healthy food products from local farmers. In addition, independent food businesses should be developed at the community level, both locally and abroad.

According to The Economist ("The New Face of Hunger", 2008), the solution to the current food crisis lies with the farmers. The article further notes that, by empowering small-scale farmers, it would be possible to improve the poverty level of the poorest people in the world, become more environmentally sensitive, and become effective in investment, thus achieving better production. The findings of many researchers reveal that small-scale farmers are mainly more efficient than their large-scale counterparts and this is contrary to the belief of many (Giovanni, 1985). In addition, most small-scale farmers, unlike their large-scale counterparts, produce a variety of crops for home consumption, the local market, regional market, and for export. A global summit on the food crisis and climate change held in Rome in June 2008 identified the empowerment of small farmers as an important step towards resolving the food crisis. The summit called on the government and other concerned organizations to support farmers, especially small-scale farmers, to enhance their production and access local, regional, and international markets.

An effective overhaul of the international food systems calls for the participation of all. For this reason, it is recommended that the government, sponsors, and businesses alike ensure that any new investments and initiatives in agriculture recognize small-scale farmers. In addition, the international trade that is mainly controlled by a few multinational companies should be transformed to prevent the marginalization of small-scale farmers, which usually results in poor returns on their work. The governments should intervene to increase transparency in the global supply chains and ensure a fair competition for small-scale farmers to obtain better and steady prices for their produce. According to the Fairtrade Foundation (2014), setting a minimum price and providing pre-financing facilities can play a big role in increasing the bargaining powers of the farmers and enabling them to develop effective business partnerships, and this will consequently result in better prices for their products. A minimum price that caters for production costs shields farmers against price fluctuations and also makes it possible for these farmers to invest in their societies and farms.

The solution to food insecurity may look very obvious, that increase in food production will translate to increased food security. However, a Senior Fellow at the Center for Global Development, Kimberly Ann Elliot, observes that this is not as simple as it looks. However, Elliot believes that food security will depend on increased production in the long term. She asserts that the major obstacle to food security is income because food is always available but people lack the means of buying it (Gale, 2013). She further asserts that trade will also play a key role in providing the solution to food insecurity because most countries cannot satisfy all their food requirements, especially with the climatic changes that are taking place. The various projects that have been initiated to enhance food production and guarantee better returns for the poor farmers, especially in Africa, have not been effective due to their unsuitability for the market conditions. Indeed, farmers will stop the commercial production of agricultural products that do not have a good market.

Conclusion

Most third-world countries did not offer any domestic support to their agricultural industries to participate in the international markets in the year under consideration mainly because there were no resources. Consequently, the prices of food products are increasing day in day out, and so is the poverty level. It is ironic that the producers of these food products are the poor members of the community. As it stands now, WTO does not offer any solution for the enhancement of trade liberalization or free trade, which would in turn be beneficial to the economies of the least-developed countries as well as the developing ones. Instead, it is allowing the developed countries to dominate international trade and enter the markets of developing countries at will. Therefore, the implementation of a fair trade system that will involve a review of the WTO system to increase affordability of food for all is the best solution. In addition, the government should review international trade agreements with a view to shielding local farmers and preventing food crises.

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Using 'exploratory talk' in a mobile learning enhanced academic writing course

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Abstract

This research project aimed to explore the possibilities that 'exploratory talk' (Mercer, 1995, Barnes, 2010) has to offer in order for students to enhance their language skills needed for the development of oral arguments involving reasoning, justifying, challenging and asking questions in a mobile learning-enhanced academic writing course in Zayed University, UAE. The presenter described the second language-learning context in which the research was carried out followed by the principles of exploratory talk. There was then a brief summary of the methodology used. The main focus of the project included the presentation of the data, which emerged from the study, followed by the discussion of findings. To conclude, the presenter argued that the systematic incorporation of exploratory talk principles into day-to-day teaching practices enhances the students' oral argumentation skills as well as their development of written arguments pertinent to writing persuasive and argumentative essays.

Keywords: exploratory talk, English for Academic Purposes, academic writing, mobile learning.

Introduction

Knowledge and understanding, which are at the heart of all education whether formal or informal, cannot be developed in a vacuum, nor can they be achieved solely individually. Rather, they are shared and transferred among individuals and thus are the outcome of a joint process of sharing and "understanding together", which is almost always originated by language and talk (Mercer, 1995, p 1-3). At the end of any conversation or stretch of talk, some information will have been shared, making language and talk not only means of communicating ideas, but also means for people to "think and learn together" (Mercer, 1995, p 1-3).

Talk did not seem to have a very high status as an educational priority until recently. After the emphasis on communicative teaching practices and the entry of technological devices into the global education scene in all fields and at all levels and contexts, talk and interaction have regained importance in research. Technology has made the chances for talk and collaborative learning opportunities more available and varied and has necessitated a thorough understanding of '21st Century Learning' and the use of learning tools and theories that need to be reviewed in accordance with it (Stillar, 2012). This brings into the classroom environment the need for the incorporation of more collaborative tasks where students have opportunities to talk to one another, and where language is used as a collective thinking tool, and not necessarily in the presence or guidance of a teacher, the fact that does not often come about in real life situations outside school (Mercer, 2000).

Mercer (2000) identifies talk to be exploratory when "partners engage critically but constructively with each other's ideas" and offer ideas and information to be considered jointly, which can be "challenged and counter-challenged" (p.153). At the end of the talk, some agreement is reached and knowledge made is accountable while reasoning is made apparent (Mercer, 2000).

The aim of this project is to investigate the possibilities that 'exploratory talk' (Mercer, 2000) has to offer in order for students to enhance their argumentative skills for developing oral arguments, including reasoning, justifying, challenging and asking questions in an academic writing course in Zayed University, UAE. It is hoped that the students' oral argumentation skills will develop significantly.

It is also hoped that this research will in effect benefit the students' development of written arguments pertinent to writing persuasive and argumentative essays. These skills are highly applicable to other disciplines, and will hopefully be transferred to the future academic and professional lives of the students.

Methods of Research

For the purposes of this study, a set of computer-based discussion materials with tasks that lend themselves to exploratory talk were used over the course of an academic term. Students worked in groups of threes or fours. The students worked with an adaptation of the ground rules and principles of exploratory talk as identified by Mercer (1995; 2000) while they developed oral arguments involving reasoning, justifying, challenging and asking questions through discussion type of activities using their mobile-learning devices or laptops. The researcher projected the 'exploratory talk' tasks with a mobile device/laptop. Whenever tasks as such came up throughout the course, the ground rules and principles of exploratory talk were followed and adhered to. The students recorded their discussions and sent them to the researcher via e-mail or Airdrop. The researcher monitored this process but did not lead the discussions.

This was a qualitative study employing several techniques:

- **Audio-recordings:** Sessions of exploratory talk were audio recorded using a variety of applications such as Recording Lite or Explain Everything on iPad, or Voice Memos on

iPhone. Because the researcher was not able to record all the discussions taking place at the same time, students took turns in each group to record them. These files were then saved and sent to the researcher. A total of 5 exploratory talk discussions were recorded over a semester. There were about 3-4 groups in each class adding up to 9-12 recordings each session, and 55 recordings in total from 3 classes.

- **Transcriptions:** The audio-recordings were transcribed by the researcher and thematic analysis was applied.
- **Questionnaires:** The students answered questions reflecting on their experiences of exploratory talk and why they found them (did not find them) useful.
- **Reflective Essays:** At the end of the semester, the students wrote reflective essays about their overall experience of the course. Although not asked specifically, a number of students reflected on their experiences with exploratory talk sessions as well. These were noted and categorized.
- **Data analysis**: The transcripts were analyzed by looking at the types of argumentation skills and language produced by the students/ sequences of talk while they interacted with one another during collaborative tasks. The transcripts were compared over time to see if progress occurred in the production of target skills and in what way. Emerging and repeated patterns were noted and categorized.

Findings

In this section, highlights of the main themes, which emerged from the data, will be discussed. The language in student responses has not been changed except for spelling mistakes.

I. Questionnaire Results

A questionnaire of 8 items in total was devised for this study. The questions ranged from asking students to define exploratory talk to what they liked the most or least about sessions involving these talks. 47 students in total responded to the questionnaires. This section will focus on the participants' responses on the usefulness of exploratory talk for students.

1. **Usefulness for the current course:** When asked whether they found the exploratory talk (ET) sessions useful or not, 100% of the students responded that that they found them to be useful or very useful. Emerging themes in the responses were that the sessions were relevant to argumentative essay writing, that they helped students share ideas and collaborate, and that they helped improve students' discussion skills. Below are some responses which exemplify these themes:

- **Relevance to improving argumentative essays:**
They helped me hear out others' opinions, especially before turning in my assignment. I was able to make changes.
It helped me to see the others' opinions towards my essay topic, it helped me with my outline and essay.
My group gave me a lot of advice to improve my argumentative points.
I get to see other picture by listening to my colleagues and tried to see things from their point of view.
I heard different opinions & perspectives from my fellow group members that made me adjust my essay & better it.

- **Sharing ideas and helping each other:**
  It gave all the students a chance to express and share their ideas.
  It helps us get more information and if we are confused about some ideas, we help each other.
  It teaches you how to listen to others' opinions because your opinion is not always right.
  I've learnt to communicate effectively with my peers and they helped me know my mistakes.
  It helped me get feedback from my friends.
  We get some information from others. We learn how to exchange ideas and think in other ways.
  It gave us equal and fair time each to state our opinion. Knowing that they are listening and trying to understand the ideas and thoughts.

- **Improving discussion skills:**
  It helped me use argumentative key words and phrases to use in my discussion and essay.
  In each session, we noticed that our speaking and discussion skills improved.
  It initiates a conversation between classmates in an academic way. It benefits girls who are shy.
  It develops our debate skills…
  … it gives the students the opportunity to hear each other, unlike what happens in traditional classes. These discussions are like a breath of fresh air compared to normal classes and assignments.

2. Usefulness for other courses

When asked whether they found ET sessions to be useful for other courses or not, 43 students out of 47 responded that they did while 3 students responded that they did not, and 1 student said that it depended on the course:

I do think the whole concept of ET sessions will be useful in other courses for more ideas are always shared when in a group.
It improves many skills that we have to gain, mainly speaking, being good in grammar and critical thinking.
It will be useful for other classes that required debate skills.
Yes, so all students get involved and are given a chance to participate.
It depends, like in courses where we have things to be discussed, but in other courses, no.
No, not every course needs this. For example, math courses can't be recorded and discussed.

3. **Usefulness for careers**

When asked if they found ET sessions to be useful for their future careers, 43 of the students responded that they did, 1 student responded that she did not and 1 student responded that it depended on the type of career. 2 students did not respond to this question. Below are some examples from the responses:
Yes, because it helps in developing communication skills, helps in gaining confidence while talking, and become an open-minded person.
Yes, it will help me communicate better with employers and keep in touch with them…
Because it is helping us communicate with our colleagues and understand more about their opinions.
Yes, to help you be aware of all the sides, get answers for the questions on your mind and to be polite in accepting others' opinion.
Yes, it will boost our confidence when it comes to expressing our opinions.

It will help me prepare for job interview and present in front of my colleagues.
Yes, because there are differences in opinion in the workplace.

II. Collaborative learning and constructing knowledge together

This section will focus on how students constructed knowledge together during exploratory talk sessions.

Mercer (2000) claims that learners' knowledge and understanding may develop without the guidance of the teacher as "explaining it to someone else may help improve and check one's own understanding with someone treated as a social and intellectual equal" (Mercer, 2000, pg.89) without the fear of judgment from the teacher. Also, joint activities created more opportunities to "experiment and reason with language which would not be the case in teacher-led activities" (Mercer, 2000, p.98).

Accordingly, it was observed that the researcher's not leading the discussions and allowing students to carry on with the discussions without supervision created collaborative learning opportunities where students constructed knowledge together. Some examples of how knowledge was constructed were shown in the way students completed sentences for each other, repeated phrases to stress importance or show agreement, and summarized/concluded ideas for each other which the teacher would have done for them in a typical classroom context. Below are some samples of such sequences of talk:

- **Introducing:** *"OK, so this is going to be our first discussion as a group. Each one of us chose 3 topics. Then we decided to choose just 1 as a group so that we could agree on it… So, yeah, the topic we all chose as a group was: "Is fashion important?" Now let us explain why we chose this topic…"*
- **Summarizing:** *"As a group, we chose three topics. The first topic that we chose was; 'Is marriage the foundation of a society?' We chose this question because we thought that, yes, marriage is the foundation of a society, because marriage is the basic step for society and children will be comfortable if they have a mother and a father and they will achieve and perform well in their education. This is our conclusion".*
- **Completing sentences/repeating phrases to stress importance**

Student 1: OK, the next topic… "Have foreign influences had more positive or negative effects on the youths in the UAE?"
Student 2: I think it's in a positive way.
Student 3: Positive way, yeah.
Student 2: Most members of the group think in a positive way. Maybe more educated youth and…
Student 1: Open-minded generation…
Student 2: More understanding of other cultures and backgrounds…
Student 1: And women have excelled or become more important in society now…
Student 1: … which is a huge achievement.
…
Student 1: OK the first research question: "Should assisted suicide be legal?" What do you think?
Student 2: I think this topic includes so many reasons, supporting reasons, which you can develop in many ideas and … many sources on the Internet.
Student 1: Are you with it or against it?
Student 2: So, against it for religious reasons and …
Student 1: …And there's a lot of controversy towards it and it's considered taboo in a lot of cultures.
Student 2: … And it depends on each country and…

Student 1: … And each person and the circumstance.
Student 2: Yeah, OK. So, the second topic is…

Discussion and Conclusion

Exploratory talk was thought of positively by the majority of the students who participated in this study. In order to ensure further development in students' argumentative skills, the principles of exploratory talk must be incorporated into the curriculum in a systematic way and in a continuous manner. One way to do that is by establishing an agreement with the students about what classroom talk is and the manner in which it should be conducted. It is important that students feel at ease with the way they share their opinions, challenge and refute each other in an academic context without the fear of judgment from their peers or teachers, hence the importance of negotiating the ground rules of exploratory talk among students.

As was observed in this study, students find activities meaningful especially when they are relevant to their studies or assignments. Therefore, a dialogic stance and exploratory talk should be encouraged. However, as with all classroom activities, the rationale for collaborative tasks needs to be made clear to students. Without a clear purpose and an explicit educational goal, classroom talk and interaction do not necessarily lend themselves to collaborative learning, nor do they produce the type of talk that teachers hope their students to produce.

In addition, it should be noted that guidance, modeling, and rehearsing are necessary, especially in contexts where debate-type discussions are not traditionally used. For the purposes of this study, some online videos were used to provide models of exploratory talk and the students discussed the strengths and weaknesses of the arguments of each participant. This was followed by rehearsals of debates before the actual sessions were recorded.

Finally, cultural contexts, social identities and personality differences need to be taken into consideration and the setting of ground rules needs to be monitored at all times as those rules may be forgotten. In second language contexts, providing a guide/aid for argumentative language and vocabulary may also be helpful.

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MOOCs: A Fad or a New Paradigm Shift in Higher Education?

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Abstract

With the transition of education to the digital environment, new architectures of knowledge and learning began to emerge. Several new formats of online education have been instigated including MOOCs (Massive Open Online Courses) that combine video lectures (live and recorded), interactive quizzes and social learning aiming to attract a massive number of participants. With the global financial crisis and the dwindling of public and private budgets in the educational landscape, as well as the increasing costs, MOOCs have become the subject of one of the most prevailing debates in higher education. Advocates of MOOCs believe that that they embody the ultimate democratization of education, by making education more accessible to everybody with an internet connection, while disrupting the traditional physical and online pedagogical structures by incorporating a social, distributed, networked approach and significant learner autonomy. Skeptics, on the other hand, voice concerns that MOOCs will lead to a diluted educational system or they are just perceived as marketing vehicles for global education brands. This paper addresses the emergent trends around MOOCs in higher education institutions and the new pedagogical structure being put forward through a case study of a MOOC implementation at the University of Nicosia.

Keywords: MOOC, Higher Education

Introduction

The rapid developments in the new information communication technologies have fundamentally changed our lives in every aspect, including the way we communicate, learn and do business. Access to knowledge and education is not only one of the highest priorities in a knowledge-based society but also the driving force for competitiveness, professional re-establishment, social integration, the activation of citizens and for personal growth and development. The activities of learning and training take place in various environments which presuppose a bigger investment in human potential, knowledge, technological and non-technological infrastructure. The transition of education to the digital environment has enabled the emergence of new architectures of knowledge and learning modes, one of these forms being the MOOC – the massive online open courses offered by several prestigious universities worldwide.

Clayton Christensen, disruption innovation theorist, considered MOOCs as a disruptive innovation of higher education (Hardesty, 2013), raising questions about the role of higher education and sustainability of universities when courses are available over the internet and for free (Laurence, 2013; Ferenstein, 2013). Another school of thinkers believes that MOOCs will put universities out of business (Smutz, 2013) and still others believe that they will not have any effect on higher education (Crispin, 2012). Billington and Fronmueller (2013) have identified several challenges in relation to MOOCs in addition to the business revenue problem such as grading issues, cheating, course credits, and so on. They do believe, however, that these challenges are currently being addressed in response to pressure to lower fees in higher education, which have resulted in large student debts.

In this paper, the case of MOOCs in higher educational institutions is being addressed, and a new pedagogical structure is put forward through a case study of a MOOC implementation at the University of Nicosia. In the sections that follow an overview of the past and present situation of MOOCs is presented, followed by their potential impact on higher education as presented in the existing literature. The University of Nicosia case of MOOCs is presented along with our conclusions and future work.

MOOCs: past and present

The idea of mass delivery of instruction can be traced back to 1922 when New York University endeavored to bring higher education economically to the people via radio delivery. Several others followed including Columbia, Harvard, Kansas State, Ohio State, NYU, Purdue, Tufts, and the Universities of Akron, Arkansas, California, Florida, Hawaii, Iowa, Minnesota, Nebraska, Ohio, Wisconsin, and Utah, offering radio courses in a variety of topics ranging from Browning's poems to engineering, agriculture and fashion (Sementelli & Garrett, 2015; Matt & Fernandez, 2013).

According to Marques and McGuire (2013), the contemporary MOOCs have their genesis in the Massachusetts Institute of Technology (MIT) OpenCourseWare project of 2000. Courses in which content was posted online in the form of PowerPoint lecture notes. Others attribute the origin of the term "MOOC" to members of the University of Manitoba (Daniel, 2012). They are internet-based teaching programs designed to handle thousands of students at the same time. Their target is unlimited student participation in open access courses via the web. They make use of the various tactics of social-networking sites for social learning, supplementing them with video lectures (live and recorded). Much of the learning comes from online comments, questions and discussions among faculty and students themselves, while both modes of communication, asynchronous and synchronous, are being used (Waldrop, 2013). MOOCs, as we know them today, appeared on the scene in 2012 when several educators, social entrepreneurs, charitable foundations, universities and venture capitalists began forming initiatives to unite the best online tools with the most prestigious teaching available. Examples of these platforms are Udacity, Coursera and edX. They are

promoted through online social media, a website describing the course schedule, goals, useful information (e.g. FAQs), and a registration form for potential participants. They capitalize on the strengths, experiences, skills and knowledge of the learners, and promote collaboration between people of varied interests. They are usually free and open while their ROI is to bind participants to the institution's brand. Figure 1 displays a timeline of the development of MOOCs and open education with respect to various organizational efforts in the area.

MOOCs have evolved into two distinct types: those that emphasize the connectivist philosophy indicating that material should be aggregated (rather than pre-selected), and those that resemble more traditional courses. They are usually referred to as "cMOOC" and "xMOOC" respectively. cMOOCs attempt to connect learners with each other to answer questions and/or collaborate on joint projects, while xMOOCs use video lectures, computer-marked assignments, peer assessment, supporting materials such as slides, supplementary audio files, links to other resources and online articles, a shared comment/discussion space, and certificates are given after completion (Hill, 2012; Armstrong, 2012). They are polarized into two main groups: (1) MOOCs whose certificates - or, better still, degrees - are given value in the job market; (2) MOOCs that aim to contribute to the personal betterment of the "student".

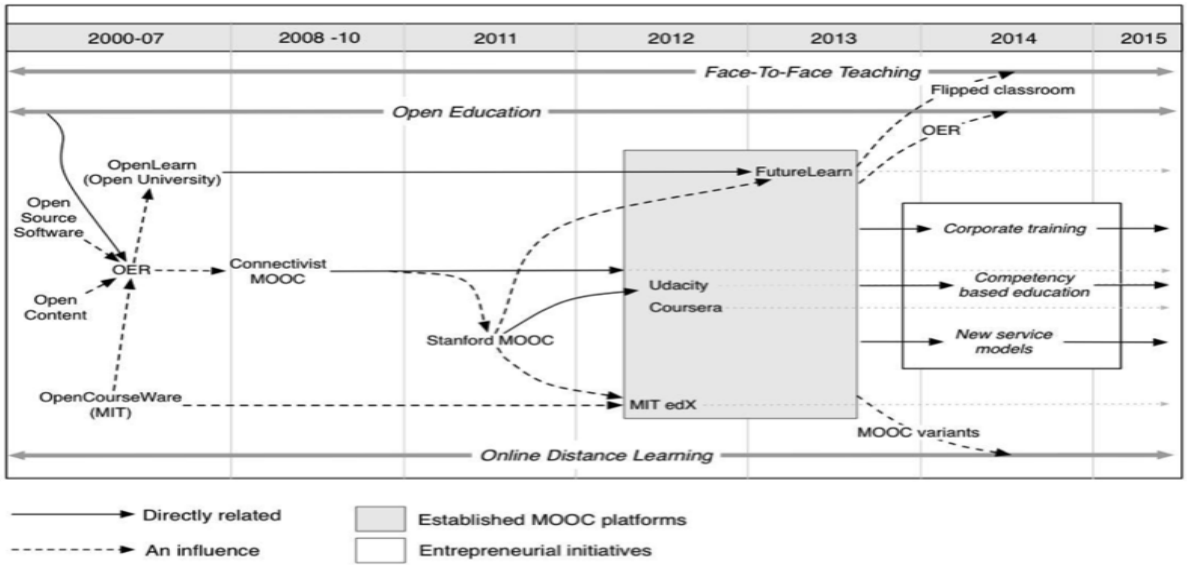

Figure 1[1]: Timeline of MOOC and open education development along with organizational efforts.

According to data by Class Central statistics (2015)[2], over 35 million students signed up for at least one course in 2015 (which is an estimated increase of 16-18 million since 2014).

[1] Source: https://en.wikipedia.org/wiki/File:Timeline_of_MOOC_and_open_education_development_with_organisational_efforts_in_the_areas.png

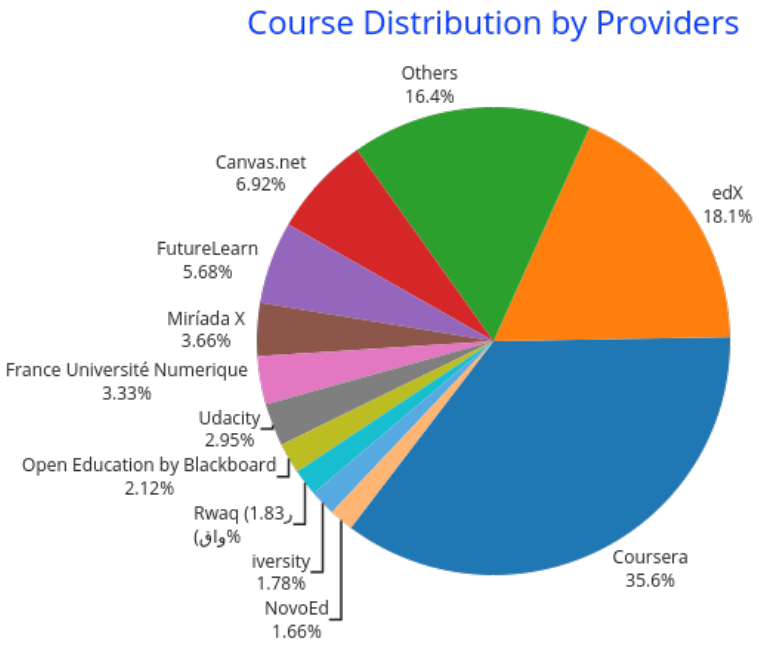

Figure 2[2]: Course distribution by providers

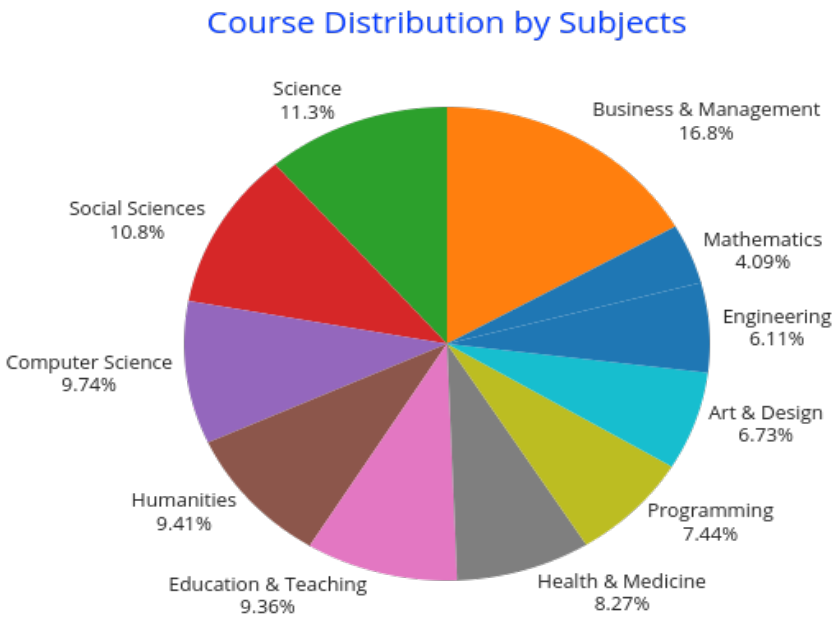

Figure 3[3]. Course distribution by subject

[2] Source : https://www.class-central.com/report/moocs-2015-stats/
[3] Source : https://www.class-central.com/report/moocs-2015-stats/

Impact of MOOCs in Higher Education

An international group of higher education institutions (UT Arlington, Stanford, Hong Kong University, etc.) was called upon by learning researcher and theorist George Siemens in October 2014 in order to discuss and identify the impact of MOOCs on higher education (Salibury, 2014). The challenges faced by universities in their transition to the digital world, irrespective of size, budget and reputation, were all similar. Their discussions concluded the following:

- Increased institutional consciousness around the digital future. - Institutions around the world work on a daily basis to define future models of digital higher education.
- Elevated appreciation for the profession of teaching. - Even though research has a privileged position at universities, MOOCs have assisted in diverting the focus to the teaching and learning process as well.
- Team-based course design. - The creation of MOOCs requires the collaboration of people across the whole university. Teamwork is required among instructional designers, software developers, researchers, and librarians, and videographers team up with faculty (the domain experts) to create each MOOC.
- Privileging institutional capacity building over outsourcing. - To collectively use the MOOC experiences so far to build capacity for conceptualizing and driving subsequent change to design and shape the digital era.
- Creation of new space for experimentation. - New challenges are emerging such as shared governance and extended decision making cycles. MOOCs have paved the way for increased experimentation and innovation in teaching and learning.

In the literature, different opinions exist regarding the role of MOOCs in higher education. Some view it as disruptive if we consider the acceptance of MOOCs for credit hours. Universities such as the University of Nicosia, Colorado State and others are offering three credits for MOOC completion. The University of Nicosia counts the MOOC in Introduction to Digital Currencies as three credits for their MSc program in Digital Currency. Another indication of their disruptive character is the growth of companies offering MOOC platforms (Coursera, EdX, and Udacity) and their growing clientele. This disruptive appeal of MOOCs has raised several questions about the role of higher education and the sustainability of universities when courses are available over the internet for all, with or without any qualifications as a prerequisite. Questions have been raised about whether they are a threat to higher education due to the free content. Several institutions are looking into utilizing new business models to include free content while charging for additional services, following the examples of online giants such as Facebook and Google. MOOCs may serve an economic purpose, and usually their return on investment (ROI) is to bind participants to the institution's brand. In addition, they become a source of data for researchers as they can provide data from thousands of learners to study the impact of technology on learning.

On the other hand, MOOCs represent a departure from the clichéd idea of physical classrooms promoted by the conventional educational systems and assist in flattening the world. In a keynote address at the Sloan Consortium Conference, Sebastian Thrun, known also as the godfather of free online education and one of the Udacity founders, outlined the true democratization of learning through MOOCs. He highlighted that his Stanford students preferred his online class to the physical one because quizzing was better than lecturing and it was always accessible. With a course on artificial intelligence, which had 160,000 learners, Thrun began to realize the opportunities that MOOCs present to non-traditional learners. Even with thousands of fellow students, students can have an intimate, one-on-one learning experience (Skiba, 2012).

Marguerite (2015) outlines a list of items that need to be considered for MOOCs to have an impact on higher education. These include, but are not limited to, accreditation agencies, book publishers, state subsidies, rating agencies, advanced placement exams, branch campuses, IT managers and so on.

However, MOOCs do not come without any pitfalls. New forms of cheating arise, retention and completion rates become a challenge for institutions, grading papers becomes impossible for the instructors due to the mass number of students, and the list goes on. In addition, as stated above, a business model to demonstrate revenue-generation is required (Petrovska, Delipetrev & Zdravev, 2014; Heller, 2013).

The University of Nicosia MOOC in MSc - Digital Currency

In the Spring semester of 2014, the University of Nicosia in Cyprus launched the first Master of Science degree (MSc) in Digital Currencies. The MSc commenced with an introductory MOOC around decentralized digital currencies (or cryptocurrencies) and blockchain, which is open to anybody interested in the subject matter. A hybrid model between xMOOC and cMOOC delivered twice a year in a mixed-learning fashion has been followed. Students tune in to follow online live streaming sessions on set weekly dates and participate in online discussions, while flexibly gaining access to course materials in their own schedules, including weekly quizzes with a set date for the final exam. Since then, more than 3300 people have registered for it. During these first five sessions of the MOOC, useful data have been collected that are analyzed and are being used to identify potential interest in the MSc degree and into cryptocurrencies in general. Some of the data collected are presented in this paper.

The University of Nicosia MOOCs have attracted so far a diverse, broad, and non-traditional group of students originating from 76 countries. Top countries in the list are the US, Canada, the UK, Spain, Cyprus, The Netherlands, Germany, and Australia. The audiences are (1) employed: ~68%, (2) unemployed: ~15%, (3) students: ~12%, (4) retired: ~5%. Figure 4 shows the top countries of student origins. As expected, female participation is low with 90% male and 10% female. We say “as expected” as it is common knowledge (Connerley 2016; Milavarapu 2016) that there are not many women interested in technology. Figure 5 shows the student age, while Figure 6 shows the reasons for participating in the MOOCs. It is interesting to see that more than 30% took part in the MOOCs because they were curious about MOOCs and online education and ~60% wanted to gain a broad overview of the subject, in-depth knowledge, or gain professionally-useful skills. These two results are aligned with other studies that have taken place regarding MOOCs (Hew & Cheung, 2014) in the sense of being the reasons why students are interested in taking part in a MOOC. The expression of interest in continuing to the MSc has been as follows: MOOCs 1-3: 60%, MOOC 4: 55%, MOOC 5: 70%.

Students participating in the MOOCs have the opportunity to qualify for two kinds of accredited certificates, provided in digital form, and in fulfillment of certain criteria: (a) Certificate of Accomplishment - at least 75% of a set of quizzes and at least 60% in the final exam, or (b) Certificate of Participation - at least 75% of a set of quizzes. Certificate hashes (unique file identifiers) where embedded in the Bitcoin Blockchain. Throughout the five MOOCs, 15% of the participants have received a Certificate of Accomplishment and 1.3% a Certificate of Participation.

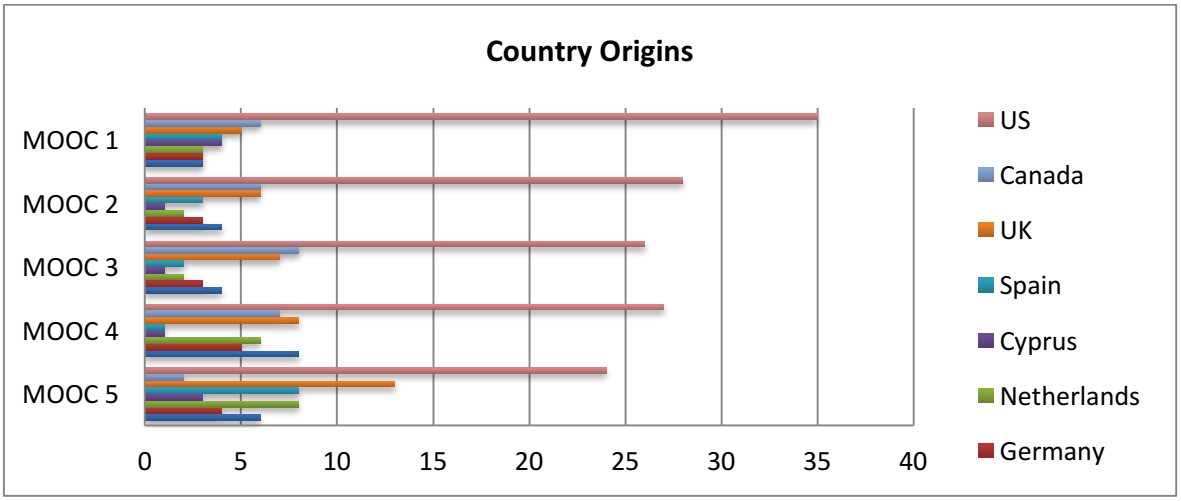

Figure 4. Top countries of student origins in University of Nicosia MOOCs

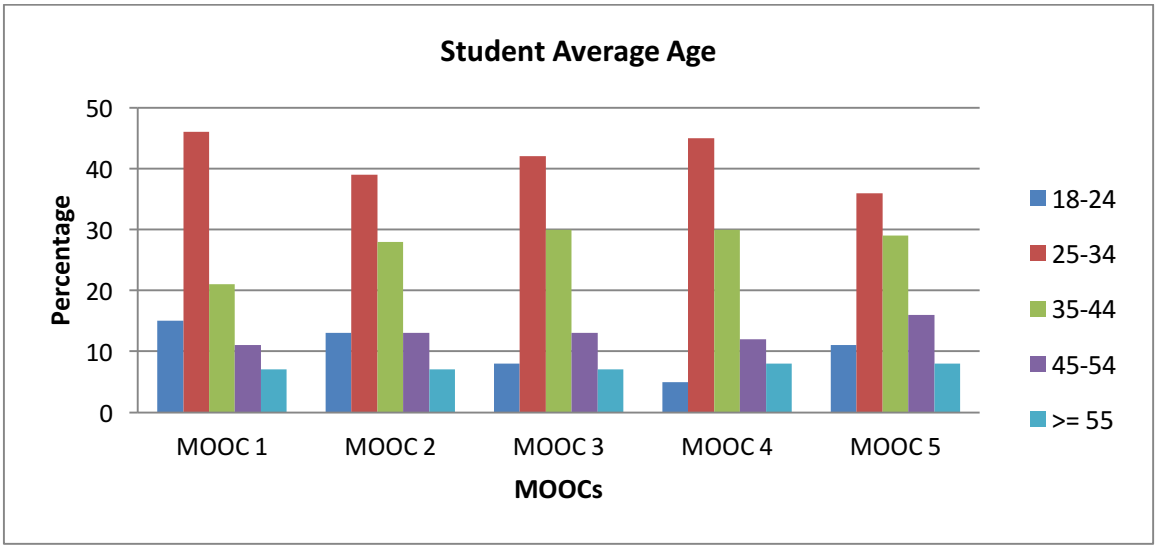

Figure 5. Student Age in University of Nicosia MOOCs

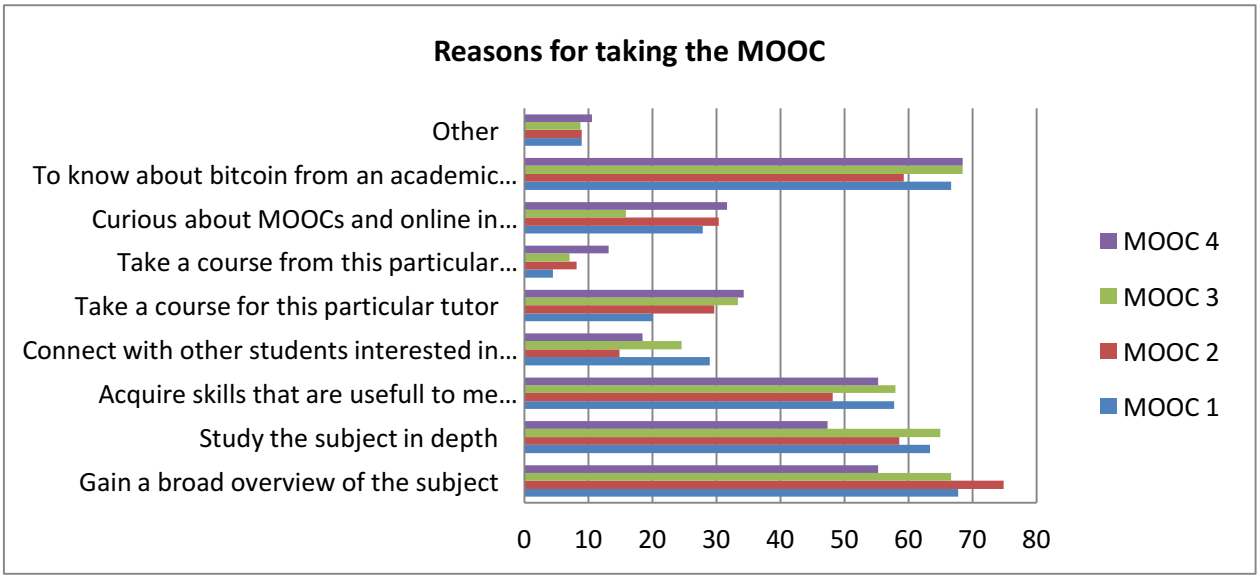

Figure 6: Reasons for taking the University of Nicosia MOOC

Findings from our experience

For the past 2.5 years, our MOOCs have been acting as a catalyst for the development of a totally new program that has been developed to respond to the dynamics of our society. They have defined a new learning and sustainable model within our existing digital educational model that has been running for the past few years. They assist in our "brand building" and social responsibility as well as in the promotion of our Digital Currencies program. To be able to create and run a MOOC requires the collaboration of several people and departments that need to collectively work towards building our capacity to drive changes. These include instructional designers, software developers, IT technicians, instructors, researchers, and videographers to team up with the faculty who are actually the domain experts. They are constantly providing us with data that can be used to study the impact of technology on learning. This assumes excellent faculty, great collaboration among the whole team, as well as a good infrastructure.

The general challenges of student debt, declining state support and disruptive technologies have made it imperative to look at new models for teaching. The University of Nicosia has followed a hybrid model of the online MOOC and conventional distance learning for the acquiring of a degree. We have shown that in this case, MOOCs are not disrupting higher education. Instead, they become another enabler of higher education. MOOCs do not offer an official university degree. University degrees provide eventual graduates with a job and this is what the students are paying for, no matter how good a MOOC is. In terms of the technology used, evidence suggests that online learning will soon be changing again. Taking a walk down memory lane along technological tools in education, we started from offline tools such as CDs and then we moved to online and simulated environments, which are also changing continuously due to the emergence of new technologies. We will soon be looking into new digital environments through the use of virtual reality, which simulates physical learning environments, enabling practice in hazardous environments or training in how to respond in emergency situations. MOOCs or any other form of free education can play an important role for non-profit organizations and governments to enable them to offer free education to the under privileged. At the same time, educational institutions and other organizations will be using them for enhancing their social responsibility and binding learners to their brand as in the case of the University of Nicosia's MOOCs.

Conclusions and Future Work

MOOCs represent a departure from the clichéd idea of physical classrooms. Their open accessibility and free content is viewed by some as a disruption not only in distance learning but to higher education in general. They help flatten the world by helping to bring down the "walled gardens" promoted by conventional educational systems. Even so, they may serve an economic purpose depending on the business model followed. This disruptive innovation will not be going away soon. One indication is the acceptance of MOOCs for credit hours. Another indication is the growth of companies offering MOOC platforms and their growing clientele. Student debt, declining state support and disruptive technologies have made it imperative to look at new models for teaching. Our experience has shown that MOOCs are supplementing, not replacing traditional higher education. A hybrid model of online and conventional learning has been utilized to bring to the world a new MSc program in new areas of digital currencies and block-chain technologies at the University of Nicosia.

The focus of this work, being distance learning for all, has raised further questions for the team. Our future work will focus on the university's role in general given the changing dynamics around us, just like the role of telecom companies has changed with the emergence of the internet. Will brick and mortar education become the privilege of the few? Why not

work on designing the future of the educational system instead of waiting to see how it evolves? For an ideal future society, the collective intelligence and experience of teams such as ours can be used to assist in designing and shaping future learning environments from the local to the global level. Our work will focus on future scenarios that could assist in developing a system which would nurture and promote humanistic values and respond to the challenges encountered by humanity for a smart sustainable future.

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Interaction Effects of LCS and Gender on Tenth Graders' English Achievements

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Abstract

This study investigated interaction effects of Literature Circles Strategy (LCS) and gender on senior high school students' English as a foreign language (EFL) achievements as measured by English tests before and after the intervention. Forty-two 10th graders (23 boys and 19 girls) were selected to be involved in the intervention using LCS for three months. The results of ANOVA showed that there were significant interaction effects of LCS and gender on (1) *listening* as a whole ($p<.007$, $d=.17$) and its *detail* aspect ($p<.001$, $d=.92$), (2) *reading* as a whole ($p<.006$, $d=.04$), and (3) *vocal expression* aspect of speaking ($p<.026$, $d=.73$). Moreover, the independent sample t-test revealed that boys significantly outperformed girls in *vocal expression* aspect ($p<.031$) of speaking skill and in *detail* aspect of listening skill ($p<.009$). Both of these two aspects have influenced the students' EFL achievements for 84% and 3.5% respectively. It can be concluded that in general LCS could effectively be used to develop students' EFL skills, and in particular trigger the willingness of boys to express themselves more than girls in addition to their prior listening capacity.

Keywords: EFL literacy achievement, gender, literature circles, senior high school students

Introduction

The emergence of English as a global language since 19th century has required more people to be equipped with goodcommand of English. Englishhas becomeeven more important in which it is learned by almost everybody living in the 21st century. As predicted by Graddol (2000),"English would enjoy a special position in the multilingual societyas it would be the only language to appear in the language mix in every part of the world ...(p. 63)."

English is the language used in education, communication, media, and many other aspects of life. It is not only essential for adults but also for young adults who are still in the secondary level of education. Therefore, helping them to become literate in English is one of the main goals in this time of 21st century literacy which is in line with the second goal of Millennium Development Goals, that is, achieving universal primary education by 2015(United Nation, 2002). In Indonesia, primary schooling would terminate when the students graduate from their junior high school or 9th grade as it is stated in the Indonesian Act number 20, year 2003 (Kantor Pemerintahan Republik Indonesia, 2003).During that time, all students learn English as a foreign language and it is countinued to be taught until they finish high school. It is one of the subjects to be tested in the National Examinationin both junior high and senior high schools. The idea that English should be taught as a school subject has been clearly stated in the Indonesian curriculums, such as Competence-based Curriculum (KBK) 2004 and School-based Curriculum (KTSP) 2006 (Kementerian Pendidian Nasional Republik Indonesia, 2004; 2006).

Furthermore, Association of Southeast Asian Nations (ASEAN) Free Trade Area (AFTA) and ASEAN Economic Community (AEC) established in 2015 are becoming the triggers for people living in ASEAN countries (Indonesia, Thailand, Malaysia, the Philippines, Singapore, Vietnam, Myanmar, Cambodia, Laos, and Brunei) to learn English receptive skills (listening and reading) and productive skills (speaking and writing) competitively well more than ever before. In facing this challenge, Indonesian students who have learned English as a foreign language (EFL) must make a great effort in order to be literate in English so that they could communicate with those from other countries in the world.

Literature Review

Concerning the aforementioned information, unfortunately, Indonesian students still find it hard to have the competency of good English literacy because the results of some surveys reveal that the English literacy achievement of Indonesians is still low. For example, the data from the Education First English Proficiency Index (EF EPI, 2013) on adult English proficiency among 60 countries shows that Indonesia is in the 25th rank. Even though this proficiency level is considered moderate, it is still inconvincingfor world communication.The same thing happens tothestudents' reading literacy. A survey conducted every three years by the Program of International Students' Assessment (PISA), which assesses reading literacy in native language, mathematics, and science of 15-year-old students, shows that in the five-period of assessments, Indonesian students' reading literacy scoresareall below the OECD average scores of those years (Read five-period results of PISA). For example, the results of PISA 2012 database showed that Indonesian students' reading literacy mean score was 396 while that of OECD's was 496.This fact had ranked Indonesia 60th of 65 countries assessed (OECD, 2013).

The low achievement of Indonesian students in the National language reading literacy had led us to the assumption that the Indonesian students' EFL literacy (listening, reading, speaking, and writing) might have been lower than that of the existing data, especially reading. It is believed that, if someone is good at receptive skills, that she/he may also be good at productive skills. It is through listening that learners can build an awareness of the inter-workings of

language systems at various levels and thus establish a base for more fluent productive skills (Peterson, 2001). It is through reading that learners can improve language abilities (Grabe & Stoller, 2001). In brief, those receptive skills of English become the prerequisite for productive skills.

To minimize this problem, some effective strategies were believed to be highly needed to be implemented in English language teaching because strategy has been one of the key factors which determine the learning outcomes (Fischer, 2004, Tompkins, 2009). The study, Literature Circles Strategy (LCS), was believed to be an effective strategy which could make a difference in students' English literacy achievement. Daniels (2002) defines LCS as small, student-led discussion groups in which members read the same book or reading materials. This strategy providesopportunities for the students to activelyparticipate in the learning process as they have freedom to talk, challenge themselves todo experiments, and collaborate with peers in doing their tasks (see also DaLie, 2001).

Furthermore, having their own reading intereston reading materials is an important factor that can encourage the students to learn betterand Literature CirclesStrategy offers choices in many different ways, one of which is in selectingreading materials (Hill,Johnson, & Noe, 1995). The selections of reading materials must match the students' characteristics, interests, and reading levels which, therefore, deserve to be considered to be exposed and used in the teaching and learning process. The short survey done before doing this present study showed that over half of the young adults studying in the school where this present study took place indicated that they liked to read emails, fiction, and comics. Newspapers were also a popular choice. When asked specifically about what type of fiction, if any, they preferred reading adventure, comedy, and horror/ghost stories. Those were the most frequently chosen genres. Only 5% of the pupils did not read fiction.

The sample of this study was made up of young adults and the materials used during the treatment were humorous, horror, myths, fables, and legends.This choice of materials is in line with the findings of the studies done by the previous researchers (Diem, Purnomo, Ihsan, Sofendi, and Viyanti, 2015).In addition, some research results proved the effectiveness of LCS in English language teaching. Carrison and Ernst-Slavit (2005), for example, found that Literature Circles could be used as a strategy to build confidence and to enhance students' language and literacy skills, especially reading comprehension and oral communication. Moreover, Diem (2011) found that LCS, one of the strategies of her3-Ls approach, could improve the fifth graders' English literacy achievements (in all four skills) and could also promote their reading habit.

Gender and Learning

In addition to strategy, *gender* is another factor that influences the success of learning. The Analytical and Capacity Development Partnership (ACDP Indonesia, 2013) asserts that the ways that girls and boys experience the teaching and learning process in the classroom can be quite different from one another. This wouldinfluence their class participation, educational achievement, and learning outcomes. The International assessments of student achievement in reading literacy, mathematics and science, such as PISA, reports some consistent gender patterns. Boys perform better than girls in mathematics in most countries, and girls outperform boys in reading in all countries (OECD, 2011).

Ihsan and Diem (1997) also found that university female students were using *compensation* strategy significantly better than those of male students. In line with this finding, Rahmiand Diem (2014) cofirmed that gender made a significant difference in perceptions of their classroom environment in which female students had better perceptions of classroom environment in almost

all the seven aspects measured. Diem and Viyanti (2015) also found that out of 79 items of reading interest measure, 47% was significantly chosen by boys but not by girls while Lestari (2016) found that girls' self-concept was higher than that of boys. In other words, females valued themselves better than males in many aspects as measured by Tennessee Self-Concept Scale (TSCS) questionnaire.

Based on the facts above, it was assumed that *strategy* and *gender* still played an important role in enhancing students' achievement in learning a language. Therefore, this present study aimed at investigating the interaction effects of Literature Circles Strategy and gender on students' EFL literacy achievement.

Method

A pre-posttest-control-group design involving 42 students was used in conducting this present study.Twenty three boys were grouped into one group and 19 girlswere in the other.These students were selected as sample from one senior high school in Palembang in the academic year 2014/2015. The srudents were chosen on the basis of their reading level tested by using Jennings' Informal Reading Inventory (2001). The result of the test indicated that their instructional level was at level four. The students in both groups (boys and girls) were given the same intervention in Englishliteracy by using Literature Circles Strategy (LCS) with short stories for reading materials for about three months. Thus, the only difference of the two groups was in their gender grouping. During the intervention, the teaching procedure adopted from the key features of LCS proposed by Daniels (2002) and modified as needed for this present study was applied. The applied teaching procedureis as follows: (1) the students of each group chose the reading materials (short stories) that they were interested in and made sub-groups based on the stories they chose, (2) the students listened to and/or read either silently or aloud the short stories with peers in their own small sub-group, (3) the students completed their own work based on their assigned roles, (4) in each sub-group, the students discussed the reading materials they read; each student shared what he or she had found based on the role assigned, (5) the students in each sub-group of their own group (girls or boys)wrote the result of their sub-group discussion and were ready for group project (presentation), (6) each group presented the result of their discussion to the whole class, and finally (7) the students were guided to re-write the stories they had discussed in own group and the stories were presented using their own words.

In collecting the data, English tests covering four EFL literacy skills (listening, reading, writing, and speaking) were administered to the sample before and after the intervention. The listening and reading tests were in the form of multiple choice questions with narrative passages of five-graded levels (Level 2, 3, 4, 5, and 6), which were firstly tried out and 32 items were valid (r value > .349) and reliable (e.g. listening = 0.931, reading = 0.934). Those 32 questions coveringthe understanding of main idea (MI), detail (Det), sequence (Seq), cause and effect (C/E), inference (Inf.), and vocabulary (Voc.) were given to the sample-students. The scoring system for listening and reading was done based on how many items could be answered correctly. For the writingtest, the students were asked to make up their own story related to the text they read and for the speaking test, they were asked to tell the story they had written in their writing test. Two raters with three criteria, such as having graduate (master's or magister's degree) from English Education study program, having more than 2 years of teaching experience, and achieving at least 550 TOEFL score) were asked to evaluate the students' writing by using Common Core State Standards (Turnitin, 2012) narrative writing rubric and their speaking by using *storytelling skills assessment* taken from NET Working (2012). For both of these productive skills, inter-rater reliability test was done to see the correlation between the two raters' scores.The results are presented in Table 1:

Variables	Test	Raters 1 & 2	
		Pearson Correlation	Sig.
Speaking	Pre-test	. 542**	.000
	Post-test	. 859**	.000
Writing	Pre-test	.840**	.000
	Post-test	.770**	.000

Table 1-Results of Inter-Rater Reliability of Speaking and Writing Tests (N = 42)
Note: ** Correlation is significant at the 0.01 level (2-tailed

In analyzing the data, first the paired sample t-test was applied to see whether there were significant differences in students' (1) English Literacy Achievement as a whole (ELA_{Total}), (2) each individual literacy skill (Listening, Speaking, Reading, Writing), and (3) each aspect of the skills, before and after they were given the intervention using LCS.

Then, a two-way ANOVA was also used to see the interaction effects of LCS and gender on the four language skills and aspects of each skill. Similarly an independent sample t-test was used to evaluate the significant differences in the achievements of all variables between boys and girls. Finally, to see the contribution of gender to each of the four English skill achievements as a whole ($EA\text{-}Listening_{Total}$, $EA\text{-}Reading_{Total}$, $EA\text{-}Writing_{Total}$, $EA\text{-}Speaking_{Total}$), a stepwise regression analysis was also used.

Results

Regarding the use of LCS with short stories, the intervention was a successful attempt to improve all the four of the students' English literacy skills achievements (ELA_{Total}) and each of the skills. The descriptive statistics of the students' English literacy achievements either as a whole (ELA_{Total}) or each skill can be seen in Table 2:

Variables		Very Good	Good	Average	Poor	Very Poor	Total Mean
ELA_{Total}	Mean	-	75.50	65.47	47.58	39.50	**58.51**
	Frequency & Percentage	-	7	16	18	1	
			17%	38%	43%	2%	
	SD	-	3.69	3.44	3.63	-	
Listening	Mean	90.63	76.88	63.02	46.25	37.50	**57.51**
	Frequency & Percentage	1	5	18	15	3	
		2%	12%	43%	36%	7%	
	SD	-	2.79	4.45	4.75	.000	
Speaking	Mean	-	75.60	63.73	45.88	34.10	**57.93**
	Frequency & Percentage	-	10	15	12	5	
			24%	36%	28%	12%	
	SD	-	3.66	3.75	3.41	2.75	
Reading	Mean	87.50	76.37	61.72	50.35	-	**65.48**
	Frequency & Percentage	1	16	16	9	-	
		2%	38%	38%	22%		
	SD	-	4.11	4.34	3.65	-	
Writing	Mean	-	72.50	61.58	49.00	34.73	**53.19**
	Frequency & Percentage	-	4	19	8	11	
			10%	45%	19%	26%	
	SD	-	1.00	4.40	4.66	4.41	

Table 2- Score Distribution of Students' English Literacy $_{Total}$and
Each Literacy Skill achievements Based on Achievement Level (N = 42)

As Illustrated in Table 2, the students' English Literacy achievement as a whole is average (Mean = 58.51). The highest mean score is on reading (65.48), followed by speaking (57.93), listening (57.51), and writing (53.19). Finally, the level of achievement based on gender (23 males and 19 females) can be seen in Table 3:

Variables	Male (N=23)				Female (N=19)			
	Mean (Raw)	Mean (%)	Category	SD	Mean (Raw)	Mean (%)	Category	SD
Listening	18.7	58.4	Average	5.07	18	56.2	Average	3.12
Speaking	57.7	57.7	Average	16.06	58.2	58.2	Average	12.92
Reading	20.9	65.3	Average	4.28	21.05	65.8	Average	2.69
Writing	12.8	51.2	Poor	3.77	13.8	55	Poor	2.79
ELA_{Total}	110	58.2	Average	27.26	111	58.7	Average	20.19

Table 3 Score Distribution of Students' English Literacy $Achievement_{Total}$ and Each Literacy Skill Achievement Based on Gender

It is clear that, based on gender, there is no significant mean difference between male and female students' English Literacy Achievement either as a whole or as an individual skill. As a whole they are still average. However, when each skill is considered independently the students' writing skills are poor (53.19**)** for both groups.

Males have progressed significantly in all skills both as an individual and as a whole after being taught English using LCS. (See Table 4).On the other hand, although as a whole there is a significant progress between female students' pre- and post test achievements, it is apparent that only their speaking, reading, and writing skills receive significant improvement. When we look at the post-test results, as mentioned before, there are no significant differences between male and female groups.This means that both groups are about the same in their English literacy achievements.

Variables	Pretest		Posttest		Mean Diff Pre and Post M within	Mean Diff Pre and Post F within	Mean Diff Posttest between M & F	T-Value and sig. (pre- and post M within)	T-value and sig. (pre- and post F within)	T-value and sig. posttest (M & F)
	Mean M	Mean F	Mean M	Mean F						
ELA_{Total}	86.3	85	110	111	23.7	26	-1	4.907 .000	3.764 .001	-.120 .905
Listening	16.7	16.6	18.7	18	**2**	**1.4**	.70	2.550 .018	**1.169** **.258**	.553 .583
Speaking	43.1	42	57.7	58.2	**14.6**	**16.2**	-.50	4.582 .000	4.019 .001	-.102 .919
Reading	17	17.4	20.9	21.05	**3.8**	**3.6**	-.15	5.611 .000	3.901 .001	-.161 .873
Writing	9.5	9	12.8	13.8	**3.3**	**4.8**	-1	4.895 .000	4.379 .000	-.953 .346

Table 4 Result of Paired and Independent Samples t-test of Students' English Literacy Achievements (N=42)

Furthermore, the results of ANOVA showed that there were significant interaction effects of LCS and gender on (1) *listening* as a whole (F=8.270; p<.007, d=.17) and its *detail* aspect (F=13.939; p<.001, d=.92), (2) *reading* as a whole (F=8.295; p<.006, d=.04), and (3) *vocal expression* aspect of speaking (F= 5.337; p<.026, d=.73). This is clear that for listening and reading as a whole, both LCS and gender has about the *same* effect size. However, the effect size of gender on the detail aspect of listening is much greater than that of LCS. Furthermore the effect size of gender on the vocal expression aspect of speaking is also greater than that of LCS. Unfortunalely, th*ere was no* interacion effect found between LCS and gender on writing achievemen*t* (F=.879; p<.354) and neither on speaking as a whole (F=2.833; p<.101). See Table 5.

Skills	Aspects	F Sig. (Gender*Group)	Mean Scores		Mean Difference	T-Value & Sig. (Between gender)
			Male	Female		
Listening		8.270 .007	18.7	18	.70	.553 .583
	Detail	13.939 .001	4.73	3.70	1.03	2.924 .009
Reading		8.295 .006	20.9	21.05	-.15	-.161 .873
Writing		.879 .354	12.8	13.8	-1	-.953 .346
Speaking		2.833 .101	57.7	58.2	-.50	-.102 .919
	Vocal Expression	5.337 .026	14.30	12.50	1.723	2.330 .031

Table 5- Results of Two-Way ANOVA and Independent Sample t-Test of 4 Language Skills and Aspects of Each Skill (N=42)

When *males* a*nd female*s' achievements were compared, the results of the independent sample t-test revealed that males significantly outperformed females in *detail of listening* (t=2.924; p<.009) and in *vocal expression* of speaking (t= 2.330; p<.031) (See Table 5).

Furthermore, to see the influence of gender on English literacy achievement$_{Total}$, regression analysis was done. The results of the analysis showed that, the significant contribution of gender was 3.5% on detail aspect of listening and 84% on vocal expression aspect of speaking significantly. In other words, 12.5% of the students' achievement was contributed by other factors which could not be detected (See Table 6 below):

				Std.	Change Statistics				
Model	R	R Square	Adjusted R Square	Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	.916	.840[a]	.836	9.7404	.840	209.771	1	40	.000
2	.936	.875[b]	.869	8.7056	.035	11.074	1	39	.002

Table 6- Influence of Males' Vocal Expression of SpeakingandDetail of Listening on Students' Literacy Achievement (Notes: [a]VocalExp. of Speaking; [b]Vocal Exp.of Speaking plus Detail of Listening)

Discussion

The significant interaction effect between LCS and gender shows that gender is another factor which influences the students' English literacy achievement, especially in listening and reading, but not in writing and speaking skills as a whole. However, detail as a part of listening and vocal expression as a part of speaking had shown their strong interaction in which boys significantly outperformed girls. It can be interpreted that males are probably more attentive due to the stories being more of their interest. The stories used during the treatment were mostly humorous and adventurous fictions that boys preferred reading more compared to what girls did. This is in line with what is stated by Nilsen and Donelson (2009) that boys love adventure and excel in the love of humor, abandon, rough horse-play, and tales of wild escapades. This means

that their interest towards the stories made them keep paying attention and felt curious to know the end of the stories.

In addition, this could happen because males probably listened carefully to every detail of the stories read or played to them so that they could be more active in the discussion in which they are the ones who want to look greater and superior among others, especially female students. Usually, they take the major part during the interaction among peers in the class which is in line with a suggestion by studies of classroom interaction patterns that males are more prominent and dominant in both teacher-pupil and pupil-pupil interactions (Middleton, 1988). Moreover, this finding also portrays Indonesian culture in which girls are likely discouraged from speaking or expressing their opinion in public (ACDP Indonesia, 2013).

The discussion above eventually leads to a conclusion denoting the reason as to why males were better in vocal expression aspect of speaking. It might also be affected by the choice of the roles in the combined male and female group discussion in which male students tend to become the "Discussion Director" leading the group discussion and females are usually permissive in this case. However**,** these findings are in stark contrast with what Cameron (2003) found where women are better at listening and sharing emotions with others.

Conclusion

This paper has discussed the notion that strategy and gender have significant influence on some aspects of receptive and productive skills of English literacy as a foreign language (EFL). This method deserves attention by teachers to further apply effective strategies, one of which is LCS, with different readability and genres of reading materials including the students' reading interest. Furthermore, since every individual has his/her own innate characteristics in terms of gender, teachers of English are suggested to be wise and tactful in guiding their students so that they could make the best of their students' strengths and or weaknesses but it would be more applicable if it is based on research studies.

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Impact of Favoritism/ Nepotism on Emotional Exhaustion and Education Sabotage: The Moderating Role of Gender

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Abstract

Favoritism/nepotism are common practice at most organizations. This study attempts to provide an insight by measuring the impact of favoritism/nepotism on emotional exhaustion and education sabotage. Data was collected from teaching/research assistants at six universities in North Cyprus. The interplay among the study variables was observed via SEMs. Implications and consequences of organizational politics like favoritism/nepotism and work-related strain like emotional exhaustion are discussed.

Keywords: favoritism/nepotism, emotional exhaustion, education sabotage.

Introduction

During the last decades, the education sector has experienced a boom due to a tremendous increase in the number of students from all over the globe (Abubakar et al., 2014). The Organization of Economic Cooperation and Development (OECD, 2014) has reported that the number of international students increased sharply during the period 2000 to 2007 to over 2 million students worldwide. In addition, the United Nations Educational, Scientific and Cultural Organization (UNESCO, 2014) stated that about 2.5 million students studied abroad in 2009. Most students go abroad to study at universities. Merriam-Webster Dictionary defines university as a school that teaches students and awards them with varieties of degrees such as Bachelor, Masters and PhD, and at the same time conducts scientific research (Merriam-Webster, 2014). For universities to achieve their goals, they have to recruit full professors, associate professors, assistant professors, and teaching and research assistants. According to the regulations, in most countries around the globe, teaching and research assistants should have a Bachelor or Master's degree to work in these positions. Nevertheless, to be eligible for one of these positions the individual must have high grades from his/her previous education. For example Eastern Mediterranean university regulations state that an individual must have above 3.00 out of 4.00 to be a teaching/research assistant (EMU, 2014). However, this policy is sometimes violated by favoritism/ nepotism (Fa/Ne) in small countries like North Cyprus because people know each other and they tend to have strong social or family ties; perhaps they depend on these relationships to get jobs (Arasli & Tumer, 2008). Given this, establishing mechanistic processes and ways of conducting teaching activities based on competency is difficult in small and non-western countries. Thus, the possibility of emerging Fa/Ne is very high. Fa/Ne may destroy professionalism in workplaces like universities. Roy and Roy (2004) describe favoritism as the act of favoring an individual or group over others who have similar rights. Nepotism is referred to as "a dimension of favoritism given to family members for example hiring of nephews, nieces, in-laws and others because of the family ties rather than competency" (Arasli & Tumer, 2008, pg. 2). Individuals working in politically charged atmospheres in which procedures, justice, and rewards are granted based on favoritism are vulnerable to work-related strain like burnout or emotional exhaustion (EE) (Karatepe et al., 2012; Ross, 2005). Maslach and Jackson (1996) have defined burnout as a critical psychological and physical response syndrome, resulting from prolonged stress, attrition and frustration at work.

In the context of university teaching and research assistants, when they experience burnout or EE, they often retaliate against students by obstructing and reducing educational quality. For instance they may take revenge on rude students or deliberately fail them. This action is a way of coping with stress and expressing frustration (Lee & Ok, 2014). Sabotage in the workplace has received the attention of various scholars and practitioners. Because of the lack of literature regarding education sabotage (ES), we aligned service sabotage (SS) to ES. Thus, education is a form of service. Taylor and Walton (1971) refer to SS as workplace aberrant behaviors, "cheating at work" (Mars, 1982) and "residual rule breaking" (Scheff, 1996). Perhaps ES is any kind of deviant behavior that undermines the quality of education and knowledge transfer processes. Ambrosea et al. (2002) identified five motives behind SS, namely injustice, frustration, boredom/fun, facilitation of work, and powerlessness. However, some of the literature considers sabotage in the service sector to be rational conduct that results from an individual's reaction to their atmosphere (Analoui, 1995; Jermier, 1988). This paper aims to examine the impact of Fa/Ne on EE and ES. No empirical study has examined the impact of Fa/Ne on EE and ES. In addition, this study also examines the mediating role of EE between the Fa/Ne and ES relationship as well as gender differences.

Theoretical Background, Hypotheses and Research Model

Favoritism and Nepotism and Education Sabotage

Favoritism is seen as unfair practice of treating some people better than others. Arasli and Tumer (2008) show favoritism as an act of giving special employment and job related preferences to socially related people. The existence of favoritism is prevalent in most cultures but more popular in small states (Ozler et al., 2011; Sadozai et al., 2012), which have strong social or family ties. When a manager employs or gives promotion based on blood relationships instead of competency (Sadozai et al., 2012) this action is called nepotism. These practices (Fa/Ne) spoil effective selection and recruitment procedures in organizations because selection is not based on merit. The tendency to recruit unqualified individuals would be high; subsequently these individuals may sabotage the service. Disharmony begins to appear between present employees and new employees who have family or social ties with a person in the top management (Arasli & Tumer, 2008). This disharmony may lead to job burnout (Dyląga et al., 2013) or emotional exhaustion. Moreover, Witt et al. (2000) emphasized that organizational politics like Fa/Ne have a tendency to manipulate formal operating standards, informal norms and procedures with the sole aim to advance self-interests. Similarly, Karatepe et al. (2012) and Ross (2005) have noted that subordinates working in a politically charged atmosphere in which Fa/Ne and injustice exist are vulnerable to work-related strain. Based on the literature, injustices like Fa/Ne have the likelihood to provoke retaliatory actions and deviant work place behaviors like emotional exhaustion and sabotage. Thus, the following hypotheses were proposed:

- H1: Favoritism, nepotism is positively related to emotional exhaustion
- H2. Favoritism, nepotism is positively related to education sabotage

Emotional Exhaustion (EE) and Education Sabotage (ES)

Burnout is a lengthy response to chronic interpersonal and emotional stressors at work (Maslach et al., 2001, p. 397). It has three dimensions: emotional exhaustion (EE), depersonalization and personal accomplishment. However, to serve the aim of this study we are going to shed light just on EE which is considered as the most important dimension of burnout (Shirom, 1989). EE refers to stress reaction of being depleted and overextended (Evans & Fischer, 1993; Schutte et al., 2000). Depletion could be physiological or/and psychological (Bakker et al., 2003). Maslach (1982) stated that EE exhibits in subordinates as a loss of feeling, attention, spirit, interest and trust. Leiter and Maslach (2005) further explain emotional exhaustion as one of the major work-place issues in modern organizational settings. As a work-related strain, burnout (in the form of EE) leads to unwanted workplace behaviors like deviant work-place behaviors, intention to quit, job dissatisfaction, and less amount of time dedicated to work related activities (Low et al., 2001; Karatepe et al., 2012). EE causes frustration which may lead to workplace misbehavior (Fox & Spector, 1999) and SS is the reaction to that frustration (Jang & Johnson, 2003). SS is the deliberate misbehavior by subordinates against customers, in order to negatively disrupt operational activities of the organization (Harris & Ogbonna, 2009). SS has many aspects in the organization like disrupting the speed of services, revenge toward rude customers, mishandling customers, displaying hostile behaviors, and frustration. Ambrosea et al. (2002) added that an emotional state of frustration can lead to SS and the source of the frustration, like powerlessness or unfairness, may stimulate sabotaging intentions. Giacalone et al. (1997) asserted that SS can be aimed at an individual,

department, or the organization as a whole. Harris and Ogbonna (2009) further distinguish between subordinates' mistakes and SS, because the difference is clear between simple mistakes that can happen anytime or anywhere without intention, as opposed to the intention to sabotage the service. Thus, SS badly influences customer satisfaction and quality perception (Gremler & Gwinner, 2000). As we have mentioned above we integrate SS literature with ES, since education is a kind of service (Angell et al, 2008; Khan, & Matlay, 2009). Given the literature, the following hypothesis was proposed:

- H3: Emotional exhaustion is positively related to education sabotage

Moderating Role of Gender

Prior studies have asserted that gender is a predictor of EE. These studies stated that there are gender differences in subordinate EE; they proposed that females suffer a greater magnitude of strain than males (i.e. upper concern or anxiety, job- related stress, job load) (Arnten et al., 2008; Doyle & Hind, 1998). Furthermore, positive and negative emotions are more likely to be suffered among females than among males (Grossman & Wood, 1993). As long as females cannot effectively express negative emotions, they suffer a larger magnitude of strain compared to males and because EE is conceived as a form or type of strain (i.e. negative response to workplace stressor), the overall findings propose that females feel a larger magnitude of EE than males (Rubino et al., 2013). Some studies have stated that the relationship between gender and EE is inconsistent (Bakker et al., 2002; Bekker et al., 2005; Schaufeli & Enzmann, 1998; Van Horn et al., 1997a, b). The relationship between gender and EE differs (Greenglass et al., 1998), because some studies report larger magnitudes of EE for females (Bakker et al., 2002; Rupert & Morgan, 2005; Schaufeli & Enzmann, 1998), while other studies show larger scores for males (Bekker et al., 2005; Van Horn et al., 1997a, b). However, Rubino et al. (2013) propose the potential presence of an external factor, which influences the relationship between gender and EE, and they emphasize the need to investigate the potential mediators and moderators of this relationship. Given the literature, the following hypothesis was proposed:

- H4: Gender moderates the relationship between favoritism/nepotism, emotional exhaustion and education sabotage.

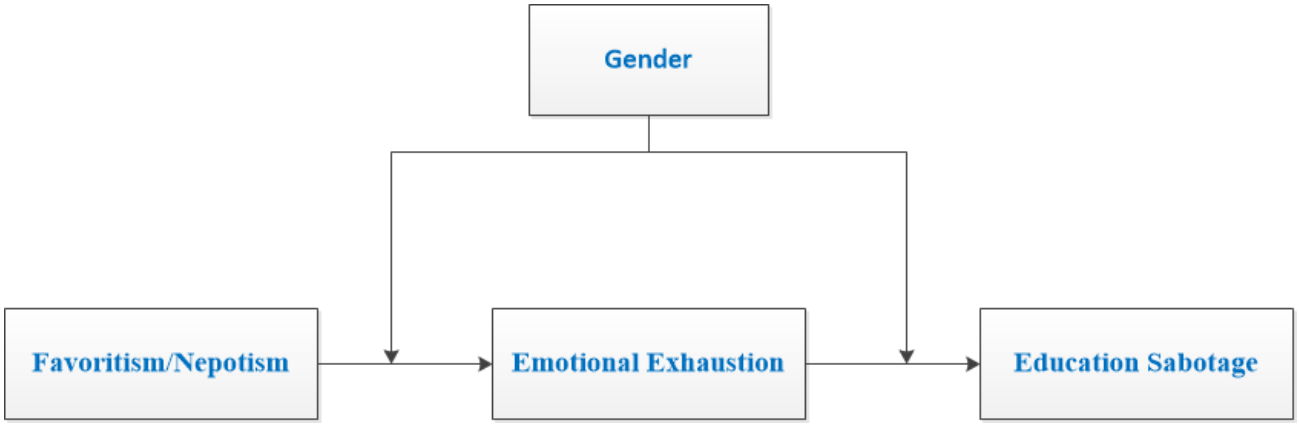

Figure 1: The conceptual model of the research

Methodology

Sample and Procedures

This research employed a purposive sampling technique. Data were gathered with the aid of self-administered questionnaires from teaching/research assistants in six universities in North Cyprus. A pilot survey was conducted with ten teaching/research assistants, and necessary adjustments were made to make sure that respondents understood the questions. Four hundred (400) questionnaires were distributed; each questionnaire had a cover letter to guarantee confidentiality and anonymity of the respondent. Only 310 questionnaires were usable due to missing data and some of the respondents did not return their questionnaires.

Measures

Fa/Ne was measured via fifteen (15) items adopted from (Arasli & Tumer, 2008; Abdalla et al., 1998; Sadozai et al., 2012) and modified to fit the research context. Some of the items include 'Teaching assistants at the university always feel that they need a relative in a high-level position' and 'Teaching assistants at the university always feel that they need someone they know or a friend in a high-level position'. ES was measured using nine (9) items adopted from Harris and Ogbonna's (2006) service sabotage study. The items were adjusted to fit the education context. A sample of items includes 'It is common practice here to "get back" at students' and 'Teaching assistants ignore the university regulations to make things easier for themselves'. Five point scales were used to measure the items, ranging from (1=strongly disagree) and (5=strongly agree). Emotional exhaustion was measured via nine items from the validated burnout inventory that Maslach and Jackson have used in prior studies (Maslach et al., 1996; Walters & Raybould, 2007; Kima et al., 2007). A sample of items includes 'I feel emotionally drained by my work' and 'I feel frustrated by my work'. The items were measured on a five point scale ranging from (1=Never) and (5=Daily). Demographic variables used include age, gender, education, marital status and tenure.

Data Analysis

SPSS and AMOS version 22 were used to investigate the causal relationships and goodness-of-fit of the three model item, which yielded (X^2 = 1225.6, df = 413, p<.001). In estimating the fitness of the measurement and structural model, Goodness-of-Fit Indices (GFI), Normed Fit Index (NFI), Comparative Fit Index (CFI), Root Mean Square Error of Approximation (RMSEA), Root Mean Square (RMR) and X^2 re-estimate test (CMIN/DF) were used (GFI = .81, 1 = maximum fit; NFI = .92, 1 = maximum fit; CFI = .95, 1 = maximum fit; RMSEA = .08, values <= .08 indicating good fit; and CMIN/DF = 2.96, values >1 and < 4 are accepted). The results in Table 1 show that the model fits are reasonable and acceptable as suggested (Wheaton et al., 1977; Bentler & Bonett, 1980; Jöreskog & Sörbom, 1984; Tanaka & Huba, 1985; Bollen, 1989a; Bollen, 1989b). Cronbach's alphas were between .87 and .90 above the cutoff point of .60 (Hair et al., 1998) and composite reliability (CR) ranged from .88 to .90, while Average Variance Extract (AVE) ranged from .55 to .75 above the cutoff level of .50 (Hair et al., 1998). In addition the standardized loadings were also above the thresholds of .50, as suggested by Hair et al. (1998) (see Table 2). The results verify evidence of internal consistency and also suggest evidence of convergent and discriminant validity.

Results

Demographics

The demographic breakdown of the sample shows that most of the respondents were males (59%) and the rest were females. The overwhelming majority (71%) was aged between 22 and 30 years and the rest were between the ages of 31 and 39 years. Sixty one percent (61%) had a Master's degree and the rest had a Bachelor's degree. In terms of marital status, 65% were single, 32% were married and the rest were divorced. About 57% of the respondents had worked for their universities between 1 and 3 years, 26 % between 4 and 6 years, and the rest less than a year. Apart from exceptional cases, teaching/research assistants cannot work for more than 5 years in North Cyprus universities (EMU, 2014).

Measurements

Scale items	Factor loadings	Mean	S.D
Favoritism and Nepotism (α = .97; CR=.97; AVE=.66)			
At the university always feel that they need a relative in a high-level position	.80	3.50	1.22
Teaching assistants at the university always feel that they need someone they know or a friend in a high-level position.	.79	3.74	1.12
Chairpersons at the university are uncomfortable with the presence of those Teaching assistants with close personal ties to high-level executives	.87	3.81	1.06
Teaching assistants who were appointed only because of family ties have negative influence at the university.	.76	3.51	1.13
Teaching assistants who were appointed only because of friends or connections have negative influence at the university.	.82	3.52	1.09
I am always careful when speaking to my colleagues about university's top Managers.	.84	3.68	1.12
I am always careful when speaking to friends or acquaintances of university's top managers	.74	3.37	1.24
Top managers' relatives are frustrated by never really knowing whether they were appointed because of their talent or family ties	.80	3.57	1.14
Friends and acquaintances of university's top managers are frustrated by the fact that they never really know if they were appointed based on merit or personal reasons.	.81	3.75	1.04
If a relative of top managers at the university becomes Teaching assistants, he/she can never live up to the expectations of the other Teaching assistants.	.83	3.61	1.14
A friend or acquaintance of top managers at the university can never meet the expectation of other Teaching assistants if he/she appointed at the university.	_*		
University permitting employment of top managers' relatives have a hard time attracting and retaining quality Teaching assistants who are not relatives	.90	3.71	1.07
University permitting employment of top managers' and board trustees' acquaintances have a hard time employing and retaining high quality Teaching assistants who are not acquaintances.	.81	3.75	1.07
University permitting employment of top managers' relatives have a difficult time firing or demoting them if they prove inadequate	.86	3.37	1.18
Top managers at the university have a hard time demoting or firing friends and acquaintances	.77	3.60	1.14
Emotional Exhaustion (α =.96; CR=.96; AVE=.77)			
I feel emotionally drained by my work.	.99	3.24	1.27
Working with students all day requires a great deal of effort.	.66	3.04	1.31
I feel like my work is breaking me down.	.97	3.02	1.31
I feel frustrated by my work.	.96	3.01	1.35
I feel I work too hard at my job.	.65	3.01	1.30
It stresses me too much to work in direct contact with students.	.98	2.97	1.29
I feel like I'm at the end of my rope.	.95	2.99	1.34
I feel I look after certain students impersonally, as if they are objects.	.67	3.03	1.31
I feel tired when I get up in the morning and have to face another day of work.	_*		

Education Sabotage (α =.94; CR=.95; AVE=.68)			
Teaching assistants here take revenge on rude students.	.82	2.90	1.36
Teaching assistants here hurry students when they want to.	.99	3.16	1.20
It is common practice here to "get back" at students.	.61	3.31	1.16
Teaching assistants ignore the university regulations to make things easier for themselves.	.69	2.77	1.36
Sometimes, Teaching assistants here "get at students" to make the rest of us laugh.	.57	2.79	1.29
Teaching assistants here never show off in front of student. (R)	.99	3.16	1.21
Sometimes, Teaching assistants deliberately fail students.	.97	3.16	1.22
In this university students are never deliberately mistreated. (R)	.98	3.17	1.21
Teaching assistants here slow down curriculum when they want to.	.61	3.02	1.26

Note: R; reverse-scored items. KMO Measure of Sampling Adequacy = .91; Bartletts' Test of Sphericity = 17095.9, df = 666, p < .001. The total variance explained by all factors is 75%. * Dropped as a result of CFA. α denotes alpha coefficient.

Table 1 Scale Items, Reliability and Exploratory Factor Analysis Results

Variables	Mean	Standard deviation	1	2	3
1. Favoritism/Nepotism	3.60	.93	-		
2. Emotional Exhaustion	3.04	1.17	-.049	-	
3. Education Sabotage	3.05	1.05	-.059	.55**	-

Note: Composite scores for each variable were computed by averaging respective item scores. ** Correlations are significant at the .01 level.

Table 2 Means, Standard Deviations, and Variables' Correlations

Table 2 presents standard deviations, means, and a correlations analysis of the research model. The relationship between EE and ES was positive and significant (r=.55. p<.001), providing preliminary support to hypothesis (H3).

Exogenous variables	Endogenous variables	Estimates	Standard error	*t*-statistics	*p*
Favoritism/Nepotism	Emotional Exhaustion	-.061	.071	-.855	.393
Favoritism/Nepotism	Education Sabotage	-.037	.054	-.682	.495
Emotional Exhaustion	Education Sabotage	.490	.043	11.42	***

Notes: ***significant at the p < 0.01 level (two-tailed)

Table 3 Maximum likelihood estimates for the research model (n=310)

Structural equation modeling (SEM) was used to test the causal relationships between the study variables. Table 3 shows that the relationship between Fa/Ne and EE was negative and insignificant (β = -.061, *p*=.393). Similarly, the relationship between Fa/Ne and EE was negative and insignificant (β = -.037, *p*=.495). Finally, the relationship between EE and ES was positive and significant (β =.490, *p*<.001). Based on the above outcomes, H1 and H2 were rejected, and H3 gained empirical support.

Exogenous variables	Endogenous variables	Total Effect	Direct Effect	Indirect Effect
Favoritism/Nepotism	Emotional Exhaustion	-.061	-.061	0.00
Favoritism/Nepotism	Education Sabotage	-.067	-.037	-.030

Emotional Exhaustion	Education Sabotage	.490	.490	0.00

Table 4 Break down of total effect of the research model (n=310)

Multi-group moderation analysis was conducted; at the model level the groups were not different. However, at the path level the groups were different. As predicted, gender did moderate the relationships in the model. The results in Table 5 show that the relationship between Fa/Ne and ES was negatively significant for men but not significant for women. The result posits that men were less likely to experience EE in organizations with higher levels of injustice, such as favoritism/nepotism. Secondly, the relationship between EE and ES was significant for both genders but higher for men. This suggests that men who experienced EE had a high tendency to turn to education sabotage. This provides confirmatory support for H4.

Exogenous variables	Endogenous variables	Male (n=183) β (t)	Female (n=127) β(t)	*Decision*
Favoritism/Nepotism →	Emotional Exhaustion	-.176(-1.793)	.060(.585)	Rejected
Favoritism/Nepotism →	Education Sabotage	-.155(-2.115*)	.083(1.056)	Accepted
Emotional Exhaustion→	Education Sabotage	.466(8.437**)	.498(7.317**)	Accepted

Notes: *Significant at the $p < 0.05$ level (two-tailed); **significant at the $p < 0.01$ level (two-tailed)

Table 5 Moderating effect of gender (n=310)

Discussion and Conclusion

This study provides additional insight into the perception that employees who experience injustice in their organization will engage in sabotage and may experience EE. As predicted, the findings of this study reveal that EE is positively associated with ES. Contrary to our expectation Fa/Ne did not result in EE and ES. This phenomenon explicitly explains the relationship and strength of strong ties. Nevertheless, emotional exhausted teaching/research assistants have the tendency to mistreat students, which may lead to frustration. Frustrated teaching/research assistants have a higher propensity to engage in ES, in line with Fox and Spector's (1999) and Lee and Ok's (2014) findings. In addition, injustice that may result from Fa/Ne may not always manifest as EE and ES. The current findings indicate that organizational practices like Fa/Ne do not always lead to unwanted outcomes, specifically in small countries such as North Cyprus where the majority of the population have blood and/or social ties.

Theoretically EE refers to the stress reaction of being depleted and overextended, and to loss of feeling and attention, spirit, interest and trust (Bakker et al., 2003; Schutte et al., 2000). Employees who were employed due to social or blood ties may not experience EE, due to existing trust, fair treatment and flexible work processes assigned. Fa/Ne may not result in ES because such employees often do their best to protect and preserve the image and reputation of their mentor(s). In addition, they also want to keep their dignity within the society. Herzberg's (1959) two-factor theory exhibits another description for the relationship between EE and ES. The theory posits that motivators like responsibility, recognition, and achievement are the main triggers of subordinates' (teaching/research assistants) satisfaction. However, teaching/research assistants who experience EE may become disengaged from their duties. Thus, with regards to ES, we argue that this is a result of

other work factors rather than injustice or Fa/Ne. Male employees in organizations with high Fa/Ne are less likely to resort to ES.

HRM practitioners in small countries or cities can leverage Fa/Ne to diminish sabotage in the workplace. Some might argue that organizational politics in the form of Fa/Ne will reduce service or product quality. However, the reverse is the case for small countries. Abubakar et al. (2014) have reported that North Cyprus has emerged as an educational tourism destination, with international students from various countries. In addition, one of the factors that have lured students to study in North Cyprus is the presence of qualified and friendly academic staff (Abubakar et al., 2014).

Limitations and Future Study Directions

This study has several contributions but is not without limitations. Cross-sectional design and self-report measures were some of its shortcomings. Future research should adopt a longitudinal research design. Secondly, the study did not look at the effect of leadership style and other cultural factors. Future studies should examine other factors that have a tendency to result in education sabotage. Thirdly, the generalizability of our findings is questionable because of the small sample size and the fact that the sample was drawn only from North Cyprus. Lastly, the study employed a purposive sampling technique; future studies should use a probability sampling method to strengthen the current findings. Also, future research should be conducted with a larger sample size and in countries with different cultural settings.

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Constructing a Supervised Model for Network Intrusion Detection

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Abstract

Computer networks are dynamic and continually evolving. Along with such evolution, it becomes harder to effectively communicate to human decision-makers the results of methods and metrics for monitoring networks, classifying traffic, and identifying malicious or abnormal events. Network administrators and security analysts require tools that help them understand, reason for, and make decisions about the information their analytic systems produce. Because of the dynamic change of the technology and the increasing number of hackers and crackers in the networking industry there should be a means to minimize or remove such challenges. Data mining is one of the technologies that are used for intrusion detection and prediction. In this study, attempts have been made to use data mining technology with the aim of detecting and predicting intrusions in the networking industry. The knowledge discovery in database process model designed by Fayyad et al. (1996) has been followed during the experimentation and discussion. The dataset used in this study has been taken from MIT Lincoln lab. After gathering the data, it has been preprocessed and prepared in a format suitable for the data mining tasks. This study proposed the supervised approach for IDS. The proposed model will offer the advantage of considering those unlabeled records. In this case there was a filling of only the top few most confident data points making empty the class of rest records. Supervised learning is more suitable for intrusion detection because they require a small quantity of labeled data while still taking advantage of the large quantities of unlabeled data. Both the J48 decision tree algorithm and the Naïve Bayes simple algorithm have been tested as a classification approach for building a predictive model for intrusion detection. By changing the training test options and the default parameter values of these algorithms, different models have been created. The model created using 10-fold cross validation using the J48 decision tree algorithm with the default parameter values showed the best prediction accuracy.

Keywords: Data Mining, security, intrusion detection, knowledge discovery in database

Introduction

As network-based computer systems play increasingly vital roles in modern society, they have become the targets of cyber criminals. The security of a computer system is compromised when an intrusion takes place. An intrusion is defined as any set of actions that attempt to compromise the integrity, confidentiality or availability of a resource (Heady et.al, 1990). Lee et al (1999) defined intrusion as the act or attempted act of using a computer system or computer resources without the requisite privileges, causing willful or incidental damage. Intrusion Detection Systems (IDS) are computer programs that attempt to perform intrusion detection by comparing observable behavior against suspicious patterns, preferably in real-time. IDSs are systems that attempt to identify intrusions or abuses of computer systems by either authorized users or external perpetrators (Mukherjee et al., 1994). Some IDSs monitor a single computer, while others monitor several computers connected by a network. IDSs detect intrusions by analyzing information about user activities from sources such as audit records, log files, system tables, and network traffic summaries.

Literature Review

IDSs have been developed and used at several institutions. Some example of IDSs are National Security Agency's Multics Intrusion Detection and Alerting System (MIDAS), ATandT's Computer Watch (Dowell and Ramstedt, 1990), SRI International's Intrusion Detection Expert System (IDES) (Lunt,1990), Next-Generation Intrusion-Detection System (NIDES) (Anderson, 1994), UC Sanat Barbara's State Transition Analysis Tool for UNIX (USTAT) (Ilgun, 1993; Ilgun et al.,1995), Los Alamos National Laboratory's (LANL's) Network Anomaly detection and Intrusion Reporter (NADIR) (Hochberg, 1993), UC Davis' Network Security Monitor (NSM) (Heberlein et al.,1990) and Distributed Intrusion Detection System (DIDS) (Snapp, 1991). Intrusion prevention techniques such as user authentication (e.g. using password or biometrics), avoidance of programming errors, and information protection (e.g., encryption) have been used to protect computer systems as a first line of defense (Lee et al., 1999). Intrusion detection is needed as a wall to protect computer systems. The elements central to intrusion detection are: resources to be protected in a target system, i.e., user accounts, file systems, system kernels, etc; these are models that characterize the normal or legitimate behavior of these resources; techniques that compare the actual system activities with the established models, and identify those that are abnormal or intrusive (Lee et al., 1999). According to Mukherjee et al (1994) the goal of intrusion detection is to identify, preferably in real time, unauthorized use, misuse, and abuse of computer systems by both system insiders and external penetrators.

Generally, an intrusion would cause loss of integrity, confidentiality, denial of resources, or unauthorized use of resources. According to Eric et al (2002), some specific examples of intrusions that concern system administrators include:

- ✓ Unauthorized modifications of system files so as to facilitate illegal access to either system or user information;

- ✓ Unauthorized access or modification of user files or information;
- ✓ Unauthorized modifications of tables or other system information in network components (e.g. modifications of router tables in an internet to deny use of the network);

The most widely used and commercially available IDSs are signature-based systems (William, 1995). A signature based system matches features observed from the audit stream to a set of signatures handcrafted by experts and stored in a signature database. Signature-based methods have some inherent limitations. What is significant is that a signature-based method is designed to only detect attacks for which it contains a signature in the database. In addition to the expense in time and human expertise of manually encoding a signature for each and every known attack, the signature-based methods therefore cannot detect unknown attacks since there is no signature in the database for them. It is these unknown attacks that are typically the most dangerous because the system is completely vulnerable to them (William, 1995).

Data mining (DM) -based methods are another paradigm for building intrusion detection systems. The main advantage of these methods is that they leverage the generalization ability of data mining methods in order to detect new and unknown attacks. A data mining-based IDS uses machine learning and data mining algorithms on a large set of system audit data to build detection modes. These models have been proven to be very effective (Lee et al., 1999). These algorithms are generally classified as either misuse detection or anomaly detection. Misuse detection algorithms learn how to classify normal and attack data from a set of training data which contains both labeled attack and normal data (Lee et al., 1999). Anomaly detection algorithms learn a model of normal activity by training on a set of normal data. Anomaly detection algorithms then classify as an attack activity that diverges from this normal pattern based on the assumption that attacks have much different patterns than normal activity.

According to Christos and Aikaterini (2004) a DM intrusion detection system (IDS) inspects all inbound and outbound network activities and identifies suspicious patterns that may indicate a network or system attack from someone attempting to break into or compromise a system. According to Christos and Aikaterini (2004) data mining has been known to aid the process of Intrusion Detection and the ways in which the various techniques have been applied to enhance the security of the network.

Generating patterns and knowledge is vital for IDSs to differentiate standard behaviors from strange behavior by examining the dataset which is a list of tasks created by the operating system that are registered into a file in historical sorted order (Dewan & Mohammad, 2010). According to Pachghare et al (2011) IDS can be implemented using unsupervised, supervised and semi-supervised machine learning algorithms. Unsupervised learning uses unlabeled data. This method can detect the intrusions that have not been previously learned. Examples of unsupervised learning for intrusion detection include K-means-based approaches and self-organizing map (SOM)-based approaches. In supervised learning for intrusion detection, the labeled data is needed for training. These are mainly neural network (NN)-based approaches, and support vector machine (SVM)-based approaches for IDS. The third method is semi-supervised learning in which both the labeled and unlabeled data are used for training.

Statement of the Problem

Intrusion detection is becoming a challenging task due to the proliferation of heterogeneous computer networks since the increased connectivity of computer systems gives greater access to outsiders and makes it easier for intruders to avoid identification (Helali, 2010). Hence, there is a need for an effective and efficient system which allows the protection of the network from the intruders. To develop such kind of system there is a need to use methods like feature selection which is a growing field of interest involving selecting proper features from many features. This is because it is expensive to carry out the entire process and degrading to the classification performance of data mining algorithms. Therefore, feature selection approaches reduce the complexity of the overall process by allowing the data mining system to focus on the really important features.

Many researchers proposed different models for network intrusion detection systems (NIDS). Adamu (2010) tried to study a machine learning IDS that investigated the application of cost sensitive learning by applying decision tree algorithm. He did not compare the result with other predictive model techniques like neural network, Naïve Bayes and other techniques. Zewdie (2011) proposed an optimal feature selection for Network Intrusion Detection using an indirect cost sensitive feature selection approach. The latter is a DM approach system that tried to investigate jointly cost sensitive learning and feature selection to advance the classification performance of algorithms that incorporate cost. In his study, Information Gain Ratio (IGR) and Correlation Feature Selection (CFS) are investigated for ranking and selecting features using the proposed cost sensitive approach. Zewide tried to investigate decision tree classification algorithms that used indirect cost sensitive feature ranking and selection algorithms. Zewdie used in his study only those records which are labeled. He did not consider those records which are not labeled. Both Adamu (2010) and Zewdie (2011) conducted the NIDS on a supervised approach. As described by Pachghare et al (2011), a traditional intrusion detection algorithm is based on supervised learning and non-supervised learning. These two algorithms have some limitations; the supervised learning process cannot use a lot of unlabeled data while non-supervised learning often results in a high false alarm rate.

Pachghare et al (2011) evaluated the performance of the supervised intrusion detection model using labeled data. They concluded that labeling the training data for real-world applications is difficult, expensive, and time consuming, as it requires the effort of human sometimes with specific domain experience and training. There are implicit costs associated with obtaining these labels from domain experts, such as limited time and resources. This is especially true for applications that involve learning with a large number of class labels and sometimes with similarities among them. Therefore, this research intends to get answers to the following research questions.

- ✓ Which Data Mining algorithm can be more suitable for the purpose of predicting Network Intrusions?
- ✓ To what degree can the NIDS correctly classify intrusions? Can the system correctly classify intrusion to such a degree that it can be trusted to respond actively to them?
- ✓ What is the pattern that describes whether given networks signal is a normal packet or an intrusion?
- ✓ What can be done to design an IDS model which is based on feature selection?

This research is basically the extension of the thesis work of Adamu (2010) and Zewdie (2011) in the area of NIDS. On top of their work features which were not addressed by both of them have been addressed in this paper, namely, the result of the J48 decision tree algorithm compared with other predictive model techniques in developing an IDS model. For feature selection CfsSubsetEval is used as attribute evaluator and Best First as a search method is also used in this study. This research addressed the supervised modeling of an intrusion detection system that considers both labeled and unlabeled records which were indicated as a future research direction by Pachghare et al (2011). It is not easy to classify network packets whether attack or normal that always need domain experts for applying only supervised modeling. At the same time, there is the labeling of the class of network packets consumed resources. Because datasets were taken from the Massachusetts Institute of Technology (MIT) Lincoln lab, this research did not include data from network security organizations in Ethiopia. So, further research needs to be conducted including data from these organizations. Because of time and financial limitations this research focused mainly on how to effectively detect attacks, not to prevent them. The IDS model constructed in this thesis just notify network administrators after detecting an attack and administrators to manually take proper actions.

System Design and Data Preprocessing

Data processing, a critical initial step in data mining work, is often used to improve the quality of training data set. To do so data cleaning and preparation is the core task of data mining which is dependent on the software chosen and algorithms used (Mahbod et al., 2009). The IDS models in this study are developed on full training Network Simulation Language- Knowledge discovery in Database (NSL-KDD) dataset using a powerful machine learning and data mining WEKA tool. The data mining model used in this study is the KDD process. The KDD process refers to the whole process of changing low level data into high level knowledge whose automated discovery of patterns and relationships in large databases and data mining is one of the core steps in the KDD process. The goal of KDD and DM is to find interesting patterns and/or models that exist in databases but are hidden among the volumes of data (Fayyad et al., 1996). The KDD process as described by Fayyad et al (1996) consists of five major phases. Data were collected using appropriate algorithms then mined patterns were modeled. Figure 1 showed the KDD process model used in this thesis.

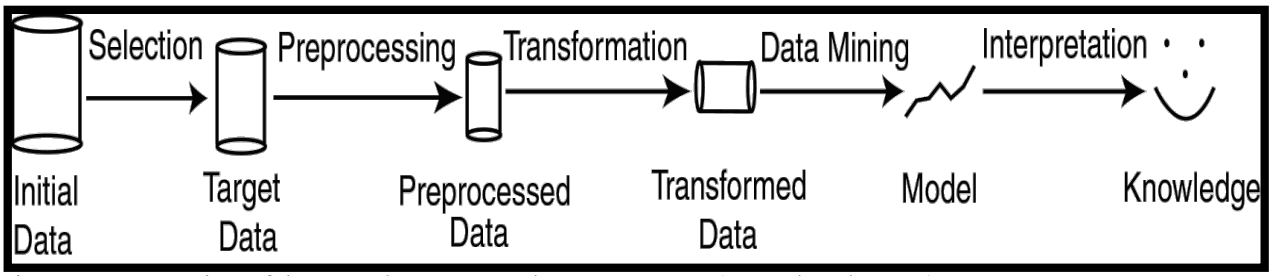

Figure 1: An overview of the steps that compose the KDD process (Fayyad et al., 1996).

Initial Data Selection: NSL_KDD dataset (Helali, 2010) most widely used and publicly available for IDS is used for the experiment purpose. The KDD (Knowledge discovery in Database) Cup 1999 Intrusion detection contest data (KDD cup 99 Intrusion detection data sets) has been used in this study. This data was prepared by the 1998 DARPA (Defense Advanced research Project Agency) Intrusion Detection Evaluation program by MIT Lincoln Labs (MIT Lincoln Laboratory). Data Preprocessing*:* The data preprocessing step in this study includes basic operations, such as removing noise or outliers if appropriate, collecting the necessary information to model or account for noise, deciding on strategies for handling missing data fields, and accounting for time sequence information and known changes, deciding on database management system issues, such as data types, schema, and mapping of missing and unknown values. Also, since a predictor can exploit only certain data features, it is important to detect which data preprocessing works best (Meera et al., 2003). For this study preprocessing of NSL-KDD dataset contains the following processes: assigning attack names to one of the five classes Normal, Probe, DOS (Denial of Service), U2R (User to Root) and R2L (Remote to Local). To identify and label each attack, different literatures are consulted and Microsoft Excel helps to filter and name easily using fill handle.

There are records which don't have attributes and are removed from the dataset and there is also a mismatch in the KDD 99 winner cost matrix and the confusion matrix; as a result arrangements are made to match the cost matrix and confusion matrix. The NSL-KDD dataset is available in text format; so to be read for Waikato Environment for Knowledge Analysis (WEKA) tool it has to be changed into ARFF format. For WEKA Data can be imported from a file in various formats: CSV, C4.5, binary (Chang et al., 2005).

Data Transformation: the data transformation step includes finding useful features to represent the data, depending on the goal of the task, and using dimensionality reduction or transformation methods to reduce the effective number of variables under consideration.

Choosing Data mining tasks*:* In this step the DM methods used for the thesis are decided. DM methods have been successfully applied for solving classification problems in many applications (Pradeep, 2005). In DM, algorithms (learners) try to automatically filter the knowledge from example data (datasets).This knowledge can be used to make predictions about original data in the future and provide insight into the nature of the target concept(s). According to Pradeep (2005) example data typically consists of a number of input patterns or examples to be learned. DM systems typically attempt to discover regularities and relationships between features and classes in the learning or training phase. To analyze the data and classify of network attacks from a network environment, the three machine learning algorithms (Eibe & Witten, 2005), the J48 decision tree classifier, Naïve Bayes Classifier and simple k-means clustering are used in this thesis.

Decision Tree: Decision tree is a predictive modeling technique most often used for classification in DM. The Classification algorithm is inductively learned to construct a model from the pre-classified dataset. Each data item is defined by values of the attributes. Classification may be viewed as mapping from a set of attributes to a particular class. The Decision tree classifies the given data item using the values of its attributes. The decision tree is initially constructed from a set of pre-classified data. The main approach is to select the attributes, which best divides the data items into their classes (Kruegel & Toth, 2003). In this study the J48 decision tree algorithms was used. It is an implementation of the C4.5 decision tree

learner. This implementation produces decision tree models. It recursively splits a dataset according to tests on attribute values in order to separate the possible predictions. A decision-tree model is built by analyzing the training data and the model is used to classify the trained data.

The node of the J48 decision trees evaluates the existence and the significance of every individual feature. Considering a set A of case objects, J48 initially grows a tree and uses divide-and-conquer algorithm as follows: (i) if all the cases in A belong to the same class or if the set is a small one, the tree is leaf labeled with the most frequent occurring class in A. (ii) or, a test is selected based on a single attribute with two or more outcomes. This test is made with the root of the tree with each branch as one outcome of the test. Further the same procedure is applied recursively for each subset. Naive Bayes: the other supervised approach used in this thesis is the Naïve Bayes classifier which is based on probabilistic model for assigning the most likely class to a given instance. Probabilistic model (approach) in classification field allows (model or looks for) the estimation of conditional probability of classes given instance, p(C/A1…, AN) where C∈ {C1…CM} the classes and Ai, i=1...N, a set of features describing dataset examples (Shekhar et al., 2007). Given a valued example, the most appropriate class to be assigned to is the class with the upper posterior probability,

$$\text{Argmaxc } p(C=c/A1=a1\ldots, AN=aN) \quad (1)$$

The Bayesian approach splits a posterior distribution into a priori distribution and likelihood,

$$\text{Argmaxc } p(C=c/A1=a1\ldots, AN=aN) = \text{Argmaxc } \alpha\, p(A1=a1\ldots AN=aN/C=c)\, p(C=c) \quad (2)$$

Where α is normalization factor to ensure that sums of conditional probabilities over class labels are equal to 1. The distribution of features given class label is more complex to estimate. Its estimation is exponential in an attribute number and requires a complete training dataset with sufficient examples for each class. Such problem can be avoided, assuming the independence of features of given class, and likelihood estimation uses the following formula.

$$P(A1=a1\ldots AN=aN/C=c) = \Pi i\, p(Ai=ai/C=c) \quad (3)$$

Depending on the precise nature of the probability model, Naive Bayes classifiers can be trained very efficiently in a supervised learning mode for this study.

K-means Clustering*:* in this study for semi-supervised modeling, the researcher used k-means clustering. The k-means clustering algorithm is used for clustering those unlabeled records into their appropriate classes. After clustering, classification techniques are applied. In K-means clustering, the assignments of the data points to clusters depend on the distance between cluster centroids.

Architecture of the study

Supervised intrusion detection approaches use only labeled data for training. To label the data however is often difficult, expensive, or time consuming as it requires the efforts of experienced domain experts. Semi-supervised learning addresses this problem by using a large amount of unlabeled data, together with the labeled data, to build better classifiers. Semi-supervised learning requires less human effort. The architecture used for this thesis is shown in figure 2. This architecture was proposed by Pachghare et al. (2011) for the semi-supervised approach for intrusion detection systems. As shown in figure 2, labeled data used for training the system as supervised approach. After training, the system test used unlabeled data. The tested data will add to the training data so as to implement a semi- supervised approach.

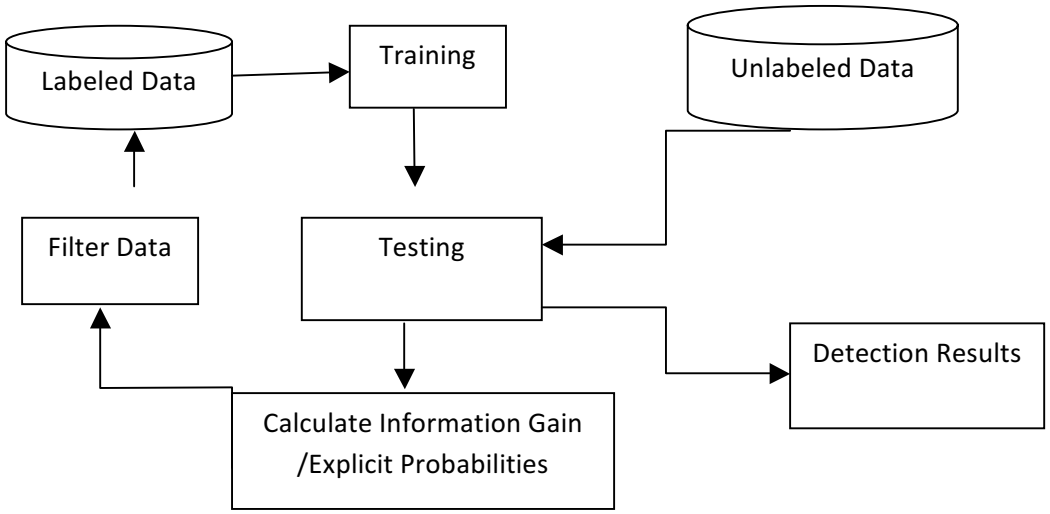

Figure 2: Architecture proposed for Semi-supervised IDS (Pachghare et al., 2011)

Implementation results and Comparison of Supervised Approaches: J48 decision tree and Naive Bayes models

Comparing different classification techniques and selecting the best model for predicting the network intrusions is one of the aims of this study. Accordingly the decision trees particularly the J48 algorithm and the Naïve Bayes classification approaches were used for conducting experiments. A summary of experimental result for the two classification algorithms is presented in table 1 below:

		Accuracy			
		Input ares all Features		With feature Selection	
Classifier/ Model	**Test Mode**	Correctly Classified	Incorrectly Classified	Correctly Classified	Incorrectly Classified
Naïve Bayes: Semi-Supervised	10-fold cross validation and Other default values	94.82 %	5.18 %	94.02%	5.98 %
	Percentage Split	94.67%	5.33%	94.02%	5.98%
J48 : Semi-Supervised	10-fold cross validation and Other default values	96.11 %	3.89%		
	Percentage Split	95.95%	4.05%		

Table 1: Comparison of Semi-Supervised Approaches

For comparison of the selected models summarized experimental results are shown in the table 2 below.

Features used	**Classifiers**	**Accuracy**	**Classes**									
			Normal		**DOS**		**Probe**		**R2L**		**U2R**	
			TP	**FP**	**TP**	**FP**	**TP**	**FP**	**TP**	**FP**	**TP**	**FP**
17	**J48 with 10 fold cross validation**	96.11 %	0.95	0.01	1	0	0.97	0.01	0.98	0.02	0.53	0.01
17	**J48 with percentage split (set to 75%)**	95.95%	0.95	0.01	1	0	0.97	0.01	0.98	0.02	0.44	0.01
41	**Naïve Bayes with 10 fold cross validation**	94.82 %	0.92	0	1	0	0.87	0	0.92	0.02	0.93	0.03
41	**Naïve Bayes with percentage split (set to 75%)**	94.67%	0.93	0	1	0	0.85	0	0.91	0.02	0.91	0.03
11	**Naïve Bayes with 10 fold cross validation**	94.02%	0.92	0	1	0	1	0.03	0.92	0.02	0.35	0.02
11	**Naïve Bayes with percentage split (set to 75%)**	94.02%	0.93	0	1	0	1	0.03	0.91	0	0.35	0.03

Table 2: Comparison of the confusion matrix results for J48, and Naïve Bayes Algorithms

In this thesis J48 and Naïve Bayes algorithms performed different prediction accuracies. As shown in figure 3 from all six experiments, the J48 with 10-fold cross validation performed better classification accuracy in identifying intrusions whether normal or attack (DOS, U2R, R2L and Probe).

The reason for the J48 decision tree performing better than Naïve Bayes is because of the linearity of the dataset. This means there is a comprehensible segregation point that can be defined by the algorithm to predict the class of a particular network intrusion.

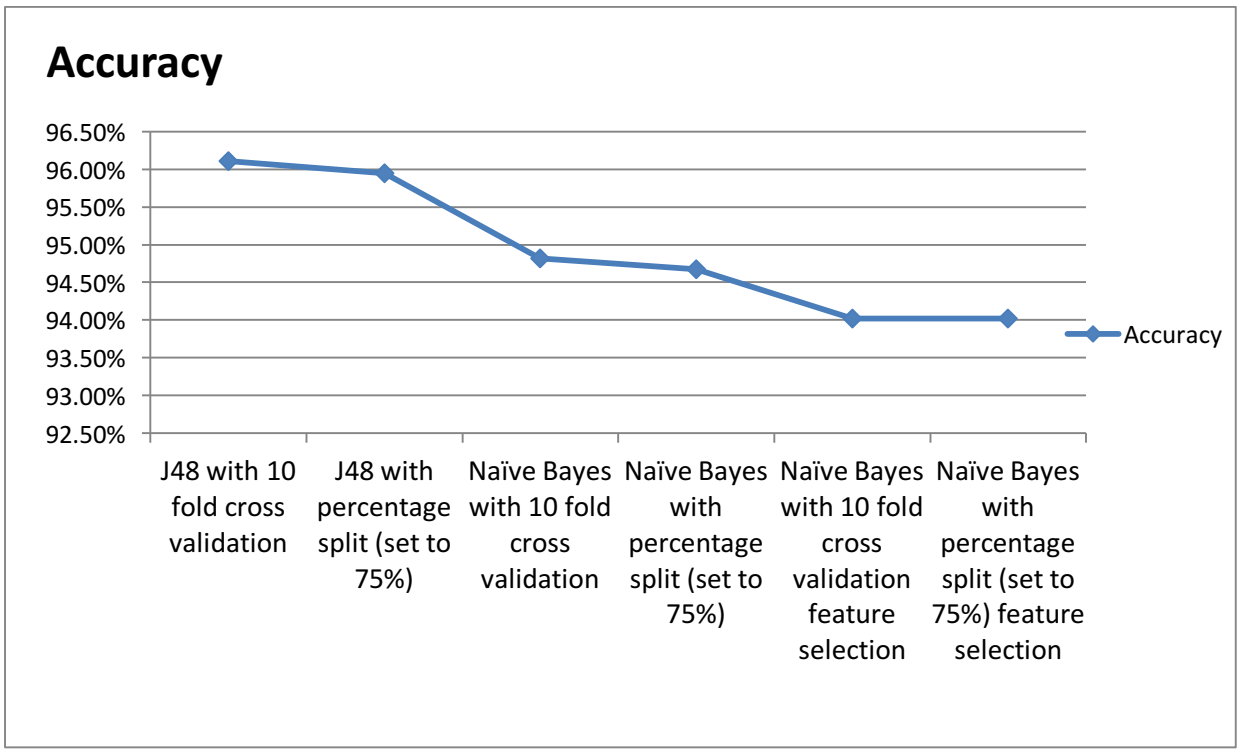

Figure 3: Comparison of Accuracy the J48 and Naïve Bayes Algorithms

The other reason for the Naïve Bayes, scoring a lower accuracy than the J48 decision tree is because class conditional independence assumption may not hold for some attributes, therefore causing a loss of accuracy. In addition, the ease of interpreting and implementing the J48 decision tree is more self-explanatory. It can a handle large number of features and generate rules that can be converted to simple and easy to understand classification if-then-else rules. The average TP and FP rates for all experiments conducted in this study are shown in table 3.

Algorithms	TP	FP
J48 with 10 fold cross validation	0.96	0.008
J48 with percentage split (set to 75%)	0.96	0.008
Naïve Bayes with 10 fold cross validation	0.95	0.004
Naïve Bayes with percentage split (set to 75%)	0.95	0.004
Naïve Bayes with 10 fold cross validation feature selection	0.94	0.006
Naïve Bayes with percentage split (set to 75%) feature selection	0.94	0.006

Table 3: Average TP and FP Rates

As shown in the following figure 4, the TP rate of the J48 algorithm is higher in most classes when compared with other algorithms.

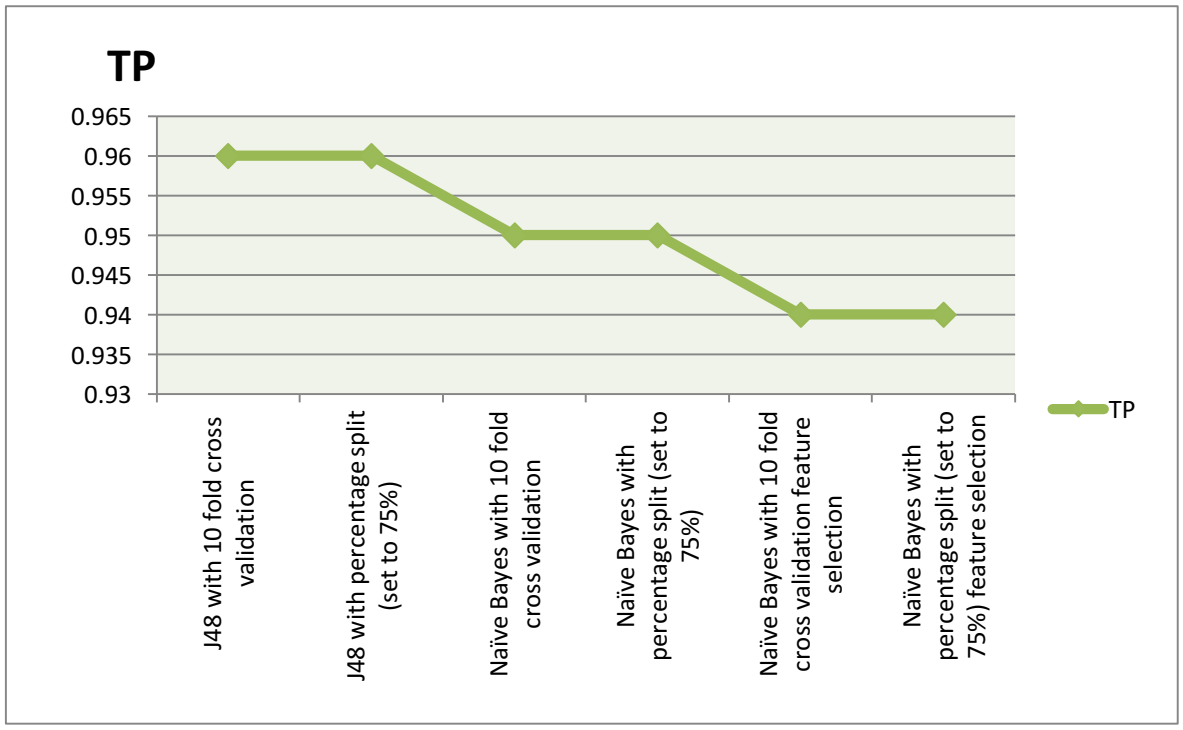

Figure 4: True Positive (TP) rate comparison of the J48 and Naïve Bayes Algorithms

A good IDS FP rate should be low. As shown in figure 4 the FP rate of the J48 algorithm for both cases (10 fold-cross validation and percentage split mechanism) is higher when compared with the Navie Bayes algorithms. From all experiments the Naïve Bayes algorithms with all features have the lowest FP rates.

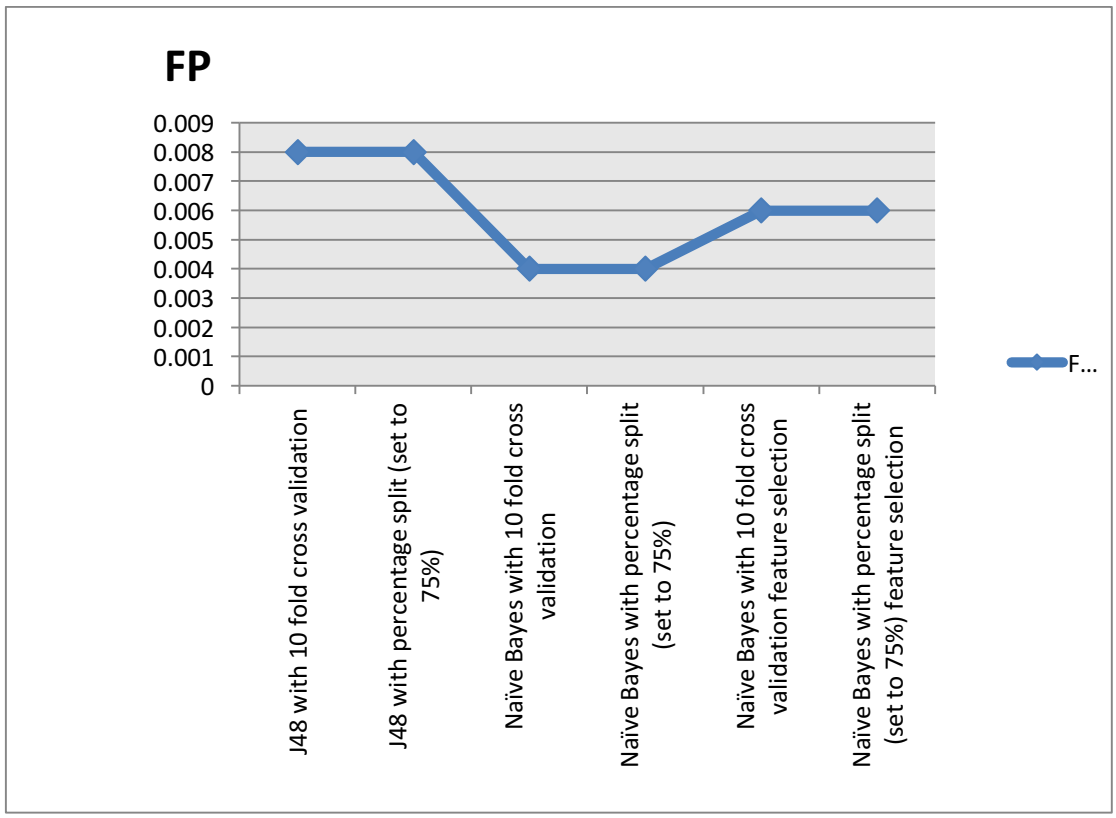

Figure 5: False Positive (FP) rate comparison of the J48 and Naïve Bayes Algorithms

The gap of the TP rate between the J48 decision tree and Naïve Bayes from figure 4.2 is 0.01. This means the TP rate of J48 decision tree is greater by 0.01. The gap of the FP rate between the J48 decision tree and Naïve Bayes algorithm from figure 5 is 0.004. This means the FP rate of Naïve Bayes algorithm is lower by 0.004. So, the greater TP rate of J48 decision tree will lead to more effectiveness than Naïve Bayes algorithm.

In summary, from figure 3 and 5, it is clear that J48 algorithm with 10-fold cross validation accuracy and the TP rate is better than with other algorithms. As a result, it is reasonable to conclude that the J48 algorithm is better than Naïve Bayes method for this study. Therefore, the model which is developed with the J48 decision tree with 10-fold cross validation classification techniques is considered as the selected working model for this thesis.

An Evaluation of the Discovered Knowledge

From all the experiments in this study, one model has achieved better classification performance. The J48 decision tree algorithm with the 10-fold cross validation model gives a better classification accuracy of predicting newly arriving intrusions in their respective class categories. Some of the rules generated from the selected model are the following:

Rule 1: If protocol_type=tcp and rerror_rate='(-inf-0.1]' and logged_in = '(-inf-0.5]' and flag = SF and Duration = '(-inf-0.5]' and num_failed_logins ='(-inf-0.5]' and src_bytes = '(3-6.5]' then normal (the intrusion is normal traffic)

Rule 2: Ifprotocol_type=udp andsame_srv_rate='(-inf-0.005]'and dst_host_same_src_port_rate = '(-inf-0.965]' then probe (the attack type is probe)

Rule 3: If protocol_type=icmp and service = telnet or http or private or domain_u or smtp or finger or ftp or pop_3 or X11 or ftp_data then DOS (the attack type is DOS)

Rule 4: If protocol_type=icmp and service = ecr_i and src_bytes ='(27.5-38.5]'and dst_host_count = '(-inf-5.5]' then normal (the intrusion is normal traffic)

Rule 5: If protocol_type=tcp and rerror_rate='(-inf-0.1]' and logged_in = '(-inf-0.5]' and flag = SF and Duration = '(-inf-0.5]' and Duration = '(-inf-0.5]' and num_failed_logins ='(0.5- inf)' and dst_host_diff_srv_rate = '(-inf-0.005]' then R2L (the attack type is R2L)

Rule 6: If protocol_type=udp and same_srv_rate = '(0.995-inf)'and service = telnet or http then R2L (the attack type is R2L)

Rule 7: If protocol_type=tcp and rerror_rate='(-inf-0.1]' and logged_in = '(-inf-0.5]' and flag = SF and Duration = '(-inf-0.5]' and num_failed_logins ='(-inf-0.5]'and dst_bytes = '(36.5-41.5]'then U2R (the attack type is U2R)

Rule 8: If protocol_type=icmp and service = eco_i and dst_host_srv_count = '(-inf-1.5]' then U2R (the attack type is U2R)

Rule 9: If protocol_type=tcp and rerror_rate='(-inf-0.1]' and logged_in = '(-inf-0.5]' and flag = SF and Duration = '(-inf-0.5]' and num_failed_logins = '(-inf-0.5]' and src_bytes = '(-inf- 0.5]' then U2R (the attack type is U2R)

Rule 10: If protocol_type=udp and same_srv_rate = '(0.995-inf)'and service = domain_u and dst_host_count = '(-inf-51.5]' then normal (the intrusion is normal traffic)

Rule 11: If protocol_type=tcp and rerror_rate='(-inf-0.1]' and logged_in = '(-inf-0.5]' and flag = SF and Duration = '(- inf-0.5]' and num_failed_logins ='(- inf-0.5]'and dst_bytes = '(34.5-35.5]'then U2R (the attack type is U2R)

Rule 12: If protocol_type=icmp and service = ecr_i and src_bytes = '(-inf-27.5]' then DOS (the attack type is DOS)

Rule 13: If protocol_type=tcp and rerror_rate='(-inf-0.1]' and logged_in = '(-inf-0.5]' and flag = SF and Duration = '(- inf-0.5]'and Duration = '(-inf-0.5]' and num_failed_logins ='(inf-0.5]' and src_bytes ='(6.5-11.5]' and dst_bytes= '(-inf-16]' then normal (the intrusion is normal traffic)

Rule 14: If protocol_type=tcp and rerror_rate='(-inf-0.1]' and logged_in = '(-inf-0.5]' and flag = SF and Duration= '(-inf-0.5]' and Duration = '(-inf-0.5]' and num_failed_logins ='(-inf-

0.5]' and src_bytes = '(6.5-11.5]' and ' dst_bytes = '(16-34.5]'then R2L (the attack type is R2L)

Rule 15: If protocol_type=udp and same_srv_rate = '(0.005-0.19]' and count = '(-inf- 44.5]' then U2R (the attack type is U2R)

Rule 16: If protocol_type=tcp and rerror_rate='(-inf-0.1]' and logged_in = '(-inf-0.5]' and flag = SF and Duration = '(- inf-0.5]'and Duration = '(-inf-0.5]' and num_failed_logins ='(inf-0.5]' and dst_bytes ='(35.5-36.5]'then normal (the intrusion is normal traffic)

Rule 17: If protocol_type=icmp and service = eco_i and dst_host_srv_count='(14.5-57.5]' then normal (the intrusion is normal traffic)

The selected model for this study is the J48 decision tree algorithm with a default value which scores the highest classification accuracy of 96.11%. This model is tested with 3,397 testing dataset and scored a prediction accuracy of 93.2%. The selected model for this study is validated by real-life data. The real life data is with unlabeled classes. The prediction performance of this model is tested using a java code by using either Disk Operating System (DOS) or Simple Command line Interface (SCLI) on WEKA.

Conclusions and Recommendations

In summary, the results from this study can contribute to an improvement in the networking security. The study has shown that it is promising to identify those network intrusions, whether normal or attacks (DOS, U2R, Probe and R2L) and put forward tangible mechanisms to detect and prevent them, using the appropriate Data mining approaches. The result of the study has shown that the J48 decision tree algorithm with cross-validation test mode and other default values is appropriate in the area of intrusion detection. Hence, based on the findings of this study, the following are recommended as future research directions:

The Network Intrusion predictive model, which is developed in this study, generated various patterns and rules. To use this model effectively in the real world Network Security environment, designing a knowledgebase system which will add adaptability and extensibility features to the IDS and connect those to the DM model is one of the future research directions.

Constructing an IDS which will have both high intrusion detection (that is true positive) rate and low false alarm (that is false positive) rate is recommended.

To use the selected models there is a need to visualize the patterns, as visualization methods enhance network intrusion detection and anomaly detection. Information visualization techniques help network administrators and security analysts to quickly recognize patterns and anomalies; visually integrate heterogeneous data sources; and provide context for critical events. Information visualization and visual analytics hold great promise for making the information accessible, usable, and actionable by taking advantage of the human perceptual abilities. Visualization methods are also employed in the classification of network traffic and its analysis.

So, designing and integrating computer network visualization and visual analytics with the predictive intrusion detection model is one of the future research directions.

This study is conducted on the dataset taken from the MIT Lincoln lab. Future research should be conducted on real-life datasets from organizations that have their own network by combining the problem domain and the domain expert on the study process. This study was carried out using a clustering technique of simple K-means and classification algorithms such as J48 decision tree and Naïve Bayes algorithms. So, further investigation needs to be done using other classification algorithms such as Neural Networks and Support Vector Machine, in addition to the association rule discovery.

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Typology in Multilingual Pedagogy: Pursuing Migrants' Linguistic Integration and Minority Languages' Preservation

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Abstract

Linguistic typology's applications have contributed to the layout of a unique linguistic structure of language as a cognitive construct of the mind. This relates to the use of typological patterns to form a methodology of multilingual language teaching for primary schools through the use of typological parameters, such as word order, verb inflection, comparative morphology, or syntax, among others. Their use would enable young learners to acquire second language(s) parallel to their own mother tongue in a direct manner in multilingual contexts through a single method common to the multiple target languages. Such methodology breaks down language into a skeleton learners approach regardless of previous knowledge, cultural background, or age. Permanently, all second languages are addressed through their features related to the native tongue of the learner, which leads to their comprehension and quick, effortless, natural assimilation and acquisition through visual and memory methods, along a plethora of exercises. It may be used traditionally, or with ITs, fluidly to help migrants banish linguistic barriers when integrating within foreign communities. Simultaneously, as migrants access alien educational institutions and life in the community within a minority language, this methodology may help preserve and ensure its growth through the increase of speakers. By doing so, the creation of cultural production in that minority language —and the preservation of the language itself— may be reassured. This methodology approaches the teaching of Basque —one of the oldest minority language in the world— and other European or Asian languages, although expandable to whatever language.

Keywords: typology, multilingual pedagogy, minority language preservation.

The challenge is not to mend this system, but change it,
not to reform it, but transform it.

Ken Robinson.

Introduction

Traditional methodologies encountered great criticism during the last years as linguistic and pedagogical research enlightened its limitations and misconceptions. Such 'obstacles' have led to 'incorrect' approaches to teaching, which derivate in pupils' ill feelings, negative response, suffering, and poor linguistic skills (Marina, 2015). The current paper attempts to bring into evidence a methodology based upon Typology and its applications, which refer to linguistic research and pattern exposition that languages display as a valid tool for the teaching of languages in multilingual scenarios.

Furthermore, typological approach lays out patterns of grammar, or syntax, among others (Comrie, 1981). This is performed visually through cardboard cut-outs, or computer based methodologies following the same trail; to enable the pupil to visually comprehend and become aware of the linguistic components that conform language. These mechanisms require short-term and long-term memory skills, all with little or no need for previous linguistic knowledge but that of their own native tongue. These would conform competences (Gimeno Sacristán, 2008).

This same tool may help immigrants integrate linguistically, and hence, socially or economically as a social asset (Marina, 2015). This is so because it would require their own language and *competences* as a valid tool for their integration through the school's ability to address the migrant population (Gimeno Sacristán, 2011). Such task is to be carried out through a unique method valid and common for all languages taught. In other words, the foreign language learning starts off, and finishes, with and in the inclusive knowledge of the pupil (Clemente Linuesa, 2011).

Finally, minority or endangered languages might benefit from the use of this methodology through the increase of speakers. This would be feasible so that phenomena such as diglosia, or poor use of language may be overcome (Clemente Linuesa, 2011; Comrie, 1981). This paper examines the case of Basque, which is spoken in the north of Spain and three provinces of southern France, one of the oldest languages in the world, and currently, endangered (Zuazo, 2005, 2010).

Typology and its role in multilingual teaching methodologies

Word Order as the most effective tool for the formation of multilingual verb tenses, sentences, and for solving various syntactic and semantic issues

Traditional definition of Subject and its problematic approach

The definition of subject used in traditional language teaching methodologies addressed it as the 'doer of an action'. Such definition rendered inconsistent and erroneous whenever certain verbs and their nature was analyzed (Comrie, 1981). Hence, the 'agent' role of the subject can pose certain problems, as in the following examples[1]:

e.g. *He* is making the bed (English, transitive verb).
Él est*á* haciendo la cama (Spanish, transitive verb).
Bera ohea egiten ari *da* (Basque, transitive verb).

[1] Whenever examples are provided, if necessary to explain whatever implied, translations to other languages shall be given, for this article approaches multilingual teaching, and in order to address this phenomenon, the cross-linguistic behavior is also to be considered.

Il est en train *de* faire son lit (French, transitive verb).

My niece studies hard (English, intransitive use of transitive verb).

The woman gave her son a present (English, ditransitive verb).

The girl fell down the stairs (English, intransitive verb with non-agent subject).

The first example shows that *he/él/bera/Il* has a semantic role of 'agent', that is, 'doer of the action expressed by the verb'. It fits the traditional conception of *subject*, for, semantically, the transitive —the type of verb that necessarily requires a patient object to have full meaning— verb 'make' requires an 'agent' role of a (human) doer and a 'patient' role of the (non-human) entity expressed in the sentence as the object. Being a transitive sentence, both the agent and the patient need to appear, for absence of either would cause ungrammaticality:

*__ is making the bed (lack of subject) / * He is making __ (lack of object).
*__ est_ haciendo la cama / *Él está haciendo__.
*__ ohea egiten ari __ / *Bera __ egiten ari da.
*__ *est* en train de faire son lit/*Il est en train de faire__

The second example shows the intransitive —the type of verb that does not need a patient object to have full meaning— verb 'study', which requires a (human) overt agent subject, but it does not involve any (non-human) patient object. Once again, the traditional definition of Subject looks as if it poses no problem.

The third example displays a ditransitive —the type of verb that necessarily requires a patient object and a beneficiary/destinatory object to have full meaning— verb with a (human) agent subject 'doer', a (non-human) patient direct object, and a (human) destinatory/beneficiary indirect object with a preposition *to/a/-ari*. To avoid confusion between the order of both objects and their roles of patient and beneficiary, as Comrie (1981), Haegeman (1991), and Moure (2001) indicate, the hierarchy of grammatical and syntactical elements rank subject, then direct object and finally, the indirect —agent, patient, and beneficiary, respectively—. However, whenever the characteristic 'human' vs. 'non-human' appears, it is the former that appears first, which might presume that if the patient object and the human come first, both are the same. Thus, if patient is followed by beneficiary, the human object shall bear the preposition 'to'/'a'/'-ari'/'à', whereas if beneficiary comes first followed by a patient, the human element shall not bear any preposition. Hence, hierarchy of elements and the 'human' vs. 'non-human' dichotomy is respected, besides complements. Additionally, in Spanish and Basque, morphology expresses both:

e.g. The woman gave a present *to* her son.
agent patient beneficiary
La mujer dió un regalo *a* su hijo.
agent patient beneficiary
Emakumeak opari bat seme*ari* eman dio.
agent patient beneficiary

As a contrast with:

The woman	gave	her son	a present.
agent		beneficiary	patient
La mujer	dió	*a* su hijo	un regalo.
agent		beneficiary	patient
Emakumeak		seme*ari*	opari bat eman dio.
agent		beneficiary	patient

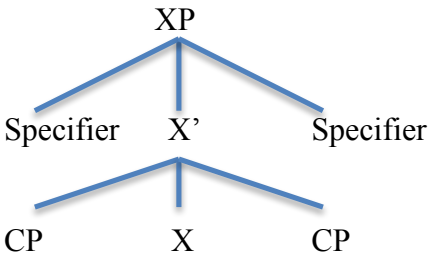
Nonetheless, the last example displays a non-agent subject of an intransitive verb. In this case, the human subject is no 'doer of an action', but sufferer. If agent, the verb 'fall down' would be semantically problematic, for one does not fall upon will —agent—, but falls as an accident —patient—. Thus, according to the traditional definition of the Subject, this sentence would face a conflict: lacking subject, which is not possible.

In addition, sentences such as passive, with necessary patient subject, would no longer be grammatical, which is absolutely preposterous. Thus, the subject is to be defined as something different.

Redefining Subject

The Subject must be defined, not semantically, but as what it really is: a position within a structure. It is defined through the 'X bar Theory', developed by Chomsky (1957) and the Generativist school (Robins, 1992), comprehending language as a structure emanating from an innate mental cognitive construct of the mind (Carnie, 2002; Cuetos, 2009, 2011; Pinker, 1994;).

Generative theory explains whatever possible phrase structure through the following scheme:



This structure represents with X any given head —inflection, complement, noun, adjective, adverb, verb, or preposition— of a maximum projection, or phrase, once other maximum projections may be prepositionally or postpositionally adjoined through government and binding relations in a sentence level —Inflectional Phrase or IP, or subordinate Complement Phrase, or CP—. The top position has a Specifier position, where the subject lies in the sentence level. Thus, subject is a position.

Importance of Final Law 1

As Comrie (1981) and Lewandowski (1992) analyze, Final Law 1 is a linguistic universal. To this respect, Comrie (1981) says that 'invariantly, every sentence possesses a final subject, that is, a subject at the end of every cyclic movement with an inflected verb' (34). This implies that there must always be a subject. Analogously, in the imperative form the subject does appear, but omitted. Nevertheless, subject is unequivocally identified:

e.g. *They*$_i$ arrived soon, and (*they*$_i$) left.
Ellos$_i$ llega*ron*$_i$ pronto y (*ellos*$_i$) se marcha*ron*$_i$.
Haiek$_i$ garaiz etorri *ziren*$_i$ eta (*haiek*$_i$) joan (*ziren*$_i$).
Ils$_i$ *sont*$_i$ arrivés et (*ils*$_i$) *sont*$_i$ partis

French realizes overt lexical subject to avoid phonetic confusion within different realizations of morphological subject within the verb through inflection in different tenses.

(*You*$_i$) go to hell!
(*Tu*$_i$)*Vas*$_i$ te faire voir!

Semantic roles and parts of speech

As seen with the subject, the various parts of speech are not semantically defined, but on its distribution, both morphological and syntactic (Carnie, 2002). Additionally, verb semantics relate to the distribution of the categories according to the thematic marking of meaning its roles, such as agent, or 'doer'; or patient, or 'sufferer'. Thus, Haegeman (1994: 49-50) determines the following thematic roles:

Agent/actor: the one intentionally initiating the action.
Patient: the entity undergoing the action.
Theme: the entity moved by the action.
Experiencer: the entity experiencing some (psychological) state.
Beneficiary: the entity that benefits from the action.
Goal: the entity towards which the action is directed.
Source: the entity from which something is moved as a result of the action.
Location: the place in which the action takes place.

These shall define the distribution of the predicates within the sentence, which is what is to be ultimately addressed through the typological parameter of Word Order. It serves as the combinatory approach to an inclusive methodology for multilingual language teaching and learning by addressing typologically all target languages. And of course, this happens without neglecting the native language of the language learner.

Word Order and Structure Preservation Rule

Word Order is the typological parameter indicating what order the different linguistic units assume when forming sentences. Other patterns may include typology of subjects, ergativity, or prepositions, among others. Briefly and practically, it can be said that once word order of each origin and target languages is known, its comparative establishment in an inclusive manner occurs. This enables language teachers approach teaching and pupils through the knowledge of the native language as a bridge to reach target languages through the parametrical instrumentalization.

Linguistics, hence, approaches through mathematical numbering the various elements of the sentence (Comrie, 1981; Moure, 2001), as follows:

1 = Subject 2 = Verb 3 = Object(s)

World languages are seen as combinations of these (Comrie, 1981). According to such numbering, languages are 123 or SVO, 132 or SOV, and so on. As Comrie (1981), Cuetos (2009, 2011), or Pinker (1994) establish, language is an evolutive development of humans, and since the baby's knowledge of the world starts off from itself, naturally, most languages display a 123 (SVO) or 132 (SOV) pattern, as if 'I (S) know and master (V) the world (O)'. On the other hand, other communities more closely linked to life in direct —and more symbiotic through less dominating— contact with nature display patters of 213 (VSO) or 231 (VOS), but in numbers they are much less. Finally, there is a minority of 312 (OSV) and no 321 (OVS) language.

The 1-2/S-V positions are subject to agreement with inflection: *He goes* (English), *bera doa* (Basque), *él va* (Spanish), *Er geht* (German), etc. Apart from that, the verb must give information of time, aspect, or any other piece of information to identify the subject and fully express the meaning. *How* this happens (singular-plural, movement, etc.), of course, depends on the internal mechanisms of each language.

When one verb does *not* give information because of any reason, *Auxiliary verbs* are used. They adopt those functions of agreement, tense, etc. and are used in a position between the subject and the verb. This happens because agreement must be maintained, not to violate the Final Law 1.

e.g. *He* do*es* the house chores.
I was do*ing* the house chores.

To express further meaning Modal verbs are included. They occupy the same position, for Auxiliaries and Modal verbs have the same syntactic functions. Nevertheless, Modal verbs indicate how the verbs happen, while Auxiliaries do not.

In order to form questions, there is no Subject-Verb inversion, as traditional methodologies explained: 1-2 does not become 2-1. This has been a flaw as for language teaching, for it did not address real linguistic phenomena, and this led to the lack of proper linguistic competences (Comrie, 1981; Gimeno Sacristán, 2008). What simply happens is the first word occupying the 1.5 position is moved to a 0.5 position:

e.g.	*I*	*am*	going	home	>	*Am*	*I*	_____	going	home	*?*		
	1	1.5	2	3		0.5	1	1.5	2	3			
	S	Aux	V	O		Aux	S	Aux	V	O (plus *?* sign)			

Finally, for different reasons, a 0 position can be used to indicate a sentence is a condition (if, unless, provided, etc.), it is a relative sentence (who, that, which, etc.), or there is a *wh*-complement:

e.g.	If	you	are	here,	you	can't	be	there.
	0	1	2	3	1	1.5	2	3
	cond.	S	V	O	S	Mod	V	O

Where	have	they	_____	left	my bag	?	
0	0.5	1	1.5	2	3		
wh-(?)	Aux (?)	S	Aux	V	O	?	

Hence, it is very important to say that the "skeleton" of word order is always respected, and semantically, nothing changes. This is called Structure Preservation Rule. This linguistic rule observes that the syntactic structure —deep and surface— is always respected. Everything occupies a position that is canonically established according to semantics and syntax.

To conclude, we can say that English Word Order is the following:

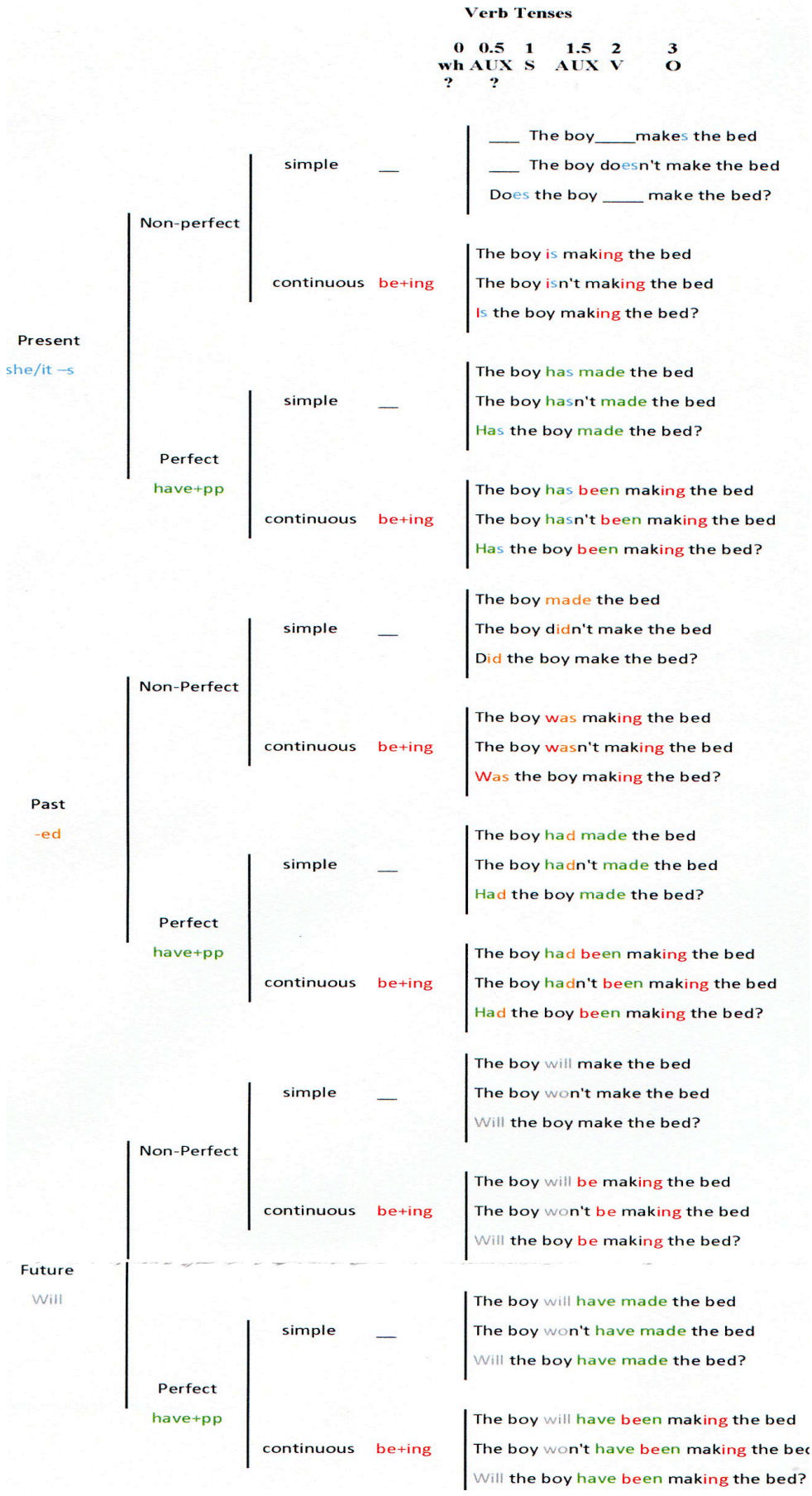
(0)	(0.5)	1	(1.5)	2	3
Wh-?	Aux/Modals-?	S	Aux/Modals	V	O
If			in affirm/negat.		
Relatives					

English Verb Tenses

Auxiliaries (present, past, future):

- BE (*ser-estar* in Spanish; *izan-egon-ukan-edun* in Basque, *haben-sein* in German, etc.):
am, is, are // *was, were* // *will be.* Used with continuous –ing.
- DO (different behaviour cross-linguistically): *do, does* // *did* // zero for future uses modal verb 'will'. Used in the present and past non-perfect simple for negatives and questions.
- HAVE (*haber* in Spanish, *izan* in Basque, *haben* in German, etc.): *have, has* // *had* // *will have*. Used in Perfect tenses with the past participle.

Therefore, out of this example of the English verb system, the word order and manner in which verbs form tenses; we may comprehend how this may be transported in a comparative manner to target languages, while simultaneously respecting the linguistic parameters. In order to illustrate this, the general outline of English verbs shall be laid out as the basic skeleton. When addressing pupils in early stages of primary education, cardboard cut-outs are to be used, all with colors representing grammatical relationships of various lexical components. Hence, it is as follows:

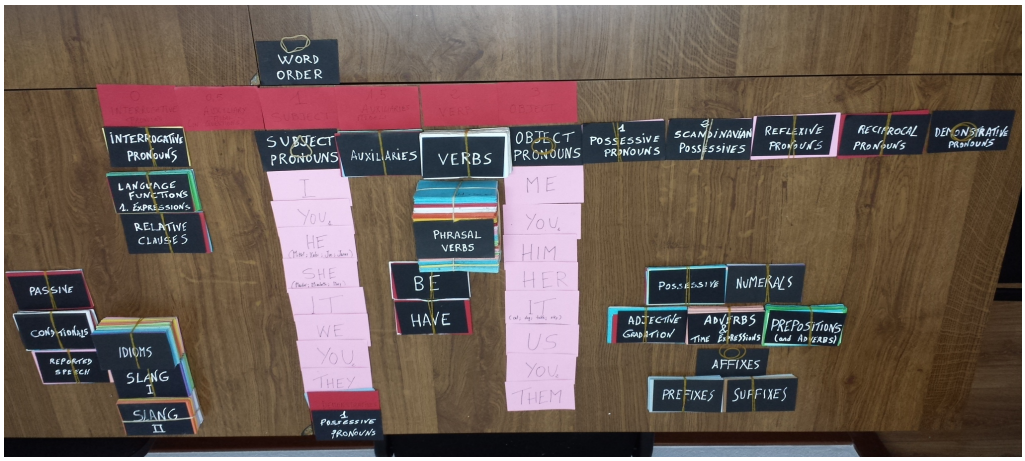

Verb Tenses
0 wh ?
0.5 AUX ?
1 S
1.5 AUX
2 V
3 O
Present
she/it –s
Non-perfect
simple
___ The boy____makes the bed
___ The boy doesn't make the bed
Does the boy _____ make the bed?
continuous be+ing
The boy is making the bed
The boy isn't making the bed
Is the boy making the bed?
Perfect
have+pp
simple
The boy has made the bed
The boy hasn't made the bed
Has the boy made the bed?
continuous be+ing
The boy has been making the bed
The boy hasn't been making the bed
Has the boy been making the bed?
Past
-ed
Non-Perfect
simple
The boy made the bed
The boy didn't make the bed
Did the boy make the bed?
continuous be+ing
The boy was making the bed
The boy wasn't making the bed
Was the boy making the bed?
Perfect
have+pp
simple
The boy had made the bed
The boy hadn't made the bed
Had the boy made the bed?
continuous be+ing
The boy had been making the bed
The boy hadn't been making the bed
Had the boy been making the bed?
Future
Will
Non-Perfect
simple
The boy will make the bed
The boy won't make the bed
Will the boy make the bed?
continuous be+ing
The boy will be making the bed
The boy won't be making the bed
Will the boy be making the bed?
Perfect
have+pp
simple
The boy will have made the bed
The boy won't have made the bed
Will the boy have made the bed?
continuous be+ing
The boy will have been making the bed
The boy won't have been making the bed
Will the boy have been making the bed?

Towards a new methodology

Traditional language teaching methodologies in Spain —the whole educational system in general— have undergone great development in academic literature, but very little in school practice, causing schools and pupils to lack the appropriate dynamics and much 'experimentation' (Marina, 2015). Pupils have inherited traditional methodologies and curriculum design based upon the mechanical repetition of exercises affecting short-term memory, which does not enable the pupils develop proper linguistic competences (Gimeno Sacristán, 2008). Moreover, such methods have failed to be efficient regarding pupils with linguistic difficulties, for repetition does nothing but reinforce the issues affecting those pupils, mainly due to these methodologies' inability to address and properly establish the post-semantic mechanisms operating beyond the circular transformation in the target language that the repetition indicated acts upon (Kessler, 1975).

Second language acquisition seems to operate upon different mechanisms that are used when learning the mother tongue (Bever, Clark, Dingwall, Ferguson & Kessler, 1975). Furthermore, evidence shows that first language learning greatly enables the learning of second languages, through the advantage of knowledge acquired when learning the mother tongue and the mechanisms used (Artiagoitia, 2000), especially lateralization (Cuetos, 2009, 2011; Kessler, 1975). The brain seems to act upon similar manner, for various structures —progressive –ing, prepositions, plural, possessive, articles, present regular, or present irregular— seem to be acquired in the mother tongue and in the second language in the same order and at the same time (Kessler, 1975).

This methodology approaches multilingualism through the active use of the pupils' mother tongue through word order —for that is one of the patterns acquired in earliest stages— visually through cardboard cut-outs, helping the pupil effectively deal with *their* predictions attributed, along syntax and its problems (Dulay and Burt, Hakuta, 1975). The use of overtly displayed typological and grammatical units make an indirect use of the pupils' linguistic abilities in a direct manner upon openly displayed syntax-based space operation. See the picture below:



Cardboard cut-outs distributed according to Word Order pattern.

Red color cut-outs indicate Word Order pattern, in the case shown, of English; therefore, linguistic hierarchy is displayed and the pupil may see what they are to place where. So, for example, when the pupils are to distribute and learn subject and object pronouns —shown in pink—, they address the position they occupy and the order in

which they appear within the various syntactic operations. These operations span from the simplest to the most complex.

The pronouns may be given their phonetic patterns for correct pronunciation. This may enable the pupil to steadily acquire their phonology and scripture, but also its correspondent form in their native tongue, which helps them associate meanings more successfully and establish bilingual or multilingual competences (Clemente Linuesa, 2011; Gimeno Sacristán, 2008). Besides, physical display and active manipulation helps their memory abilities and capacity to make predictions in the short-term, while acquiring the meanings, names, etc. necessary for the long-term acquisition developing the capacity to make correct guesses with the minimum effort.

Since word order implies full possibilities of verbs, auxiliaries, and further combinations in a cumulative manner (passives > passives with modal verbs > conditionals in passives > reported speech of conditionals in passive, etc.), the pupil may face gradual language assimilation in the highest effortlessness possible. This happens essentially because the acquisition hierarchies are respected to the implied additive explanations of the learning process (Dulay and Burt, 1975). Thus, a simple sentence may become more complicated as it follows —all is to be done with colored cut-outs representing all grammatical and syntactic features—:

0	0.5	1	1.5	2	3
Wh-?	Aux.?	S	Aux.	V	O
If Relatives Yes/No					
___	___	My niece/He	___	studi-(e)s	hard
___	___	My niece/He	do-(e)s-n't	study__	hard
___	Does	my niece/he	___	study	hard?
Yes	,	he	does.		

This progressive construction makes the pupil face the need to use various intelligences simultaneously. These spread across cognitive demand, kinesthetic approach, or abstract thinking, among others. In addition, they demand analytical and/or abstract thinking to make predictions in a language they do not fully comprehend, and especially, emotional, for success is immediately rewarded both through joy and through motivation and positive reinforcement. This has a dual purpose, for besides amusement and positive feelings and encouragement, it helps reduce frustration to the minimum (Cuetos, 2009, 2011; Marina, 2015) as the phonetics, scripture, pronominal forms, verb systems, etc. are progressively assimilated. Furthermore, the gradual acquisition of languages feedbacks the different intelligences, so to speak, 'makes the pupil more intelligent' (Cuetos, 2009, 2011; Pinker, 1994). The full content may be given this shape:

Full grammar of English distributed in a 30x25 cm. box

Nevertheless, it is important to address that while some languages are open, or transparent; others may be opaque for western pupils (Comrie, 1981; Cuetos, 2009, 2011; Morales, 1989; Fernández, 2008; Robins, 1992; Wardhaugh, 1986). Its phonetics and scripture have a direct correspondence in open languages, as in Spanish, Basque, German, or Italian, for instance; while English or French do not provide such direct access. Furthermore, Russian, Arabic, or Chinese, among other languages; imply the learning of another alphabet, thus making language acquisition more problematic through syntax. Thus, they may be accessed later as reading abilities of pupils in these languages are gradually mastered, or functionally decided upon immediate needs emanating from to be educated and integrated.

The most important thing is that this methodology using Word Order and other typological patterns makes the pupils address grammatical contents and language acquisition by addressing language as a whole. The pupil's ability to obtain a broader linguistic picture and learning awareness steadily increases as well. This occurs because the pupil faces languages as a functional whole, and not as fragmented patterns with little or no correlation with each other, as performed by traditional methodologies.

Preservation of minority languages and integration of immigrants. A case study of Basque

Basque, one of the oldest languages in the world (CDBG[2], 2009[3]) has endured a very long process of survival. Considering this, Basque linguist and professor Zuazo (2010) considers it to be 'a miracle'. Basque survived the boost of Indo-European languages, Latin then, and its dialects later: Occitan, Navarra Romance, French, and Castilian.

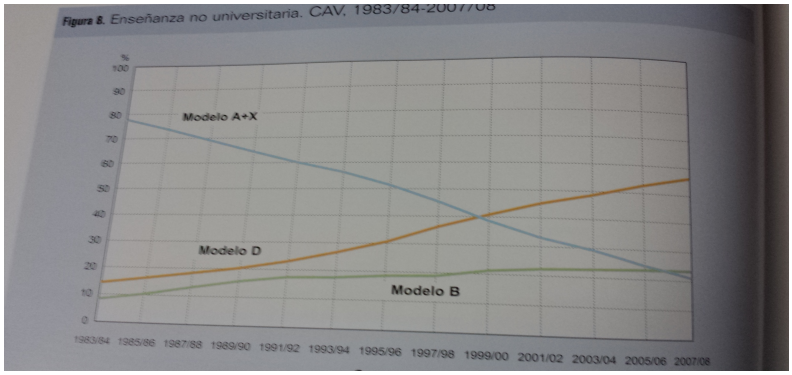
As Miren Azkarate (as cited in CDBG, 2009, p. 7) and Zuazo (2005, 2010) explain, there is an improvement in the situation of Basque, though still endangered and minority, throughout the last 25 years, due to the creation in the 1960s of *Euskara Batua*, or Standard Basque. It unified different dialects in a standardized linguistic form for academic and professional —education, television, press, or literature, among others— uses. This has provoked the 'creation' of new speakers, mostly through the so-called 'D model' of schooling. This uses Basque as the main language for academic life from 0-18 years old, and retains Spanish and foreign language as subjects. Throughout the 1990s and 2000s, there has been an increase of around 300,000 new proficient speakers within a total population of 2,129,339 inhabitants (CDBG, 2009).

[2] Culture Department of the Basque Government.

[3] Further data as of 2009 is yet unknown, for it is being collected and analyzed (Author's Note).

'D model' became strong in the *Ikastola* school system, created in the final years of Franco's dictatorship, which directly attacked Basque in its various ethnic, ideological, and cultural forms forbidding the use of the language or names (Zuazo, 2005, 2008). *Ikastolas* were created as a tool for Basque education *in Basque* which may enable the revival of Basque language and culture, overtly endangered. This created a cultural movement, including the creation of the EHU-UPV (University of the Basque Country).

Currently, the CDBG (2009) offers data explaining that the 'D model' gathers 56% of pupils and covers the ages from 0 to 18. 23.2% use the 'B model', which offers education in Basque and Spanish as the teaching languages in a 50-50 system, while retaining foreign languages. This model is usually used when addressing the linguistic integration of immigrants in the Basque education. Finally, there is a 'A model', which offers Spanish as the schooling language, just retaining Basque to teach Basque language and literature in a sole subject, and foreign languages, gathering 20.9% of pupils. However, data differs when approaching the late 2000s, which show an increase of 'D model' to rates peaking at 83% and the decrease of 'A model' to rates of barely 5.9%. Lapurdi, Behe Nafarroa, and Zuberoa are in France, utterly neglected by the French and Spanish governments, offering Basque as a non-official language in the French Educational Board, through the *Ikastola* movement does retain its validity and makes use of it (Zuazo, 2005, 2010).



Basque educational models in non-university education (CDBG, 2009).

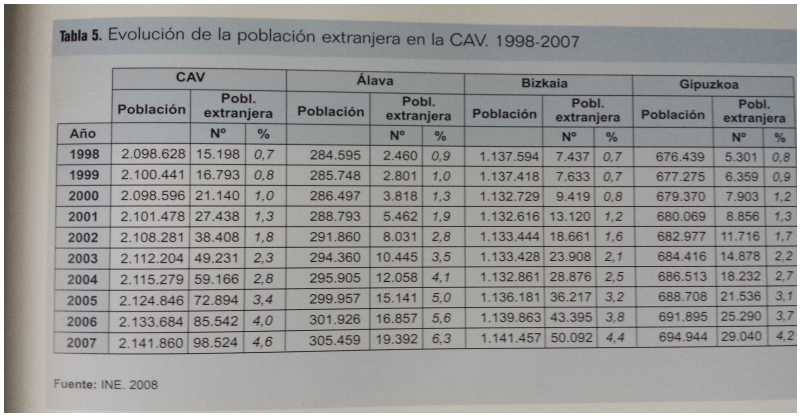
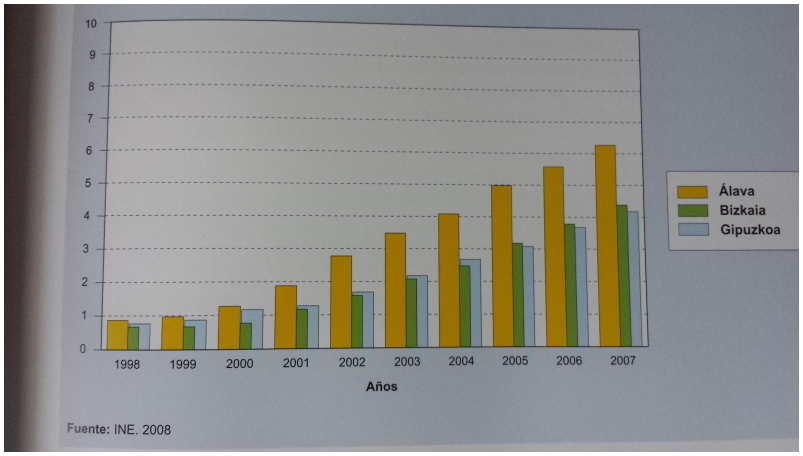


Tabla 5. Evolución de la población extranjera en la CAV. 1998-2007

	CAV			Álava			Bizkaia			Gipuzkoa		
	Población	Pobl. extranjera		Población	Pobl. extranjera		Población	Pobl. extranjera		Población	Pobl. extranjera	
Año		Nº	%		Nº	%		Nº	%		Nº	%
1998	2.098.628	15.198	0,7	284.595	2.460	0,9	1.137.594	7.437	0,7	676.439	5.301	0,8
1999	2.100.441	16.793	0,8	285.748	2.801	1,0	1.137.418	7.633	0,7	677.275	6.359	0,9
2000	2.098.596	21.140	1,0	286.497	3.818	1,3	1.132.729	9.419	0,8	679.370	7.903	1,2
2001	2.101.478	27.438	1,3	288.793	5.462	1,9	1.132.616	13.120	1,2	680.069	8.856	1,3
2002	2.108.281	38.408	1,8	291.860	8.031	2,8	1.133.444	18.661	1,6	682.977	11.716	1,7
2003	2.112.204	49.231	2,3	294.360	10.445	3,5	1.133.428	23.908	2,1	684.416	14.878	2,2
2004	2.115.279	59.166	2,8	295.905	12.058	4,1	1.132.861	28.876	2,5	686.513	18.232	2,7
2005	2.124.846	72.894	3,4	299.957	15.141	5,0	1.136.181	36.217	3,2	688.708	21.536	3,1
2006	2.133.684	85.542	4,0	301.926	16.857	5,6	1.139.863	43.395	3,8	691.895	25.290	3,7
2007	2.141.860	98.524	4,6	305.459	19.392	6,3	1.141.457	50.092	4,4	694.944	29.040	4,2

Fuente: INE. 2008

Evolution of immigrant population in the Basque Country in figures (CDBG, 2009).



Evolution of immigrant population in the Basque Country according to province distribution (CDBG, 2009).

This shows the current problems Basque has to face, while traditionally and historically confronted four main issues (Zuazo, 2008, 2009): first, it suffered a severe geographical withdrawal. From the Roman times, Basque occupied the southwest of France, current Aquitania. As toponymic data shows, the southern boundaries of Basque related to Burgos, Rioja, Zaragoza, and Huesca; while reached slow withdrawal to current boundaries as of the XVI-XVII centuries, regardless Renaissance displayed great use of Basque industrial and navigational skills for whale hunting, ship engineering, and iron-based industry. Modern day, nonetheless, especially through Franco's dictatorship, reduced Basque's boundaries to the current administrative region. Second, it was, and still is, socially marginalized. As of the XV century, Basque did not have legal status or presence in legal documentation in the Reign of Navarre. On the other hand, it was vanquished by the Inquisition and condemned by the Church. Finally, Franco's dictatorship became the final nail in the coffin, forbidding its use in the public sphere. Third, its structure has been deeply altered. Even though Basque words have been adopted by Spanish ('*ezkerra*' > '*izquierda*'), or English ('*akelarre*', '*jai alai*'); from Latin inherited a great mass of religious vocabulary ('*arima*' or 'soul'; '*barkatu*' or 'forgiveness'; etc. Notwithstanding, new speakers of Basque display great loss of phonetics —loss of palatal *–dd-*, *-tt-*; loss of differentiated pronunciation of sibilants *s, x, z, ts, tx, tz*; —, or a situation of diglosia. Finally, it endured a harsh dialectal fragmentation. Basque displays 5 main dialects: *Zuberotarra* (in Zuberoa), *Mendebaldekoa* (*Western*, in Biscay), *Erdialdekoa* (*Central*, in Gipuzkoa), *Nafarra* (in Navarre), and *Nafar-Lapurtarra* (in French Navarre and Lapurdi). *Mendebaldekoa, Erdialdekoa, Nafarra,* and *Nafar-Lapurtarra* would also display a total of 20 subdialects or variants, often with great differences among them. Zuazo (2008) offers the following dialectal map:

Dialects and sub-dialects of Basque (Zuazo, 2008)[4].

Considering languages are learnt step by step (Harris, 1983) and require distinct intelligences from pupils (Cuetos, 2009, 2010; Pinker, 1994), no matter the age, for the learning process acts upon different tools; this methodology described approaches the teaching of Basque, and any other target language addressed in a unitary manner through the use described in chapter 3. It attempts to approach language teaching through the typological fragmentation of language grammar in a systematized manner so that the teachers share a common approach to language. By doing so, one sole system common to all languages —grammar typologically established in its multiple components, phonetics, lexicon, etc.— are organized to be taught and learnt in the system closest to natural learning of language when newborn and babies.

[4] Retrieved from http://aldizkaridigitala.blogspot.com.es/2014_10_01_archive.html (last visit on 13-3-16).

Conclusions

This methodology approaches multilingual teaching in a most efficient manner by making the appropriate use of typological patterns through the own native language of the pupil. This permits both teaching and learning target languages by solving the limitations that former traditional methodologies have overseen. The pupil becomes a non-passive participant of the teaching-learning dichotomy.

In addition, effortlessness featuring this methodology is remarkable, avoiding feelings of language learning as burdens to be carried, especially among those with evident difficulties. This happens, not because of the limitations of the pupil —also to be taken into due account—, but due to the wrong transmission of teaching input messages, which most often are similar. This 'homogenization' of input, be that may linguistic variety or pupil variety, fails to correctly address and tackle with the diversity of pupils, backgrounds, and the way they learn.

Thus, by addressing languages —both native as well as target— displaying the same 'linguistic skeleton' constructed by word order and other patterns may enable learning in a more efficient, effective, and above all, more easily. This may be so by conducting diverse linguistic features in the same manner and methodology. Indeed, this makes processes and pupils more efficient and proactive when learning, especially by the increasing use of multiple intelligences required.

Finally, this methodology helps linguistic integration of migrants through their own language. It avoids linguistic impediments and impacts caused by direct and often traumatic immersion; which often affects migrants in a negative manner, for their lack of linguistic competence in that foreign language becomes a serious obstacle for communication. Migrants can approach the target language(s) of the society into which they are to fit by starting off the whole process with their own language, hence, successfully coping with communication problems. And especially in the case of endangered and minority languages, this same tool may help revitalize them by making the creation of new fluent speakers become an easy task, for which besides natives, migrants are a valid asset.

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When 21ST Century Skills Meet English Language Skills

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Abstract

Recently, Zayed University's Academic Bridge Program reviewed its curriculum. The review clearly identified a need for a component that develops 21st Century skills alongside required language skills. As a consequence, a series of Integrated Skills Projects (ISPs) were created and subsequently implemented. ISPs are projects where language skills such as reading, writing, listening, speaking, accuracy and vocabulary are combined with 21st C skills such as collaboration, communication, critical thinking and problem solving. Through ISPs, these skills are practiced and developed via the creation of authentic end products. The Project Based Learning (PBL) approach is the basic principle upon which ISPs are based. For the purposes of this study, the overall framework of the projects will be described. In addition, there will be a brief description of how the projects aim to help students develop their English language as well as academic and information literacy skills associated with their future academic studies. This paper also describes the teacher-research study conducted in the classroom through a descriptive and reflective teacher journal. Finally, an area for further research will be recommended to further develop students' 21st century skills.

Keywords: 21st Century Skills, Project Based Learning, Information Literacy Skills, iBooks

Introduction

Over the past two decades, there has been a great deal of interest in incorporating 21st century skills into teaching programs. The interest has been generated due to the challenges that students face in a changing world and the need for educational programs to prepare students for these challenges. Education programs at all levels, from primary to tertiary, need to focus not only on 21st century competencies but also academic learning goals focusing on content. With this realization in mind, teachers, educational experts and business leaders got together to design a framework which outlines the competencies and the skills 21st century students require to be successful at school, at work and in all other walks of life - (Framework for 21st Century Learning, 2007). At the heart of this framework, there are two main components. The first component concentrates on 'student outcomes' that focus on life and career skills, learning and innovation skills, information, media and technology skills and the key subjects. The second component highlights 'support systems' such as curriculum, assessment, professional development and the learning environment.

In accordance with the above mentioned 21st century skills framework, Zayed University's Academic Bridge Program (ABP), which is also its English Foundations Program, reviewed their curriculum in order to reflect upon and meet the requirements placed on university students regarding English for Academic skills (EAP), and 21st century skills. The revised ABP curriculum focuses on the four main English language skills of reading, writing, speaking and listening for academic purposes as well as other soft skills such as critical thinking, self-management, people, task management and information literacy outcomes such as brainstorming, mind-mapping, searching effectively, evaluating sources, paraphrasing and referencing.

After the curriculum review, it became apparent that much of the EAP component of the syllabus could be addressed through the use of already published materials. However, what the program still required was a set of core teaching materials to develop the aforementioned soft skills. After much deliberation, it was decided that these skills would be best taught through a Project Based Learning (PBL) approach which gives equal importance to both 'core content mastery' and '21st century learning' (Buck Institute For Education, 2013). Buck Institute for Education defines PBL as:

> "a systematic teaching method that engages students in learning important knowledge and developing 21st century competencies through an extended, student-influenced inquiry process structured around complex, authentic questions and carefully designed products and learning tasks" (Buck Institute For Education, 2013).

In defining what constitutes a high quality project, Buck Institute For Education (2013) identified the following eight elements:

1. Significant Content: the main skills and knowledge the curriculum identifies for each content area
2. 21st Century Competencies: 4Cs (collaboration/ communication/ creativity/ critical thinking) the skills that the students need to master to be successful at school and beyond
3. In-Depth Inquiry: a process of asking questions to arrive at answers
4. Driving Question: an open-ended question that guides the students throughout the process
5. Need to Know: a list of essential questions students need to ask to inform their research for the project
6. Voice and Choice: students deciding on their own products and the tools they will use for the project
7. Revision and Reflection: having mechanisms for students to get feedback at regular intervals to make revisions and for them to make reflections on their learning

8. Public Audience: the need to have an authentic public audience to make the students' experience more real and give it a real purpose.

Taking PBL and its eight essential elements into account, we designed the Integrated Skills Projects (ISP) to address the needs of the ABP curriculum. ISPs constituted a component of the curriculum with the following aims:

- to increase student involvement and motivation
- to focus on real world issues in the classroom
- to increase student voice and choice
- to integrate mobile technology in a meaningful manner into the program
- to provide a framework for alternative assessments

The ISPs were designed around seven modules, each delivered through an electronic book (Figure 1: ISP iBooks). As all ABP students are required to have iPads, the platform used to create the electronic books was *iBooks Author*.

Figure 1: ISP iBooks

The modules, delivered through iBooks covered the following topics incorporating the eight essential features of PBL mentioned before. Module 1 has the student groups choosing a topic that is relevant to their context and generating a "driving question" related to the topic chosen. The purpose of this module is to help students identify issues prevalent in their society and encourage them to take action and make a difference in the issue identified. In the next module, students are introduced to the idea of writing reflections which will then enable them to reflect on each completed module. Modules 3 and 4 focus on teaching students research skills so that they can identify relevant information which will help them with their driving question. While researching information, students are also taught academic conventions such as quotations, citations, and referencing. In the next module, groups start thinking about the most effective and creative 'product' that shows how the students have effectively answered their 'driving

question' and reach their audience. Examples of products could be a song, a book, a brochure and a movie depending on the profile of the targeted audience. After choosing their product, groups then plan the production stage. One of the most important stages of the project, Module 6 aims to enable the groups to effectively present their whole project to the teacher and to their peers. As part of this module, students learn how to deliver high caliber presentations as well as learning relevant and useful language chunks to use in their presentations. Students then learn how to write reflective essays in the final module. In this essay, they describe the whole process they have gone through and evaluate their learning experience to improve their future performance.

The Research Question and the Method

In Fall 2015, the ISP modules were introduced to the highest level in the ABP program. Towards the end of the semester, teachers and students participated in a survey as part of the ongoing curriculum review process. One of the significant outcomes of the curriculum review was the high number of students who mentioned how ISPs helped improve their 'presentation skills'. This led me, as the creator of the ISPs, to investigate if the ISPs were indeed developing any other 21st century skills in addition to presentation skills.

The aim of the research was to informally observe the skills being practiced by the students as they were going through the process of completing their ISPs so that areas for further development, or for further research, could be identified. It should be emphasized here that this research was an exploratory and informal one I conducted in my own classroom.

After considering different options, I decided to use a teacher journal as a tool to collect data. Cochran-Smith & Lythe (1993) define teacher journals as "…accounts of classroom life in which teachers record observations, analyze their experiences, and reflect on and interpret their practices over time. Journals intermingle description, record keeping, commentary and analysis" (Cochran-Smith & Lytle, 1993)

Based upon this description, I recorded my observations for seven weeks when my class of 13 was covering the seven modules of the ISPs. The main research question for this study was; to what extent are ISPs helping students develop 21st C skills (more specifically the 4Cs – collaboration, communication, creativity and critical thinking)?". To help answer the research question, I designed a journal and made notes on all the activities students were involved in in terms of the 4Cs. This was done for every module covered. Throughout the journal, activities were listed in terms of which of the 4Cs they aimed to develop.

Results

Even though the students themselves had initially identified presentation skills as the most important skill they developed, a thorough analysis of the notes made in the journal revealed that students were indeed engaged in a variety of 21st century skills throughout the ISPs.

Some of the activities that were listed under the 4Cs were as follows. In terms of collaboration, students worked in groups throughout the project. For example, they brainstormed ideas together in Module 1. Following on from that, they created a product by sharing the work and responsibilities in their group based around their individual strengths. With regards to communication skills, students chose the product which would best convey the message in their driving question and reach their audience. They communicated orally with each other during their team sessions. They communicated their thoughts in writing while they were reflecting on their learning experiences. In addition, they practiced communication skills by giving effective presentations. The third of the 4Cs was creativity which was noted in activities such as brainstorming a driving question, coming up with ideas

for a product and creating the actual product itself. Finally, the last of the 4Cs, critical thinking skills were experienced in the following activities. In Module 1, students had to brainstorm and come up with an issue that was prevalent in their society and look at it from different perspectives. They then had to evaluate possible solutions to the critical issue they identified. During the research process, they thought carefully about what they read and how it related to the task in hand. They learnt how to question and test what they read, evaluating and interpreting information. While doing the reflections, they analyzed their own experiences to deduce learning points for the future.

Of the 4Cs, the results clearly indicate that the one skill that seemed to surface consistently in every module was critical thinking skills. Not only did the students require critical thinking skills at every stage of the project, they also found the tasks that required critical thinking skills challenging. This became evident as the students sought my help most frequently when they were involved in tasks which required them to use critical thinking skills. As can be expected, they seemed to find more straight-forward and concrete tasks easier. This could also be the reason why students stated that ISPs were helping them mostly with presentation skills as they were not fully aware of, and thus could not articulate on, the critical thinking skills they were engaged in throughout the ISPs.

Future Recommendation

Despite its limited scope, this research helped identify a future research project focusing on enhancing critical thinking skills which could benefit the students especially in a pre-sessional program aiming to prepare them for their future studies. Therefore, a future research question to investigate could be: "To what extent do ISPs help improve students' critical thinking skills?"

There are two key reasons that support the case for further research into this area. First of all, research seems to indicate that Arab learners would benefit from further developing their critical thinking skills. For example, a recent research undertaken by Al-Dumairi and Al Jabari (2015) on 2nd year university students in Palestine indicate that students abstained from writing tasks which required them to use their critical thinking skills such as inferring and analyzing. This was because they found them too challenging. Although this study focuses on application of critical skills in academic writing skills, most of the results are also applicable in the researcher's context as both studies focus on Arab learners in a Middle East university setting. As mentioned in the previous section, students in this study also appeared to lack critical thinking skills demonstrated by the fact that they found it difficult to perform some of the tasks which required them to question, evaluate and interpret information as part of their ISP.

The second reason for undertaking this future research is that PBL can be an effective and powerful tool to teach students critical thinking skills, especially if the projects are structured in a manner that encourages critical thinking skills and students are supported throughout the process (Mergendoller, 2012). Therefore, researching the development of critical thinking skills in the context of project work seems to be a natural choice. Since critical thinking skills are so crucial to be successful in today's world, more studies should be conducted to better inform the teaching of 21st century skills through models such as Project Based Learning.

Conclusion

This exploratory research aimed to investigate the 21st century skills students were engaged in while undertaking project work as part of their pre-sessional language course at Zayed University's Academic Bridge Program. By using an informal teacher journal, it was discovered that at different stages of the Integrated Skills Projects, students were practicing

and developing various 21st century skills which were categorized under the general term 4Cs (collaboration, communication, creativity and critical thinking skills). Of these 4 skills groups, students appeared to be engaged in critical thinking skills the most at every stage. In addition to being the most required skills in enabling the students to perform the tasks, critical thinking skills were also what the students found most challenging. Therefore, it is suggested that further research focusing on the development of critical thinking skills through the use of project work would greatly benefit the students preparing for their future studies.

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Digital Demands: Addressing the Digital Divide in Basic Education and Its Relation to Academic Performance and Aspirations

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Abstract

Amidst an increasingly digitalized society, information and communication technologies (ICTs) have been seamlessly integrated into the economic, social, and political life of individuals. Information has been regarded as a primary good, essential to the wellbeing and self-respect of individuals in society. The digital engagements of an individual play a key role in a variety of life outcomes ranging from academic performance to labor market entry to health service uptake. However, as a result of varying degrees of access to the Internet and ICTs across populations and individuals, the Digital Divide emerges. Education, a sector pivotal to directing individual life trajectories, has been radically transformed with regard to access to information and the learning process, and thus faces the implications of the digital divide, as new waves of inequalities are introduced in the classroom. With the period of basic education being critical to transitioning into civic life or higher education, digital inequalities are capable of aggravating pre-existing social inequalities. Through survey-questionnaires, conducted on 152 high school students at the Ponciano Bernardo High School, the study reveals the correlation of academic performance and aspirations (for one's highest academic qualification in his or her lifetime) to access to digital technologies and the Internet, as measured through Van Dijk's four levels of digital access, namely: motivational access, material access, skills access, and usage access. The findings reveal a positive correlation for academic performance whereas no correlation was found between aspirations and digital access. Significant correlational differences were also revealed between genders, specifically, in terms of skills access and academic performance.

Keywords: digital divide, ICTs, technology, inequality

Introduction

The Digital Divide (Van Dijk, 2005) has become an increasingly common concept in the 21st century as information and communication technologies (ICTs) have become seamlessly integrated into the economic, social, and political life of individuals. The Internet has gained a foothold in the various sectors of human society including education, business, health care, and environmental management, among others. However, with the growing importance of ICTs and the Internet today, access to such resources remains varied across individuals and populations, leading to new forms of inequality, such as that of digital poverty.

Digital technologies have radically transformed the manner in which individuals acquire new information (Eamon, 2004), resulting in information- and knowledge-based societies. As such, the learning process has been significantly remodified by the new modes of meaning-making and knowledge acquisition brought about by the emergence of such technologies (New London Group, 1996). Consequently, the education sector has been radically transformed by the digital age in numerous ways.

Insofar as digital technologies have the capacity to transform all sectors of society, the effective use of such technologies by individuals has the capacity to alter one's life trajectories (Robinson, Cotten, Quan-Haase, Mesch, Chen, Schulz, Hale, & Stern, 2015). One's engagements with digital technologies may affect his or her life outcomes in terms of "educational advantages, future employment and earnings, opportunities for social and civic involvement" (Eamon, 2004).

The manner in which the digital divide affects the education sector serves as the focus of this study as it is critical that individuals are able to attain a self-efficacy in the use of digital technologies during their early formative stages in the formal educational setting (Li & Ranieri, 2013). As schools, the labor market, and the social life, increasingly require individuals to be digitally literate, those who lack access to ICTs and the self-efficacy to operate such may find it more difficult to become integrated into the digitally-mediated world.

Background

The Nationwide Digital Divide

As access to ICTs have been revealed to have the capacity to fast track national development (Robinson et al., 2015), efforts to increase Internet penetration in the Philippines have been expressed by both private and public sectors. Alongside a steady and comparatively high GDP growth rate in the country over the past 5 years (with an average of 6.28% from 2010-2014) (World Bank, 2015), there has been a significant rise in Internet penetration rate in the country.

From an initial rate of 9% in 2009, Internet penetration has leapfrogged to 40% in the year 2014 (World Bank, 2015). However, this still leaves roughly 60 million Filipinos without access to stable broadband Internet, making information a scarce resource to a majority of Filipino citizens to this day. The primary barrier to access to ICTs in the country is economic poverty (Asian Institute of Journalism and Communication, 2009). As individuals from lower socioeconomic backgrounds are less likely to be able to benefit from the use of such technologies increasingly necessitated in contemporary society, those in economic poverty are likely to be put at an even greater disadvantage in contrast to their digitally literate and economically privileged counterparts, who may be benefitting from the use of ICTs. With digital poverty aggravating pre-existing social inequalities (DiMaggio & Garip, 2012), the emerging forms of inequalities in the 21st century, or the so-called 'Digital Age', demand a place in the

agenda of any study of the reproduction of social inequality in any society where economic inequalities remain sharp.

Income Inequality and Educational Opportunities in the Philippines

As one of the emerging and developing countries, the Philippines has been reported to have the highest rate of social and economic inequality in the entire Southeast Asia, according to a report by the ASEAN Trade Union Council in 2011. A growing disparity between the country's rich and poor has been revealed to be directly linked to the inequality in educational and vocational opportunities of its population (De Gregorio, 2002). In addition to this, educational attainment has been revealed to be one of the main determinants of income in the Philippines, where income inequality has been directly linked to educational inequality (ibid.). According to a study conducted by the Philippine Institute for Development Studies (2015), "education correlates with living standards: practically nineteen out of twenty poor persons in 2009 belong to households where the heads have little or no schooling. Lack of education of the household head limits earning potentials of the household" (Albert, 2015).

In the Philippine context, educational inequality is most apparent between the costly private schools and free and often low-funded public education in the country, where economic poverty remains a primary barrier to accessing quality (private) education. In contrast to their private counterparts, a majority of public schools remain disadvantaged, as they are characterized by high teacher-student ratios, inadequate school infrastructure, scarce instructional resources (from traditional to digital), and a low degree of teacher training, among others. This has been found to be the result of lack of government funding and corruption (De Gregorio, 2002).

Students enrolled in public schools, who are more likely to come from lower socioeconomic backgrounds, are now at a disadvantage not only in terms of acquiring access to the traditional media associated with schooling (pencils, notebooks, books, etc.), but also the emerging media of the 21st century (computers, laptops, Internet), which are becoming integral not only to learning but also to one's overall sense of well-being. Inequality in access to digital media, hence, aggravates the existing divide in educational opportunities in contemporary society. This has implications for one's educational outcomes, which are heavily affected by the disparate learning conditions present in the Philippine educational landscape, compounded by one's ability (or inability) to gain access to learning resources, which now span across both traditional and digital media.

Access to ICTs and Educational Outcomes

Numerous studies suggest that one's engagements with ICTs may lead to a number of educational advantages. In an age driven by information and one's ability to process and manage this, it is essential that students develop the self-efficacy needed to operate information technologies. However, without access to the Internet at home, however, students may find it difficult to develop such (Jackson, von Eye, Biocca, Barbatsis, Zhao, Fitzgerald, 2006; Zhao, Lu, Huang, Wang, 2010). A study by Li and Ranieri (2013) reveals that students who fail to develop a self-efficacy in operating digital technologies are found to have lower self-esteem and confidence when compared to their peers. Likewise, one's access to digital technologies has been revealed to be directly correlated to one's academic performance (whether self-perceived or through their reported student GPAs) (Jackson, et al., 2006; Judge, Puckett, & Bell, 2006; Li & Ranieri, 2013; Wong, Ho, Chen, Gu, Zeng, 2015). Students with access to the Internet at home are more likely to have more confident attitudes towards their studies (Yelland & Neal, 2013)

and themselves (Li & Ranieri, 2013), as they are able to engage in a wider variety of social and educational activities made accessible by digital technologies.

A study conducted in Shanghai by Wong et al. (2015) reveals that high school students' access to a stable Internet connection at home is directly correlated to their aspirations for their highest educational attainment in their lifetime. Students with access to the Internet at home are more likely to choose a Masters or Doctorate degree as their aspired highest academic qualification in their lifetime, in contrast to their counterparts who are more likely to select High School or a College degree (ibid). This makes for an interesting focus of study in the Philippines, where lower educational qualifications have been revealed to be directly linked to economic poverty.

Hence, access to ICTs may potentially affect one's educational outcomes in a variety of ways. From improving academic performance to enhancing psychosocial attributes (confidence, self-esteem, and self-efficacy) to enabling individuals to have higher aspirations for their highest educational attainment in their lifetime, access to digital technologies may potentially play a significant role in directing one's life trajectory beginning with the experience of ICTs in their formative years of schooling.

Research Method

Operational Framework

In order to conduct a sound analysis of the digital divide, digital access must be regarded as an attribute that is multidimensional and unique to each individual. Though macro-level approaches provide us with a bigger picture of the Digital Divide primarily in terms of one's material access to the technology, this study is concerned with the micro-levels of digital access and how this may affect the learner. Moving beyond the binary notions of the 'haves' and 'have-nots' of digital technologies, Van Dijk (2005) offers a framework for measuring digital access in terms of four levels: (1) motivational access, (2) material access, (3) skills access, and (4) usage access. As adapted by the researchers, this framework serves as the basis for our analysis of the digital divide in the classroom setting. The four levels seek to answer the following questions respectively: Is the individual motivated to adapt the technology and what are the barriers to such? Does the individual have physical entry to or ownership of the technology? Does the individual have the skills necessary to operate the technology's hardware and software? In what ways does the individual make use of the technology?

Framing the Research Questions

Four main interconnected areas of concerns were taken into consideration by the researchers in the development of the research questions of this study. Firstly, educational opportunities in the Philippines are highly uneven as they are based on one's socioeconomic background, which is now further aggravated by the digital divide. Secondly, the relationship between digital access and educational outcomes within the Philippine sociocultural context has been meagerly explored. Thirdly, data on the digital divide in the country primarily make use of macro-level approaches (i.e. Internet penetration rates, ownership of various digital technologies, etc.), disregarding other essential levels of digital access (i.e. motivational access, skills access, and usage access), which may be necessary to create a more comprehensive picture of the divide across individuals or learners. Lastly, income inequality is found to be a direct cause of lower educational attainment of individuals in households.

Hence, the researchers have derived the following research question with respect to these four main areas of concern:

RQ_1: What is the landscape of the digital divide in a Philippine public school classroom with respect to motivational access, material access, skills access, and usage access?

RQ_2: What is the correlation between one's digital access to his or her academic performance in the classroom and aspirations for his or her highest academic qualification in his or her lifetime?

Instrument

The study is limited to a descriptive case study, as the researchers primarily sought to explore the nature of the digital divide within the classroom and how this may be correlated to one's academic performance and aspirations. Though digital divides exist across school populations, this study is concerned with the divide present among individuals within a school population. The study made use of mixed research methods and was conducted at the Ponciano Bernardo High School, a public high school located at Quezon City in Metro Manila. The main research tool consists of a survey-questionnaire that was distributed to the entire batch of Grade 10 students of the high school, with a total of 152 (48% males, 52% females) students participating in the study, mostly aged 15-16 (with a few outliers).

The questionnaire consisted of four main sections:

1. Basic Information – Name (optional), Age, Gender
2. Digital Access

Material Access – limited to the ownership of a computer or laptop; access to the Internet; alternative sites of access to computers or laptops

a. Motivational Access – desire to adapt or acquire the technology; barriers to such technology
b. Skills access – ability to perform basic tasks across four computer software (Web Browsers, Microsoft Word, Microsoft PowerPoint, and Microsoft Excel)
c. Usage access – frequency of engagement across the following online activities: surfing the web, gaming, social networking, entertainment (video and audio streaming), and school-related purposes

3) Academic Performance – GPA during the previous school year
4) Aspirations – highest academic qualification aspired in one's lifetime

In designing the research tool, a focus group discussion was conducted with students from one of the top private high schools in Metro Manila, considered to be an "elite" school, to serve as a reference point for 'digitally wealthy' students, who were rated high on all four levels of digital access. The findings were then further supported and analyzed by qualitative research methods, in which interviews were conducted by the researchers with the school principal, administration, and personnel at the Ponciano Bernardo High School to provide more insight into the landscape of digital inequality present at within the sample.

The Digital Divide at The Ponciano Bernardo High School

A. Material Access & Motivational Access

Approximately 48% (72) out of 152 students indicated physical ownership of a personal computer or laptop (henceforth to be referred to as students "with ownership" or "without ownership"). Out of the 72 students with ownership, 66 (92%) indicated they had access to a stable Internet connection at home, whether through Wi-Fi or cellular data. On the other hand, a majority of students who did not have ownership had limited access to these technologies primarily through Internet cafes (71%). Students without ownership indicated that the high cost of these technologies is the primary barrier to ownership of a personal computer or laptop (refer to Table 1).

Frequency Distribution of Student Responses for the Following:	Percentage
Physical Entry to The Technology	
Students with Ownership of Computers/Laptops	48%
Students with Ownership of Computers/Laptops with a Home Internet Connection	92%
Alternative Sites of Access of Students Without Ownership	
School Computers	10%
Internet Cafes	71%
Borrow from relatives or friends	17%
Does not use computers at all	2%
Motivational Barriers of Students without Ownership	
I don't want one	5%
I don't feel like I need one	16%
I don't have time for one	10%
It is too expensive	64%
I don't know how to use one	5%

Table 1. Material Access to Computers and the Internet, Motivational Barriers to Ownership

B. Skills Access

When asked to indicate their ability to perform various tasks on computer software (Web Browsers, Microsoft Word, Microsoft PowerPoint, and Microsoft Excel), weak positive correlations (r=0.267, 0.253, 0.218, 0.273, respectively) were found between ownership and skills access. However, gender plays a significant role in mediating this correlation, where male students were found to have moderate positive correlations (r=0.389, 0.331, 0.297, 0.389, respectively) between ownership and skills access, while no correlation (r=0.131, 0.129, 0.154, 0.131, respectively) was revealed for female students (refer to Table 2).

		Correlation (r)		
Software	Basic Skills Set	Sample	Male	Female
Web Browsers	1. Use search engine	0.266	0.394	0.064
	2. Download files	0.276	0.349	0.192
	3. Install software	0.191	0.352	0.050

	4. Bookmark webpage	0.281	0.401	0.189
	5. Open new tab	0.281	0.408	0.128
	6. Stream videos and music	0.220	0.368	0.032
	7. Send emails	0.346	0.447	0.259
		0.267*	0.389*	0.131*
Microsoft Word	1. Create and save file	0.345	0.434	0.210
	2. Font, size, color, line spacing	0.220	0.328	0.097
	3. Cut, copy, paste	0.234	0.285	0.114
	4. Italicize, bold, underline	0.215	0.267	0.125
	5. Insert image	0.250	0.331	0.100
		0.253*	0.331*	0.129*
Microsoft PowerPoint	1. Create and save file	0.323	0.451	0.180
	2. Create and delete slide	0.281	0.389	0.152
	3. Change background	0.067	0.027	0.207
	4. Insert image	0.193	0.290	0.075
		0.218*	0.297*	0.154*
Microsoft Excel	1. Create and save file	0.320	0.348	0.309
	2. Create a table	0.368	0.423	0.309
	3. Add, subtract, multiply func.	0.121	0.321	-0.032
		0.273*	0.389*	0.131*

Table 2. Skills Access: Correlations Between Ownership and the Ability to Perform Basic Skills per Software. *Weighted averages calculated by transmuting Fisher's Z averages to Pearson's R coefficients

C. Usage Access

When asked to indicate their perceived frequency of engagement across various online activities through a 5-point Likert scale (never, rarely, often, sometimes, always), a strong positive correlation (r=4.66) was revealed between ownership and surfing websites of interest. However, no correlation (r=-0.014) was found between ownership and the students' perceived frequency of engagement with online gaming. Across the remaining online activities, entertainment, social networking, and school-related activities, weak positive correlations (r=0.269, 0.213, 0.257, respectively) were revealed. Gender appears to play no significant factor in mediating these overall correlations (refer to Table 3).

	Correlation (r)		
Online activities	Sample	Male	Female
Surfing Websites of Interest	0.466	0.445	0.466
Playing Online Games	-0.014	0.026	0.045
Entertainment (streaming music, videos)	0.269	0.221	0.278
Social Networking	0.213	0.171	0.228
School-Related Activities	0.257	0.214	0.260

Table 3. Usage Access: Correlation Between Ownership and the Frequency of Engagement Across the Following Online Activities When Using a Computer

D. Academic Performance and Aspirations

A strong positive correlation (r=0.309) was revealed between student ownership and their reported grade point averages (GPAs) for the previous school year, whereas no significant correlation (r=0.127) was found between ownership and their aspirations for their highest academic qualification in their lifetime. When asked to indicate their confidence in attaining this academic qualification, no correlation was found between ownership and reported confidence (r=-0.020). However, gender was revealed to be a significant factor in mediating the correlation between ownership and academic performance, where a strong positive correlation (r=0.457) was revealed for male students, while no correlation was found for female students (r=0.107). Gender was not found to influence the correlations existing between aspirations and confidence with ownership (refer to Table 4).

	Correlation (r)		
Variables	Sample	Male	Female
Academic Performance	0.309	0.457	0.107
Aspirations	0.127	0.080	0.143
Confidence	-0.020	-0.131	-0.020

Table 4. Correlation of Ownership with Academic Performance, Aspirations, and Confidence

Discussion

A significant digital divide exists across the Grade 10 student population at the Ponciano Bernardo High School, in which approximately only one in every two students have ownership of a personal computer or laptop as well as access to an Internet connection at home. Moving past the 'haves' and the 'have-nots' of the technologies, it is apparent that the digital divide manifests itself beyond the physical ownership of digital technologies. The succeeding sections seek to analyze the digital divide, in relation to the four levels of access and its implications for academic performance and aspirations. The divide is also explored with respect to the following relevant points of discussion that arose during the study: the spatial contexts for online pursuits in relation to learning, the extent to which the divide is mediated by gender, and the manner in which digital poverty may aggravate pre-existing inequalities in the classroom.

Academic Performance and Educational Outcomes

As numerous studies have suggested that one's access to information technologies and the Internet are critical to educational outcomes, it is apparent that students at the Ponciano Bernardo High School are no exemptions to this. Students who have ownership of a personal computer or laptop were found to have a reported grade point average of at least 2 points higher than their counterparts, as reflected by the moderate positive correlation revealed between ownership and academic performance.

In a majority of public schools in the Philippines, such as the Ponciano Bernardo High School, students are still faced with the lack of access to traditional learning resources. It is apparent, however, that those with ownership of their own personal computers or laptops are able to compensate for this by their virtually unlimited access to information technologies at home, offering them number of educational advantages as they are able to engage in activities that can further enhance and contribute to their learning. As discussed by Ito, Horst, Bittanti, Herr-Stephenson, Lange, Pascoe, and Robinson (2008), digital technologies are characterized by the

"convergence" of all pre-existing media resources (print, radio, television) with regard to the information they make readily available. This allows students with ownership of such resources to fulfill their information needs to a much greater extent than their disadvantaged counterparts, regardless of their possible lack of access to traditional media. This is further supported by the strong positive correlation existing between one's ownership of a personal computer and their perceived frequency of engagement of the online activity "surfing the Internet." Where learning and meaning-making occur as spatial and temporal activities (Kostogriz, 2006), being able to surf the Internet at any time allows for one to fulfill one's information needs beyond the traditional confines of the classroom, allowing for more opportunities for individualized learning at any time and place. This results in significant implications regarding the inequality in learning opportunities of the students, where a significant number still heavily rely on the limited, and often inadequate, offline information resources provided by the school.

Similarly, the general higher academic performance of those with ownership of computers or laptops may also be the result of the increased ability to operate and make use of computer software that are becoming increasingly necessary in the classroom. As these are currently being encouraged at the Ponciano Bernardo High School, submitting a printed-out school requirement (produced through a Word document) or delivering a presentation enhanced by various multimedia (such as that made possible by PowerPoint) may serve as a significant advantage for students in creating superior outputs. Maximizing one's use of the software is also further enriched by one's ability to navigate through limitless information and instructional resources made possible by one's access to the World Wide Web at home.

Aspirations and Life Trajectories

In contrast to the findings of Wong et al. (2015), no significant correlation was revealed between the students' aspirations for their highest educational qualification in their lifetime and their ownership of a personal computer or laptop. It may be noteworthy, however, that the indicated level of educational attainment aspired by both groups significantly contrasted with respect to their modes. Students with ownership most frequently selected the master's degree option (33.80%) whereas students without ownership were more likely to choose the vocational school option (35.14%) as their highest aspired academic qualification in their lifetime. Though no correlation was revealed between aspirations and ownership, the life trajectories of the learners may still be affected in a number of ways (Robinson et al., 2015). Educational outcomes, for example, which are critical to labor market entry as well as acceptance into higher educational institutions, have been reaffirmed in this study to be directly correlated to one's digital access.

The Importance of Space in Online Pursuits

Though students without ownership of a personal computer or laptop are able to access these technologies and the Internet primarily through Internet Cafes, educational outcomes (as reflected through their academic performance) are still revealed to be significantly affected by ownership. The researchers attribute this to two possible interrelated underlying reasons: (1) the degree to which the information technologies are made available to those with ownership is virtually unlimited in contrast to their counterparts and (2) one's pursuits for fulfilling learning needs are situated within spatial and social contexts in which learning occurs (Hassani, 2006; Kostogriz, 2006).

Looking into the sociocultural context in which these technologies are used in Internet Cafes may provide deeper insight into the digital divide and its implications for the students' academic performance. As students with ownership of computers or laptops perceived themselves to be more frequently engaged in all online activities except gaming, this finding suggests that students without ownership may primarily go to Internet Cafes for gaming purposes. This reflects the manner in which these technologies are likely to be used within this particular spatial context. In contrast, students who are able to access these technologies within other learning environments, such as at home, may associate these spaces not solely for gaming purposes, but for a variety of online pursuits. Additionally, students may explore other forms of leisure and recreation, complete school-related requirements or homework, or fulfill other informal learning needs through web browsing, which may contribute more to their overall learning and cognitive development.

Though material access to digital technologies is essential to reaping the information benefits made readily available by the Internet, the degree to which the information is used to enhance individual learning in relation to school-related activity and overall wellbeing is dependent on the spatiotemporal and social context in which learning pursuits are fulfilled. As emphasized by Hassani (2006, p. 265), "having access at home is a key factor that is strongly associated with applying the Internet toward ends that enhance individual wellbeing."

Gender as a Critical Determinant

Being cultural artefacts, technologies, and the manner in which they are used, are facilitated by sociocultural arrangements, such as gender roles and social expectations. Previous studies suggest that male students are more likely to engage with technical devices at a younger age, resulting in the greater ability to operate ICTs as they grow older (Van Dijk, 2005). This may likewise be the case within the Philippine sociocultural context, wherein males are more positioned culturally to engage with digital technologies and the Internet at a younger age. While the study revealed a significant positive correlation between ownership and academic performance, it must be noted that this correlation is heavily influenced by gender. While male students displayed a strong positive correlation between ownership and academic performance, no correlation existed for female students, reflecting a highly gender-based digital divide.

According to a study on Internet access and use by Filipino schoolchildren conducted in 2011 by the Asian Institute of Journalism and Communication (p. 16), "the Internet non-users are mostly female children enrolled in public elementary schools." This may be an indication that the female Grade 10 students at the Ponciano Bernardo High School are only beginning to develop the digital literacy skills needed to operate computers or laptops in ways that can positively enhance their learning. Likewise, when using computers, girls appear to be less likely to engage in the technical activity associated with operating computer software. This is supported by our findings in which girls indicated an equally low skills access across the four software, regardless of one's ownership of a personal computer or laptop. In contrast, a significant positive correlation was revealed for male students between ownership and skills access, indicating that males are more likely to engage with computers in ways that allow them to develop skills necessary to operate computer software. This reinforces the notion that material access alone is an insufficient measure of digital poverty when viewed in relation to one's capacity to reap the benefits made possible by ICTs. While a strong positive relationship between ownership and academic performance exists for male students, it must be noted that this is coupled with a moderate positive correlation between ownership and skills access, neither of which are present

for female students. Therefore, it is possible that male students develop strategies that allow them to take advantage of computer software in ways that translate to educational advantages in the classroom, which may affect their academic performance. The extent to which computer activity is socially constructed to be a predominantly male activity is also reflected in a report by the Philippine Commission on Higher Education from 2012-2013, indicating that Information Technology (IT) is the most commonly completed undergraduate degree by male students in the country.

The Deepening Divide

Though socioeconomic inequality is most apparent between the private and public school educational contexts in the Philippines, income inequality within institutions themselves also serves as a primary determinant of the digital divide and educational opportunities of students. Through our interviews with the school principal and registrar, the Ponciano Bernardo High School can be characterized by the stark differences existing among their students in terms of socioeconomic backgrounds, being described as a school of "extremes" in terms of household incomes. Though specific incomes were not disclosed by the school, it was mentioned that a significant number of students at Ponciano Bernardo are children of oversees Filipino workers (OFWs), whose parents work in high- to middle-income countries, earning higher wages in foreign currencies, and are able to send remittances back to their families in the Philippines. As it was revealed that the financial cost of computers and laptops remains as the greatest barrier to acquiring these technologies, students from lower socioeconomic backgrounds are at a greater disadvantage compared to their counterparts with respect to the educational advantages that digital technologies offer. The school's perennial Feeding Program also suggests that students who are unable to afford these technologies that are becoming integral to learning in the 21st century are still struggling to acquire basic necessities, as they are faced with greater barriers to effective learning such as hunger in the classroom. As the Digital Divide is inherently linked to socioeconomic inequality, the pre-existing inequalities are shown to be aggravated further by the emergence of digital technologies as information is now regarded a "primary good" in contemporary society (Van Dijk, 2005).

Conclusion

Analyzing digital inequality entails that one look beyond material access, as other factors, such as motivational access, skills access, and usage access, affect the extent to which one may be regarded as 'digitally poor.' One's levels of digital access ultimately has a bearing on one's performance in the classroom and his or her educational opportunities. Though this study reaffirms numerous studies indicating that one's access to digital technologies may positively affect learning and lead to several educational advantages (including higher academic performance in the classroom), this does not appear be the case for female students at the Ponciano Bernardo High School. Exploring the social contexts for computing and the extent to which this is perceived to be a male-dominated space in Philippine society may be an essential step in understanding and alleviating the apparent gender-based digital divide. Allowing girls to develop the skills necessary in order to become 'digitally literate' like their male counterparts may enable them to reap the educational benefits made possible by ICTs. This exploratory case study reveals that students who are unable to afford digital technologies and those who do have ownership of the technologies but are unable to operate its software, particularly females, are

found to be the most disadvantaged when it comes to the effects of digital poverty on one's education.

In the midst of the rapidly globalizing world, the Philippine Department of Education has recently implemented the nationwide Basic K-12 curriculum, with the overarching educational aim of "developing learners with 21st century skills" (DepEd, 2015, p. 20) or the skills necessary in order to succeed in the Information Age. Given that a significant number of students in the classroom are unable to purchase their own information technologies and/or are unable to operate the computer software increasingly necessary in the contemporary educational setting, acknowledging the digital divide's critical role in aggravating the uneven educational opportunities of the Filipino learners is paramount in any attempt to close the gaps in educational attainment in the country, as this entails significant implications for their life outcomes.

In a country where economic poverty has been shown to be directly linked to low educational outcomes, digital poverty emerges as a new and insidious wave of inequality pervading the classroom in the 21st century, reconfiguring and further amplifying the reproduction of social inequality, where being 'digitally rich' or 'digitally poor' can significantly affect one's place in the divergent life trajectories produced in the highly uneven socioeconomic landscape of Philippine society. As acquisition cost remains as the greatest motivational barrier to owning a personal computer or laptop, policy directives to increase material and skills access for these individuals, particularly at the household level, is crucial in improving educational outcomes across the population and maximizing the country's human capital in contemporary society.

Topping a survey conducted across 32 emerging and developing countries, 88% of Filipinos indicated that they agreed with the statement "the Internet has a good influence on education" (Pew Research Center, 2015). Where the capacity of digital technologies to improve learning and provide greater educational opportunities for individuals has been repeatedly reaffirmed by numerous studies and the general population's attitude towards ICTs and their effects on educational outcomes are positive, the next step in actualizing the benefits offered by digital technologies is to close the Digital Divide by providing inclusive digital access to students who would otherwise not benefit from their engagements with the technologies, particularly as a result of underlying factors such as gender roles and economic poverty.

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Students' Satisfaction Towards Chemical Engineering Study Program in Private Universities in Palembang

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Abstract

In supporting the national economy and competitiveness, Indonesia is trying its best to enhance the role of chemical industry. Chemical engineering graduates are expected to take responsibility as problem solver in promoting Indonesia through knowledge gained by being the best in their field. In order to achieve that, the quality of human resources must first be enhanced, in part, through the quality of education. Service quality and student satisfaction plays a significant role in measuring the performance of a product and service as well as the university itself. Sustainability of universities cannot be separated from the role of its study programs and the presence of their students. Therefore, universities must be able to anticipate the competitiveness, explore, and improve all aspects of service to gain the students' satisfaction. The purpose of this study is to measure and compare the students' satisfaction on service quality of chemical engineering study program specifically among three private universities in Palembang, Indonesia. Questionnaire was developed based on the universities' services such as academic and administration as well as the facilities and equipment adequacy. The data were then statistically analyzed by performing descriptive statistics, regression and independent sample t-test. A total of 130 students from three private universities participating in this study. The findings indicated that overall, chemical engineering students are quite satisfied. University X gain the most likely satisfying among the three universities, followed by University Y, and University Z.The highest contribution in terms of aspect to total students' satisfaction is 62.7% in facilities and infrastructure while the lowest is in management. From the independent sample t-test, students' satisfaction total is significantly different. In terms of aspect, the significant difference between University X and Y is in facilities and infrastructure, between University X and Z is in management, and between University Y and Z is in funding.

Keywords: students, satisfaction, service, quality

Introduction

The progress of a nation is dependent on the mastery of science and technology.Advances in science and technology are often regarded as the source of the most important and decisive in the process of development and economic growth. The development of the market, science and technology has led to an increase in demand for education and professional quality experience that are generally acquired in private higher education institutions (Poturak, 2014). Discoveries of new technologies such as the multidisciplinary fields of chemical engineering, industrial engineering, and informatics engineering, are expected to increase productivity so that the nation's competitiveness can be improved. In order to improve the competitiveness of a nation, the quality of human resources must firstly be enhanced, one of which is through the quality of education.

Most institutions and study programs in Indonesia are still accredited rated C. Based on the Higher Education Database (PDPT) as of October, 2015, there are 4,306 higher education institutions which consist of 5 community college, 1,086 colleges, 228 polytechniques, 2,340 higher institution, 134 institutes and 513 universities. The number of study programs recorded more than 20,373 study programs. There are 18,848 study programs and 852 higher education institutions have been accredited by National Accreditation Body for Higher Education Institution (BAN - PT), but only 10% were rated A and almost 50% were rated C, including chemical engineering study programs in private universities in Palembang. For the achievement of accreditation rated A and B are mostly dominated by public higher education institution.

The competition among Higher Education Institutions in Indonesia is very high. In addition, the status of some state universities becoming a state-owned legal entity made many state universities open non regular classes outside the regular selection of new admissions. The status change is in fact made a large number of private universities students enter non regular classes owned by state universities in recent years. In the end, many private universities with short of students are in danger of collapse.

Higher education is facing pressure to improve value in its activities (Heck and Johnsrud, 2000). The purpose of higher education is to educate people to be qualified human resources for developing societies as well as a nation. Sustainability of higher education institution cannot be separated from the role and the presence of their customers. Customer service and quality are driving forces in the business community.

Higher education institutions, state or private, that want to gaincompetitive advantage have to take students' satisfaction as the main source of competitive advantage. If they succeed to satisfy their customers who are the students, this satisfaction will bring students' retention, new students will be also attracted and positive word of mouth about institution will be spread as well (Arambewela and Hall, 2009).

According to Teo (2001), private universities do not have the privilege to receive any subsidies or financial assistances from the government and have to depend on the interaction and mechanism of the market. Therefore, they must be able to anticipate the competitiveness and explore as well as improve all aspects of service owned. In this globalization era, local universities are facing new challenges in the educational arena. The change is quite rapid and it forced them to develop aligned strategies and policies so that they will continue to grow, if not, sooner or later they will suffer a setback.

Literature Review

The Role of Higher Education in Indonesia

Indonesia is a country that is endowed with abundant of natural resources. Unfortunately, Indonesia does not have enough capable human resources to manage the natural resources that have the potential to bring prosperity of the nation. Therefore, the opportunity to participate in higher education and the number of students should be improved continuously and evenlyin order to produce graduates in sufficient numbers to encourage economic growth and competitiveness.

The level of competition of human resources at the national and international job market continues to rise with the increase in the utilization of new technologies in various fields of business, as well as the needs of an increasingly high level of professionalism which includes knowledge, hard skills and soft skills. Efforts to improve the quality of university graduates in Indonesia is different from the past. Open markets have led to the penetration of labor from abroad even greater, so the competition is no longer among graduates nationwide but also among graduates from foreign universities.

The strict competition of seeking work among university graduates in Indonesia demands that higher education providers constantly make adjustments to the curriculum, process, and learning materials to the development of the working world. Increased relevance of education should be subjected to continuous quality improvement as part of a quality assurance system of higher education as a whole.

The importance of human resource development has also been recognized by the government as manifested in its Second Long-Term Development Plan (1994-2019) (Lembaga Pertahanan Nasional, 1989). The plan clearly states that Indonesia's long-term objective is to improve the quality of Indonesian people. With respect to education, the country's Guideline of State Policy indicates that education should also be able to foster and strengthen the spirit of nationalism and sense of solidarity.

Every nation has its own system of education which is in line with its ideal and needs. In Indonesia, higher education institutions must be able to fulfill the criteria of National Education Standards as mentioned in Government Regulation No.19 Year 2005 (Peraturan Pemerintah No.19 Tahun 2005) and Minister of Research, Technology and Higher Education Regulation No.44 Year 2015 (Permenristekdikti No.44 Tahun 2015) on National Education Standards which include: (1) graduate competency standard, (2) content standard, (3) process standard, (4) educational assessment standard, (5) educators and education personnel standard, (6) facilities and infrastructure standard, (7) management standard, and (8) funding standard.

The Quality Assurance Director of Directorate General of Learning and Student Affairs, The Ministry of Research, Technology and Higher Education said that quality assurance starts from the internal quality assurance system in order to meet minimum national standards (Kompas, 2015). In practice, there are still many who do not understand about the accreditation, placing it in the dichotomy between public and private universities. Consequently, it will create discrimination, unfair treatment, and closed access to jobs. Requirements for applying for a job with the accreditation values often differ between public and private university where as private universities are demanded higher.

Service Quality and Students Satisfaction

The need to remain competitive, productive, and open to challenges of the future in the face of organizational change is becoming more important than ever (Kaplan and Norton, 1996). Outstanding service quality as perceived by the customer, can give any organization a competitive advantage (Albrecht, 1991). The most important purpose in education sector is to support students learning and knowledge gaining, by providing quality service which will lead to student's satisfaction with service (Poturak, 2014). Service sector is gaining

importance like the manufacturing sectors due to globalization and increased competitive environment among the local and global companies (Petruzzellis et al. (2006) in Ijaz et al (2011)).

Johns (1999) in Daniel and Berinyuy (2010) defined services as 'intangible' and viewed their output as an activity rather than a tangible object which is not clear because some service outputs have some substantial tangible components like physical facilities, equipment and personnel. Service quality of higher education institution is basically defined considering students' overall assessment on the services they received that is actually element of their learning experience (Asaduzzaman, 2013).

Cronin and Taylor (1992) have examined a performance-based measure of service quality called SERVPERF which excludes any consideration of expectations. It is found that this measure explained more of the variance in an overall measure of service quality than did SERVQUAL. In addition, in Kilbourne et al, (2004) studies, it was mentioned that perception-only measures of service quality appear to have higher convergent and predictive validity.

According to Kotler and Keller (2012), satisfaction is the stage when someone feels to be delight or disappointed than the product or service provided to the customer. To delight the customer, the service provider must provide value added characteristic in order to gain and capture the customers, which are the students. Therefore, focusing on student satisfaction enable universities to develop a system for continuously monitoring how effectively they meet the students needs (O'Neill, 2003). As part of service industry, universities can gain competitive advantage through students' satisfaction (Kevin and Dooyoung, 2002). Moreover, satisfied customers serve as important source of free advertising through recommendations (Vinagre and Neves, 2008) and has a great impact on corporate image (Rashid and Jusoff, 2009).

Parasuraman, Zeithaml, and Berry (1990) indicated that poor performance among service related businesses often resulted from inadequate information about their own customers. If organizations do not know what their own customers want in term of service, then they cannot possibly design programs that match customer expectations of what constitute good services. Just like any form of business, factors related to satisfaction levels and students' perceptions of quality will attract and retain students (Petruzellis et al (2006); Abu Hasan et al (2008); Arambewela and Hall (2009). Therefore, higher education institution must identify attributes that are important to their students constantly to obtain a competitive advantage position.

Methodology

This study involved the development of a survey that was adapted from what was available in the current literature and Indonesia's National Education Standards. The questionnaire was developed based on the universities' services such as academic and administration as well as the facilities and equipment adequacy. The questionnaire form consisted of 43 attributes classified into seven aspects which are: content (5 items), process (8 items), funding (2 items), educator and education personnel (6 items), facilities and infrastructure (12 items), management (7 items) and educational assessment (4 items). The responses were measured on a five point Likert scale whereas 5 represented very satisfied and 1 represented very unsatisfied. The population in this study comprises all of chemical engineering students in three private universities in Palembang, Indonesia. A sample of 150 students was chosen on a stratified random sampling. The data were then analyzed to measure the students' satisfaction using descriptive analysis, regression to obtain the contribution of aspect to total students' satisfaction and the comparison among the private universities using independent sample t-test in SPSS 17.0.

Results

The reliability of the scale was tested using Cronbach Alpha which provides a value of 0.806 which is more than the acceptable value of 0.70 (Ghozali, 2013).The demographics of the study are presented in Table 1 based on gender, university, and study level (year).Male students were 66% of total sample whereas female students were 34%. The students were chemical engineering students from three different private universities: University X and University Y each representing 38.5% of the total sample and University Z representing 23% of the total sample. The highest numbers of respondents were 26% third year student, 23% each of first and second year student, 15% fourth year student and 13% fifth year student.

	University X	**University Y**	**University Z**	**Total**	**Percentage**
Gender					
Male	28	35	23	86	66%
Female	22	15	7	44	34%
Year of study					
First	11	9	10	30	23%
Second	12	11	7	30	23%
Third	10	16	8	34	26%
Fourth	8	9	2	19	15%
Fifth	9	5	3	17	13%

Table 1- Selected demographic data of survey respondents

Table 2 shows the total mean of students' satisfaction for three universities is 24.4806. If divided into seven aspects, then the mean for each aspect is 3.49 which is in a moderate level of satisfaction from a scale of 5. University X has the highest total mean of students' satisfaction which is 25.5380. University Y and University Z total mean of students' satisfaction are 24.1189 and 23.3213 respectively.

University	N	Mean	Standard deviation
University X	50	25.5380	1.02340
University Y	50	24.1189	1.12895
University Z	30	23.3213	1.69215
Total	130	24.4806	1.52391

Table 2 Descriptive statistics for total students' satisfaction

The descriptive statistics for each aspect of students' satisfaction can be seen in Table 3. **Content**: The first aspect represents the study program's curriculum, syllabus, manual, and courses that meet industry demand.

Process: The second aspect represents teaching and learning process provided by the university and study program to add value to the students during their studies.

Funding: This third aspect represents how suitable the price to the quality offered is and the ease of payment.

Educator and Education Personnel: The fourth aspect represents qualifications and competence of lecturers and academic staff to provide education in order to meet the learning outcomes of students.

Facilities and Infrastructures: The fifth aspect represents the infrastructure, facilities, and physical structure of the study program and the university. This aspect includes building, classroom, library, mosque, sport facilities, computer facilities, English facilities, laboratory, and cafeteria.

Management: This aspect includes planning, executing, controlling, monitoring and evaluating, also reporting of learning activities at study program level.

Educational Assessment: The last aspect represents assessment process and learning outcomesof students.

For University X and University Z, the highest mean of students' satisfaction is in the process aspect, while students from both universities feel that from the management aspect, the alumni association is less active and the selection of new student admission is not so strict. Moreover, facilities such as laboratory, teaching media, and library in University Z need to be enhanced.

For University Y, the funding aspect has the highest mean of students' satisfaction whereas the quality offered is suitable to low tuition fee. However, for facilities and infrastructure such as adequate parking space, mosque, sports and art facilities need to be improved.

Aspects	University X			University Y			University Z		
	N	Mean	Std. dev	N	Mean	Std. dev	N	Mean	Std. Dev
Content	50	3.69	0.610	50	3.61	0.557	30	3.48	0.552
Process	50	3.72	0.646	50	3.51	0.609	30	3.54	0.671
Funding	50	3.58	0.512	50	3.91	0.668	30	3.43	0.533
Educator & Education Personnel	50	3.62	0.602	50	3.23	0.590	30	3.42	0.616
Facilities & Infrastructures	50	3.71	0.661	50	3.22	0.646	30	3.15	0.778
Management	50	3.46	0.590	50	3.26	0.644	30	2.94	0.716
Educational Assessment	50	3.70	0.695	50	3.34	0.647	30	3.25	0.651

Table 3 Descriptive statistics for each aspect of students' satisfaction

The contribution of each aspect to students' satisfaction total is presented in Table 4. The p-value of all aspects is 0.000 indicating a significant contribution to students' satisfaction total. The highest contribution is facilities and infrastructure which is 62.7%. This shows that the students value this aspect the most and it has the greatest impact towards students' satisfaction total. However, management is the weakest contribution among the seven aspects which is only 2%.

Aspect	R	R Square	Adjusted R Square	R Square Change	Sig. F Change	%
Facilities and Infrastructures	.792[a]	.627	.624	.627	.000	62.7%
Funding	.868[b]	.754	.750	.127	.000	12.7%
Educational Assessment	.921[c]	.849	.846	.095	.000	9.5%
Process	.961[d]	.924	.921	.075	.000	7.5%
Content	.976[e]	.953	.952	.030	.000	3%
Educator and Education Personnel	.990[f]	.980	.979	.027	.000	2.7%
Management	1.000[g]	1.000	1.000	.020	.000	2%
		6.087	6.072	1.001		100%

Table 4 Contribution of each aspect to total students' satisfaction

Table 5 reports the comparison of means between University X and University Y, between University X and University Z, and between University Y and University Z respectively on each aspect of students' satisfaction.

Between University X and University Y, out of the seven aspects, only content is not significantly different where as the significant score is 0.086 ($p>0.05$). The highest mean difference is facilities and infrastructure which is 0.490.

In terms of all aspects, it is found that students' satisfaction between University X and University Z is significantly different whereas $p<0.05$. The highest mean difference is in management which is 0.542.

Most of the aspects of students' satisfaction are not significantly different ($p>0.05$) between University Y and University Z. These aspects are content, process, facilities and infrastructure and educational assessment. However, funding, educator and education personnel are significantly different. The highest mean difference is 0.476 which is in funding.

Aspects	University X and University Y		University X and University Z		University Y and University Z	
	Sig. (2-tailed)	**Mean Differences**	**Sig. (2-tailed)**	**Mean Differences**	**Sig. (2-tailed)**	**Mean Differences**
Content	.086	.080	.005	.216	.068	.136
Process	.001	.200	.048	.171	.761	-.028
Funding	.002	-.310	.046	.166	.000	.476
Educator and Education Personnel	.000	.386	.003	.201	.012	.185
Facilities and Infrastructure	.000	.490	.000	.468	.669	.021
Management	.000	.217	.000	.542	.000	.325
Educational Assessment	.000	.355	.000	.450	.287	.095

Table 5 Independent sample t-test on students' satisfaction among private universities

Discussion

The quality of services provided by chemical engineering study programs in private universities in Palembang has been measured based on students' satisfaction. The average for overall satisfaction of aspects is 3.49 which is 70% of the total score. This indicates that chemical engineering study programs need to work hard to cover up the 30% to satisfy the students.

Facilities and infrastructure aspect contributed the most of students' satisfaction. University X is providing better quality of facilities and infrastructure compared to University Y and University Z, especially in laboratory facilities. Adequate in laboratory facilities are very important dan crucial to chemical engineering study program since there are quite a lot of practical work to support the process of teaching and learning.

Among the three private universities, University Y has the highest score in term of funding aspect. This indicates that students are satisfied with the low tuition fee in accordance to quality of services. This also support in Teo (2001) studies that private universities do not have the privilege to receive any subsidies or financial assistances from the government and have to depend on the interaction and mechanism of the market.

Service quality leads to customer satisfaction, where as high service quality will increase customer satisfaction (Parasuraman et al., (1985), Cronin et al., (1992)). To gain student satisfaction, universities should concentrate and make efforts by delivering quality of teaching and non teaching services (Petruzzellis et al., 2006). By enhancing the quality of educational services, chemical engineering study program will able to produce qualified graduates that meet the local industry requirements and global acceptability.

Conclusion and Future Research

From the above findings it can be concluded that currently chemical engineering study program in private universities in Palembang are quite satisfying. University X gain the most satisfying among the three private universities, followed by University Y and University Z. From the independent sample t-test, it is indicated that the total students' satisfaction between the three private universities is significantly different with $p<0.05$. The highest difference between University X and Y is in facilities and infrastructure, between University X and Z is in management, while between University Y and Z is in funding.

As for the contribution of total students' satisfaction, facilities and infrastructures aspect is the highest which contributed 62.7%, while management aspect is the lowest which is only 2%. In University X, facilities and infrastructures are satisfying whereas the mean is 3.718. On the other hand, the students of University Z are quite satisfied even though the completeness of laboratory, teaching media and library need to be improved.

However, chemical engineering study programs in private universities in Palembang need to provide better quality of educational services in order to retain students and gain competitive advantage. The above analyses also provide information useful for university administrators in decision making and continuous improvement in all aspect of students' satisfaction.

This study was conducted at a local level. Due to shortage of time, sample size was not so large, therefore the results of this study cannot be generalized. However, a more comprehensive study can be conducted by taking a larger sample size including all the students in chemical engineering study program not only in private universities but also public universities.

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Environmental Health Monitoring for India: An Emerging Nation

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Abstract

To address the issue of the double burden of disease in India, which includes morbidity from communicable and non-communicable diseases (CDs and NCDs), this study has drawn a framework for an environmental health monitoring system. This system will monitor health risks of both the physical and social environments. 1451 individuals from lower and 1274 from higher socio-economic groups from Pune city were interviewed. Data on self-reported morbidity of CDs (water borne, vector borne and acute respiratory diseases) and NCDs (diabetes, hypertension, cardiovascular, chronic respiratory disease and cancer) were collected. Information on risk factors related to one's socio-economic characteristics (*individual attributes like age, education, risk habits e.g. tobacco chewing, diet, mode of transport and employment status*) and those present in one's physical environment (*presence or absence of a community sanitation, water pooling habitats*) were gathered with the help of a questionnaire and an observational form respectively. Relative risk was calculated to detect the presence of any kind of association between the disease reported and it's a risk factor. An ecological approach towards monitoring of both these kinds of risk factors is suggested, as elimination of these from the individual as well as from the environment is complex (as revealed from the lack of association between certain well established risk factors with the disease that they are known to cause). Acknowledgement of not only the dynamic relationship between humans and their environments but also differentiation of this relationship into different levels are pre-conditions to focused and effective interventions.

Keywords: environmental health, monitoring, India, ecological model

Introduction

World renowned economist Amartya Sen in the year 2013 has very aptly described the situation in India in his book, *An uncertain glory: India and its contradictions* along with notable economist Jean Dreze, in the sentence "…unequal patterns of development are making the country look more and more like islands of California in a sea of sub-Saharan Africa." This description makes one envision a scenario of disparity that is visually evident because it describes the stark socio-environmental differences, a dominant characteristic in this nation. "…islands of California in a sea of Sub-Saharan Africa" can be translated into 'poverty in juxtaposition with affluence.' Poverty is a condition that invariably conjures a picture of not only under-nourished and malnourished individuals due to their poor socio-economic status but also that of a degraded environment. A person's socio-economic status is usually indicated by two major indicators: education & occupation (Razzaque, Mustafa, Ahsan, Islam and Yunus, 2011; Winkleby, Jatulis, Frank and Fortmann, 1992). Especially in an urban area, if an individual does not have basic education, she will be restricted to a limited number of occupations in the latter part of her life. Whatever job she takes up may not provide a satisfactory work environment or a source of income, thereby affecting her health in a direct or indirect way respectively. Financial insecurity does not allow an individual to look beyond her immediate needs which most of the times are basic materialistic goods. Preserving the environment to prevent a disease is therefore not on the agenda of the financially unsound and under-privileged. This leads to activities or actions that are environmentally degrading which in turn affects the health of humans. Thus, both humans and their environments have a dynamic relationship and each influences the other (Cohen, Spear, Schribner, Kissinger, Mason and Wildgen, 2000).

As of April 2016 the World Health Organization website described environmental health as

- All physical, chemical and biological factors external to a person
- All factors related to the factors above, and impact behavior
- Assessment and control of those environmental factors that can potentially affect health
- Prevention of disease and creating health supportive environments

It specifically excludes the following from the definition

- Behavior not related to the environment
- Behavior related to the social and cultural environment and genetics (World Health Organization official website, accessed on April 2016)

The definition clearly differentiates between two behavior types, one that is driven by the non-living environmental (physical and chemical) and biological characteristics and, another due to one's social/cultural characteristics (the latter are excluded from the definition). When behavioral action is a result of an environmental consequence e.g. drinking contaminated water due to absence of a clean water source (Dutta & Bharucha, 2016), it is an instance of an 'action required by situational demands', which shows that the environment is the source which requires the necessary corrective action (Barker, 1968). This perspective on human environment interface highlights the fit of the person to the environment which is an essential, but one sided facet of the interface (Kaplan, 1983). If, in the same instance the individuals are made aware of these preventable diseases that arise from drinking contaminated water and are empowered to take steps to purify it or look for an alternative source this would avert the disease incident. This is an

example of how the inherent behavioral attribute driven by the environmental consequences leads to the prevention of the disease, thereby delegating the role of the environment to human action, as the determinant of health unlike the first case (Dutta & Bharucha, 2016). The WHO definition includes only the environment as the sole determinant in modifying human behavior that affects health and not vice-versa i.e. human behavior also affects the environment and both influence each other.

From an economic stagnation during the colonial period (over 65 years back) to becoming the fastest growing nation in the world (growth rate of 7.3% by the end of 2015), India can be rightly called an emerging nation (Dreze and Sen, 2013 and Khan,2016). This development has also been an outcome of a significant improvement in life expectancy brought about by lowering of mortality from infectious diseases like cholera, malaria, typhoid and plague in the colonial period of the nation (Polu, 2012). Even though infectious diseases have drastically lowered but they still contribute to about 24.1% of the total disease burden along with rise of non-communicable diseases that contribute to 39.1 %(MoHFW, 2015). The presence of both these disease typologies pose immense challenge to the public health system as their risks are diverse. With progress in research in the field of non-communicable diseases (Chaix, Kestens, Bean, Leal, Karusisi and Meghiref, 2011; Yusuf, Hawken, Ôunpuu, Dans and Avezum, 2004; Pickett & Pearl, 2001; Diez Roux, Nieto, Caulfield, Tyroler, Watson and Szklo, 1999; Krieger, Chen, Waterman, Rehkopf and Subramanian, 2005; Ebrahim, Montaner and Lawler, 2004) the scope of environment has also expanded with a gamut of other factors being added to the context of the environment related diseases which includes social, political and cultural environments (Krieger et al., 2005).

Evolution of the concept of environmental health

Today, environmental health is identified as a term having its own definition, but such was not the case before. Ignorance of disease etiology led people to attribute their causes to various components of one's environment. The earliest records that mentions of the role of environment on human health could be found in Hippocrates' treatise "Airs, Waters & Places" written in the 4th century B.C. the most popular excerpt from which says that:

> *"Whoever wishes to investigate medicine, properly, should proceed thus in the first place to consider the seasons of the year, the winds, the hot and the cold....., qualities of the water"* (Adams & others, 1929).

Over the years, outbreaks of fatal diseases brought about enlightenment of disease causation. Before the germ theory era (started in 1860s with discovery of infectious microorganisms) when diseases like cholera, leprosy, plague, syphilis claimed large number of lives in a very short span of time, it was due to lack of knowledge of the causative agents that led people to attribute the cause of the disease to components of one's surroundings like air, water, meteorological conditions etc. (Rosen, 1993). This lack of knowledge of the real etiological agent not only claimed many lives but also saw deprivation of human rights (e.g. ostracisation of lepers) (Rosen, G. 1958). It was due to breakthrough discoveries by eminent scientists like Robert Koch and Louis Pasteur in the field of microbiology that causes of diseases can now be pin-pointed to a specific agent and interventions could be focused on those, leading to their elimination. Together with other breakthroughs, in the fields of vaccination and surgery, the

western nations (United Kingdom & United States of America) were able to successfully decrease and even eradicate almost all communicable diseases (e.g. cholera, typhoid, syphilis, diphtheria etc.) by the 1960s. This reduction of mortality was determined primarily by socio-economical and eco-biological factors as medical factors were inadvertent until the 20th century by which time the pandemics of infection like syphilis, cholera and diphtheria had already receded. On the contrary, in developing countries the mortality decline was directly determined by medical factors, due to the impact of imported medical technologies (Omran, 1971).

The recognition of the role of the physical/natural environment on health that led to the elimination of infectious (communicable) diseases in the west, (as early as the 1960s), has failed to make a similar impact on India (Dutta & Bharucha, 2015). Even though the nation was under the colonial rule for 200 years, a period when the British managed trade and administrative activities, public health interventions were implemented in a half-hearted manner. This is due to the enclavist and mercantilist nature of public health in colonial India i.e. health care were more dedicated toward the military and maintenance of international trade relations respectively (Mushtaq, 2009 & Polu, 2012).

This incomplete elimination of risks of past infectious diseases along with imported medical technologies that can cure the disease has led to an increase in life-expectancy. This has led to a neglect of environmental risks. Health policies in the country have focused largely on medical services such as the provision of curative care and personal prophylactic interventions such as immunization (Gupta, Khaleghian and Sarwal, 2003). The Indian Government uses two strategies for control of infectious diseases i.e. through vertical programmes like National Tuberculosis Control Programs, National Vector Borne Disease Control Program and National Leprosy Eradication Programme. There are provisions for ad-hoc assistance for possible outbreak investigation and control (John, Dandona, Sharma and Kakkar, 2011). Both these strategies are not preventive as the disease gains attention only after its incidence. With increase in life-expectancies chronic lifestyle related diseases started occurring. Risk factor studies of non-communicable diseases now are present in abundance in Indian literature in spite of burden from infectious diseases which are under-represented.

Thus, the main objective of this study is to address this double burden of disease in India i.e. communicable and non-communicable (CD and NCD) with the help of a study that finds out the prevalence of their risk factors (both in the physical and social environments) in two socio-economic groups. This was followed by identification of focal points for their interventions

Study Areas

One lower socio-economic group (LSG) and one higher socio-economic group (HSG) were selected from Pune, a city in western India also known as an emerging mega-city (Butsch, 2008). A megacity is a metropolitan region which has a population of 10 million or more. According to the census of India 2011, Pune metropolitan has a population 4 million. Due to its weather and importance as an information technology hub and education center it attracts students and job seekers from all over the country. Due to urbanization, the city has expanded which has clearly differentiated it into different cityscapes i.e. the oldest part looks different from the newly developed part. To represent these different phases, the study populations were selected from the city-center (highly congested, origin of urbanization, oldest part of the city), neo-urban (newly developing, comparatively less congested, pre-dominantly residential) and

peri-urban part of the city (partly urban and partly rural and 20 km from the main city) representing different phases of urbanization.

Methodology

A household survey and an observational survey were carried out to find the burden of self-reported morbidity and risk factors of the physical and social environments.

Diseases	Risk Factors
1. Communicable Diseases	**Risks for water borne diseases**
• **Water/Food borne diseases (WBD)**	•Drinking water characteristics (water source, timing and treatment)
• **Vector/Mosquito Borne Diseases (VBD/MBD)**	**Risks for Vector Borne Diseases (VBDs)**
	•Areas of water pooling (unpaved roads, improper solid waste management and water barrels)
• **Acute respiratory diseases (ARD)**	**Risk factors for Acute Respiratory Diseases (ARDs)**
	• Public transportation
2. Non Communicable Diseases	**Risk factors for NCDs**
• **Hypertension**	• Educational Level
• **Diabetes**	• Diet
• **Cardiovascular Disease (CVD)**	• Risk Habits (smoking, chewing tobacco & drinking alcohol)
• **Chronic Respiratory Disease (CRD)**	• Modes of transport
• **Cancer**	• Occupation type

Table 1: Information regarding the above diseases and their risk factors were collected

Household survey was used to collect information about the individual's age, educational level, self-reported morbidity, diet, risk habits, mode of transport and occupation.

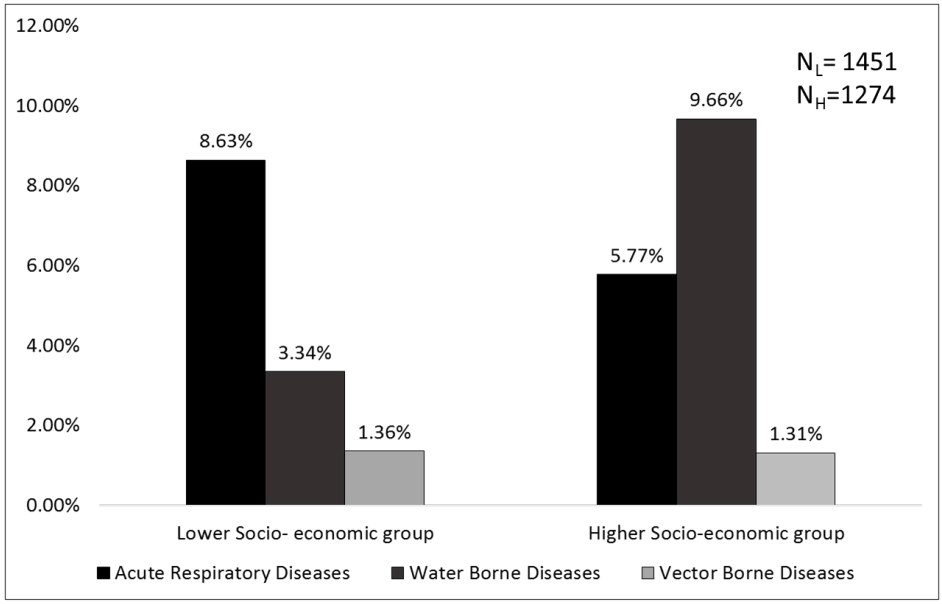
Observational survey was used to collect information on presence or absence of water barrels and presence or absence of communal sanitation.

Relative Risk (RR) was calculated for each risk factor (exposure) and the disease (outcome) that it is responsible for. RR describes the likelihood of developing disease or a negative outcome in a group that is exposed to risk compared to a group that is not exposed to risk. If RR >1 it implies that the group exposed to risk is more likely to get the disease or is more likely to experience the negative outcome. 95% confidence interval of the RR was calculated.

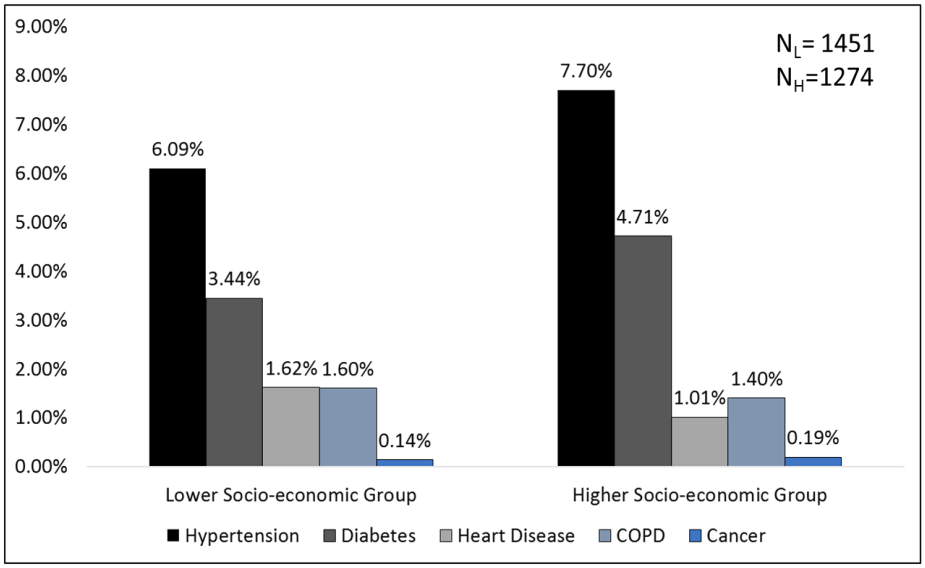
For identification of focal points for intervention, ecological model given by Urie Bronfenbrenner was used for three selected risk factors i.e. drinking water, risk habits and education

Results

1,451 individuals from lower socio-economic group (LSG) and 1274 from higher socio-economic groups (HSG) were interviewed. The burden of risk prevalent in these two areas will be discussed with respect to the diseases they are responsible for, in the following discourse.



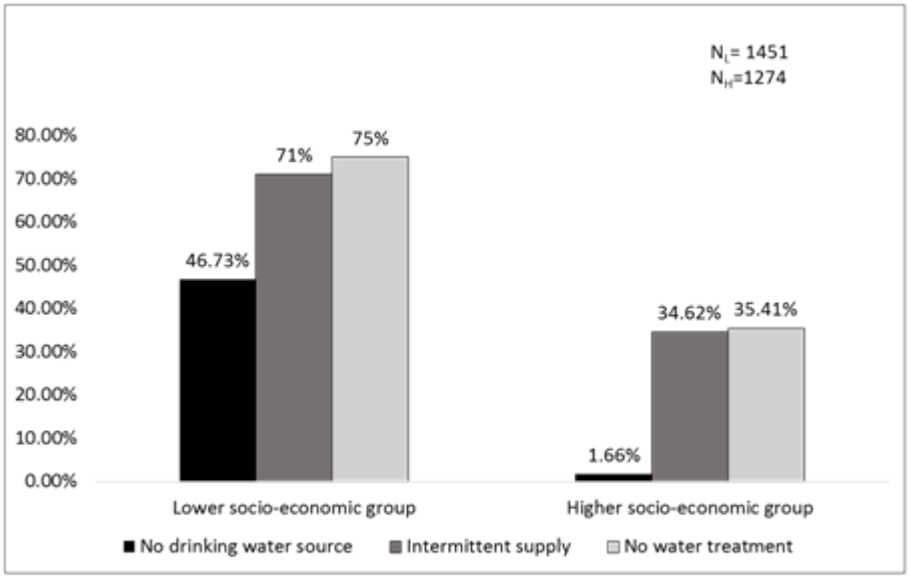
Graph 1a: Self Reported Age adjusted Morbidity from CDs in the 2 socio-economic groups (N_L =Sample size in LSG N_H = Sample size in HSG)



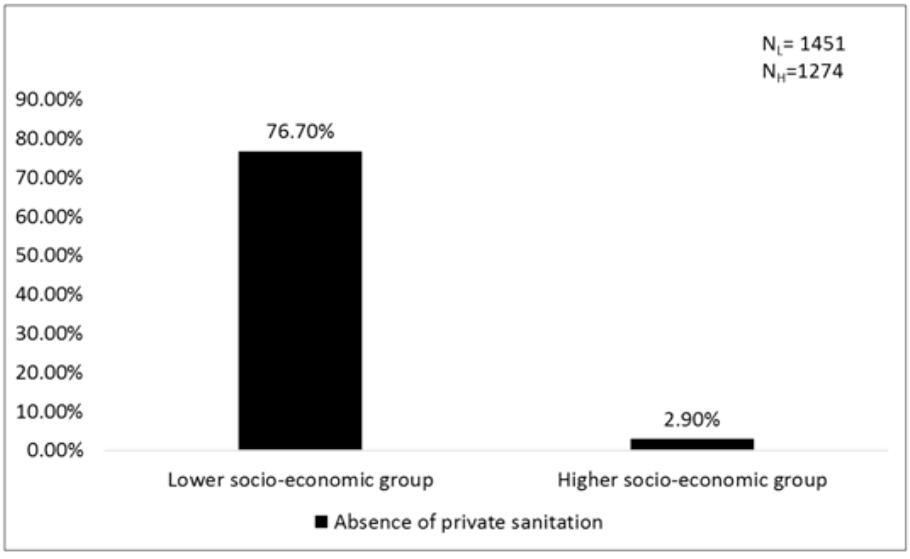
Graph 1b: Self Reported Age Adjusted Morbidity from NCDs in the 2 socio-economic groups (N_L =Sample size in LSG N_H = Sample size in HSG)

(A) Drinking water & sanitation

Drinking water and sanitation are important determinants of water borne diseases (WBDs). Drinking water characteristics in this study comprise of three components, namely, the source (household tap or public tap), supply timing (continuous or intermittent) and treatment at household level (boil, filter or chemical treatment). Sanitation was divided into private sanitation and communal sanitation.



Graph 2: Proportion of individuals exposed to risks related to drinking water characteristics in the 2 socio-economic groups (N_L=Sample size in LSG N_H = Sample size in HSG)



Graph 3: Proportion of individuals who lack private sanitation. (N_L=Sample size in LSG N_H = Sample size in HSG)

Risks from water and sanitation were higher among the lower socio-economic groups (see graph 2 & 3). In the city of Pune, the municipality supplies water for 3-4 hours in the morning to all houses having a piped water supply, which includes even the lower socio-

economic groups. The water then gets stored in a water tank that suffices the needs of the people for the whole day. Thus, the issue of intermittent water supply in the poorer groups is due to the absence of a storage tank in the households, which is not the problem among the affluent individuals. However, Graph 2 also shows that, 34.62% of the population in the affluent group did not receive a continuous water supply which is a considerable proportion. This scenario was particularly seen in the peri-urban part of Pune, where, the main water source is a river and according to the respondents, the water is not treated as efficiently and there is visible sediment from time to time. As a precautionary step the individuals buy bottled water instead. Thus even if they have an access to a continuous water supply, they are not able to use that facility. 35.41% of individuals from HSG also reported that they don't treat the water before drinking, which, even if lower compared to the LSG is still a considerable proportion. Here, it should be kept in mind that the water supplied is treated by the water distribution system, both in the peri-urban and urban households. Thus treating it at home (filtering/boiling/adding chemical) is just a precautionary measure that is taken to avert a disease incident which can occur in case of pipe leakages etc. This is why in spite of a large proportion of the population not treating water the self-reported morbidity remained quite low. This also could be due to under-reporting as gastro-intestinal diseases are frequent, but they recover fast and is not a determinant of mortality. This elicits a casual approach from someone who experienced the symptoms that were not very severe.

Absence of private sanitation showed a drastic disparity with 76.7% of the individuals in the LSG not having a private sanitation compared to 2.9% from the HSG.

RELATIVE RISK BETWEEN WBD & ITS RISKS FACTORS	Lower socio-economic group	Higher socio-economic group
Public tap	RR = 0.57 (CI = 0.31-1.02)ns	RR = 0.19 (CI = 0.04-0.79) s at 0.05
Intermittent water supply	RR = 1.36 (CI= 0.70-2.65)ns	RR = 0.79 (CI= 0.4-1.5)ns
No water treatment	RR = 0.92 (0.49 – 1.72)ns	RR = 1.45 (CI = 0.81-2.60)ns
Sanitation	RR = 0.79 (CI = 0.20-3.12)ns	RR = 0

Table 2: Relative risk between reporting of water borne diseases and its' risks. *ns = not significant*

The RR values (Table 2) indicate that individuals exposed to risks may not get the disease. However, RR>1, in case of intermittent water supply and lack of treatment but the values are not significant. The only significant association was in case of public tap in the HSG (RR= 0.19, P<0.05), which implies that presence of a public tap (which is considered as a risk,

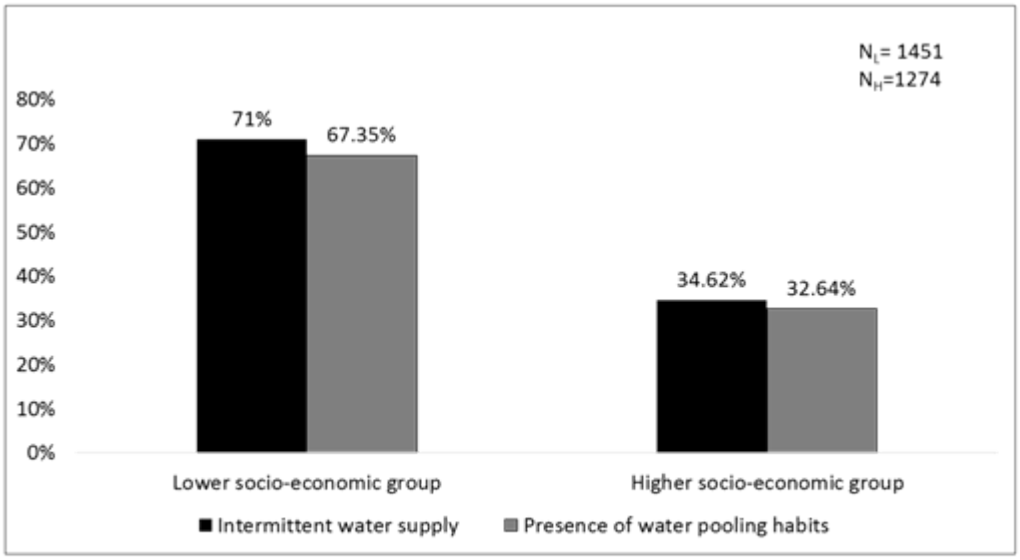
due to its susceptibility to contamination) was not responsible for the disease (as RR<1). This could imply that public tap was not responsible for the disease but the water may have got contaminated during transport or while storage

The RR between sanitation and WBD is 0 in the HSGs as the disease was reported by individuals who had private sanitation thus not having a private sanitation was not responsible for the disease.

This lack of significant expected association could be due to 2 reasons. Either, the water , after its collection from the private tap , was contaminated during storage or the individual was exposed to contaminated food or water elsewhere, information for which is not easy to collect as such events are incidental.

(B) Water pooling habitats (*water barrels, unpaved roads & solid waste management*)

Areas of water pooling are the most important risk factors for spread of mosquito borne/vector borne disease (VBDs). Mosquitoes require standing water bodies to breed and lay eggs thus barrels, unpaved roads and improperly managed solid waste or any other component that allows collection of water are potential sources for mosquito breeding. Intermittent water supply was also considered as a determinant for the disease as it leads to water storage in barrels by the lower socio-economic group outside the house in the absence of a proper storage tank.



Graph 4: Proportion of individuals exposed to risk related to vector borne diseases in the 2 socio-economic groups (N_L =Sample size in LSG N_H = Sample size in HSG)

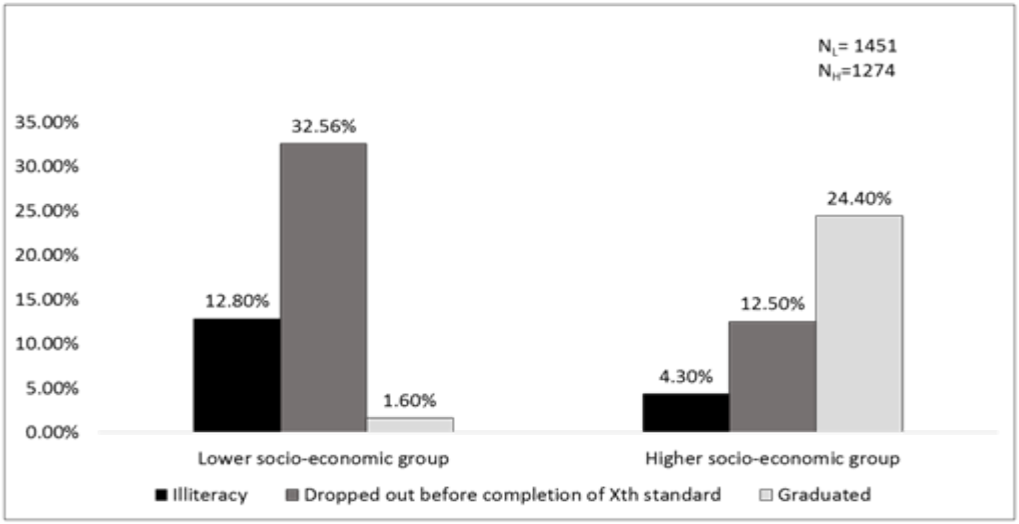
RELATIVE RISK BETWEEN VBD & ITS' RISK FACTORS	Lower socio-economic group	Higher socio-economic group
Intermittent water supply	RR = 0.70 (CI = 0.27-1.77)ns	RR = 0.37 (CI = 0.10-1.29) ns
Presence of water pooling	RR = 0.68 (CI = 0.28-1.71)ns	RR = 1.20 (CI = 0.4-3.6) ns

Table 3: Relative risk between reporting of Vector Borne Diseases and its' risk factors. ns: not significant

There was no significant association between any of the risk factors and reporting of VBDs. There can be 3 main reasons for this. Firstly, the individual may have got bitten elsewhere other than her home environment where water pooling was present. Secondly, presence of water pools don't guarantee the presence of the causative agent in the mosquito. Female mosquitoes need to carry the causative agent (which can either be parasite or virus) in order to be able to spread the disease. Thirdly, mosquitoes breeding on a standing water pool may fly and bite an individual who has not water pooling area in the proximity of her household. Other distal factors like humidity, temperature rainfall may have affected mosquito breeding.

(C) Educational Levels

Education does not affect an individual's health in a direct way. Rather, it gives rise to other situations. For example, it determines how an individual copes with stress (like resorting to some harmful habit), his/ her level of awareness of diseases and disease preventive strategies or adoption of risk behaviors, which may manifest into a negative health outcome. Thus, it can be said that education is an indirect determinant of health. There was a very clear socio-economic disparity in the number of illiterates, dropouts (before completion of Xth standard) and graduates (see Graph 5).



Graph 5: Attainment of educational levels in the 2 socio-economic groups (only the important stages are mentioned (N_L =Sample size in LSG N_H = Sample size in HSG)

An individual was considered to have completed her education after graduation. Since education is not a specific risk factor for any disease its association with reporting of both disease typology was checked i.e. CDs & NCDs

RELATIVE RISK BETWEEN EDUCATION AND THE FOLLOWING DISEASES	Lower socio-economic group	Higher socio-economic group
Communicable Disease	RR = 0.765 (CI = 0.57-1.03)ns	RR = 0.76 (CI = 0.46-1.26)ns
Non-communicable Disease	RR = 4.522 (CI = 2.99-6.82) p<0.0001	RR = 2.334 (CI = 1.74-3.12) p<0.0001

Table 4: Relative Risk between education and disease outcome ns: not significant

It is very clear from Table 4, that lack of basic education does not increase the likelihood for an individual to get infected by a CD which it does for an NCD.

In both groups individuals lacking basic education are more prone to suffer from an NCD and this association is stronger in the LSG. Lack of basic education leads one to adopt risky habits like tobacco, smoking and drinking either due to peer pressure or as mechanisms cope with stress. This is due to lack of awareness of the consequences as well as unawareness of constructive ways to manage stress. This gets translated into a chronic disease like chronic respiratory disease (CRD), cardiovascular disease (CVD) and cancer (oral cancer, lung cancer). Cancer reporting was very low (see Graph 1b). The comparatively lower relative risk in the higher socio-economic group is due to presence of a very low proportion of individuals lacking basic education (most are graduates).

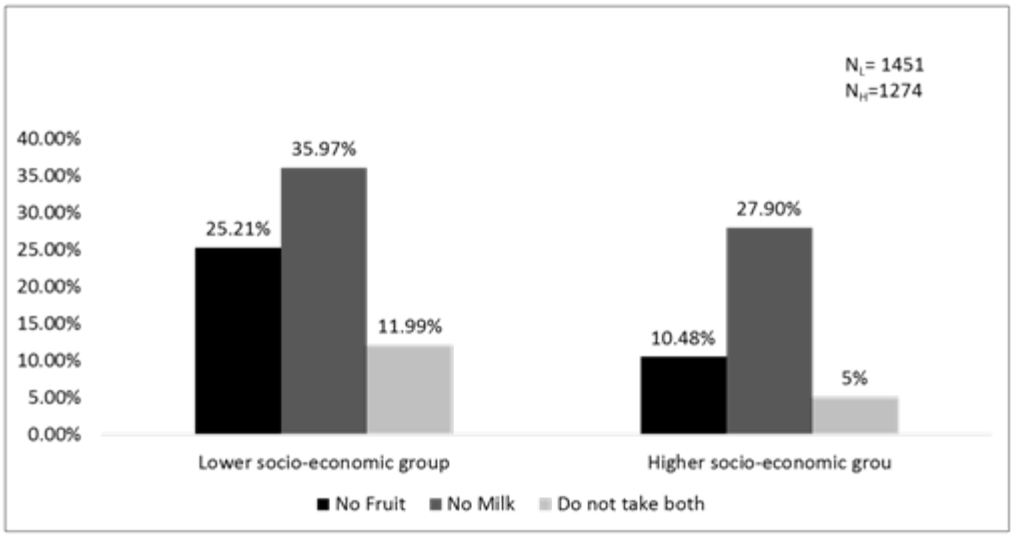
Lack of basic education did not show any significant association with self-reported morbidity of CDs. Most risk factors of CDs lie in the public domain. Public domains are public places of work, education, commerce and recreation as well as the streets and fields not under the control of a household whereas domestic domains are occupied by and are under control of a household (Cairncross, Blumenthal, Kolksy Moraes and Tayeh, 1996). For e.g. in case of water borne diseases risk factor of the public domain is the water distribution system. If the water in the distribution system gets contaminated then it can cause an outbreak indiscriminately irrespective of whether an individual is educated or not whereas risk factors of domestic domains are treatment of water at household level i.e. (boiling or filtering) and maintenance of public water taps which are dependent on hygienic behavior of the individual or the family. Similarly, for vector borne disease the water pooling habitats like unpaved roads (that can collect water post monsoon) is beyond the control of a household and under the control of the city administration. Thus, presence of unpaved roads is not associated to one's educational background. The risks of the domestic domain are presence of water barrels that the household use to store water and solid waste management that depends on both individual and community

behaviors. Also other instances like, the causative agent (parasite in case of malaria) needs to be carried by the mosquito. Number of water pools may determine number of mosquitoes but it does not guarantee the fact that each of the mosquitoes will carry the causative agent. Secondly, mosquitoes breeding in one area can fly and bite an individual who has no water pools in her vicinity. These factors explain why there was no association between education and reporting of CD.

On the other hand, risk factors of NCDs are linked to an individual's lifestyle which one adopts and modifies also depends on his level of awareness about diseases associated with a poor diet and other lifestyle attributes. This could have led to the association between the disease and its risk.

(D) Diet

An improper or unhealthy diet can lead to NCDs like diabetes and hypertension which are secondary risks for cardiovascular disease (Ellingsen, Hjerkinn, Arnesen, Seljeflot, Hjermann and Tonstad, 2006). Individuals were asked if they consume milk and fruit products on a daily basis.



Graph 6: Proportion of individuals not consuming fruits and milk in the 2 socio-economic groups (N_L =Sample size in LSG N_H = Sample size in HSG)

There was significant difference in the responses ($p<0.001$). More number of individuals reported that they do not consume milk and fruits on a daily basis. Relative risk was calculated and it was found that in the higher socio-economic group not consuming fruits and milk is associated with NCD reporting.

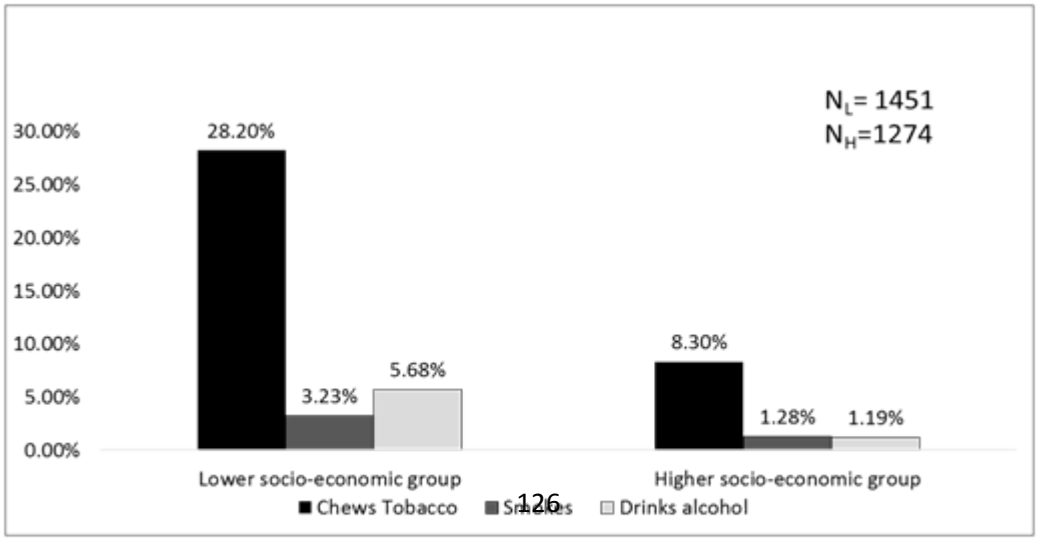
RELATIVE RISK BETWEEN NCD & INTAKE OF FRUITS & MILK	Lower socio-economic group	Higher socio-economic group
No fruit	RR = 0.81 (CI= 0.52-1.26)ns	RR = 1.61 (CI = 1.09-2.38)p<0.05
No milk	RR = 0.91 (CI = 0.63-1.34)ns	RR = 1.28 (CI= 0.93-1.74) ns
Don't have any	RR = 1.11 (p<0.66-1.87)ns	RR = 2.06 (CI = 1.31-3.25) p<0.05

Table 5: Relative Risk between Diet & NCD reporting (NCDs are hypertension, diabetes and cardiovascular disease) ns: not significant

Not consuming fruits and both milk and fruits showed a strong significant association with reporting of either of the NCDs, which in this case included hypertension, diabetes and cardiovascular diseases. Diet was not a significant determinant in the LSG. The strong association in the HSG may also be a reflection of poor dietary habits like fast food and food containing high fat that could be afforded by them. On the other hand, in spite of a higher number of individuals in the poorer group reporting that they do not consume fruits and milk on a daily basis, their routine diet is simple containing staple food like rice, cereals and vegetables. Also, due to unaffordability they are not exposed to rich and high fat foods.

(E) Risk habits

Risk habits comprised of smoking, drinking alcohol and chewing of tobacco. Smoking is a risk factor for lung cancer, chronic respiratory diseases as well as cardiovascular diseases, chewing of tobacco is exclusively related to oral cancer and alcohol to cardiovascular diseases (Sugathan, Soman and Sankaranarayanan 2008)



Graph 7: Proportion of individuals (age adjusted) with risk habits in the 2 socio-economic groups (N_L =Sample size in LSG N_H - Sample size in HSG)

Chewing of tobacco was the most common risk habit followed by alcohol and smoking in the LSG. In both the groups risk habits commenced at 11-20 years. Age specific risk habit was highest in the age group 61-70 years with 83.63% in the LSG and 35.04% in the age group 51-60 years in the HSG. Since number of cancer cases was very low and was not of oral or lung type they were ignored from the analysis of association.

RISK HABIT & EDUCATION	Lower Socio-economic Group	Higher Socio-economic group
To what extent education influences risk habit of an individual?	RR = 5.84 (CI = 4.61-7.41)p<0.0001	RR = 4.28 (CI = 3.10-5.90) P<0.0001

Table 6: Relative risk between education and risk habit

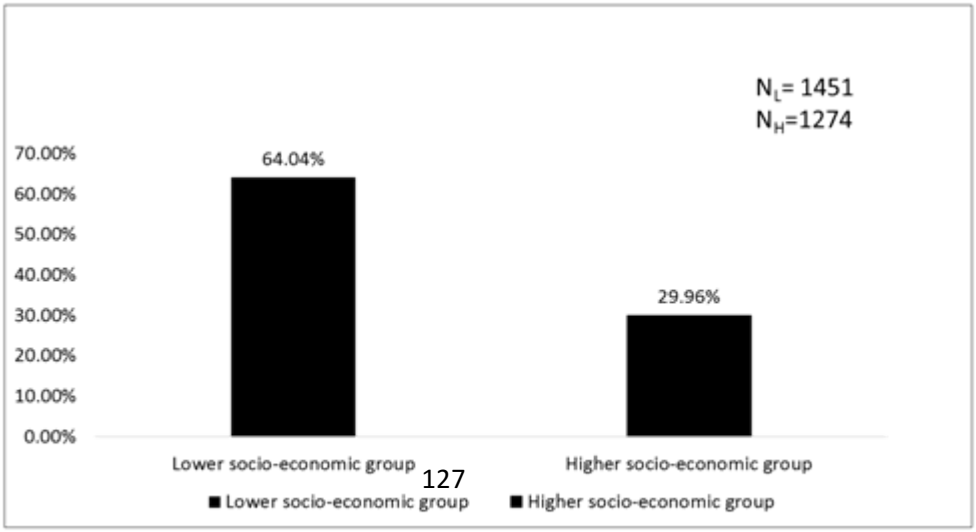
Table 6 shows that individuals lacking basic education are 5.84 times and 4.28 times more likely to report a risk habit in the LSG and in the HSG respectively. Individuals not having basic education was considered the exposed group in the analysis

RELATIVE RISK BETWEEN RISK HABIT AND NCD	Lower socio-economic group	Higher socio-economic group
To what extent does risk habit give rise to an NCD (CVD, Diabetes, hypertension and COPD)	RR = 3.88 (CI = 2.68-5.63) p<0.0001	RR = 2.79 (CI = 1.96-3.97) p<0.0001

Table 7: Relative risk between risk factors and NCDs (CVD, Hypertension, COPD)

Table 7 shows that an individual having any one of the risks is 3.88 times and 2.79 times more prone report an NCD in the LSG and HSG respectively.

(F) Transportation



Graph 8: Proportion of individuals who take public means of transport in the 2 socio-economic groups (N_L =Sample size in LSG N_H = Sample size in HSG)

In this study, mode of transportation was divided into 2 categories i.e. public and private. Public modes included bus, auto, travelling on foot and train whereas private modes included two wheelers and private cars. Using public mode of transport on a daily basis can be a risk for respiratory infections both acute and chronic (Dora, 1999) in a country like India due to high congestion and air pollution.

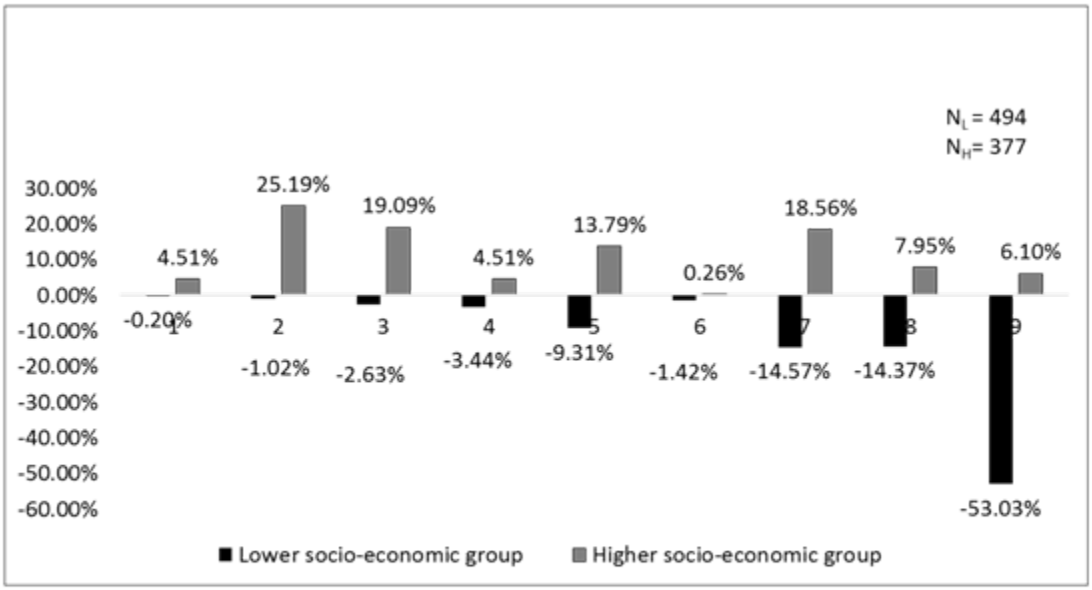
RELATIVE RISK BETWEEN PUBLIC MODE OF TRANSPORTATION AND RESPIRATORY DISEASE	Lower socio-economic group	Higher socio-economic group
Public Mode of Transport & Acute Respiratory Disease	RR = 1.44 (CI = 0.99-2.08)p=0.05	RR = 1.04 (CI = 1-1.05)p<0.05
Public Mode of Transport & Chronic Respiratory Disease	RR = 0.79 (CI = 0.52-3) ns	RR = 2.35 (CI = 0.81 – 6.84)ns

Table 8: Relative risk between public modes of transport and respiratory diseases in the 2 socio-economic groups. ns: not significant

Public modes of transport showed significant association with acute respiratory diseases (cold and cough) in both the socio-economic groups. Acute respiratory diseases (ARD) are also the number one cause of morbidity in India (WHO, 2008).
Even though, in the higher socio-economic group individuals who take the public transport are 2.35 times to get a chronic respiratory disease (CRD), the value is not significant. This may be due to very low proportion of individuals reporting CRD.

(G) Occupation

Besides education, occupation is another indicator of one's socio-economic status as it determines the income level of the individual and her expending abilities which also includes affordability of healthcare. Occupation of the employed individuals were categorized into 9 categories (as provided by the National Classification of Occupation of India) which has classified occupations from high end jobs to low end jobs (e.g. from professionals, legislators and associates to elementary occupations like owning of food stalls, waste pickers and other jobs that don't require any definite skill or educational qualification).



Graph 9: Proportion of individuals belonging to different occupational categories (N_L =No. of employed individuals in a classifiable occupational category in the LSG N_H= No. of employed individuals in a classifiable occupational category in the HSG

The proportion of individuals who are unemployed were significantly lower in the lower socio-economic group (23.15%) compared to the higher socio-economic group (26.67%) ($p<0.001$). Number of employed individuals were also higher in the LSG (38.12%) compared to HSG (34.60%). The rest are either retired, studying or small children. The above graph shows occupational classification of the employed respondents.

Occupation has been associated with hypertension and cardiovascular diseases (Saha, Dey, Samanta and Biswas, 2008; Abt and Tranter, 1999) depending on the level of stress and strain (both mental and physical) of the job. After classifying the individuals according to the occupations they belonged to, they were further divided into 2 categories. Classification ranging from 1-6 were considered to be high-end jobs and 7-9 were considered as low end jobs. Relative risk between a low-end job and reporting of NCD was then calculated.

RELATIVE RISK BETWEEN OCCUPATION AND NCD	Lower socio-economic group	Higher socio-economic group
Occupation & Hypertension	RR = 3.76 (CI = 0.91-15.60)ns	RR = 0.38 (CI = 0.13-1.09) ns
Occupation & Cardiovascular Disease	RR = 0.69 (CI = 0.18-2.58)ns	RR = 0.67 (CI = 0.07-6.39) ns

Table 9: Relative risk between occupational type and NCD (cardiovascular, hypertension). ns: not significant

There was no significant association between occupation type and NCD i.e. CVD and hypertension. Here it is important to note that being exposed to health risks in the workplace also depends on the awareness of the employee and precautionary measures provided by the employers. Different occupation type has different health hazards thus in order to learn about occupational health hazards, occupation specific risks need to be studied

Focal points for intervention

Diseases depend on risk factors. Risk factors further, have under-lying causes for their introduction, either into the physical environment or in humans. These underlying factors can be present at the micro (lowest) level e.g. one's local environment or at the macro (highest) level e.g. laws and policies implemented to govern a region. In 1979, Urie Bronfenbrenner gave the Ecological Model of Health Behavior. The model states that there are multiple influences on specific health behaviors that include factors at, intrapersonal, interpersonal, organizational, community and public policy levels (Sallis, Owen and Fisher, 2008). They are commonly called as micro meso and exo-systems. A micro-system is the immediate setting of an individual which includes the home environment, school environment, work environment, leisure environment etc., the meso-system contains the interrelations among the major settings containing the individual at a particular point in his or her life e.g. stress at work place and support system at home can increase or decrease the level of stress. Finally the exo-system is an extension of the meso-system embracing the concrete social structure both formal and informal that encompasses, the political and cultural environments, decision making at policy levels (Brofenbrenner, 1976). Influences on behaviors interact across these different levels. Thus, multi-level interventions should be most effective in changing behavior. Unless one addresses these underlying factors these risks cannot be eliminated.

RISK FACTORS	MICROSYSTEM	MESOSYSTEM	EXOSYSTEM
Drinking water (with respect to source, treatment and timing)	1. Socio-economic status of the individual (determines whether he/she has a piped water, continuous water supply) 2. Behavioral attributes determining treatment at household level, water storage 3. Hygienic practices	1.Treatment of water by the public distribution system 2.Maintenance of distribution pipes 3.Quality of quality provided in public places where the individual spends sufficient amount of time	1. Public distribution system
Education	1. Socio-economic characteristics of the individual 2. Perceived benefits of education by the individual and his/her family members 3. Educational attainment of family members 4. Social group the individual belongs to	1.Perceived benefits of the society (peers and relatives) the individual belongs to 2.Infrastructure of school and distance from home 3.Attitude and dedication of the teacher 4.Incentives like free lunch and fee waiver 5.Child Labor (as it does not allow a child to go to school)	1. Educational policies 2. Investment in education 3. Policies on child labour
Risk habits	1.Risk habits present/absent among family members 2.Level of addiction 3.Family support or attitude of the family members towards that risk habit 4.Peer group 5.Stress level	1.Advertisements endorsing use or 2.Physician counselling 3.Availability of shops in the vicinity of house or work-place 4.Easy availability due to cheap price	1. Imposing of taxes e.g. tobacco taxation

Table 10: Microsystem, meso-system and exo-system of the risk factors that were identified

Conclusion

To address the issue of disease burden from both communicable & non-communicable diseases in India the study emphasizes the need for an environmental health monitoring system that would monitor risk factors of the physical (non-living) as well as the social environment taking into consideration the stark socio-environmental heterogeneity of Indian scenario.

From the household survey we see that certain risk factors like education and risk habits have a strong association with the disease but in other cases the association is weak and not significant i.e. drinking water, areas of water pooling, diet, occupation etc. One should not conclude from here that since statistical association is missing the risks can be allowed to linger on in the environment. Risks are not causative agents (Last, 2001) rather, they are attributes that increases the susceptibility of one to a disease, according to World Health Organization as of April 2016. Presence of risk factors in the environment are warnings of possible untimely negative outcomes in future.

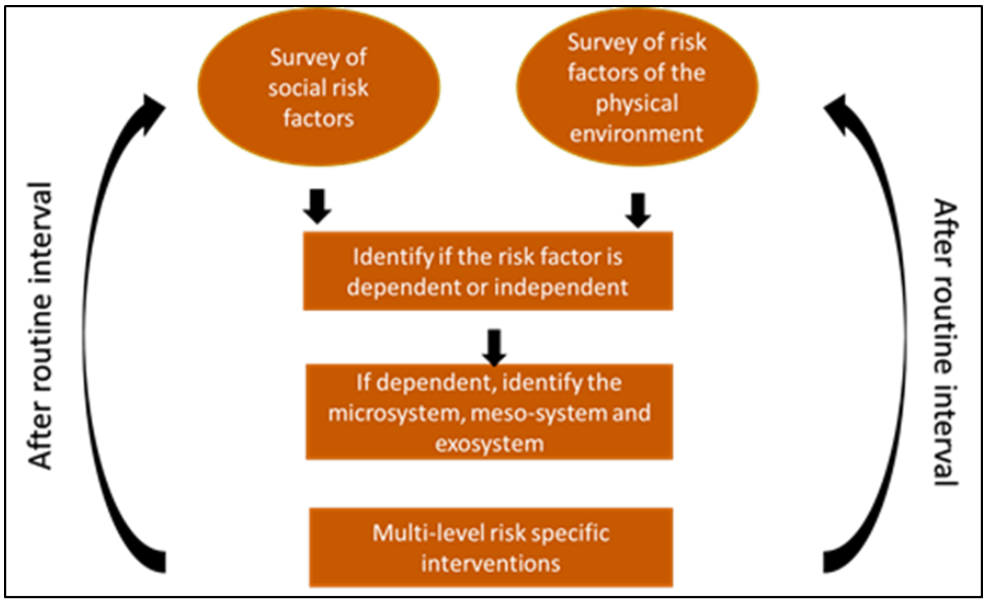


Fig1: Framework for an environmental health monitoring system

Thus, an environmental health monitoring system will monitor the prevalence of all known risks, followed by interventions that will identify stakeholders at multi-levels who will help in working towards eliminating the risk. An ecological approach towards monitoring of these both kinds of risk factors need to be adapted, as elimination of these from the individual as well as from the environment is complex. Acknowledgement of not only the dynamic relationship between humans and their environments but also differentiation of this relationship into different levels are pre-conditions to focused and effective interventions.

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Women Education and Empowerment: Its Impacts on Socioeconomic Development in Bangladesh and Nepal

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Abstract

Women education is penetratingly associated with the formation of women's identity, decision making capability, mobility and contribution to the socioeconomic development of household, community and nation. For decades, in developing-patriarchal countries like Bangladesh and Nepal men's preference advocated for women's modest education. Hence, how especially education empowers women by enhancing their active participation in sustainable socioeconomic growth and human capital development (by delaying marriage, managing family-size, increasing gross family income and escalating literacy rate) needs to be studied. In this paper, time series and cross-sectional data have been analyzed by using econometric software EViews. Data from World Bank, IMF (International Monetary Fund), BBS (Bangladesh Bureau of Statistics), and CBS (Central Bureau of statistics) of Nepal have been used as secondary information for descriptive and quantitative analysis. The analysis demonstrates there is positive and significant impact of women education on the socioeconomic growth of Bangladesh and Nepal. The study also brings light on the agenda of formulating effective educational policy for women education in developing countries.

Keywords: Socioeconomic development, women education, developing countries

Introduction

Every civilized society considers education sector as a necessary indicator of economic and social advancement. The necessity of equal role for men and women cannot be denied in a nation's developmental process. In order to achieve social, cultural and economic prosperity it is highly necessary for human societies to utilize its human capital. In the developing patriarchal countries like Nepal and Bangladesh in South Asian region, women education plays a crucial role in sustainable socioeconomic development. The major focus of this paper is to demonstrate the connection between women education and nations' development, which to be achieved by maintaining nations' socio-economic wellbeing (starting from delaying marriage, managing family-size, increasing gross family income and escalating literacy rate as well). As women education is penetratingly associated with the formation of women's identity, decision-making capability, mobility and empowerment educated women are found more capable of making a contribution to the socioeconomic development of household, community, and nation.

The World Bank has identified women empowerment as one of the key constituent elements of poverty reduction, and as a primary development assistance goal. The Bank has also made gender mainstreaming an importance in development assistance, and is in the process of implementing an ambitious strategy to this effect. A policy research report by the World Bank (2001a), for example, identifies gender equality both as a development objective in itself and as an instrument to enhance growth, minimize poverty and encourage better governance.

Yet to date neither the World Bank nor any other major development agency has developed a rigorous method for measuring and tracking changes in levels of empowerment (World Bank, 2002). In the absence of such measures, it is difficult for the international development community to be self-confident that their efforts to empower women are ensuring that the important Millennium Development Goals (2000) will be achieved. Interestingly, most of the development parameters show better results in Bangladesh and Nepal than the other neighboring countries although women are often found in more vulnerable condition (if we analyze data taking Millennium development goal in consideration). The root causes of vulnerability are limited access of education hence less empowerment to them. It again tries to address in sustainable development goals (SDG) which are going to start from 2016 (Report of sustainable development 2016).

Oxaal's (1997) study on females in the developing countries has found women typically receiving less education than males. In the countries with high GNP there seems to be greater educational equality for males and females but amongst the poor countries, there is considerable variation, both in overall levels of enrolment and in female/male enrolment ratios. Factors such as social and cultural attitudes and policy priorities along with development disadvantage factors are significant in low women enrolment in such countries. For most poor households in these countries, household work is preventing girls from attending schools. Other constraints are concerns about girls' safety both in school and journeying between home and school, especially at their puberty in nations like Bangladesh and Nepal. World Bank (1995), investment in female education has been asserted by the World Bank as an important development strategy for the developing countries which has been broadly agreed across a range of agencies and governments. Its advantages have been explained with the examples of positive health and fertility with the example of Pakistan, the country of study taken by World Bank (1995).

Todaro and Smith (2015, 2012) pointed out the lack of skilled manpower in developing economies as one of the constraints for development. Drucker (1974) observed that a country is underdeveloped because it is undermanaged and unexpectedly, management has become a

critical constraint in the underdeveloped countries which in turn reminds the concept of World Development Report (2009) that economic growth is seldom balanced. For instance, high poverty, illiteracy, and mortality in some parts of the world set against the prosperity, literacy, and longevity in other parts are challenging the balance and resulting in ever-growing gaps between the developed and developing world to be urgently addressed to protect the enterprises in developing countries until they are ready to compete (World Bank 2009).

Rational and objectives of the study

I. Women's education in developing countries is considered less important, which seems to create hindrance to the formation of women's identity and power.
II. Women are in vulnerable situation in developing countries and basically women education enhances them in decision making capability and mobility.
III. Educated women can participate in various income generating activities thus can help more in financing families.
IV. Educated women have more chances of employment; when around 50% population actively participate in income generation it contributes to the national economy as well.
V. Women education and empowerment contribute to the socioeconomic development of developing countries like Nepal and Bangladesh

Hypothesis

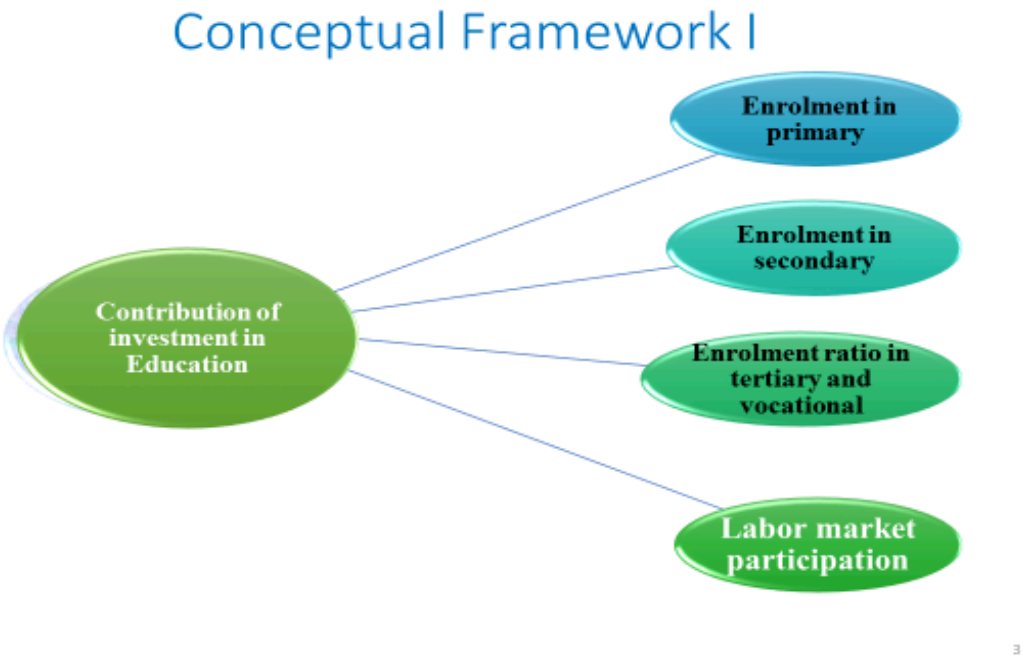
H1: Women education and empowerment have significant impact on women enhancement in developing countries like Nepal and Bangladesh.

H2: Women education has positive impact on economic growth in developing countries like Nepal and Bangladesh.

H3: Women education has significant impact on labor force participation in developing countries like Bangladesh and Nepal.

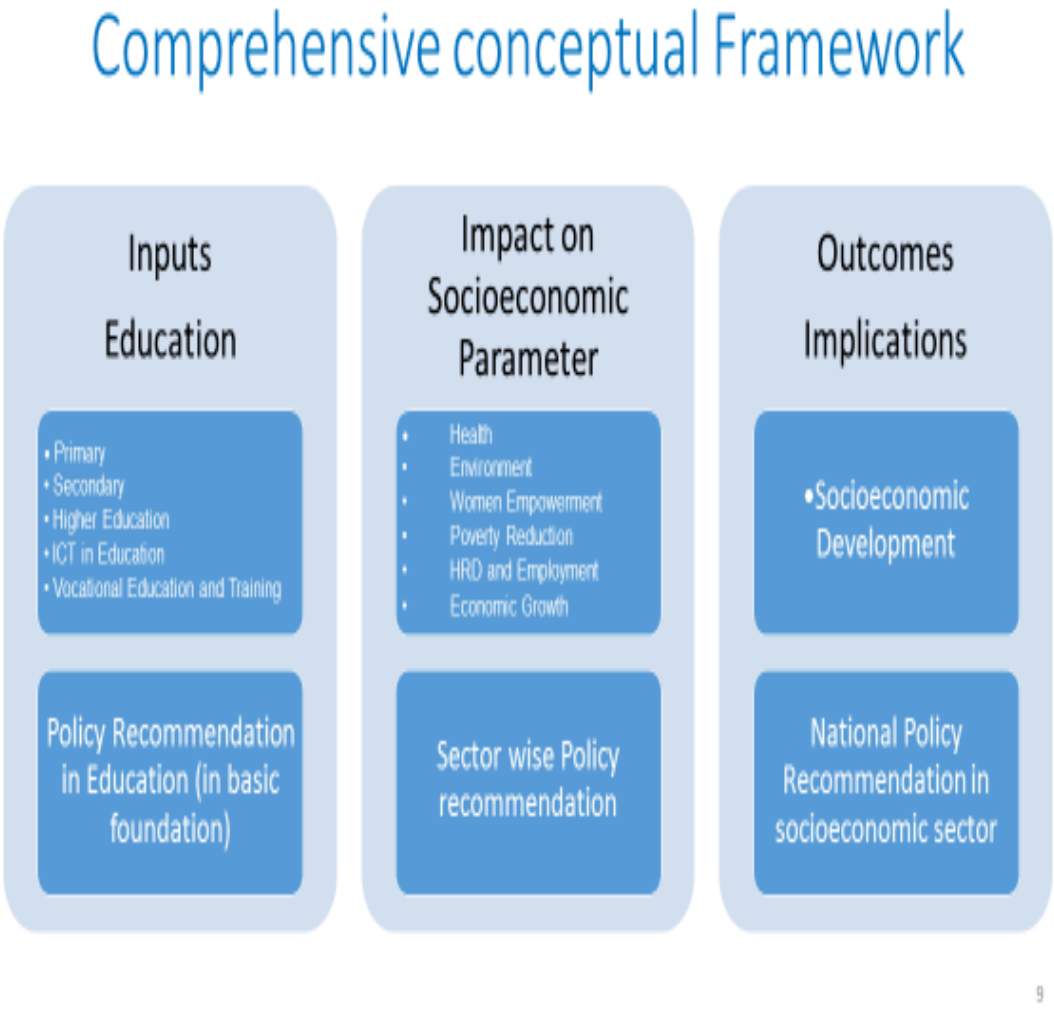
H4: Women education has positive impact on socioeconomic development of developing countries like Nepal and Bangladesh.

Conceptual Framework



The above conceptual framework shows there is interrelation between dependent variable that is investment in education and independent variable which are primary education, secondary education, tertiary education and its contribution to labor market participation.

The lower comprehensive conceptual framework shows that basically there are three sectors in this study which are inputs, impact and output. This complex structure shows the education sector is the backbone of socioeconomic changes and development.



Source: Authors own model for Ph.D. research

Background of study areas

This research paper tries to cover the core areas of research in developing countries where female education gets less priority either from patriarchal perspective or religious perspective or the perspective of poverty. Most of the south Asian, African and the countries of sub-Saharan are in the similar situation. Problems are so deep rooted in these areas which should be analyzed and find some alternative solution to overcome from these persistent problems. In this paper, the attention is given to some selected south Asian countries like Bangladesh and Nepal, and some other countries for cross country comparison as well. Although women education in other south east Asian countries are also given less importance the idea behind selecting Bangladesh and Nepal is that there are similar macroeconomic parameters and women status in terms of education and women empowerment. The rationale for choosing Nepal and Bangladesh is that

both the countries represent many features of political conflict and the transitional aspects of developing countries. Nepal is one of the successful political whose new constitution deviates from the former unitary system by dividing the country into seven federal states. The new constitution guarantees inclusion of women, lower caste groups, tribal groups, people from the southern plains, Muslims and other marginalized communities into the state mechanism by means of proportional electoral system at the federal and state levels (Nepal's constitution, 2015). In Nepal although more than 50% population is of women, their participation in education and income generating activities is in far poorer in comparison to males. What could be the key strategies to overtake the country from vicious circle of poverty? As education is linked with so many socioeconomic factors like heath, environment, poverty, HRD, women empowerment and so on this current study proposes education one of the prime factors which may expedite and sustain the development process.

Bangladesh is also a small Southern Asian country, bordering the Bay of Bengal between Burma and India. People's living standard of Bangladesh and Nepal are similar from various perspectives especially from women empowerment zone. The values of the most of the socioeconomic parameters of both countries are similar too. Bangladesh with an impressive track record on growth and development in south Asia can be the major trade partner of Nepal in different areas and products. If we look back the past decade, the economy has grown at nearly 6 percent per year, and human development has gone hand-in-hand with economic growth. The poverty falling rate is also significant since 1992. The interesting part is that the macroeconomic condition, women education and empowerment level of Bangladesh are comparable with that of Nepal. For decades, in developing-patriarchal countries like Nepal, Bangladesh and many Asian countries men's preference advocated for women's modest education. Hence, how especially education empowers women by enhancing their active participation in sustainable socioeconomic growth and human capital development (by delaying marriage, managing family-size, increasing gross family income and escalating literacy rate) needs to be studied.

Education is fundamental to promote agency, which expresses the capacity of rural poor to escape from poverty and hunger with their own power. An educated woman is more likely to find a job, but has also, ceteris paribus, a capacity to use more rationally the resources she owns (Sen, 1999). Educated and informed people have more probability to select valuable objectives in life, such as having stable access to food for their household as "female literacy is unambiguous and statistically significant reducing impact on under five mortalities, even after controlling for male literacy" (Sen, 1999, 197).

Literature review

A gender equality perspective draws attention to the need for non-education sector policies to reduce women's disadvantage through legal reforms and enforcement of existing legal protection in the areas such as justice and compensation for physical attack, especially laws on the employment of young children, and laws relating the age of marriage (Brock & Cammish, 1991). Thus, it is recommended that investment is made more intensive in non-formal and job-oriented training for women (Herz et al., 1991). Besides, the high opportunity costs of girls' education in loss of household labor underline the need for non-education sector investment. For example, in Morocco, a survey indicated that apart from non-education sector investments different kinds of investment were more important in increasing female enrolment than males (Oxaal, 1997).

Women's empowerment in relation to microcredit programs is a prominent issue in the literature of microcredit. Microcredit is an extension of very small loans to insolvent borrowers

who typically lack collateral, steady employment and a verifiable credit history. Microfinance sponsors economic development, employment and growth through the support of micro-entrepreneurs. Not only the founder of the Grameen Bank was awarded the 2006 Nobel Peace Prize on the microcredit program of Bangladesh but it has also been a topic of great interest for researchers since its introduction in mid-1970s. The study views women's empowerment from an emancipation perspective (Sayma et al., 2009).

The experience from Bangladesh has shown that rural women are more competent in management than men hence, micro finances in Bangladesh have targeted them to provide loans with an ultimate objective to empower and alleviate women's poverty. In Bangladesh, 94% of microcredit borrowers are women and the recovery rate of loans is 98% (Grameen Bank Annual Report, 2006). Bangladesh Grameen bank's credit contribution has been marked by the rise of household consumption too (Khandker, 1998). As implied, it is worth stating that an empowered woman is confident in her ability; is capable of leading her life independently; is socially as well as economically independent; is opinionated, enlightened and has freedom of all sorts of domination; and finally she is someone who is capable of standing for her own rights (Sayma et al., 2009). The World Bank Policy Research Report on engendering growth (King & Mason, 2001) unambiguously suggests that equal status to both sexes is essential for sustainable economic growth and reduction of poverty in the less developed countries. On the other hand, research brings an idea that achievement of greater authority in the household by women is an important policy goal for improving not just the well-being of women themselves, but also that of children in the households (King & Mason, 2001).

Afridi (2010) examines the extent to which inequality in educational investments in male and female children in India varies by the degree of empowerment of the mother within her household. While educational level determines women's ability to access market opportunities outside the household, the extent of her autonomy reflects the social and cultural institutions that determine her control over the use of her own or other household members' resources within the family. The analysis establishes the presence of a robust, positive relationship between mother's empowerment and a smaller sex difference in household investments in children's schooling. Taken together, the results indicate that in families in which mothers are more educated and have greater authority; discrimination against educational investments in daughters is less. This result is robust to unobservable family characteristics that impact on the schooling of both daughters and sons equally and to any possible endogenous relationship between women's empowerment and family size.

Regarding the importance of women empowerment, Chakrabarti & Sharma (2012) observe that a woman in a society is recognized as a key agent to accelerate the developmental processes that are sustainable (World Bank, 2001). It is supposed to play the critical role in the development through a multiplier process. However, women's empowerment does not merely mean that their up-liftmen and providing opportunities to them in the context of basic human rights; it is an environment, which ensures the full freedom to make use of the opportunities and in which equality with men can be enjoyed by all women everywhere.

Chakrabarti & Sharma's (2012) study is an exercise to explore possible directions of causation of level of women's empowerment, a latent variable, with related factors with the view to identify the causes of slow growth of it in India applying the 'Structural Equation Modelling' (SEM) method to Third National Family and Health Survey data conducted during 2005–2006. The results recognize the inefficiency of education and employment policies formulated in India

for women required to bring about behavioral changes among women to fight against the norms of patriarchal society, though significant regional variations are not to be denied. The study thus, suggests for priority to an awareness campaigning program to change social norms.

In addition, the benefits of female education for women's empowerment and gender equality in terms of family health, fertility, reduction in child mortality, girls' enrolment, women's earning capacity, legal awareness and educational attainment, are broadly recognized. Morrison (2007) perceives education as an important component of opportunities and empowerment. Female education improves human development outcomes such as child survival, health, and schooling; the impacts on these outcomes are larger for a given increase in women's education than for an equal increase in men's education (World Bank 2001).

Ojha (2012) in his rigorous study about women and poverty focuses on inequality and discrimination in access to resources which have implications for the well-being of women, their families, and communities, as well as for economic growth and development. Priority must be given to identifying and addressing women's unequal access to economic and financial resources, including employment, social security and productive resources such as land, property and natural resources. Particular attention needs to be given to the obstacles faced by poor women in accessing micro-financing. Women's access to social protection schemes, including unemployment benefits, health insurance, and pension schemes should be increased throughout the life cycle. Research on the gender perspectives of climate change needs to be further strengthened. Bajracharya (2010) in his study has found that women in developing countries, particularly mothers, have dual roles in their households as income generators and primary caregivers to their children.

Economic integration and economic development are taking place all around the world, affecting both developed and developing countries. In the latter, women's absolute participation in economic activities, as well as their wage, is increasing. However, the shifts from lower-waged and low-skilled employment lag behind the global trends. Women often experience a high rate of displacement, as more skilled labor is needed (Mehra & Gammage, 1999). With this in mind, investigating the effects of economic integration on female labor market outcomes is, therefore, of great importance to gain further insights into how to enhance women's opportunities on the labor market.

An education system or educational policy provides a strong vehicle for the development of a country. In this direction, Nepal has experimented with several systems (Pyakuryal & Subedi, 2000). Improved educational opportunities open the doors to better income and advanced agricultural productivity, help combat harmful legacy views of gender roles, allow people to make smarter choices surrounding health risks and behaviors, and offer a broader view of the environment and global economy. This in turn directly links to poverty-reduction efforts, for instance, the family faces less poverty-related restrictions if the family head has some education comparatively.

Informal education and child development programs have not been effective due to lack of inter-ministerial coordination and lack of ownership among local bodies, lack of support from politicians in program operations, and lack of information management and reporting system in the education sector at lower units (MOF/Nepal, 2010a). Despite significant improvements in educational attainments, inequality persists in literacy rates across all regions, castes, and ethnic groups and by gender (UNDP, 2009b). Some of the reasons are a lack of timely printing of textbooks, geographical remoteness, natural calamities, and general strikes etc. There are also

difficulties in delivery of food items, maintaining its quality, its storage, and regular distribution under Food for Education Program (MOF/Nepal, 2010a).

In Bangladesh, almost half of the population consists of women. Nevertheless, "women continue to lag behind men in the educational and economic fields" (Jayaweera, 2006). The gender gap is even wider in higher education. A 2002 World Bank report suggests that in Bangladesh female students represent 24 percent of the student population in public universities. Gender disproportion is even stronger in the country's private universities, where only 17 percent of all students (and less than 1 percent of all teachers) are female. In Bangladesh, the proportion of female educators at the tertiary level is estimated at a mere 4 percent of the teaching staff. Although the Government continues to place importance in educating women in Bangladesh (an example of such an initiative is the 1997 National Women's Advancement Policy) the women participation in education and workforce and another developmental action is still far less than expected.

Data and Methodology

In this research paper, the sources of information (data) are taken from different published sources like World Bank, International Monetary Fund (IMF), Human Development Reports (HDRs), CIA World Fact-Book (2015), Central Bureau of Statistics (Nepal), and Bangladesh Bureau of Statistics, Economic Surveys of Nepal and Bangladesh and various other development and gender reports.

Gauss, C. F. (1808) used the technique of Ordinary Least Square has been used as method of regression analysis under certain assumptions namely, the equation to be estimated is linear in parameters, is non stochastic, has zero mean value, possess equal variance of distribution etc. The study period of this research is 1995 to 2013/14 on the basis of availability of data. The following equation is used to estimate model.

$$\text{Ln (GDP)} = C0 + C1 \ln(IE) + C2 \ln(ME) + C3 \ln(FE) + C4 \ln(LFP) + Un \ldots\ldots\ldots\ldots \quad (1)$$

Equation (1) is for Nepal.

Where GDP, IE, ME, FE, LFP and U representing Gross Domestic Products (dependent variable), (independent variables) investment in education, male education, female education, labor force participation and error term respectively, whereas C0, C1, C2, C3, C4 are coefficients denote respective parameters and Un is error term in equation of model (1).

$$\text{Ln (GDP)} = C0 + C1 \ln(IE) + C2 \ln(ME) + C3 \ln(FE) + C4 \ln(MLP) + C5\,(FLP) + Ub \ldots\ldots \quad (2)$$

Equation (2) is for Bangladesh

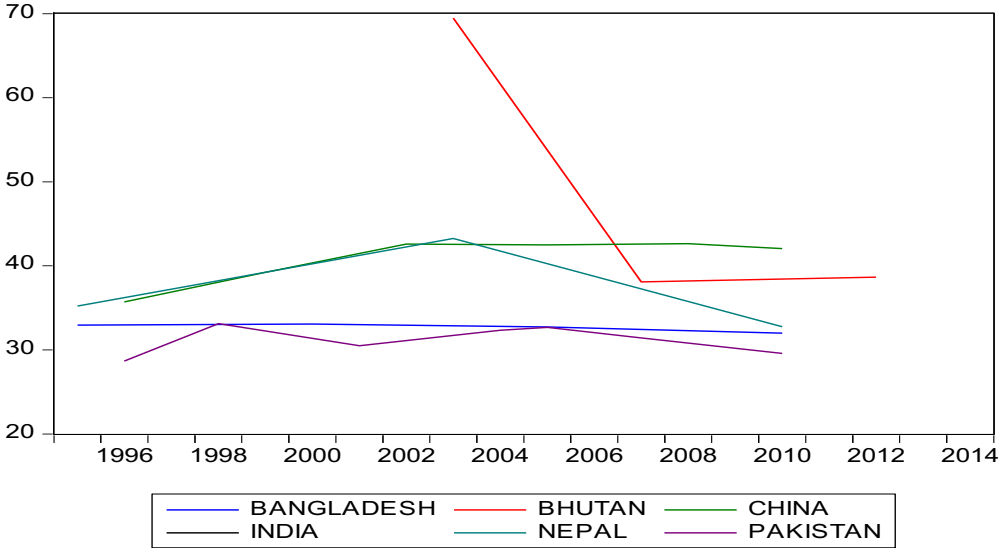
Where GDP, IE, ME, FE, FLP, MLP and Ub representing Gross Domestic Products (dependent variable), (independent variables) investment in education, male education, female education, female labor force participation, male labor participation and error term respectively, whereas C0, C1, C2, C3, C4, C5 are coefficients denote respective parameters and Ub is error term in equation of model (2)

Analysis, result and discussion (descriptive and quantitative)

Descriptive analysis

Descriptive analysis is made on the basis of data available in World Bank data source (2015), HDRO calculations based on data from UNDESA (2015), UNESCO Institute for Statistics (2015), United Nations Statistics Division (2015), World Bank (2015a), Barro and Lee (2014) and IMF (2015), CBS Nepal and BBS Nepal.

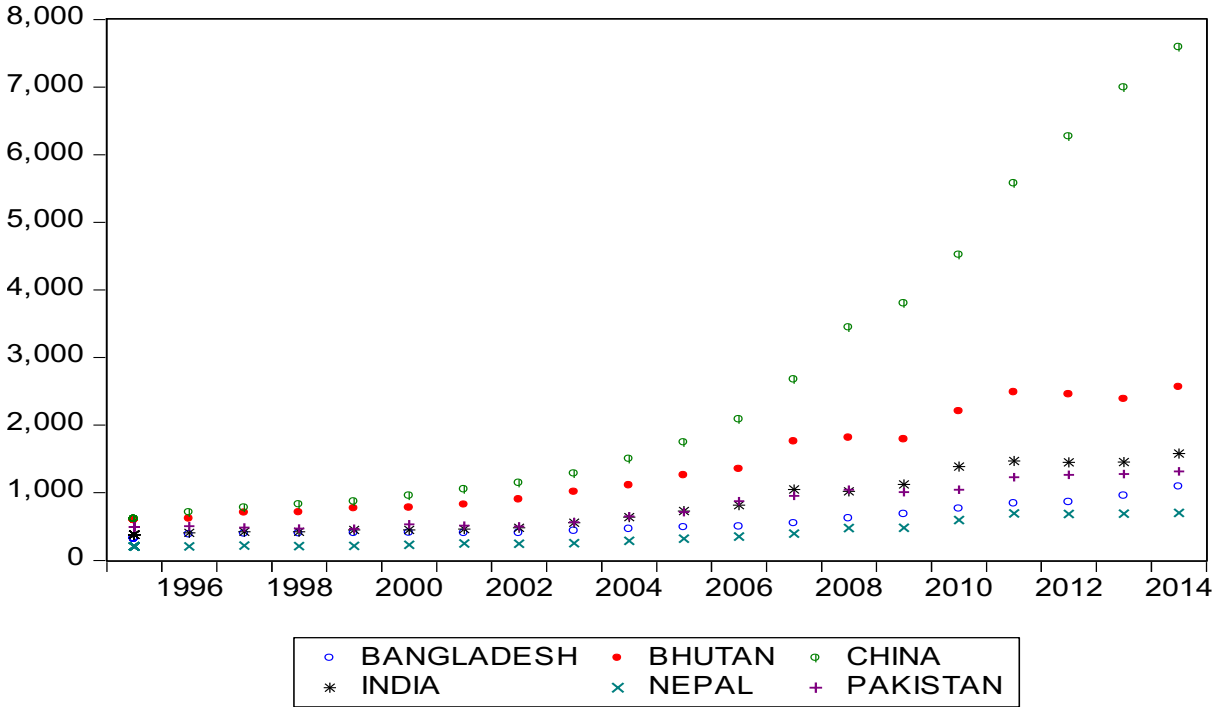
Figure 1. Gini index (World Bank Estimate)



Source: World Bank data 2015

Figure 1 shows the Gini coefficient, which shows the gap between have and have-nots (Rich and poor). In this area Bhutan had terrible data before 2008 and after 2004 different country are managing their Gini coefficient. Nepal is also doing significant progress in this area after 2004.

Figure 5. GDP Per Capita (Current US$)



Source: World Bank data 2015

In figure 5 per capita income of China is higher than other countries and it shows that economy of China is booming now. In second position there is Bhutan which is followed by India and the economy of remaining countries is found in lower size.

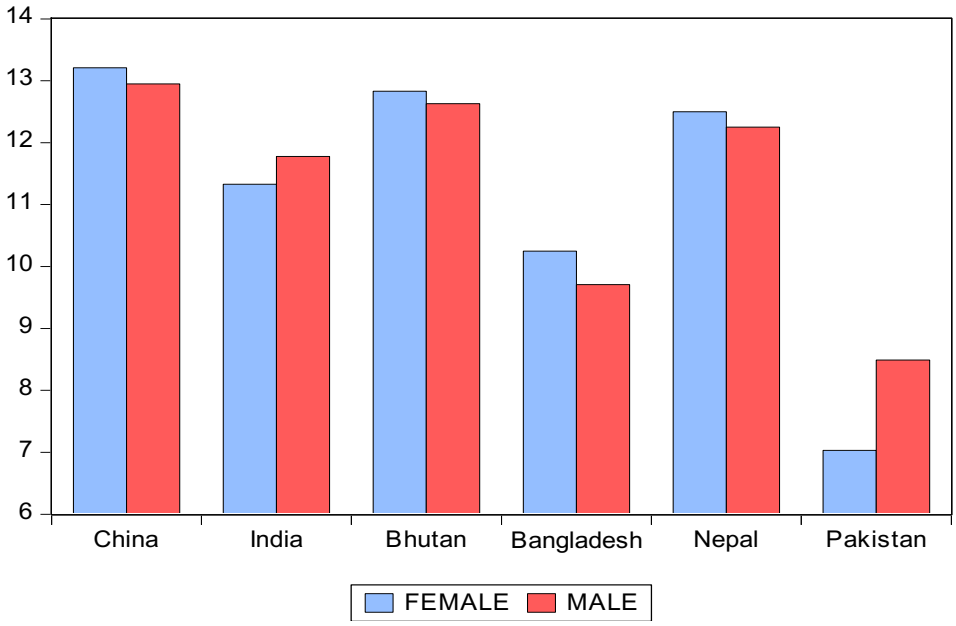
Table 1. Expected years of schooling (2014)

HDI rank	Country	Expected years of schooling
90	China	13.07
130	India	11.70
132	Bhutan	12.62
142	Bangladesh	9.98
145	Nepal	12.35
147	Pakistan	7.79
	Very high human development	16.41
	High human development	13.62
	Medium human development	11.78
	Low human development	9.00
	Developing countries	11.71

Source HRD report (2015)

Table 1 shows the expected years of schooling. Expected years of schooling means the average schooling of the people. In the table China, Nepal and Bhutan are in tremendous progress followed by India and Bangladesh. But Pakistan is found in lower in the scale.

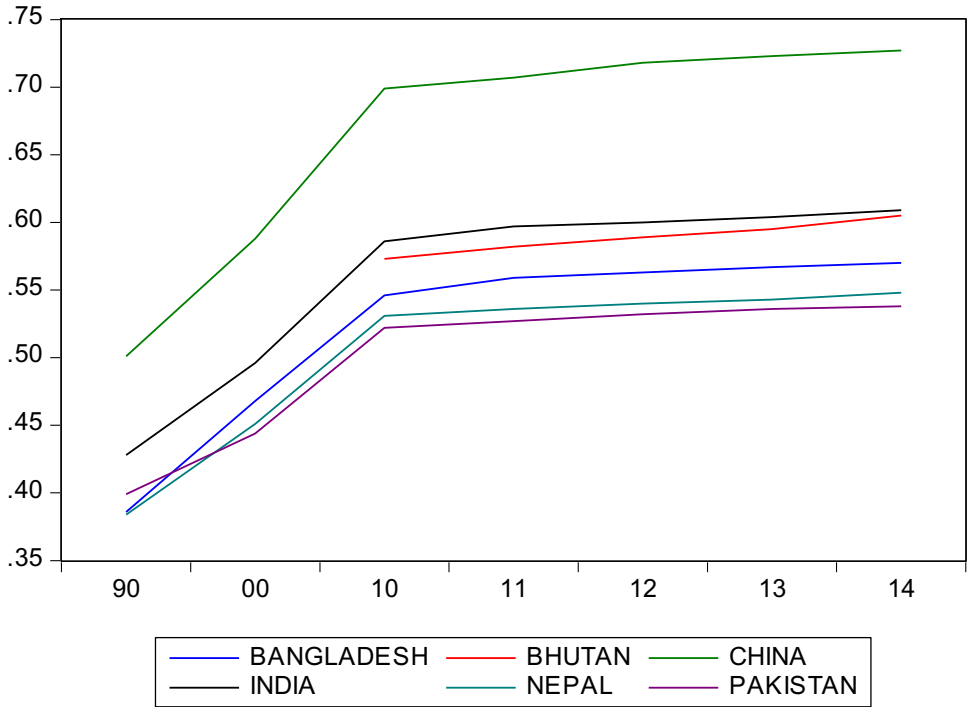
Figure 6. Expected Years of schooling (2014), Gender prospective



Source HRD report (2015)

In figure 6 expected years of schooling is given from gender perspective. China, Nepal and Bhutan seem to show better results as average years of schooling are high. Moreover, women's average schooling is greater than that of men's. This is a very important sign and indicators of women empowerment. In this regards remaining countries India, Bangladesh are seen lower in scale, but the case of Pakistan little is quite alarming.

Figure 7: Trend of Human Development Index (HDI), 1990-2014



Source HRD report (2015)

Figure 7 shows the trend of human development index. Here China is found again in the best condition and followed by India, Bhutan and the status of remaining countries is lower in scale.

Table 2. Gender Development Index, HDI and life expectancy at birth (years)

		Gender Development Index(GDI)		Human Development Index (HDI)		life expectancy at birth(years)	
		GDI Value	GDI group	Female	Male	Female	Male
HDI Rank	Country	2014	2014	2014	2014	2014	2014
90	China	0.943	3	0.705	0.747	77.30	74.30
130	India	0.795	5	0.525	0.660	69.50	66.60
132	Bhutan	0.897	5	0.572	0.638	69.70	69.20
142	Bangladesh	0.917	4	0.541	0.590	72.90	70.40
145	Nepal	0.908	4	0.521	0.574	71.10	68.20
147	Pakistan	0.726	5	0.436	0.601	67.20	65.30

Source HRD report (2015)

Table 2 is related to Human Development Index (HDI), Gender Development Index (GDI) and life expectancy by birth. In this China is leading in three different categories. HDI of remaining countries are following China.

1.1.1. **Analysis of Issues and methodology**

Model for Nepal

Model OLS diagnostics using Eviews 8

$$\text{Ln (GDP)} = C0 + C1\ \ln(I) + C2\ \ln(ME) + C3\ \ln(FE) + C4\ \ln(LFP) + Un \ldots\ldots (1)$$

Where

GDP, I, ME, FE, LFP and U represent Gross Domestic Products (dependent variable), (independent variables) investment in education, male education, female education, labor force participation and error term respectively, whereas C0, C1, C2, C3, C4 are coefficients denote respective parameters and Un is error term in equation of model (1).

Table 4. Data analysis for Nepal

Dependent Variable: LNGDP
Method: Least Squares
Date: 03/08/16 Time: 03:26
Sample: 1995 2013
Included observations: 19

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNI	0.079959	0.033847	2.362382	0.0332
LNFE	0.191902	0.207599	0.924387	0.3709
LNME	-0.233683	0.223897	-1.043706	0.3143
LNLFP	0.488750	0.246283	10.10525	0.0000
C	-17.73849	4.326128	-4.100315	0.0011

R-squared	0.946698	Mean dependent var	24.31776
Adjusted R-squared	0.995755	S.D. dependent var	0.340182
S.E. of regression	0.022165	Akaike info criterion	-4.559668
Sum squared resid	0.006878	Schwarz criterion	-4.311131
Log likelihood	48.31684	Hannan-Quinn criter.	-4.517606
F-statistic	1056.481	Durbin-Watson stat	0.583744
Prob(F-statistic)	0.000000		

Analysis, finding and report for Nepal

In the above analysis GDP is dependent variable where if we increase 1% in investment in education GDP will be increased by 7.99%. The analysis shows if we increase 1% in female education it impacts 19.19% increase in GDP which is more exciting result and there is strong positive relation. But in the case of male education analysis it shows negative relation. As there was a civil war in Nepal almost for 10 years and most of the youth were involved in revolution it had negative impact on the nation's economy. The war took place in between 1996-2006 but this study focused almost on the same period that is 1995-2013. There is significant and positive impact of labor force participation in the GDP of the country.All individual value of t-statistics are not significant but the value of F-statistics is <5% so combined impact of all variables to GDP is positive and significant. So, research clearly shows that there is vital role of women education in socioeconomic development of Nepal. There is high value of R square 0.9466 that means 94.66% value of dependent variable that is GDP is explained by the given independent variables like investment in education (IE), female education (FE) at least secondary, Male education (ME) at least secondary and labor market participation (LMP). There was serial/autocorrelation and serial correlation has been removed by taking second lag in LNGDP by using Breusch-Godfrey serial test. Moreover, there is no heteroscedasticity which is checked by Breusch-Pagan-Godfrey test. Residuals are normally distributed which is tested by Histogram Normality that is Jarque-Bera test

Model for Bangladesh

Model OLS diagnostic:

$$\text{Ln (GDP)} = C0 + C1 \ln(IE) + C2 \ln(ME) + C3 \ln(FE) + C4 \ln(MLP) + C5 (FLP) + Ub \ldots (2)$$

Where GDP, IE, ME, FE, FLP, MLP and Ub represent Gross Domestic Products (dependent variable), (independent variables) investment in education, male education, female education, female labor force participation, male labor participation and error term respectively, whereas C0, C1, C2, C3, C4, C5 are coefficients denote respective parameters and Ub is error term in equation of model (2).

Table 6. Data analysis for Bangladesh

Dependent Variable: LNGDP
Method: Least Squares
Date: 03/08/16 Time: 10:49
Sample: 1995 2013
Included observations: 19

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNIE	0.072762	0.053223	1.367103	0.1948
LNFE	0.237882	0.098354	2.418629	0.0310
LNME	0.316956	0.157811	-1.374781	0.1924

LNFLP	1.904752	0.278218	6.846250	0.0000
LNMLP	0.555128	0.204857	2.709832	0.0179
C	-17.38494	2.599788	-6.687062	0.0000

R-squared	0.968900	Mean dependent var	26.17551
Adjusted R-squared	0.998477	S.D. dependent var	0.419220
S.E. of regression	0.016363	Akaike info criterion	-5.135539
Sum squared resid	0.003481	Schwarz criterion	-4.837295
Log likelihood	54.78762	Hannan-Quinn criter.	-5.085065
F-statistic	2360.479	Durbin-Watson stat	1.539547
Prob(F-statistic)	0.000000		

Analysis, finding and report for Bangladesh

- In the above analysis GDP is dependent variable if we increase 1% in investment in education GDP will be increased by 7.27%
- In this research analysis it shows if we increase 1% in female education it impacts 23.78 % increase in GDP. It shows a strong positive relation of nation's GDP with female labor force participation (FLP)

- In the case of male and female education analysis it shows both have positive and significant relationship to GDP.

- There is significant and positive impact of labor force participation; both male labor force participation (MLP) and female labor force participation (FLP) in the GDP of the country.

- All individual value of t-statistics are not significant but the value of F-statistics is <5% so combined impact of all variables to GDP is positive and significant.

- So, research clearly shows that there is vital role of women education in socioeconomic development of Bangladesh

- There is high value of R square 0.9689 that means 96.89% value of dependent variable that is GDP is explained by the given independent variables like investment in education (IE), female education (FE), Male education (ME), Female labor participation (FLP) and Male labor participation (MLP)
- There is no serial correlation by using Breusch-Godfrey serial test
- There is no heteroscedasticity which is checked by Breusch-Pagan-Godfrey test
- residuals are normally distributed which is tested by Histogram Normality that is Jarque-Bera test

Testing of variables for stationary: Unit root test is done by using Augmented Dickey–Fuller (ADF) test. Test result shows that all variables are stationary; there is no random walk at certain level either in no difference, first difference and second difference. ADF is used to test all three

i.e. intercept, trend and intercept and none by using automatic selection in Schwarz Info Criterion (SIC) test**.**

Conclusion

This research clearly shows that there is crucial role of women education in socioeconomic development and economic growth of Nepal, Bangladesh and many least developed and developing countries. From the rigorous review of various literature, descriptive analysis and quantitative analysis it is likely crystal clear that there is significant role of women education in various development paradigms. This research work is also primarily meant to find the reasons of gender inequality in education in Nepal and Bangladesh and its further impact on GDP growth. The critical link between the status of women in society, particularly literacy levels-empowerment, and a nation's economic growth is now well understood. The low socio-economic status of women in these countries is beginning to be recognized as a potentially significant drag on the country's growth.

Recommendation for policy implications

From the above analysis and findings of the government of Nepal and Bangladesh we recommend for giving high priority for women education, training and other human resource development programs to get high labor market participation, which enhance faster economic growth and socioeconomic development. Because analysis shows there is significant degree of positive relation between economic growth and other independent variables which are considered in this model. All the above descriptive analysis shows that women education plays the crucial role in delaying marriage, managing family-size, increasing gross family income and escalating literacy rate within the family. Policy makers should keep these things in mind and should formulate more female promoting policies.

Women education is key factor of female labor force participation which has important role to increase productivity and economic growth, so more budget should be allocated in education, training and women empowering programs. Research also shows that countries which are more promising in socioeconomic and multidimensional development have more gross enrolment ratio in primary education, secondary education and tertiary education of women and both gender. So government should formulate the policy accordingly.

Research also shows gender development indexes (GDI), human development index (HDI) and life expectancy rate at birth are significantly correlated with level of education in both sexes. So the developing countries should revise their policies accordingly. Current conflict of some countries, women deprivation and high population growth rate, multidimensional poverty index, Gini coefficient and poverty ratios either at national level or total headcount ratio with minimum $ 1.90 per day also related to level of education. If governments are able to provide time relevant education to all then most of the above problems should be automatically solved or adjusted.

In the light of all recommendations above it might be asserted that women education contributes significantly to the economic growth and socioeconomic development of Bangladesh

and Nepal. So government of these countries and rest of other developing countries should consider investing at HRD, and policy should be formulated with accordance with the gender equity in relation to women education and empowerment. Finally, to narrow it down, a Chinese proverb is narrated below:

> "If you are planning for a year, sow rice; if you are planning for a decade, plant trees; if you are planning for a lifetime, educate people".

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Looking for the Guilty in the Family Disconnect: The Case of Istanbul

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Abstract

As Horkheimer claimed, by the spread and development of mass communication devices, the family has been turned into a tool that serves to adapt to the capitalist system. Since media technologies have entered the private sphere of the home, the capitalist ideology of individualization has transformed the concept of family. In the age we live in, use of media in family leisure times prevents family members from communicating and spending quality time together. The important point is, up to this day, most of the research has been made on youth, blaming them for addictive media usage and recommending to parents several ways of keeping their children away from media at home. However, there is the ignored fact that today, parents are also intense media users, and this is one of the very important reasons why their children are pushed towards media addiction. This study aims to demonstrate that in Turkish houses also covered with media technologies, communication within the Turkish family is decreasing, and parents play a significant role. . Through focus group interviews with ten families living in Istanbul, it is pointed out that parents mostly think of 'leisure time' as a time they spend by themselves, and with media usage. Moreover, young children mostly blame their parents for addictive media usage at home, and for not spending time with them. Therefore, for better family relationships and hence better lives, adults' media usage habits need to be researched.

Keywords: Turkish family, individualization, media, leisure time.

Introduction

As media technologies get cheaper, more mobile and personal, they fill a big part of individuals' times today. In the age we live in, almost every house on the planet is full of media. Increasing use of media at home threatens the communication among family members, and prevents them from spending quality times together. Even if family members are physically present altogether in the living room, they are mentally far from each other.

Horkheimer (1998) claimed, since modernity has set the stage for the development of the mass communication devices, family has been turned into a tool to serve the system, and it has been produced by the entertainment industry. As most of the educative roles of parents have also been given to schools and other social groups, relationships between parents and their children have changed, and the institution of family has become defenseless against the ideology of the media technologies at home.

Media really have a significant role in understanding today's families. Media technologies are useful for keeping family members who live far from each other, connected. However, when they are used in in-house family leisure times, they push families towards being disconnected. Television still has its importance in houses, but more importantly, the internet is the primary technology that pushes family members to get individualized (Mesch, 2006). New media technologies (that include internet) like smartphones, which provide access to multiple functions through their applications, make it especially possible for family members to stay together physically, but apart from each other mentally. Ley, Ogonowski, Hess, Reichling, Wan and Wulf (2014) call this as "viewing together with different interests".

After modernity, both children and parents have become very busy with school and work outside of home, so that family members can hardly come together. 'Home' is the most significant place where family members meet and interact. Young people (children, according to parents) interact with their parents mostly at home (Offer, 2013). For that reason, in-house family leisure time activities ("Core Family Leisure Time Activities", in Zabriskie and McCormick's definition, 2001) are quite important for a well-functioning family.

Communication is the key component of the functioning of a family. “Family Systems Theory” by Zabriskie and Mccormick (2001) suggests spending time together and having a shared reality can improve communication of the family. In this context, some theorists (Padilla-Walker, Coyne, Fraser, 2012; Boudreau and Consalvo, 2014) argue that consuming media with other family members (like chatting about a TV program, or playing video games together) in family leisure times can produce contents for family communication. However, doing solitary leisure time activities seem to be more attractive for family members, and this threatens the family institution. For most of the theorists, media technologies do not aim to strengthen the family, but they aim to free the individual (Turrow, 2001). To be able to define this role of media in family life, Turkle (2010) suggests that people become "post familial families" when they go home in the evening, whereas Flichy (1995) calls this same situation as "living together separately". In this context, in the age we live in, 'home' becomes an area of individual activities, like a 'hotel', in Kumar's (1995) words.

Although almost all of the studies (Roberts, 2000; Campbell, 2005; Lee & Chae, 2007; Lin, Lin, Wu, 2009; Correa, Hinsley, Zuniga, 2010; Liu, Fang, Deng, Zhang, 2012; Babey, Hastert, Wolstein, 2013; Panek, 2014) took it for granted up to this day that youth are addictive media users in a way that negatively affects their face-to-face relationships (beside many other dangers), therefore their media use must be limited; this study claims that parents might give youth a reason for media addiction. Today, parents seem to get busy with mobile technologies, rather than their children, and it is not only for work. Parents consume a lot of media during in-house leisure times, and that causes their children to get lonely. Those children who feel lonely in their house, try to fill the void of their parents’ absence and feelings that only the institution of 'family' can give, through communication technologies. As Turkle demonstrated from her research, there are many children that feel lonely. Some of

them feel lonely because both of their parents work and when they come home, they spend time with media rather than with their children, or some of them feel lonely because their parents got separated. In this context, media technologies fulfill those children's need of belonging (Turkle, 2010). Cakir (2014) explains this by suggesting that people desperately look for the need of 'belonging' in cyber communities.

A report released in Europe by Family Platform (2010) demonstrates that children tend to use media as much as their parents do. According to Rudi, Dworkin, Walker and Doty (2014), couples with children tend to use more media at home and they are more positive about it. The irony is that parents spend a lot of time with media, but on the other hand, they try to prevent their children from addictive media usage. It is mostly ignored that actions and behavior of parents serve as an important example for their children and their lack of attention pushes children towards excessive media usage (Liu et al., 2012).

This is a global situation, and it is not different in Turkish families. The most recent extensive research is Turkish Family Structure Research (*Türk Aile Yapısı Araştırması*, 2013) done by the Ministry of Family, and it demonstrates that they also tend to spend their in-house family leisure times with a high percentage of media (both television and internet) use. Therefore, through ten focus group interviews conducted with Turkish families, this study aims to demonstrate an in-depth picture of parents' role in the disconnection within the family.

Method

This research has been done through the qualitative method of focus group interviews because using qualitative methods to search for social phenomena provides more detailed and expressive results. In focus group interviews, interaction among group members has a significant role in stimulating the appearance of different perspectives, and determining their natural expressions about the subject (Çokluk, Yılmaz, Oğuz, 2011, pp. 97-105).

Three open-ended questions were asked to ten focus groups of families, and in this way, participants discovered their unnoticed habits or behavior. To be able to obtain validity and reliability, "Maximum Diversity Sampling" has been used (Yıldırım & Şimşek, 2013). In this respect, families have been chosen from those (consisting of 29 individuals - both parents and children of a certain age) living in Istanbul, which have different structures in terms of family members, and diverse socio-economic and demographic backgrounds (e.g. families that have children, families that do not have children, newly married couples, young parents-older parents, nuclear family, single parent family and a family living with a member from the older generation, working class family, middle class families and an upper class family).

A common feature of all these families is that they all use media and new media technologies actively in their family leisure times. To be able to make the research in its natural context, interviews took place in the families' homes. The interviews were done with couples and their children (if there are any) who can express their thoughts.

Before the interviews, participants have been informed about the research in detail, and their consent was taken. All of these in-depth interviews (each of which lasted around 60 minutes) were recorded and transcribed verbatim. Each transcribed interview was read thoroughly and a thematic content analysis was done.

Results

Perception of the New Turkish Family

First of all, participants were asked to compare today's Turkish family structure with the old-traditional Turkish family. Most of the participants think that compared to the older crowded and sharing structure of a Turkish family, today's nuclear family is more preferable although its members are disconnected from each other, because it lets individuals to be more free:

- Tuba (A10, 29, university degree, working): When I was a child, our family was more crowded and different from today's family, but now we do not have that intimacy.

Today, when we are in the same house altogether, no one speaks to each other, but everyone has their mobile phones in their hands. My grandfather used to tell us stories when we were children, but now he does not, because no one listens to him, because everyone is busy with their smartphones. But still, I think today's nuclear family is better.

- Ahmet (A10, 32, university degree, working): There was more sharing in the traditional Turkish family...

- Nilay (A5, 28, university, not-working): I think today families spend less time together, because parents and children socialize separately. We meet with our parents only in the evening, but rarely talk to each other.

- Aslı (A8, 42, doctor): Everyone has their own personal space now, but in the past, one did not have that chance, everybody in the house had to stay together.
- Mehmet (A8, 44, doctor, professor): Now we lessen sharing with family and leave time for ourselves... It is selfish and individualized.

Perception of Leisure Time

Similarly, the concept of "leisure time" reminds most of the participants solitary media usage at home, rather than cohesive and sharing family leisure time activities:

- Merve (A3, 21, university student): Leisure time for me is to sleep or watch a movie to get my mind away from things.

- Nazlı (43, physiotherapist, working): I already spend my whole time with my family, so I leave in-house leisure times to myself. I read a book or watch a movie.

- Fahri (A6, 37, physiotherapist, lecturer): After finishing all my work, I watch television with a cup of coffee, or play online bridge with my friends in my computer. This is leisure time for me.

- Miraç (A9, 18, student): When I have time left from studying, I spend my in-house leisure times by watching television of playing video games. After the university exam, the first and only thing that I want to do is to play video games until mornings.

Media at Home and Communication Within the Family

As it is seen in participants' perception of leisure time, almost all of the family members spend their times in the house with some kind of screen media:

- Tekin (A9, 51, university degree, retired): We watch television together, but being a family does not mean liking the same things. Sometimes, we can disagree with my wife. I want to watch football or a political program, she likes to watch competitions or documentaries. In such cases, we respect each other and one of us goes and does something else like surfing on the internet.

However, family members live under the illusion of doing a family leisure time activity when they physically sit in the same room together:

- Zehra (A2, 31, university degree, housewife): Even if we have our mobile phones in our hands, we are together.
- Fethi (A2, 32, university degree, businessman): We make everything attached to each other... Of course we do, I sit here for example, Mina sits there and Zehra sits there...
- Zehra (A2, 31, university, housewife): We look at our Ipad, but we are next to each other (laughs).
- Fethi (A2, 32, university, businessman): I mean if you take our photograph from there, it looks like a happy family portrait (laughs).

The problem here is that physical proximity is not enough for a family to function well; there needs to be communication. The interviews reveal that in these family portraits where everyone is focused on their screens, there is 'no' conversation at all:

- Merve (A3, 21, university student): *In our living room, television is on, but my father* looks at his smartphone. My sister and I have our smartphones in our hands...
- Reyyan (A3, 20, university student): My mother absolutely has her smartphone in her hand...
- Interviewer: Do you have any conversations in that situation?
- Hayriye (A3, 71, primary school degree, housewife): No.

As the interviews proceed, parents start to get aware of the role of their media usage in the disconnection of their family. While defining how they spend time at home, participants confess that they realize each other only when the electricity is off. This is when they feel the need to spend some real family time:

- Fahri (A6, 37, physiotherapist, lecturer): Actually, we realize each other when the electricity is off... This means that television is the tool that keeps us disconnected from each other at home. When the television is off, we make plans to spend quality family time.

- Fethi (A2, 32, university degree, businessman): Television is always on in our house, like an always-playing background music. That's why we start to know each other only when the electricity is off (laughs).

But of course, the electricity is mostly about the television. There are those parents who still prefer to hold on to the remaining battery and the internet package (3G) of their smartphones:

- Zehra (A2, 31, university degree, housewife): But if 3G is active, then there is no problem (laughs).

The Family Disconnect

When it comes to the discussion about the disconnection in the family, all participants seem to blame each other for causing that:

- Oğuz (A5, 61, high school degree, retired): Unfortunately, our daughter is a media addict for long years now.
- Nilay (A5, 28, university degree, not-working): My parents' television viewing habit is also addiction. They do not even go out when their favorite program is on. This is addiction.

- Oğuz (A5, 61, high school degree, retired): Of course it is addiction. But television series make you curious, what can we do? You feel like it is your last chance to see the new episode, and you postpone the meeting with your friends, because you feel like they can wait.

- Zeynep (A8, 11, student): Actually, I have a smartphone for two years, but it has only been one year that my mother got herself one, and even I do not spend that much time with my phone as my mother does.

- Mehmet (A8, 44, doctor, professor): You do not even look at us when you watch television.

Parents blame children, children blame their parents, but more importantly mothers and fathers give themselves up and blame each other for causing the disconnection:

- Aslı (A8, 42, doctor): My husband's eyes are on his smartphone or Ipad all the time. I feel bad about that. Checking it from time to time is acceptable, but always looking at it when you are in a conversation is very different. It disturbs me.

- Zehra (A2, 31, university degree, housewife): My husband over-spends his time with his smartphone... For example, when we are talking about something, I realize that he is not listening to me, so that I have to repeat the same sentence three times... He communicates with his friends on his phone at that moment, and of course this is disturbing for me. I try to make him feel that I am disturbed, but he does not care.

- Birgül (A3, 50, housewife): How can someone watch series without doing anything else for three months and 7/24? It's him… This made us very upset, so much that we had fights about it. Him sitting there silently and watching drove us crazy... He says "what do you want from me? I do not argue, I do not ask anything from you, I sit here silently"... But we sometimes miss him arguing, because we are a family and we want to communicate.

Mothers seem to keep ignoring their intense media usage. They cover themselves by complaining about their husbands. On the other hand, fathers make confessions and denials about their relationship with media at home:

- Nusret (A3, 56, elementary school degree, retired): I am even disturbed from my own usage…

- Mehmet (A8, 44, doctor, professor): Okay okay we have our hands on technology, I admit my fault, do not be hard on us. But, we still care for each other, we are not disconnected…

However, in spite of all denials or confessions, parents eventually see that media technologies have a big role in their disconnection. For a moment, they happen to wish a family life without media, because they understand that using media technologies at home keeps them apart from each other:

- Hayriye (A3, 71, primary school degree, housewife): I tell them that they are here, but I do not see their faces. There is no conversation. Even arguing is good. What am I

going to talk by myself? And they do not even give a reply to what I ask. I have to repeat what I say ten times until they get their head up and give a response, because they are so in to their media. I am not at all happy about this... I wish the electricity is gone all the time! It is so much better! We are so happy when the electricity is gone!

- Mehmet (A8, 44, doctor, professor): We would be definitely better off without them… They take more than they bring.

- Aslı (A8, 42, doctor): They lessen sharing and make us lonely.

Here, it is important to see that parents want some other force to take these technologies away from themas if they cannot give the decision of shutting them down. Surprisingly, children also seem to have the same awareness. But, different from their parents, they do not ask for help; they make evaluations, and they send messages to their parents:

- Zeynep (A8, 11, student): Because of social media, people do not connect with each other. Once you look at it, the connection is cut off, you do not see or hear anyone else, you just focus on the screen.

- Miraç (A9, 18, student): I think each family should leave some time to spend without media technologies. Family conversations are a must.

- Merve (A3, 21, university student): If we were to sit in the same living room without technology, we would feel the need to communicate...

Lonely Children Turn to Media at Home

Up to this point, it is demonstrated that there is a disconnection among Turkish family members because of media usage in family leisure times. As the interviews go further, it is seen that children turn to media at home when their parents neglect them. They look for the company of those who are on the screens:

- Fahri (A6, 37, physiotherapist, lecturer): When I come home, first thing I do is to turn the television on, even before changing my clothes. Television is my life.

The Interviews further reveal that parents' devotion to television and other media, and so lack of attention are significant factors that push their children into media consumption:

- Zeynep (A8, 11, student): My mom spends time with her smartphone more than I do. She is even in the social media... I need television more, because no one does anything with me… It is so boring when I have breakfast by myself. And in the evenings, my parents come home tired, they cannot do something with me, and I am an only child. What can I do?

On the other hand, some children are even pushed by their own parents towards using media at home deliberately because they should be silent when their parents' need to rest in front of their screens:

- Fethi (A2, 32, university degree, businessman): We give her an iPad when we want to rest (laughs). There are some times that we use media as tools to keep her silent,

especially when she is very naughty. She looks upon us. If we play with her, she does not think of technology, but she wants to play for 24 hours and we do not have that energy (laughs). That is the problem, otherwise it is easy to keep her away from media.

As an addition to our families with children, two families/couples who do not have children yet seem to have more awareness about why their born-to-be children will turn to media usage at home. Some of those young couples' awareness seems to be high:

- Nigar (A4, 32, psychologist, working): Our behavior about media usage will serve as an example for our children to be born, so we need to make radical changes about our habits... If their parents are in front of the computer, then they will also be like that.

- Emrah (A4, 26, university student, working): Today's parents, especially those who live in a big, exhausting and stressful city like Istanbul, try to refresh themselves through individual media use at home. In a family portrait like this, it is inevitable for their children to grow up in front of the computer and become asocial.

However, like those who are already mothers and fathers, the prospective parents interviewed also show indulgence and make pre-confessions about the inevitability of raising their children with media technologies at home. Some blame the city life for that:

- Tuba (A10, 29, university degree, working): I would never let my children to go out by themselves. But, since we will be at work during the day, only the evenings are left to spend time with children, and since we cannot go out in the evenings, we are left with only the weekends. That means they will grow up in the house.

- Interviewer: So, how will they spend time at home do you think?
  (a pause, laughing)

- Ahmet (A10, 32, university degree, working): With Ipads and smartphones (laughs).

- Tuba (A10, 29, university degree, working): It is inevitable, because as we talked before, we played in the streets in the past, but if children do not go out, they do not have any chance but to play with media…

Discussion and Conclusion

In line with Horkheimer's claims, media technologies allow individualization to enter houses by providing solitary leisure time activities, and according to many thinkers (Turrow, 2001; Livingstone, 2005; Turkle, 2010; Çakır, 2014), communication among family members is being transformed, mostly in a disconnecting way.

In the age we live in, as Sherry Turkle (2010) has pointed out in her book *Alone Together*, people choose the company of robots and machines, rather than actually communicating with the ones that are closest to them. Today, starting with the family institution, this fact is valid for almost all kinds of relationships.

It is clearly seen in this study that, especially with the help of new media technologies, communication among the members of Turkish families is quite low. Spending family leisure times with such intense media usage at home pushes individuals towards a disconnection within their family and serves to the individualizing commands of the capitalist system. This way, the family institution loses its socializing and educative value for the individual, and becomes just a part of the system.

Almost every study up to this day has blamed the youth for addictive media usage, and made recommendations to parents about keeping their children away from media.

However, there is the ignored fact that today's children feel lonely because their parents do not spend quality time with them, and that is why today's youth head towards addictive media usage that dissipates their loneliness and provides them company with entertainment. This points to the fact that children are not the only guilty ones in the family disconnect, and parents should be aware of that for better lives.

Family is almost the most important institution of a society because the psychological and social well-being of the individual starts at home. And also since home is the primary place that family members can come together in the age we live in, family leisure time activities that will facilitate “sharing” with or without media has high significance.

In this study, parents clearly give themselves up about their intense media usage at home, and children are actually pushed towards media usage because they are alone at home by their parents. Parents are usually given the authority to ban and limit their children's media usage. However, if parents increase their face-to-face communications, conversations and sharing activities (like playing games) with their children, they will not need those limitations.

Today, parents need to leave neglecting their children through passive parenting, and they should regain control of their households and the development of their children. Namely, they need to make significant efforts to make cohesive family leisure time activities at home, besides regulating their own media usage behavior, and so being good examples for their children.

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Comparison of Learning Theories in Mathematics Teaching Methods

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Abstract

The aim of this paper is to compare learning theories in mathematics teaching, and to study their influence on mathematics learning. Numerous studies have shown that students experience mathematics anxiety, which is a feeling of tension and fear that interferes with math learning. This may be attributed to the teaching methods utilized. Therefore, teaching methods must be re-examined, taking into account the three major learning theories: behaviorism, cognitivism, and constructivism. Behaviorism is a teacher-centered instruction, while cognitivism states learning is based upon how people mentally process stimuli encountered. Mathematics teachers following a constructivist approach favor extending class time to engage in varied activities associated with the discovery and construction of knowledge. Thus, the qualitative case study method was considered more feasible and appropriate to meet the study aim. Data were collected using observation and semi-structured interviews with teachers in secondary schools in Malaysia. It was observed that positive and negative reinforcement (behaviorism), problem solving (cognitivism) and discovery learning (constructivism) were practiced by the teachers. The findings reveal that students are more successful when systematic problem solving based on Polya's approach is incorporated into discovery learning. Consequently, there should be more emphasis on teaching methods which include less lecture, more student-directed classes and more discussion. The findings suggest that problem-solving and discovery-learning skills not only contribute to better mathematics learning but also enhance students' creativity to cope with life challenges.

Keywords: Learning theories, mathematics teaching methods, behaviorism, Cognitivism, constructivism

Introduction

Mathematics became the driving force for almost all technological and scientific developments in the nineteenth and twentieth centuries. It has a big influence on our professional and social daily life activities (Maasz & Schloeglmann, 2006). It plays a crucial role on students' success and nation building. Mathematics education has always been treated as an important section of general education and specifically science education.

It is believed that a theory is essential to any meaningful development effort. Different cultures and societies have different theories regarding education, specifically with respect to the teaching and learning of mathematics as illustrated in their curriculum. These variations of beliefs and values concerning mathematics learning may result in different mathematics educational systems. The role of teachers is to facilitate students' thinking and learning. Therefore, teachers should attempt to motivate their students to learn. To be aware of teaching practice activities done by teachers, we should have enough knowledge about learning theories and teaching methods. Different learning theories and teaching methods have been used in educational systems all over the world. Theories of learning are the main concern of this study, namely behaviorist theory, cognitive learning theory, and constructivist theory. These theories and their applications in the mathematics teaching methods will be explained more in the next section. The aim of this paper was to compare learning theories in mathematics teaching, and to study their influence on mathematics learning.

Literature Review

Learning Theories and Teaching Methods

Learning is one of the significant features of current psychology. Learning theories and teaching methods have been used in different educational systems around the world. Teaching methods involve the use of learning theories and each theory has different outcomes in mathematics education.

In order to succeed in teaching mathematics, teachers need to enhance their understanding of students' learning abilities, experiences, reasoning, and logical abilities. In doing so, they can employ this knowledge as a basis of their mathematics education strategies. The teachers strongly agreed that mathematics teaching and learning is an ongoing process through which students must develop a solid understanding of appropriate mathematics concepts and procedures at each academic level. These teachers ought to give students enough confidence to discover mathematics problems and to think critically to solve them as well as their lifelong problems. The following section discusses three learning theories, namely behaviorism, cognitivism, and constructivism.

Behaviorism

The two main creators of behaviorist approaches to learning were Skinner (1972) and Watson (1996). Watson stated that human behavior is a result of particular stimuli extracted from particular responses, while Skinner remarked that habits each of us develop stem from our distinctive operant learning experiences (Shaffer, 2000).

One of the most popular descriptions of learning is the one proposed by Kimble (1961, p. 6) stating "learning as a relatively permanent change in behavioral potentiality occurs as a result of reinforced practice." Kimble's definition has highlighted three aspects of learning. First, learning is manifested by a change in behavior. Second, this behavioral change is relatively permanent. Third, the change in behavior does not occur immediately following the learning experience (Hergenhahn & Olson, 2005).

In education, behaviorists apply rewards and punishments system in their classrooms effectively. They believe that rewards have significant roles in learning. The teaching methods based on behaviorism emphasize the claim that behavior can be shaped by

reinforcement through drill and practice. They set clear objectives to help students and teachers (Hergehahn & Olson, 2005).

In a mathematics class, using the behaviorist theory, the teacher reviews previous material and homework, and then demonstrates low-level problem solving followed by seatwork imitating the teacher's demonstration (Stonewater, 2005). This pedagogical approach of placing the primary focus on the teacher as a transmitter of knowledge (that is, teaching by telling) is representative of a behaviorist theory (Hackman, 2004). The common method of teaching mathematics using the behaviorists' theory is teacher-centered and giving lecture is the dominant practice.

Cognitivism

The cognitive approach is another important theory. Piaget (1936) was the first psychologist to make a systematic study of cognitive development. Cognitive development is a progressive reorganization of mental processes as a result of biological maturation and environmental experience. Cognitive learning theory suggests that learning is based upon how people mentally process stimuli encountered (Ormord, 1995). In reaction, as early as 1956, Benjamin Bloom created a taxonomy for cognitive skills that included knowledge, comprehension, application, analysis, synthesis, and evaluation, which he believed teachers should help students, so that they use and develop. The six stages are further elaborated and revised in the study by Anderson and Krathwohl (2001) as Remembering, Understanding, Applying, Analyzing, Evaluating, and Creating (Wilson, 2013).

A cognitive perspective implies that a behavioral analysis of instruction is often inadequate to explain the effects of instruction on learning. Both cognitive and behavioral approaches continue to be a part of educational psychology today. The main application of this theory in teaching of mathematics can be seen in the skill of problem solving.

Problem Solving

Problem solving is a significant element of mathematics education. In fact, problem solving in mathematics helps students to develop a wide range of complex mathematics structures and gains the capability of solving a variety of real-life problems (Tarmizi & Bayat, 2012). Moreover, the National Council of Teachers of Mathematics (NCTM, 1980) has emphasized that the mathematics teachers should focus on problem solving throughout their teaching-since it "encompasses skills and functions which are an important part of everyday life." Furthermore, problem solving helps people to adapt to changes and unexpected problems in their careers and other aspects of their lives. Problem solving lies beyond mathematics teaching dimensions so that students experience the influence of mathematics in the world around them (Taplin, 2011).

Concerning these required skills and approaches to problem solving, (Polya, 1945) stated a four-step approach to problem solving, including:

i. Understanding the problem: it is impossible to solve a problem if you do not know what the problem is. What is known or unknown? Is there enough information or is more information needed? What do the terms mean?;
ii. Devising a plan: the way we solve the problem. Possible strategies: (a) Draw pictures; (b) Use a variable and choose helpful names for variables or unknowns; (c) Be systematic; (d) Solve a simpler version of the problem; (e) Guess and check, Trial and error; Guess and test (Guessing is okay); (f) Look for a pattern or patterns; and (g) Make a list;
iii. Carrying out the plan: If the plan does not seem to be working, then start over and try another way. Often the first approach does not work. Do not worry just because an approach does not work. It does not mean you did it wrong. You actually

accomplished something, knowing a way does not work is part of the process of elimination; and

iv. Looking back: Did you answer the question? Is your result reasonable? Is there another way of doing the problem which may be easier?

In today's mathematics and science, problem solving does not only help to gain more skills and knowledge to solve the problem, but it also goes further in helping to increase reasoning skills among students (Hmelo, Guzdial, & Turns, 1998). Therefore, problem-solving methods are considered as essential factors to increase level of students' mathematics achievement. Also, it can be utilized to solve problems that arise in real life.

Constructivism

The constructivist approach is a learner-centered approach that emphasizes the importance of individuals actively constructing their knowledge and understanding through the guidance from the teacher. In the constructivist view, teachers should not attempt to simply pour information into children's minds. Rather, children ought to be given confidence to discover their world, find out knowledge, consider, and think critically with vigilant supervision and significant guidance of the teacher (Eby, Herrel & Jordan, 2005).

Nowadays, constructivism might involve a focus on collaborations; children working together strive to know and understand. Constructivism is identified as teaching that concentrates on the vigorous function of the learner in making sense of information and establishing knowledge (Woolfolk, 2008). Constructivists emphasize that students should form their own interpretation of evidence and submit it for review. Constructivist teachers encourage students to constantly assess how the activity is helping them gain understanding. By questioning themselves and their strategies, students in the constructivist classroom ideally become "expert learners."

The constructivist approach was proposed by William James' and John Dewey's philosophies of education and comes from many other people such as Jean Piaget, Maria Montessori, and Lev Vygotsky and from educational movements such as education, inquiry or discovery learning, open education and whole progressive language teaching (Gagnon & Collay, 2001).

Since the constructivist emphasizes that students form their own interpretation of evidences and submit them for review, within mathematics education, students have to build their own understanding of every concept of mathematics, so that the main responsibility of teaching is not explaining, lecturing, or attempting to convey mathematical knowledge, but creating situations for students that will promote students making the essential mental structures. Obviously, a lesson according to constructivism varies significantly with the conventional class type of teacher-as-lecturer (Hanley, 1994).

Constructivists believe that students are not passive recipients of knowledge but they create (construct) new mathematical knowledge by reflecting on their physical and mental actions. According to constructivists, learning reflects a social process in which children engage in dialogue and discussion among themselves as well as others as they develop intellectually (Hanley, 1994). This method is the best method to move away from the traditional method of teacher-centered practices, and more empowerment to the teacher and students both for better critical thinking and creating changes in old teaching methods (Sawada et al., 2002).

Hanley (1994) explains in more detail on the implementation of constructivist teaching which comprises the following procedures for teachers: seeking out and using students' questions and ideas, collaborating on and encouraging the use of alternative sources for information, encouraging students to challenge each other's conceptualizations and ideas, encouraging self-analysis, involving students in seeking information that can be applied in

solving real-life problems, emphasizing career awareness, especially those related to science and technology.

Discovery Learning

Discovery learning points to learning that occurs once students are required to find out something by themselves. For example, rather than telling students the value, the teacher asks them to measure spherical objects to find out the value themselves (Cruickshank, Bainer & Metcalf, 1995). Teachers use discovery learning to achieve three educational goals. Firstly, they would like learners to recognize how to find out things and think on their own. In fact, they would like them to be less dependent on getting knowledge from teachers and acknowledge the conclusion of others. Secondly, discovery learning users would like learners to see in what way knowledge is achieved. It indicates that teachers would like students to be enabled to learn by gathering, organizing, and analyzing information to achieve their own conclusion. Thirdly, the teachers would like learners to employ their higher order thinking skills. Among other things, they want students to be able to analyze, synthesize, and evaluate (Cruickshank et al., 1995).

One of the characteristics of discovery learning is that the role of the teacher is not imparting knowledge but rather creating and guiding classroom experiences in which learners are engaged to discover knowledge. The second characteristic of discovery learning is that while leaners are dealing with discovery, the teacher motivates them to think profoundly. The third feature is that learners acknowledge the challenge of realizing something for themselves rather than requiring the teacher to provide for them answers (Cruickshank et al., 1995).

Methodology

The qualitative case study method was considered more feasible and appropriate to meet the study aim. Data were collected using observation and semi-structured interviews with seven teachers, who were selected by the snowball method, in two secondary schools in different states of Malaysia. However, in this paper, we only bring data related to the three teachers including Teacher A, Teacher B, and Teacher C to examine the different teaching methods applied based on the different learning theories. The questions asked in the interviews and the criteria considered in the observations were related to the teaching methods based on the learning theories. The participants (the teachers) were interviewed and their performances in their classes were observed to analyze their teaching methods. On average, each teacher was interviewed for two hours and observation on their teaching was for six hours. In between the interviews and observations, the researchers had also made several non-formal conversations with the teachers, including discussion on their lesson plans.

Findings

As teachers have important roles in presenting the content of text books to their students, the researchers conducted some interviews with the mathematics teachers and observed their classes during their teaching hours. As examples for considering mathematics method of teaching by the teachers, based on different methods of teaching, we selected three of them teachers A, B, and C. Teacher A graduated in Mathematics Education and has taught for 25 years, while teacher B graduated in Computer Sciences (mathematics) and has taught for 20 years, and Teacher C graduated in Mathematics Education and has taught for 5 years.

Teacher A

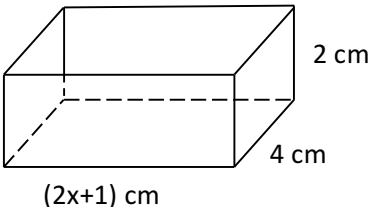
The observations supported that Teacher A used two kinds of teaching methods including the traditional based on the theory of behaviorism and problem solving. The observations confirmed that she paid attention to the students' ideas related to the course and provided opportunities for them to think about mathematics problems and subjects and allowed them to participate in the class activities and group discussions. She used the

blackboard and extra mathematics books in the class. Although the class was managed by more teacher-centered techniques, the students participated in the class through discussions on their understanding and reasoning. When asked about methods of teaching in the class during the interview, her response indicated that she was more inclined towards problem solving.

> "When I teach a topic, firstly I give examples and I solve them on board, then I give some other questions to my students and ask them to solve them, when they are solving the examples, I go around the class, and I can see whether they understood the topic. Sometimes I just ask a student who is in middle level to answer the question if they answer my questions, I know the other students understood it as well" (Interview with Teacher A, August 2011, p.8).

In her classes, she allowed her students to ask questions and discuss the topic and she gave her students extra tasks and exercises especially when they were weak in certain areas to enhance her students' understanding. She believed that students should take part in the teaching-learning processes, and use all their senses to optimize their understanding and to learn deeply.

Also, the observations were conducted when Teacher A was teaching linear equations and solving some mathematics problems. The observations showed that she was teaching the linear equation topic for Form 2 middle level students. The observations confirmed that she started the class based on her lesson plan and the main textbook. The example of linear equation was to find the value of x given the volume of the cuboid is 88cm^3. She used the four steps of problem solving and discovery learning to solve the problem.



Teacher A posed a mixed problem with two aims: geometry and algebra, and asked students to find the value of x when the volume v is 88 cm^3, to show how to solve a linear equation:

$v = 88cm^3$

$(2x + 1)\times 2\times 4 = 88 \rightarrow (2x + 1)\times 8 = 88 \rightarrow 2x + 1 = 11 \rightarrow 2x = 10 \rightarrow x = 5$

The observations showed that she used mixed methods of teaching and she was very flexible in her teaching methods and used problem solving and discovery learning activities, although the time was limited (around 65 minutes in one session).

Teacher B

The observation was conducted when she was teaching geometry. In her class, students were working together and she helped them while they were solving the problems. She also collected students' notebooks which they used for doing their homework. In another session when the researcher observed her class, she was teaching linear equations, and all of her students took part in the class and problem solving activities.

$$(1)\ \frac{3}{4}\mathrm{X} - 3 = \mathrm{X} + 4 \qquad (2)\ \frac{8\mathrm{m} + 7}{4\mathrm{m} - 3} = 3 \qquad (3)\ \frac{\mathrm{Y} - 6}{3} = \frac{6 - \mathrm{Y}}{2}$$

She had two purposes in presenting these exercises including teaching fraction and equations. In this way, she used the problem solving method to solve the problem by engaging the students in the problem solving process.

She gave an introduction about a new subject before starting it, but she did not review the previous lessons to relate the new lesson to the previous one. Therefore, the students may have some difficulties in linking the previous lesson to the new one. For example, she gave the students three exercises regarding linear equations as the following:

$$(1)\ \frac{3}{4}x - 3 = x + 4 \rightarrow \frac{3}{4}x = x + 3 + 4 \rightarrow \frac{3}{4}x = x + 7 \rightarrow 3x = 4(x + 7)$$

$$\rightarrow 3x = 4x + 28 \rightarrow 3x - 4x = 28 \rightarrow x = -28$$

$$(2)\ \frac{8m + 7}{4m - 3} = 3 \rightarrow 8m + 7 = 3(4m - 3) \rightarrow 8m + 7 = 12m - 9$$

$$\rightarrow 8m - 12m = -9 - 7 \rightarrow -4m = -16 \rightarrow m = 4$$

$$(3)\ \frac{y - 6}{3} = \frac{6 - y}{2} \rightarrow 2(y - 6) = 3(6 - y) \rightarrow 2y - 12 = 18 - 3y$$

$$\rightarrow 2y + 3y = 18 + 12 \rightarrow 5y = 30 \rightarrow y = \frac{30}{5} \rightarrow y = 6$$

While the students were doing the exercise, the teacher discussed with them and asked them what were differences between y-6 and 6-y and what happens in this exercise if the equation was: $\frac{Y-6}{3} = \frac{Y-6}{2}$. This discussion among them was interesting for students.

Teacher B taught low and middle level students in her classes. She had a schedule for her teaching instruction and tried to follow a student-centered method of teaching. In fact, it was not possible because there were around 40 students in her class. Also, she was using the problem-solving method of teaching. However, it depends on the topic and the situation of the class.

In the interview, she mentioned that she used diverse examples to describe the mathematics subject in her classes. Sometimes, she wanted her students to ask questions and discuss about them and also allowed them to share their ideas in the class. Regarding extra activities, she explained. *"Normally I give them homework to do at home and hand it in the next session; I also give them some exercises in the class to check whether they understand the topic" (September 2011, p. 40)*. Also, she explains her approach in dealing with the students' differences as follows:

> "We should know our students by name and respect them in the class and we also need to give them questions based on their comprehension level, we should give easier questions to weak students" (Interview with Teacher B, September 2011, p.39).

Teacher B believed that students should play a very important role in their learning processes. She provided students with the opportunities to participate in the class activities and group discussions.

Teacher C

In the observation, Teacher C used the method of discovery learning, despite sometimes using the traditional method for beginning the new lesson. In good spirits, she began to review the previous lesson and gave an introduction about the new subject before starting it. She had a lesson plan for teaching and paid attention to the students' ideas regarding the course. She allowed the students to participate in class activities, provided opportunities for them to think about the mathematic subject, and allowed group discussions in the class. She also used the whiteboard, PowerPoint, educational CDs, and extra mathematical books in the class. While doing exercises, she paid attention to students' ideas to clarify and to allow them to identify the problems.

In the interview about her methods of teaching, she believed in solving mathematics problems using discovery learning to increase activities and creative thinking of students and to encourage them to use skills of problem-solving approaches for solving mathematics problems.

> "We have many activities for students. In class, we do so many exercises and problem solving. We also have outdoor activities; in this school we take students for math, science and career festivals. These festivals encourage students to improve themselves in mathematics and science. Students should improve themselves to know what concepts in mathematics are related to other concepts in physics and so on" (Interview with teacher C, October 2011, p. 71).

An example that she wrote on the whiteboard was a linear equation with two variables $\frac{x}{y} = \frac{7}{2}$ and $x + y = 63$, with answers $x = 7$ and $y = 2$. And with the result $x + 7 = 9$ which was an interesting problem for discussion. Teacher C asked the students to solve the posed problem as $\frac{x}{y} = \frac{7}{2}$ and $x + y = 63$.

If $\frac{x}{y} = \frac{7}{2}$ and we knew that $(7, 2) = 1$, so we could say $x = 7$ and $y = 2$ which was the students answer in the mathematics classroom, then $x + y = 9$. However, in this case, there was another function $x + y = 63$, so we could not say $x = 7$ and $y = 2$ because $x + 7$ was not 63 so we have to solve the problem as two equations with two unknowns because we would want to find the solution of the equation by following:

$$(1)\ \frac{x}{y} = \frac{7}{2} \rightarrow 2x = 7y \rightarrow 2x - 7y = 0 \ \text{ and } \ (2)\ x + y = 63$$

$$\rightarrow y = 63 - x \rightarrow 2x - 7(63 - x) = 0 \rightarrow 2x - 441 + 7x = 0$$

$$\rightarrow 9x = 441 \rightarrow x = \frac{441}{9} = 49 \rightarrow y = 63 - 49 \rightarrow y = 14$$

Then the real answer was $x = 49$ and $y = 14 \rightarrow x + y = 63$.

She applied the method of discovery learning. The observations confirmed that she encouraged the students to express their ideas about the concept. She asked questions which were relevant to the students' level of learning and allowed them to ask questions and discuss

about the subject. Hence, she managed the class by the student-centered approach. Students were active during the teaching and learning activities, and the teacher had planned the activities well.

To sum up, our observation and interview results showed that learning theories including behaviorism, cognitivism and constructivism as well as teaching methods including traditional (teacher-centered), problem solving (teacher- and student-centered) and discovery learning (student-centered) were practiced by the teachers.

Discussion

This section aims to discuss the findings of interviews and observations of the three teachers regarding their teaching practices by considering the teaching methods utilized. Teaching practices have been analyzed from the response of the participants in the interviews as well as the observations done by the researchers. In addition to considering the aforementioned methods, the authors also paid attention to learning theories in general.

According to these interviews and observations and based on the authors' experiences in teaching mathematics, teachers usually tended to use problem-solving and discovery-learning methods in their teaching. It should be noted that it is not possible to exactly declare that the teachers use one method at all times. They applied other methods such as the traditional method, if necessary. However, due to limited teaching time and the large number of students in a class, teachers were more likely to apply the problem-solving method.

Teacher A used the mixed methods of the traditional (theory of behaviorism) and problem solving, Teacher B used the problem solving approach, and Teacher C used discovery learning. Based on observations in the classes and experiences of authors during many years of teaching mathematics, students in the classes that the teacher had used the traditional method had difficulties to understand mathematics and they had anxiety when performing class activities, discussions and exams. However, in classes in which the teachers had used other methods, the students were actively involved in class activities, group discussions with each other and with the teachers, and they had less or no anxiety to take exams.

Conclusion

The findings suggest that problem-solving and discovery-learning skills not only contribute to better mathematics learning but also enhance students' creativity to cope with life challenges. Since constructivist approaches give students the opportunity to think creatively, there should be more emphasis on teaching methods which include less lecture, more student-directed classes and more discussions. In classes that used the problem solving method, students are more active, they think better, and they have less anxiety for exams. In summary, the results indicate that students who learn mathematics by problem-solving and discovery-learning methods are more active in comparison with the students under the traditional teacher-centered method. These approaches, mainly, encourage students to think rationally in their daily life, and enhance their thinking, and reasoning power. The findings reveal that students are more successful and encouraged when systematic problem solving based on Polya's approach is incorporated in the lessons. These methods prepare students better in solving problems and facing discovery learning.

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Bridging the English Communication Skills Gap between the EFL Classroom and the Workplace

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Abstract

Education and experience may make one land a job, but for one to be able to thrive and survive in the world of work, he or she has to exhibit employability skills, such as, among other things, teamwork, collaboration, and leadership; life-long learning; research, scholarship, and enquiry; employability and career development; global citizenship; communication and information literacy; ethical, social and professional understanding; and personal and intellectual autonomy. This study, which focused on one of the 21st century skills, communication, examined whether students' and graduates' professional needs are being met by current English courses and programmes at the university. The respondents, composed of the university alumni, practicum, and working students, were classified according to sex, type, and sector of their work affiliation. This descriptive research utilized an adapted Communication Skills in the Workplace questionnaire by Koncz (2012). Mean, rank, t-test, and ANOVA were used in the treatment of data gathered using the Statistical Package for Social Sciences (SPSS). Results showed that the top significant workplace communication skills as perceived by the AMAIUB alumni, practicum, and working students are as follows: demonstrating ability to listen effectively; comprehending oral and written instructions from supervisors and co-workers; speaking English clearly, fluently and accurately; reading and understanding work instructions and standard operating procedures; and completing pertinent office forms, report sheets, tender documentation, work plans and specifications, incident report forms and notes. Moreover, there were no significant differences between the perceived workplace communication skills when respondents were classified according to sex and type of their company/institution/organization. However, a significant difference was noted between the perceived workplace communication skills of the alumni and practicum or working students when classified according to company/ institution / organization type. Hence, it was recommended that these perceived significant workplace communications skills should be integrated in the topics of English language courses.

Keywords: English skills, workplace communication, employability skills, EFL

Introduction

Countries all over the world today have considered education to be fundamental in economies and societies. Knowledge, through education, has replaced other assets as the focal agent of economic development; education has gradually become the groundwork for personal productivity, societal breakthrough, and nation building.

Correspondingly, the Kingdom of Bahrain unceasingly strengthens its human resources to make the switch from oil to human assets, as indicated in its Vision 2030. As one of the leading higher education institutions in Bahrain, AMA International University-Bahrain (AMAIUB) adheres to the Kingdom's directions in providing graduates who form part of the country's foremost wealth, the human capital or knowledge assets. The university, which believes that its students and alumni are its contribution to Bahrain's socio-economic development, has been "re-missioning" its policies, procedures, and standards to answer some of the challenging realities of youth employment in the labor market, shift in career paths, and inculcation of core skills needed by the industry.

Aware of global challenges in higher education, AMAIUB emphasizes employability of its graduates. To outsource probable opportunities, the university integrates employability skills across its curricula, assists in mapping students' career directions, introduces them to various programs and options available in different establishments, prepares them holistically to be the employees of choice, and links them with employers in the job market.

The survey conducted by the Labour Market Regulatory Authority (LMRA) and the Employment Research Institute (ERI) of Edinburgh Napier University in Scotland, in cooperation with Tamkeen, reported emerging trends in Bahrain's Labour Market Intelligence Project. The survey, which gathered feedback from industry on the graduates' employability skills, revealed that graduates' skills needed by the industry comprised the ability to communicate, to participate in a team, to use their initiative, to solve problems, and to think critically. Moreover, the Quality Assurance Agency for Higher Education highlighted the following 21st century graduate attributes: teamwork, collaboration, and leadership; life-long learning; research, scholarship, and enquiry; employability and career development; global citizenship; communication and information literacy; ethical, social and professional understanding; and personal and intellectual autonomy (Employability Skills Seminar, 2012).

A study by Robles (2012) revealed that the top ten most important soft skills perceived by business executives are integrity, communication, courtesy, responsibility, social skills, positive attitude, professionalism, flexibility, teamwork, and work ethics.

It is an inevitable fact that communication, or English oral and written communication skills, are on top of the list of 21st century employees.

Aspiring Minds, a leading employability company of India, reported that 47% of students and graduates do not have sufficient English language skills necessary in the knowledge economy (Erling, 2003).

Cognizant of communicative-linguistic competence as one of the most important trends at present, educational institutions have reflected on whether they have provided adequate communication skills for their students and graduates to carry on day-to-day tasks in their respective working environments (Narzoles, 2015).

Apparently, it is imperative to determine the language skills and abilities students and graduates need in the workplace and to examine if their professional needs are being met by current English courses and programmes at the university. This is one of the many ways to bridge the English communication skills gap between the EFL classroom and the workplace.

Research Questions

This study aimed to determine the communication skills needed in the workplace as perceived by students undergoing practicum/on-the-job training and the AMAIUB alumni. Specifically, it aimed to shed light on the following questions:

1. What are the significant communication skills needed in the workplace as perceived by the practicum/working students and the alumni?
2. Are there significant differences on the significant communication skills in the workplace when practicum/working students and the alumni are classified as to their sex (male or female), programme (BSBI, BSIS, BSME, BSIE, and BSCS), and the type (education, IT, business, engineering, and medical) and sector (private or public) of company/organization/institution where they have their practicum or employment?

Hypothesis

Based on the aforementioned problems, the following null hypothesis was advanced:

There are no significant differences on the significant communication skills in the workplace when practicum/working students and the alumni are classified as to their sex (male or female), programme (BSBI, BSIS, BSME, BSIE, and BSCS), type (education, IT, business, engineering, and medical), and sector (private or public) of company/organization/institution where they are currently having their practicum or employment.

Figure 1 exhibits the paradigm of the study.

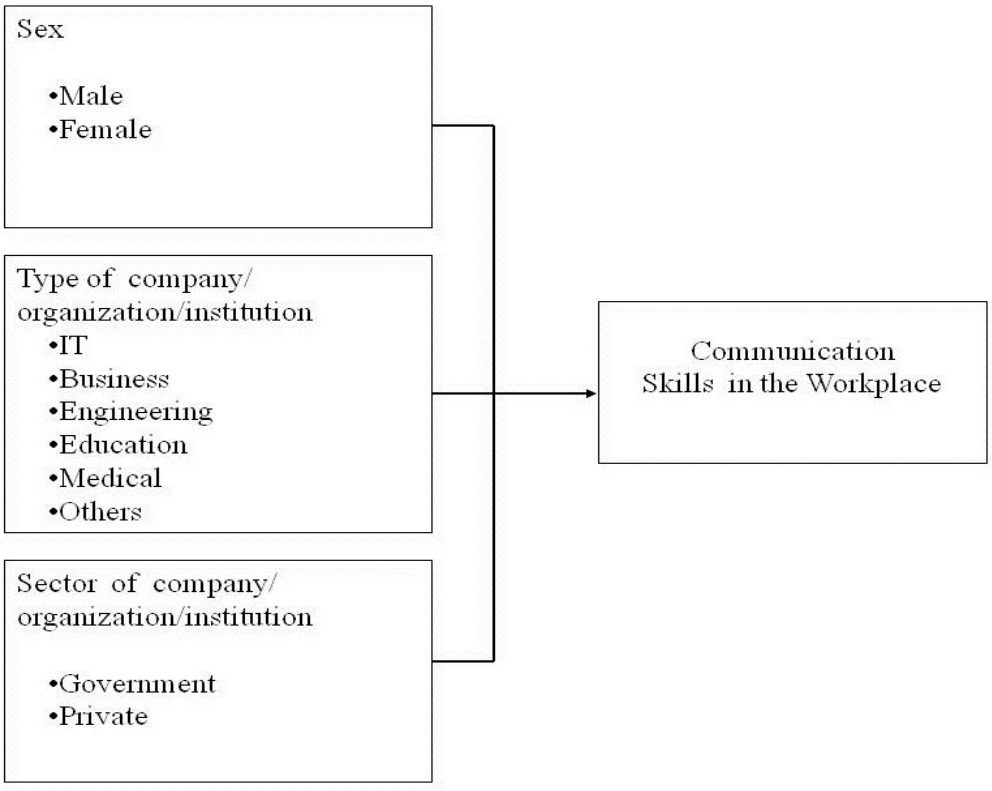

Figure 1. The Research Paradigm

Literature Review

Individuals can only reach their full potential if they are armed with education. Education has a number of benefits: it reduces poverty directly, enhances social unity in general, creates greater community engagement, and results in better plans about maternal and child health and improving health generally (Burnett,2014; Bird & Higgins, 2011).

Educational institutions should teach skills relevant to the world of work and thus satisfactorily prepare the youth for the workplace. The Development Institute noted that employers are keen with three focal types of skills: cognitive, non-cognitive, and technical. While technical and vital cognitive skills are still essential to work, transferrable and non-cognitive skills such as problem-solving, flexibility, punctuality, and communication are regarded as key skills (Jayaram, 2014).

Concurrently, economies demand human assets that can meet the demands of the 21st century. Governments all throughout the world have embarked on extensive initiatives to bridge the skills gap.

There has actually been a struggle for educational institutions at all levels to provide young people, who are the workforce of tomorrow, with necessary skills required in both the public and private sectors. It is, thus, indispensable that there should be a deeper understanding of the function that English plays and will play, acknowledging the fact that English communication skills are one of the basic skills along with computer literacy.

A number of studies have identified the significant communication skills in the workplace.

According to Lin, Wu, and Huang (2013), English language skills in completing spoken tasks, comprehending instructions, having interaction strategies, and writing basic business errands are crucial to the government, hospitality and tourism industries, and academic institutions. In

In Thailand, English skills are mandatory for healthcare employees. Speaking and listening skills are considered two of the most important abilities, while grammatical errors, accents, and pronunciation mistakes are seen as the chief communication skill problems (Pandey & Sinhaneti, 2013).

On the other hand, Javid and Umer (2013) revealed that speaking and reading skills are the most important for medical undergraduate students in Saudi Arabia.

Mehra and Virgandham (2013), soliciting the most important communication skills as perceived by engineers from India, revealed that oral and written communication skills, effective listening skills, and confidence in expressing thoughts and ideas in front of the audience are regarded vital in their work.

Among Malaysian employees working in the tourism sector, speaking is the most important skill, followed by listening, reading and writing. Moreover, viewed as the three most important skills are providing information, extending services, and offering help. On the other hand, said employees lack ability to utilize correct words and expressions, possess insufficient vocabulary, and have grammar difficulties (Prachanan, 2012).

Several studies have also corroborated the fact that there have been gaps between communication skills taught in the university and demand for these skills in the workplace.

Among Egyptian tourism and hospitality university students, Abdel-Ghany and Abdel-Latif (2012) noted inadequacies in English language training provided by universities; they, thus, recommended English curricula that could assist the students to be well-prepared to meet their future workplace necessities.

These results were corroborated by Lan, Khaun, and Singh (2011) when, in their survey of Malaysian employees regarding English communication skills learned from their respective universities, the respondents remarked that English skills taught in schools and universities did not prepare them for the language of the workplace. Moreover, the employees had a lot of difficulties in accomplishing tasks, such as participating in meetings, giving

presentations, and preparing reports. A majority of the students also lacked confidence in using the language.

In view of the above-mentioned studies that point to communication skills gap between the university and the workplace, indispensable measures to bridge the gap need to be planned and implemented.

Methods of Research

The Participants

The participants of this research were the AMAIUB alumni and students who are working or having their practicum/ on-the-job-training (OJT).

Figure 2 shows the frequency distribution of AMAIUB alumni and practicum or working students according to their sex.

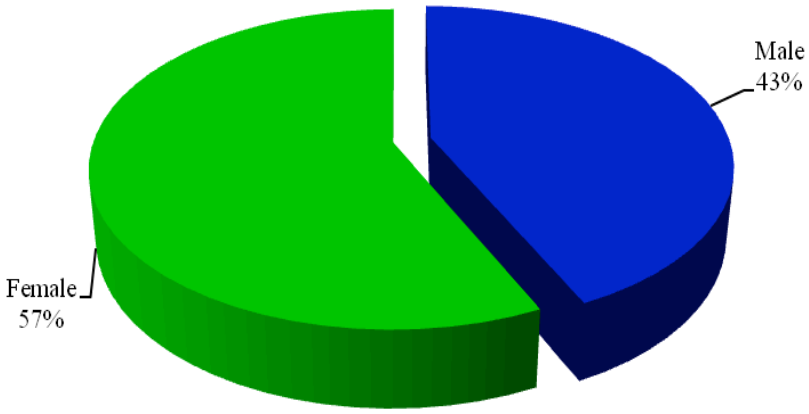

Figure 2. Frequency Distribution of Alumni and Practicum or Working Students According to Sex

Figure 3 shows the frequency distribution of the type of company/institution/ organization where AMAIUB alumni and students are working or having their practicum.

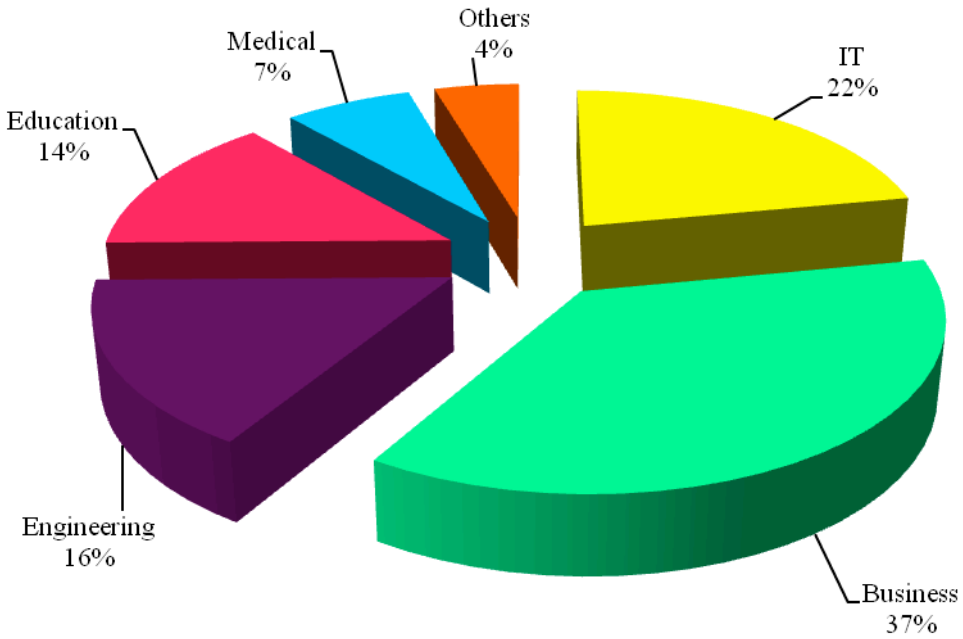

Figure 3. Frequency Distribution of the Type of Company/ Institution/ Organization where AMAIUB Alumni and Students are Working or Having their Practicum

Figure 4 presents the frequency distribution of the sector of company/ institution/ organization where AMAIUB alumni and students are working or having their practicum.

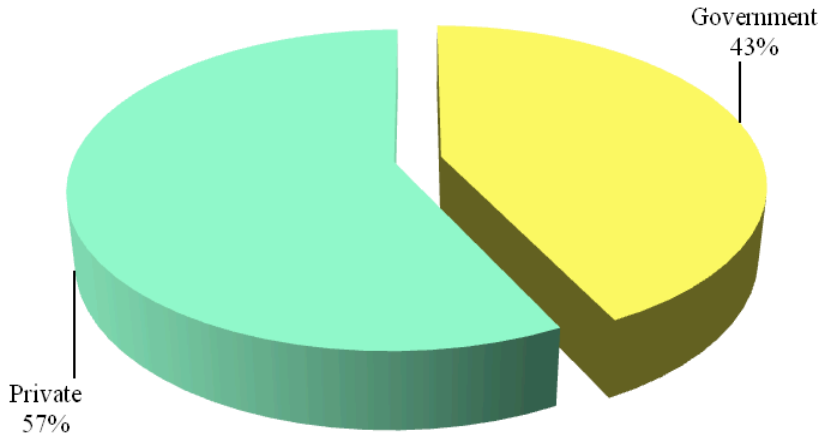

Figure 4. Frequency Distribution of the Sector of Company/ Institution/ Organization where AMAIUB Alumni and Students are Working or Having their Practicum

Data Analysis

This descriptive research utilized an adapted Communication Skills in the Workplace questionnaire by Koncz (2012).

Upon retrieval of the accomplished instruments, the data were processed, analyzed and interpreted according to the requirements of the problems and hypothesis.

The data gathered for the study were computer-processed for statistical analysis using the Statistical Package for Social Science (SPSS) program. The descriptive statistics employed were mean and standard deviation. For inferential statistics, t-Test and Analysis of Variance (One-Way ANOVA) were utilized.

The results of inferential analysis were interpreted using .05 level of significance.

Results

Table 1 depicts the significant workplace communication skills as perceived by the AMAIUB alumni and students who are working or having their practicum. As an entire group, the alumni and practicum/working students considered the following skills to be the most significant: (1) demonstrating ability to listen effectively (M=4.42); (2) comprehending oral and written instructions from supervisors and co-workers (M=4.34); (3) speaking English clearly, fluently and accurately (M=4.29); (4) reading and understanding work instructions and standard operating procedures (M=4.28); and (5) completing pertinent office forms, report sheets, tender documentation, work plans and specifications, incident report forms and notes (M=4.24).

The results were confirmed by Lin et. al. (2013) and Pandey and Sinhaneti (2013) who stated that English language skills in completing spoken tasks, comprehending instructions, having interaction strategies, and writing basic business errands are crucial to the government, hospitality and tourism industries, and academic institutions. Speaking and listening skills were two of the most important abilities.

In the same vein, Javid and Umer (2013) revealed that speaking and reading skills are the most important communication skills, while Mehra and Virgandham (2013) reported that oral and written communication skills, effective listening skills, and confidence in expressing thoughts and ideas in front of the audience were regarded as vital in the workplace.

Communication Skill	Mean	SD	Rank
1.Reading and understanding work instructions and standard operating procedures	4.28	68	**4**
2. Completing pertinent office forms, report sheets, tender documentation, work plans and specifications, incident report forms and notes	4.24	.72	**5**
3. Comprehending oral and written instructions from supervisors and co-workers	4.34	.63	**2**
4. Demonstrating skills in the use of language, grammar, and punctuation	4.16	.92	7
5.Organizing and presenting ideas effectively for both formal and spontaneous speeches	4.08	.88	8
6. Demonstrating ability to listen effectively	4.42	.77	**1**
7. Participating in meetings and using interviewing skills to gather information or feedback	3.92	.83	12
8. Utilizing proper gestures and facial expressions when communicating orally	3.80	.97	14
9. Understanding business, computing, medical or engineering lingo used in the workplace	3.86	.95	13
10. Writing appropriate forms of business communication such as letter, memorandum, report, minutes of the meeting, plans, etc.	4.00	.93	10
11.Conducting research by gathering presenting the results	3.95	.84	11
12. Making use of pictures, diagrams, tables, charts, and other visual aids in reports	4.02	.75	9
13. Entertaining queries and concerns of clients and customers regarding the products and services provided by the company	4.20	.98	6
14. Speaking English clearly, fluently, and accurately	4.29	.87	**3**

Table 1. Potent Communication Skills in the Workplace as Perceived by the Entire Group

Table 2 depicts the workplace communication skills as perceived according to sex by the AMAIUB alumni and students who are working or having their practicum. The male alumni and practicum/working students considered the following skills to be the most significant: (1) comprehending oral and written instructions from supervisors and co-workers (M=4.40); (2) demonstrating ability to listen effectively (M=4.38); and (3) completing pertinent office forms, report sheets, tender documentation, work plans and specifications, incident report forms and notes (M=4.36)

On the other hand, the female alumni and practicum/working students considered these workplace communication skills to be important: (1) demonstrating ability to listen effectively (M=4.40); (2) comprehending oral and written instructions from supervisors and co-workers (M=4.36); and (3) speaking English clearly, fluently and accurately (M=4.32).

Communication Skill	Male		Female	
	Mean	Rank	Mean	Rank
1.Reading and understanding work instructions and standard operating procedures	4.26	5	**4.25**	**4**
2. Completing pertinent office forms, report sheets, tender documentation, work plans and specifications, incident report forms and notes	4.36	**3**	**4.18**	5
3. Comprehending oral and written instructions from supervisors and co-workers	4.40	**1**	4.36	**2**
4. Demonstrating skills in the use of language, grammar, and punctuation	4.24	6	4.08	8
5.Organizing and presenting ideas effectively for both formal and spontaneous speeches	4.08	9		
6. Demonstrating ability to listen effectively	4.38	**2**	4.40	**1**
7. Participating in meetings and using interviewing skills to gather information or feedback	3.80	14	3.76	13
8. Utilizing proper gestures and facial expressions when communicating orally	3.85	13	3.68	14
9. Understanding business, computing, medical or engineering lingo used in the workplace	3.96	12	3.85	11
10. Writing appropriate forms of business communication such as letter, memorandum, report, minutes of the meeting, plans, etc.	4.02	11	3.98	9
11.Conducting research by gathering presenting the results	4.05	10	3.80	12
12. Making use of pictures, diagrams, tables, charts, and other visual aids in reports	4.10	8	4.12	6
13. Entertaining queries and concerns of clients and customers regarding the products and services provided by the company	4.18	7	4.10	7
14. Speaking English clearly, fluently, and accurately	4.30	**4**	4.32	**3**

Table 2. Workplace Communication Skills as Perceived by the AMAIUB Alumni and Practicum or Working Students According to Sex

Table 3 shows the significant workplace communication skills according to the type of company/institution/organization where AMAIUB alumni and students are working or having their practicum/OJT.

Alumni and students who are working or having their practicum in *IT companies* ranked the following to be the most needed communication skills in the workplace: (1) reading and understanding work instructions and standard operating procedures (M=4.80); (2) making use of pictures, diagrams, tables, charts, and other visual aids in reports (M=4. 48); and (3) speaking English clearly, fluently, and accurately (M=4.43).

Alumni and students who are working or having their practicum in *business companies* regarded the following to be the top workplace communication: (1) entertaining queries and concerns of clients and customers regarding the products and services provided by the company (M=4.56); (2) demonstrating ability to listen effectively (M=4.50); and (3) reading and understanding work instructions and standard operating procedures (M=4.32).

Alumni and students who are working or having their practicum in *engineering companies* deemed these workplace communication skills to be significant: (1) reading and comprehending letters and notices, electronic data, and emails (M=4.60); (2) comprehending verbal work instructions from supervisors and co-workers (M=4.58); and (3) demonstrating ability to listen effectively (M=4.55).

Alumni and students who are working or having their practicum in *education institutions* considered these communication skills to be pertinent: (1) speaking English clearly, fluently, and accurately (M=4.80); (2) comprehending letters and notices, electronic data, and emails; and utilizing proper gestures and facial expressions when communicating orally (M=4.70); and (3) completing pertinent office forms, report sheets, tender documentation, work plans and specifications, incident report forms and notes (M=4.70).

Alumni and students from *medical companies and institutions* considered the following workplace communication skills important: (1) reading and comprehending letters and notices, electronic data, and emails (M=4.78); (2) comprehending verbal work instructions from supervisors and co-workers (M=4.55); and (3) demonstrating the ability to listen effectively (M=4.50).

Respondents who do not belong with any of the above-mentioned types of companies, institutions, and organizations regarded the following communication skills to be important: (1) understanding work instructions and standard operating procedures (M=4.81); (2) comprehending verbal work instructions from supervisors and co-workers (M=4.31); and (3) demonstrating ability to listen effectively (M=4.27).

Communication Skill	IT		Business		Engineering		Education		Medicine		Others	
	Mean	Rank	Mean	Rank	Mean	Rank	Mean	Rank	Mean	Rank	Mean	Rank
1. Reading and understanding work instructions and standard operating procedures	4.80	1	4.32	3	4.60	1	4.25	6	4.78	1	4.81	1
2. Completing pertinent office forms, report sheets, tender documentation, work plans and specifications, incident report forms and notes	4.43	4	4.28	4	4.45	5	4.65	3	4.43	6	4.03	7
3. Comprehending verbal work instructions from supervisors and co-workers	4.22	6	3.96	9	4.58	2	4.70	2	4.55	2	4.31	2
4. Demonstrating skills in the use of language, grammar, and punctuation	4.08	11	4.02	8	4.38	7	4.60	7	4.17	8	3.92	11
5. Organizing and presenting ideas effectively for both formal and spontaneous speeches	4.00	13	3.56	14	4.14	9	3.50	13	4.02	10	3.93	8
6. Demonstrating ability to listen effectively	4.38	5	4.50	2	4.55	3	4.40	5	4.50	3	4.27	3
7. Participating in meetings and using interviewing skills to gather information or feedback	3.90	14	3.76	11	3.60	13	3.90	11	3.87	11	3.67	13
8. Utilizing proper gestures and facial expressions when communicating orally	4.02	12	3.58	13	3.98	11	3.60	12	3.40	14	3.55	14
9. Understanding business, computing, medical or engineering lingo used in the workplace	4.14	9	3.60	12	4.00	10	4.24	9	4.12	9	3.87	9
10. Writing appropriate forms of business communication such as letter, memorandum, report, minutes of the meeting, plans, etc.	4.10	10	3.86	10	3.70	12	4.20	10	3.70	12	3.85	10
11. Conducting research by gathering information, interpreting data, and presenting the results	4.15	8	4.06	7	4.25	8	3.49	14	3.60	13	3.85	12
12. Making use of pictures, diagrams, tables charts, and other visual aids in reports	4.48	2	4.18	6	3.52	14	4.62	4	4.31	7	4.16	4
13. Entertaining queries and concerns of of clients and customers regarding the products and services provided by the company	4.18	7	4.56	1	4.42	6	4.40	8	4.40	4	4.04	6
14. Speaking English clearly, fluently, and accurately	4.43	3	4.23	5	4.50	4	4.80	1	4.37	5	4.10	5

Table 3. Workplace Communication Skills as Perceived--According to Type of Company/ Institution/ Organization by AMAIUB Alumni and Students who are Working or Having their Practicum

Table 4 shows the perceived workplace communication skills according to the sector of company/institution/organization where AMAIUB alumni and students are working or having their practicum. The communication skills which were regarded by those in *government institutions* to be significant are as follows: (1) demonstrating ability to listen effectively (M=4.88); (2) reading and understanding work instructions and standard operating procedures (M=4.86); and (3) comprehending oral and written instructions from supervisors and co-workers (M=4.70).

On the other hand, those from *private companies* regarded the following communication skills to be highly significant: (1) comprehending oral and written instructions

from supervisors and co-workers (M=4.86); (2) speaking English clearly, fluently, and accurately (M=4.54); and (3) demonstrating ability to listen effectively (M=4.50).

Communication Skill	Government		Private	
	Mean	Rank	Mean	Rank
1.Reading and understanding work instructions and standard operating procedures	4.86	2	**4.28**	5
2. Completing pertinent office forms, report sheets, tender documentation, work plans and specifications, incident report forms and notes	4.56	**4**	4.18	7
3. Comprehending oral and written instructions from supervisors and co-workers	4.70	**3**	4.86	**1**
4. Demonstrating skills in the use of language, grammar, and punctuation	4.20	7	4.38	**4**
5.Organizing and presenting ideas effectively for both formal and spontaneous speeches	4.28	6	3.84	11
6. Demonstrating ability to listen effectively	4.88	**1**	4.50	**3**
7. Participating in meetings and using interviewing skills to gather information or feedback	3.20	14	3.66	12
8. Utilizing proper gestures and facial expressions when communicating orally	3.35	13	3.48	14
9. Understanding business, computing, medical or engineering lingo used in the workplace	3.56	12	3.95	10
10. Writing appropriate forms of business communication such as letter, memorandum, report, minutes of the meeting, plans, etc.	3.82	9	4.08	8
11.Conducting research by gathering presenting the results	3.65	11	3.50	13
12. Making use of pictures, diagrams, tables, charts, and other visual aids in reports	4.00	8	4.02	9
13. Entertaining queries and concerns of clients and customers regarding the products and services provided by the company	4.48	**5**	4.22	6
14. Speaking English clearly, fluently, and accurately	3.70	10	4.52	**2**

Table 4. Workplace Communication Skills as Perceived--According to the Sector of Company/Institution/ Organization--by AMAIUB Alumni and Students who are Working or Having their Practicum

Table 5 shows that there is no significance difference between the perceived significant communication skills in the workplace when AMAIUB alumni and practicum or working students are grouped according to sex.

Category	N	Mean	df	F	Sig.
Male	94	4.14	58	5.149	.449
Female	124	4.06			

Table 5. Differences on the Significant Communication Skills in the Workplace According to Sex as Perceived by Alumni and Practicum or Working Students

Table 6 depicts that there is no significant difference on potent workplace communication skills as perceived by the AMAIUB alumni and practicum or working students, when classified according to company/institution/ organization type.

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	18	4.09	60	15.15	.320
Within Groups	200	4.10			
Total	218				

Table 6. Differences on the Significant Communication Skills when AMAIUB Alumni, and Practicum or Working Students are Classified According to Company/Institution/ Organization Type

Table 7 depicts that there is a significant difference on the perceived significant communication skills in the workplace AMAIUB alumni, practicum or working students are classified according to the sector of their company/institution/ organization. This reveals that the alumni, practicum or working students in government and private companies/institutions/ organizations showed differences in the perceived significant communication skills in their respective workplaces.

Category	N	Mean	df	F	Sig.
Government	93	4.09	60	5.159	.04*
Private	125	4.10			

*p< .05

Table7. Differences on the Significant Communication Skills when AMAIUB Alumni, Practicum or Working Students are Classified According to the Sector of their Company/Institution/ Organization

Conclusion

The top significant workplace communication skills are as follows: demonstrating ability to listen effectively; comprehending oral and written instructions from supervisors and co-workers; speaking English clearly, fluently and accurately; reading and understanding work instructions and standard operating procedures; and completing pertinent office forms, report sheets, tender documentation, work plans and specifications, incident report forms and notes.

There are no significance differences between the perceived significant workplace communication skills of the alumni and practicum or working students when classified as to their sex and the type of their company/institution/organization.

There is a significant difference between the perceived significant workplace communication skills of the alumni and practicum or working students when classified as to company/institution/organization type.

Results of this research imply that English communication skills, which include the core skills of listening, speaking, reading and writing, are used extensively in the IT, education, medicine, and engineering sectors, among others. The same skills play a significant role among the employees in the conduct of their day-to-day activities in their respective workplaces.

Ergo, the criteria to identify English courses for the various programmes at AMAIUB should be pegged on the target communicative skills needed in the workplace rather than the traditional and formal linguistic training.

Integration of all the potent communication skills in all the courses would help students have a grasp of the communicative needs in the real world of work. Situating English language courses within actual business, IT, and engineering contexts, and incorporating authentic workplace materials in such courses will make English communication skills learned more relevant to the students' respective fields of specialization.

Intensive research may be conducted on the required English language skills in a specific field of specialization.

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Providing a Model of Personal Energy Management to Improve Creativity with Using Metaphoric Model

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Abstract

Due to fast Information and Communication Technology improvements, today's human faces an overload in information, relations and opportunities. This situation results in a desired or undesired energy loss and subsequently it results in a decrease in creativity and personal or organizational performance. Creativity is a competitive advantage for almost all organizations. As we can't change the circumstances and contextual factors of today's environment, we have decided to present a model for personal energy management in order to control this energy loss which may result in an opportunity to spend this valuable energy on the creativity performance of employees. Forasmuch as energy and energy flow is not completely sensible and tangible in everyday life and we usually feel it by its effects on ourselves, in this research we have used "The Money Metaphor" as most similar external symbol of personal energy. This research, using a systemic approach, shows that there is lots of similarities between "Personal Energy Management Cycle" and "Money Management Cycle" and we can use this similarity as a model for personal energy management activities and this framework can result to related solutions. Conceptualizing this metaphor will result to a better investment and savings of employees' personal energy, instead of losing this precious source of energy which can be used in any organizational projects. Our model can be used as a basic toolkit in order to make the personal energy cycle a more tangible issue in an organizational perspective.

Keywords: Energy management, personal energy management, money management, creativity

Introduction

Thanks to rapid developments in science and communications contexts today, men in the twenty-first century have unprecedented access to education, information conveniently without spending much energy. Despite the access to a huge amount of data, men are not able to improve their personal and social life quality completely. Also, having more information and knowledge does not lead to creativity and innovation.

On the other hand, due to the physical negative effects of information overload like sleep problems, digestive and heart disease (Casanova, 2001) as well as the psychological negative effects such as stress, distraction and boredom (Marulanda-Carter & Jackson, 2012), it has led to confusion and eventually lowering level of energy, creativity, and efficiency.

Because further information requires more processing and, at the same time, the brain has its limits and must spend energy for every little thing that is processed so that energy is lost for each change in attention and for each gear change, our brain works harder than before (Akdeniz, 2015).

On the other hand, the creativity is widely known as a powerful and rich element in the lives of people. Creativity is a phenomenon that can hardly be meant and exists in all humans to some degree and is often measured by profit and uniqueness of an invented product (Imperatore Blanche, 2011).

In today's competitive business world, there is no feature more important than creativity. As technology and skills become commodities, the only thing that makes a distinction between organizations in the future is creativity (Zoltay, 2006). On the other hand, an organization is creative when its human resources i.e. staff and managers, are creative and innovative. People's creativity and creative thinking requires that they acquire a high level of energy and can spend this energy on creative ideas and bring them into practice. So the research question is whether energy management can be led to employees' innovation of an organization.

So it has been tried in this research to answer the main questions in this study by providing an energy management process model that is designed using the metaphor that money functions as the most objective case of energy. The main hypothesis of this study is that the employees' optimized energy management of a company or set of employees can increase their level of creativity. Hence, in this study, the role of energy management to overcome these problems and as a result increased creativity and productivity of employees is considered very important and with the help of the function of money (as a metaphor), the functions of the energy are explained and finally the practical toolkit is provided in this regard.

Literature Review

Energy management

Although it seems that energy is a common issue that people face on a daily basis, there is little research on the subject. Many theories have implied a sense of energy, without which is explicitly related to their energy (Schippers & Hogenes, 2011). Unfortunately, experience shows that sometimes all managers and companies are not ready to accept the fact that renewing the energy of human resources will lead to better and more stable performance. To achieve success, the efforts to renew energy requires support from managers (Schwartz & McCarthy, 2007). Energy management enables full participation and is considered the way for power, productivity, success and creativity.

Protection Motivation Theory has the closest application to energy management. This theory shows how to increase energy if it proves insufficient. These ideas lead to help increase a

sense of urgency of energy management in organizational culture. Research on the use of employees' energy as a key lever to improve performance began in 1996. The focus is on staffs' energy at work (energy efficiency, management, and measure to stimulate creativity, innovation, and higher performance).

In studies that have been conducted at the level of a company, the viability of a company and its stock price growth can be predicted by measuring its energy so that personnel's power management as an indicator of company performance and employee performance results are used (Welbourne, 2014). To increase the energy of its workforce, organizations need to focus on investment over them instead of using maximum forces, so employees can show more activity every day. This has a stunning effect on the efficiency of organizations. In fact, more ability helps employees do more work in less time, with greater accuracy and longer stability (Schwartz & Loehr, 2003).

People often engage deadlines such as in emails, appointments, daily exercise, and cessations which can be very destructive for workflow. When they are involved in cessations, they often lose most of their energy due to re-focusing their attention. For example, any interruption to check emails takes about 7 minutes of a person's time. Checking emails more than 8 times a day leads to wasting more than one hour per day. Therefore, the development of strengthening skills and maintenance of energy instead of wasting time seems necessary (Schippers & Hogenes, 2011).

Energetic staff are essential for the success of an organization. People who have more energy are more constructive and innovative and have a positive impact on others. When there is a high energy level in an organization, everything happens easily. Employees are more motivated to support each other and this is positive for the organization. Many incentive structures imply energy but it has been little noted (Schippers & Hogenes, 2011).

Energy management and its relationship with productivity and creativity

In a company, for example, to create and enhance in the field of creativity obstacles, things like the celebration of small initiatives and understanding of related topics such as trust, confidence, and group procedures were assessed. During the data and conversations that were created as a result, employees slowly start thinking differently about finding solutions to take risks in a project. Energy is increased and improved and after this period, the organization was able to launch several new production lines and their actions generally led to the situation which the estimated profit exceeded projected targets. During the investigation conducted by Fritz and colleagues, the strategies that staffs use to manage their energy at work are as follows:

(1) Checking emails,
(2) Change of work activities,
(3) Making a list of things that must be done,
(4) Offering help to colleagues, and
(5) Talking with colleagues or supervisors (Fritz, Lam, & Spretizer, 2010).

In the latest round of the Leadership Pulse, the average energy that has been measured since 2003-2010, shows that the average energy where participants have expressed that they are in the best condition was 8.22. The productivity gap was 7 to 8.22. Only 18 percent of respondents say they are at the best state of their energy. More than 50 percent of leaders who responded were far from one or more points of their optimal energy (Welbourne, 2014).

Explaining the concept of money and its relationship with the concept of energy

Money is a socioeconomic necessity which arises in certain economic and social conditions. Money can be a great source of joy and creativity or bring frustration and misery depending on our relationship to it. Money by itself influences almost all aspects of life: work, leisure, creative activities, home, family and spiritual interests (Nemeth, 2000). Money is like a man full of energy, a boiler full of steam and a full tank of gas, all of which are full of power. It may be when man becomes patient, the boiler explodes, a leak is created in the tank, and all may lose their power (Howard, 1991). The energy of a dollar bill can flow from our hands to the lives of many other people (Nemeth, 2000).

Money is simply not what we obtained and spend for objects (and services). However, it is a form of energy that exists in our lives. For a long time, we have allowed financial institutions such as insurance companies and credit card companies to run our financial lives. We have the idea that someone else will protect our energy. They will help us when we are lack that energy, we are covered when we're in a medical emergency, and they are helping us when we retire (Parnell, 2007).

Money as energy will not disappear in any kind of deformation. It just changes its form or goes from one owner to the other. Energy can exist in a variety of limited and potential forms. Under appropriate conditions, potential energy can be released and welcomed in any form. Money can also take various and immovable forms and when they become such a form, money is stopped as being “real money” and is turned to the "value".

The ability to "waste" is the other special feature of money. Wasting money like a waste of energy spontaneously starts and does not require special efforts. In contrast, specific efforts, at least voluntarily, in order to avoid wasting money are necessary. Wasting money does not mean its disappearance. Money does not disappear, but dispersed and falls into the hands of other owners. Only humans can recognize money as a form of energy that potentially has the ability to transform into other forms (Ksenzhek, 2007).

"Personal financial management" means managing personal or family funds in order to produce the necessary wealth to meet the basic needs, selective lifestyle, and concerned goals of the individual or family. The aim of managing your financial resources is to achieve your goals and those of your families in terms of maintaining what they have earned and what you want to earn (Sander, 2003).

Money is neither good nor bad per se, but the way it is used and spent will determine its rightness or wrongness. It is we who make the final decision on wasting, donating, and/ or spending it. Making the right decisions includes proper money management and the true understanding of money. When we consume or waste money stupidly, we will waste our energy of that of someone else. Are we such an unreasonable person that puts our hardly earned monthly salary in the oven and burn it (Howard, 1991)?

Research Design and Methods

The aim of this study was to "provide a model of personal energy management to improve creativity with the help of a metaphorical model." First, energy management aspects with the help of money metaphors in physical, psychological, and subjective impacts are determined. Then, the relationship between these effects with employees’ creativity in three areas of creative personality, creative thinking, and creative environment is surveyed in which the impact of information overload on creativity is finally evaluated. In a general perspective, the method used in this study was a predominantly qualitative approach.

Qualitative methods such as qualitative interviews for the study of meaning, process, and context of thoughts and behaviors of people come to work. Being interactive is another feature of qualitative research which means that this kind of research is a process formed in interaction with those who are in the position of researchers. Thus, in order to collect data to determine the ratio between energy management and creativity, qualitative interviews will be used. The feature of qualitative interviews is to delve into the thoughts and feelings of interviewees with long and detailed conversation.

As varieties of qualitative interviews, "elite interviews" will be used. The sampling method used in this research is a purposive non-random sampling method (preset). This method is applicable when, instead of obtaining information from those that are readily available, we obtain information from individuals or certain groups, i.e. certain types of people who are able to provide information to us. The major variants of this procedure are judgmental and quota sampling.

In judgment sampling method that is basis of sampling in this research, the persons elected for the sample are in the best position to provide the required information. These people are expected to have the expert knowledge and be able to provide information to the researcher because of the experience and passing different processes. According to the methodology, data collection, and sampling methods, the study population consisted of seven senior managers which will test the hypothesis discussed in this study through interviews with them.

Dependent variable

Creativity is known as an element of powers and reinforcing people's lives. Creativity is an ambiguous phenomenon that exists in all human beings to some extent (Blanche, 2011). Ripple (1989) summarizes four basic premises that underlie our understanding of creativity: as a concept, creativity is a phenomenon that can be defined, measured, and has distinct features and expandable patterns and can be further extended through education and training programs. The results of another study by Chambers (1972) have shown that personal encouragement is the best indicator of student-teacher relationships to develop student creativity (Edwards, 2010).

Creativity may emerge in some communities in methods such as art, music, and crafts or through entities. While creativity can have many forms, the economic criteria is oriented to the kind of creativity that leads to innovations which would ultimately achieve commercial results and profitability. Creativity creates a relationship or a combination among elements that previously did not have any relationships or were not combined (Yusuf, 2007). In today's competitive business world, there is no feature that is more important than creativity. As technology and skills become commodities, the only thing that makes a distinction between organizations in the future is creativity (Zoltay, 2006).

Organizational creativity emphasizes factors that lead to create ideas, whether it's about processes, products, or other related phenomena or not, which are both new and useful concepts. Edward de Bono (cited in Litchfield, Gilson, & Gilson, 2015) stated ten years ago that companies need to spend 10% of their time to directly research their creativity, but was not taken seriously. In 1995, de Bono conducted a survey on executives in Europe and the United States of America. 90% thought that their organizations should pay “much more” attention to creativity. 9% thought that their organizations should pay "more" attention to creativity. Only one percent believed that their organization pays enough attention to creativity. 85% believed that creativity is an essential part of their job (Litchfield, Gilson, & Gilson, 2015).

Creativity is an action, idea, or product which changes the present domain or transforms it into a new one. It's also the ability to study current matters and their combinations with different methods for new purposes (Zoltay, 2006). Creativity is an accepted concept that can be used to confirm and justify different theories and methods (Bilton, 2010). As the world gets more competitive and inner communication increases, creativity and innovation get more important. Scientists have defined creativity in organizations as producing new and useful ideas and also defined innovation as successful performance of creative ideas. The new ideas are the roots of successful innovations (Berg, 2016). According to Zoltay, there are at least three reasons for the necessity of being creative: new, different, and complicated ideas – connection of ideas – and problem solving (Zoltay, 2006).

As the professions enter into the twenty-first century, they face this complicated problem: how can they have more creativity? Edward poses these questions: what is creativity on the world? How can a concept be valuable for people thinking, for the history of people, and for everyone? Why is this concept ambiguous (Jageiello, 2000)? Creativity at work is the first and the best form of job efficiency. Also, creativity is so important for most organizations. Creativity is usually defined as the ability to create new and useful (or suitable) work in a specific domain. As a result, it needs creating new, original or interesting ideas (at least to create and produce input). However, such an action is also practical. Organizational creativity as creativity in production, ideas, methods, or new processes is useful when presented by people who work together in a complicated social system. It's assumed that organizational creativity can happen at different levels (individual creative behavior, group creativity, organizational creativity, or innovative creativity) (Rietzschel, Zacher& Strobe, 2016).

Independent variable: Energy

Definition of energy

In eastern philosophy, energy is called “Ki,” meaning the power of life or the flow of energy that is referred in relation to physical and body health. In the western philosophy, this concept is more implicit (Schippers & Hogenes, 2011). According to physics, energy is the ability to do work. There are two types of energies: (1) potential or saved energy and (2) kinetic or movement energy. Also, energy is neither created nor destroyed. Therefore, the managers can see themselves as senior managers and provide the fields of optimal transformation of potential energy into kinetic energy.

Yet, as physics, it's not possible to discuss the process of transforming and optimization energy without data (Welbourne, 2014). The corporation of employees affects their energy in their work place and it's a necessary but not sufficient condition for optimal and perfect performance. When a corporation leads to the improvement of energy of employees, positive connections are seen for individual results at the organizational level. Therefore, energy can be defined as a vital component between corporation and performance.

Energy dimensions and levels

Energy is composed of four dimensions. Composing dimensions are respectively as follows:

Body (body energy): insufficient nutrition, exercise and sleeping causes' decrease in people’s basic energy and their ability to manage emotions and mindfulness. The signs of needing body energy include restlessness – yawning – being hungry and – having difficulty in concentration, while most of us ignore these signs and continue working. The result is that, as we get closer to the end of the day, saved body energy decreases (Schwartz & McCarthy, 2007).

Emotions (the quality of energy): when people can control their emotions regardless of outer pressure, they are able to control their energy. For this purpose at the first stage, one should be able to grasp that he will have different emotions in different moments of a day and what are the effects of these affections.

Most people are aware of this point that when they have positive energy, they perform better and vice versa, if they have lower levels of energy they won't have good performance and as a result, can't manage situations well.

Mind (concentration energy): most managers consider the ability to do some works simultaneously – when there is outside pressure – has a necessity, but this ability decreases creativity. Distraction has consequences such as contemporary changes from one work to another work – like the answer of an email or a call – in these situations, the required time to complete the main work increases by 20 percent. This phenomenon is referred to as changing concentration time.

Human spirit (meaning and purpose energy): when daily activities are coincident with whatever they want and give them a sense of meaning and purpose, they create positive energy – better concentration and more resistance in people. To gain the spiritual energy, people need to specify their preferences and create behavioral habits according to their preferences as well as enjoy the work. Devoting conscious time and energy happens for the main domains of life like work, family, health, helping others, and showing values in daily behaviors (Schwartz & McCarthy, 2007).

Identifying long term purposes and thinking about them are an important prerequisites for efficient energy management (Schippers & Hongenes, 2001). A good example is The Sony Company in Europe in which, intermittent break, mid-day short exercise, and answering the emails in a specific time have led to more concentration and productivity. One factory calls the interval between 8 and 9 a.m. as meeting less time to ensure its employees that there is no meeting for one hour a day (Schwartz & McCarthy, 2007).

Energy Waste

Energy is seen as a valuable source that people try to reserve or gain (Schippers & Hogenes, 2011). One important dimension is energy stability. Like a battery, human energy recharges during the day. Well-being is one of the symptoms of high energy that comes back to energy resources and is represented in eagerness and life. An officer with a sense of well-being feels consciousness and is spiritual, and a tired officer, conversely, feels bored. Therefore, in the work place, human energy is a fuel that allows organizations to move successfully (Fritz, Lam, & Spretizer, 2010).

To create – reuse – revival of energy

Creating positive habits is creating energy. Negative habits cause energy waste. Spiritual and mental energy is created by self-esteem, self-order, being sociable, and sympathy. Also, a sense of enjoyment creates occupational exploitation. Negative emotions cause performance weakness. The researches indicates that alternate rests in order to renew energy result in a more stable performance. This action can be done by standing behind the table and talking to a coworker about a non-occupational topic, or listening to music, or walking upstairs and downstairs (Schwartz & McCarthy, 2007).

Employees need energy not only to do their daily and work tasks but also to do what is beyond whatever they are asked to do. Human energy can be considered as a resource which

helps people to adjust their emotions and behaviors according to group and organizational expectations and norms. Since this resource is limited and can be recharged by passing time, employers need to find ways to fill their energies orderly and continuously.

Energy donation

In this equation, the concept of energy givers, who give energy to their surrounding people, is an interesting starting point. How is energy deployed in a network? At the same time, the concept of energy givers may overlap with the concept of mental health, because people who have healthy minds are full of energy. Organizational energy usually starts with some key figures. Transformational leaders are able to inspire others and change the way people work towards a common goal. Research shows that different combinations of characteristics lead to energy giving behavior (Schippers & Hogneses, 2011).

Energy investment

Most people waste their time instead of doing what they need. For example, research done among managers of a global airline and a big oil company shows that, while 90% of managers defined their goals well, they waste time and energy. Only 10% of managers in the oil company spend their time committed and purposefully. These managers have been able to concentrate with precaution, meaning that they think about their purpose, and although there are distracting matters such as meetings, emails, and unexpected requests, these managers didn't become distracted (Schippers & Hogenes, 2011).

The research shows that positive relief from work in the evenings of the work day results in increasing the level of energy during the next work day. In addition, sleeping is a key factor to fill and renew human energy. If the employees can't fix and stabilize their energy during the intervals of time, organizations can't expect high performance from them (Fritz, Lam, & Spretizer, 2010).

Physical strategies including drinking water, going to the toilet, or any physical involvement are to refine and satisfy physical needs. Moreover, communicative strategies include positive relations with people (e.g., showing appreciation to a person at work or suggesting help to others). Also, psychological strategies refer to concentrated behaviors that are related to the future, such as preparing a list of works that should be done or planning for a purpose or a plan for weekends.

Finally, psychological strategies are thinking about the meaning of a work (Fritz, Lam, & Spretizer, 2010). Most employees who experience high levels of energy do other activities like appreciation or thinking about the meaning of a work. Other research about success in work shows that there is a stronger relation between learning, a stronger spirit and a sense of well-being. Current research shows that positive relations at work are energetic both from a physical and emotional dimension. Also, when people feel that their work is important, they get more creative, satisfied, engaged, and committed to do it.

Also Fortune 100 ranking about the best work places shows that advantages such as restrooms out of place, medical services, and massaging, give energy to employees and talking to a coworker increases emotional energy (Fritz, Lam, & Spretizer, 2010).

The directed creativity cycle: A synthesis of model of the creative process

In this paper, the directed creativity cycle is used to study energy management in four stages of preparation, imagination, progress, and performance. One model of creative thinking is named

the directed creativity cycle, which is composed of concepts used in models more than 80 years ago, believing that creative thinking is initiated by exact observation of the world and creating a set of concepts in our brain. By using these sets, new ideas to be created satisfy special needs via an active search of connections among concepts. There are different unique methods that can be used to create connections, such as comparing, dividing a specific concept, using random concepts, brainstorming, and so on. However, having creative thinking is not sufficient. Ideas don't have worth until they are executed in work places. Any new idea which is practiced will change the world and is the restart of a cycle of observation and analysis. This model includes four levels, preparation, imagination, progress, and performance, and like other traditions, believes in a balance between imagination and analysis (Plesk, 1996).

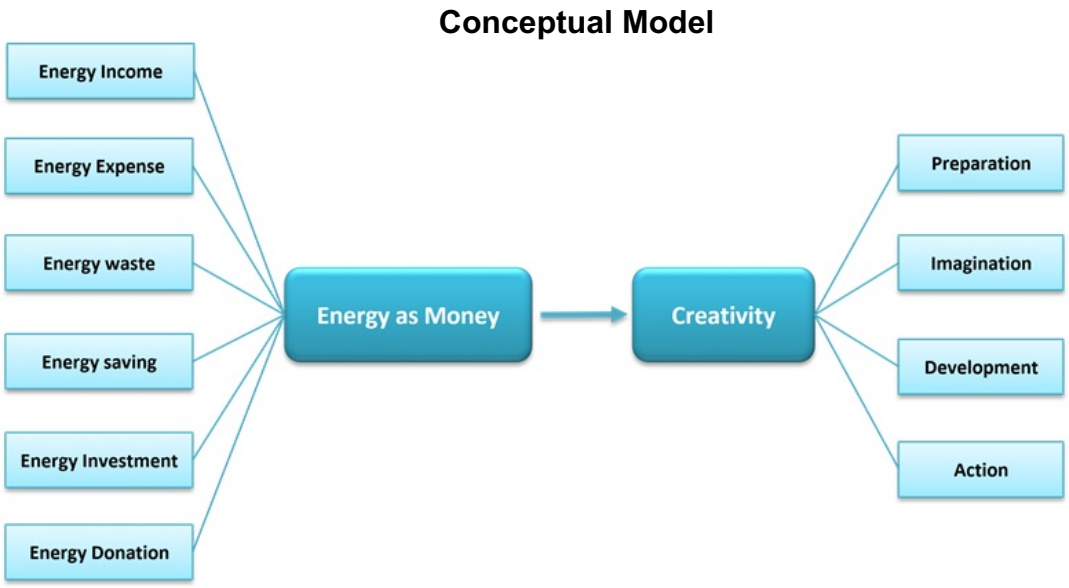

Figure 1 Conceptual Model and It's Dimensions

Data analysis

Interview 1	Weight				
	1	2	3	4	5
A1					
A2					
A3					
A4					
A5					
A6					
E. as Money					
H1					

Interview 2	Weight				
	1	2	3	4	5
A1					
A2					
A3					
A4					
A5					
A6					
E. as Money					
H1					

Interview 3	Weight				
	1	2	3	4	5
A1					
A2					
A3					
A4					
A5					
A6					
E. as Money					
H1					

Interview 4	Weight				
	1	2	3	4	5
A1					
A2					
A3					
A4					
A5					
A6					
E. as Money					
H1					

Interview 5	Weight				
	1	2	3	4	5
A1					
A2					
A3					
A4					
A5					
A6					
E. as Money					
H1					

Interview 6	Weight				
	1	2	3	4	5
A1					
A2					
A3					
A4					
A5					
A6					
E. as Money					
H1					

Interview 7	Weight				
	1	2	3	4	5
A1					
A2					
A3					
A4					
A5					
A6					
E. as Money					
H1					

Table 1 Data Analysis of 7 Interviews

Findings

According to the analysis of the content of interviews, the level of consistency for each dimension is summarized as follows:

Summary	
	weight
A1	4.4
A2	4.1
A3	4.1
A4	4
A5	4.4
A6	4.4
E. as Money	4.1
H1	4.4

Table 2 Summary of Findings

As the above table shows, all studied dimensions are consistent with the topic of our paper and confirmed by interviewers. It is necessary to mention that some dimensions have had more weight which indicates their higher significance.

Discussion and conclusion

Conclusion

Since the conceptual model used in this research is confirmed by the elites, it can be used as the basis of other researches and tested in different statistical societies. In addition, in this study, we were looking for a general framework which could find it. On the next step, after confirming the considered metaphor, we believe that we can present an executive framework for managers. In this way, we considered creativity as a unique package and we are going to use different functions of money metaphors, meaning income, cost, and savings. Referring to this knowledge that energy with the metaphor of money affects creativity, we presented executive approaches to improve organizational creativity.

Bear in mind that because three folded dimensions of the money metaphor are more important, our suggestions focus on these dimensions. These dimensions are energy as income, energy as investment, and energy as donation. However, it's noteworthy that since energy as income is least important, in the case of considering all dimensions in other research, it's recommended to mention it at the end of the suggestion list and devote less individual and organizational resources for itself.

Implications

Energy income

To use this approach, the following suggestions are recommended:

- effort to increase employers' mental and physical energy in the organization,
- effort to create rest to provide the fields if producing new energy in the organization,
- effort to improve group work in order to providing energy and synergy in the organization,
- effort to connect systems of performance and wage evaluation to create new individual energy in the organization, and
- effort to introduce production of new individual energy to increase production of individual energy in the organization.

Energy investment

To use this approach, the following suggestions are recommended:

- effort to record the results of activities of individuals to be used in the future (by other employees),
- effort to make documents of energetic activities in organization and refer to them in other times (to reproduce current energy in the past), and
- effort to create organizational culture in which people can share their energies and gain motivation from individual energies.

Energy Donation

To use this approach, the following suggestions are recommended:

- effort to visualization of employees' energy donation to observe other people in the organization,
- effort to deploy donation culture in the organization and usefulness of managers and leaders,
- considering energy donation in the system of improving employees, and
- Establishing rewards regarding to managing individual energy in organization (with an energy donation approach).

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Learning for E-Marketers (Web-Advertising) through Consumer Perceptions

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Abstract

The rapid growth of internet users in the world, in the last few decades has opened up opportunities for everyone, particularly as a tool for communication, entertainment, and marketplace exchange. The e-commerce industry is growing rapidly in the developing countries, which offers huge business potential for digital advertising, a necessity for businesses to function and grow. The ad-revenue in 2014 was at $146.42 billion and is projected to be at $252.02 billion by 2018 as per eMarketer.com, at the world level. In the Asia-Pacific area it is expected to rise 30.3% to a total of $46.59 billion this year. The Consumer is on the internet and hence the marketer has to be on the internet to find an audience for advertising their product/service and lure consumers down the marketing funnel. This rapid growth has been accompanied, however, by concerns of consumer's privacy intrusion, distractions caused while surfing, and the security of debit/credit card information as well as with the collection, dissemination, and use of consumer information by marketers who participate in online retailing. This paper explores the concerns and risk perceptions among consumers of various age groups and with varying levels of internet experience. It analyses how the perceptions of the surveyed group of population relate to online shopping activity, and what an eMarketers learns from the information gained through the research. A consumer survey of India where e-commerce is in its nascent stage and the U.S. (North America), where e-commerce has existed for around two decades now, explored the behavior of consumers towards digital advertising. The comparison of the two countries' data provides learning for the e-marketers, e-commerce industry's picture, along with consumer's expectations for privacy, quality, and authenticity of product/service while shopping on the websites.

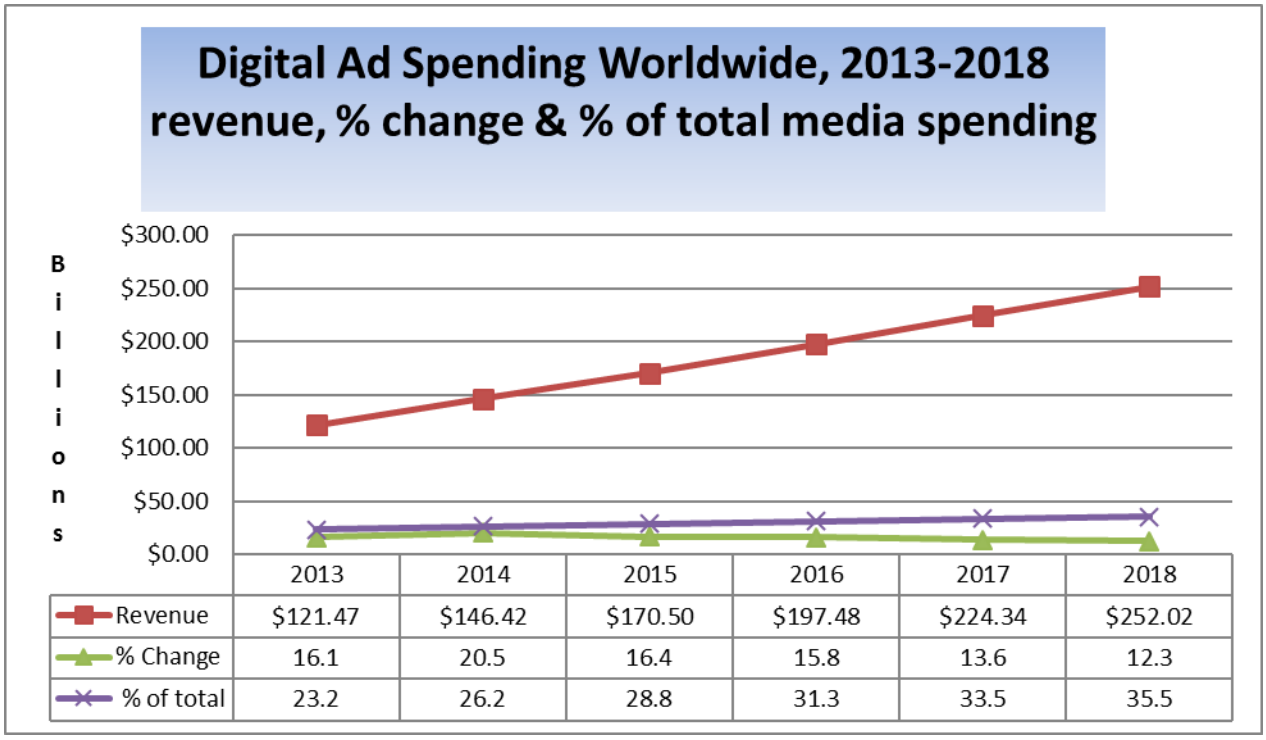
Keywords: internet security, consumer perceptions, digital advertising, e-commerce

Introduction

The world's digital population is increasing. By the end of 2014, there were almost 3 billion Internet users in the world, which is 40% of world's population according to International Telecommunication Union, 2014. Growth in the digital world due to proliferation of technology and its lowering cost in last couple of decades have opened up opportunities for everyone, particularly as a tool for fast communication, entertainment, and marketplace exchange. This growth has allowed many small businesses in the e-commerce sector, especially in the developing countries, to flourish due to low overhead costs. On the World Wide Web, the internet surfer gets information easily with product reviews, comparative analysis and best deal information. Marketing is one of the business functions affected by emerging information technologies.

As a new medium of business, the internet has the potential to satisfy functions of advertising selling, and supporting consumers in their decisions to purchase products and services. The internet also allows the marketer to maintain long-term relationships with consumers by repeatedly informing the consumer of their services and new products by the use of saved data. Digital Social Media has become a powerful tool for such exchanges. Hence digital/web-advertising has become more a necessity than a choice for advertising products/services. Internet is the place where marketers need to tap the larger market share, eventually bringing the shopper down the marketing funnel. Digital advertising has become a necessity, even to those businesses that are primarily brick and mortar. By tracking consumers' on-line surfing and researching to shop products/services, that is their buying behavior; digital advertising can be personally targeted through email to a mass audience. Consumers' net-surfing data gets downloaded. This data is referred to as BIG DATA. The buzz about BIG DATA is loud and clear, after all, this data provides the answers to the marketers for personalized targeting. Hence E-commerce is taking the lead in shopping where it's easy to purchase with the click of a button. Online shopping provides convenience in today's fast-track world–from booking online tickets, paying bills, buying books, electronics, shoes, cosmetics, to even grocery shopping. The brick and mortar overhead costs are cut reducing the price of items. The ecommerce businesses are flourishing. In India, the small, mom and pop businesses are more in market and doing good due to the help of technology.

This growing e-commerce industry offers huge business potential for digital advertising industry. The ad-revenue in 2014 was at $146.42 billion and projected to be at $252.02 billion in 2018 (e-marketer.com) at an international level. It is expected to rise 30.3% to a total of $46.59 billion this year in the Asia-Pacific area, surpassing North America in a couple of years with a bigger share of advertising revenue, according to e-marketer's latest estimates of digital ad spending worldwide.



	2013	2014	2015	2016	2017	2018
Revenue	$121.47	$146.42	$170.50	$197.48	$224.34	$252.02
% Change	16.1	20.5	16.4	15.8	13.6	12.3
% of total	23.2	26.2	28.8	31.3	33.5	35.5

Chart - 1: Source *www.eMarketer.com*

E-commerce Concerns

Two decades have passed since HotWired.com hosted the world's first online banner advertisement in October 1994 on behalf of AT&T. The technology has allowed the huge potential access to "connected" consumers. Access to retrieved data, new interactive creative units and the promise of *accountability* letting marketers and publishers plan a careful balance of ad inventory, and contextual relevance with an eye on consumers to unlock vast new repositories of value. It is not easy as it sounds.

Consumers may protect their privacy with tools like "to-opt-out" (Microsoft Explorer) and also with browser level protections used by internet service providers. Marketers still get general information from websites visited by consumers. At the same time, government and industry organizations have declared information privacy and security to be major obstacles in the development of consumer-related e-commerce. Risk perceptions regarding internet privacy and security have been identified as issues for both new and experienced internet users. These concerns pertain to the privacy and security of accumulated consumer data (Miyazaki & Fernandez, 2001) and the perceived risks that consumers may experience with respect to these issues.

The advertising industry is faced with the concern that a 100% ability to view ads is not possible and it is not technically and commercially feasible to measure every impression in the digital ad campaign (IAB). The matrices used by publishers, advertising agencies and advertisers themselves are not technically compatible enough to measure every impression as viewable; they work differently, generating different numbers.

Consumer Concerns: The other side of Ad-World

Internet surfers, the audience of the ad-world, are online for work, email, chat, searching information, deals etc. Social networking sites are keeping consumers active online. Facebook and LinkedIn have 58000 according to Indian Association of Mobile and Internet (IAMAI) new users connect every day just in India, which is why it is not a surprise that social networking is the second largest market in the world. These sites provide the best source of information, and the low cost of internet connectivity is keeping a larger audience online. No wonder Facebook has grown to be a billion-dollar company. The likes of Twitter and Pinterest are not far behind. Marketers are strategically using this media to market to consumers. This is the place where a shopper gets information easily with reviews of product, comparative analysis and best deal information. There is growing literature on website security indicating that consumers trust in the websites they visit and make purchases online. Consumer behavior is key in analyzing these factors for e-businesses. Historical data on e-commerce industry shows that it is around 40 years old, but actual impact on our daily life has been for more than 20 years in developed countries as opposed to being in its nascent stage in developing countries: thus, the interest in these topics for research in increasing.

The concept of trust is studied in every discipline and is defined in variety of ways by several authors in the marketing literature. Different views of concepts of trust and background by different authors/researchers are confusing. (Williamson 1993, Rotter 1967, Zucker 1986). A simple analytical model was built to help crystallize the concept of trust. The authors conclude that trust supports cooperation through its impact on two main threats to cooperation, namely fear and greed (Hwang & Burgers, 1997). According to Luhmann trust is based depending on the interpersonal relationship within in systematic setting.

Along with some divergent views, there are some similar views too regarding the conceptualization of trust. In an exchange relationship, between the shopper and the buyer on an online platform where there is no personal contact, some amount of trust as well as risk is a factor. However, all studies do not accept the perception of uncertainty and risk as elements of trust. (Doney & Cannon, 1997; Dwyer, Schurr & Oh, 1987; Morgan & Hunt, 1994). The researchers cited above have studied trust in the context of marketing relationships. The congruence between desired and perceived participation best predicts satisfaction with participation in decision making. Satisfaction comes along with trust as a predictor of satisfaction (Driscoll, 1978). Mayer etc. proposed a theory based on the characteristics of the trustee (marketer) and hence the party's (consumer's) trust makes the effect on the actual level of trust in that trustee (Mayer, Davis & Schoorman 1995). For developing and growing e-businesses trust is important as it affects the adoption of new technologies including the Web by explaining trust as a factor in creating social wealth in a social setting (Fukuyama, 1995). The importance of trust in the online environment is significant (Urban, Sultan & Qualls, 2000), because implementation of a technology such as the Internet can impact trust (Zuboff 1982) and trust is relevant in virtual organizations (Handy, 1995).

The establishment of trust between a firm and its customers leads to long-term relationships that prove beneficial to both parties. Some authors have proposed that the consequences of trust are a long-term exchange relationship (Ganesan & Hess, 1997) and cooperation (Morgan & Hunt, 1994). Satisfaction and long-term orientation have also been proposed as consequences of trust (Geyskens, Steenkamp & Kumar, 1999). Sultan, Urban, Shankar & Bart (2002) conducted a large scale empirical in which they propose that trust acts as a mediating construct between website and consumer characteristics, and consumer behavior on the website.

Based on the above literature discussion, the authors' premise is that trust and security are important aspects of online businesses and understanding how trust works in the online environment is essential for firms to develop a long-term relationship with consumers in the e-business context.

Change in Consumer Behavior

As previously stated, trust is important in business especially when on digital media and, where a consumer can purchase by credit/debit cards which are vulnerable to risk and frauds in the online transactions. The establishment of trust between the consumer and the website for e-businesses leads to a long-term relationship and is of major effectiveness. Consumer behavior may change depending on the perceived risk she/he senses while shopping. According to a recent global research study from ISACA, internet users in India are significantly more likely to change their digital purchasing behaviors because of retailers' data breaches. In the UK, USA and Australia, between three and four in 10 internet users surveyed during September 2014 said such breaches had no effect on their shopping behavior. Only 12% in India failed to change their habits to protect themselves. Table 2 gives the data of different countries' consumer behavior for use of online services.

Due to security breaches, the first safety-related change in all countries, including India was to change passwords or PINs. Nearly half of the internet users in India had done so after a data breach. Around one-third said they had started using cash rather than credit cards—a tactic much less popular in the other countries studied. Another third said they made fewer mobile purchases, more than twice the number of consumers who cut back on mobile buying in the UK, USA or Australia.

The survey done by the researchers also signifies the same issue of trust and security, which is faced by all internet users, not just in India, but by all developed and developing countries internet users. India's e-commerce has long way to go; in order for it to develop or succeed, the sellers/retailers will have to assure buyers that they will have secure transactions. The ISACA survey also revealed the concern for security in India where Indians were more than twice as likely to say they made fewer online purchases overall because of data breaches, compared with the e-commerce markets in the Australia, the US and UK.

Changes that Internet Users in Select Countries Have Made as a Result of Data Breaches at Major Retailers, Sep 2014 (% of respondents)				
Action	**UK**	**India**	**US**	**Australia**
Changed one or more online passwords/Pin codes	55%	47%	45%	45%
Shopped less frequently at one or more of the retailers that experienced a breach	14%	29%	28%	10%
Started using cash more often than credit cards when shopping	14%	34%	23%	10%
Made fewer mobile purchases (e.g., via laptop, smartphone, tablet)	13%	33%	15%	15%
Made fewer online purchase (e.g., via desktop)	11%	31%	13%	12%
Other	1%		3%	2%
Haven't changed shopping behavior as a result of a data breach	32%	12%	30%	36%
Source: ISACA, "IT/Risk/Reward Barometer" conducted by M/A/R/C				
Research, Nov 12,2014				
www.eMarketer.com				

As discussed, the internet is providing a place for e-businesses, advertising and selling the product due to its economic feasibility and effectiveness. Let's see the concerns of the targeted audience's (consumer or web-surfer's) point of view, who are plagued with many issues while surfing online, shopping, or simply chatting. A short survey of consumers in India and North America reveals a lot of information from which e-marketers can learn.

Methodology

The research paper's findings are based on an online survey done which was floated delivered through email and personal and telephone interviews of more than 30 consumers from the U.S. and 30 consumers from India.

Data Collection

The data was collected from consumers who use web services for daily news, to chat on social websites, for their work, or to shop online for travel tickets, books, electronics, shoes, and apparel. The electronic device used can be a mobile, smart phone, a laptop, or a desktop. The respondents of the survey were ages 15 and above. The survey questions were asked in a general and probing manner. Aim was to get views of respondents to know benefits and problems faced by then as consumers.

Analysis

The results from the survey fulfill the objective of the functions of advertisements on digital media. Table 1 below gives the idea of consumers by choice.

Number	Consumer Opinions	Indian Consumers (%)	US Consumers (%)
1	Entertainment	20.00	16.67
2	Save Money & pass that to consumers	23.34	13.33
3	Brand Awareness	36.67	23.33
4	Information of New product/service	63.34	26.67
5	Influence to buy	20.00	20.00
6	Influence to search	26.67	16.67
7	They bother me	13.34	43.33

Table 1: Consumer opinions

Results show little similarity in thinking apart from "Influence to buy" being a 20% of choice by both Indians and US consumers. Getting information on new products or gaining brand awareness is of the high Importance in both countries. Consumers are put off by the intrusion of digital advertising while they are working on the web. Chart 2 shows graphical representation of the same table above.

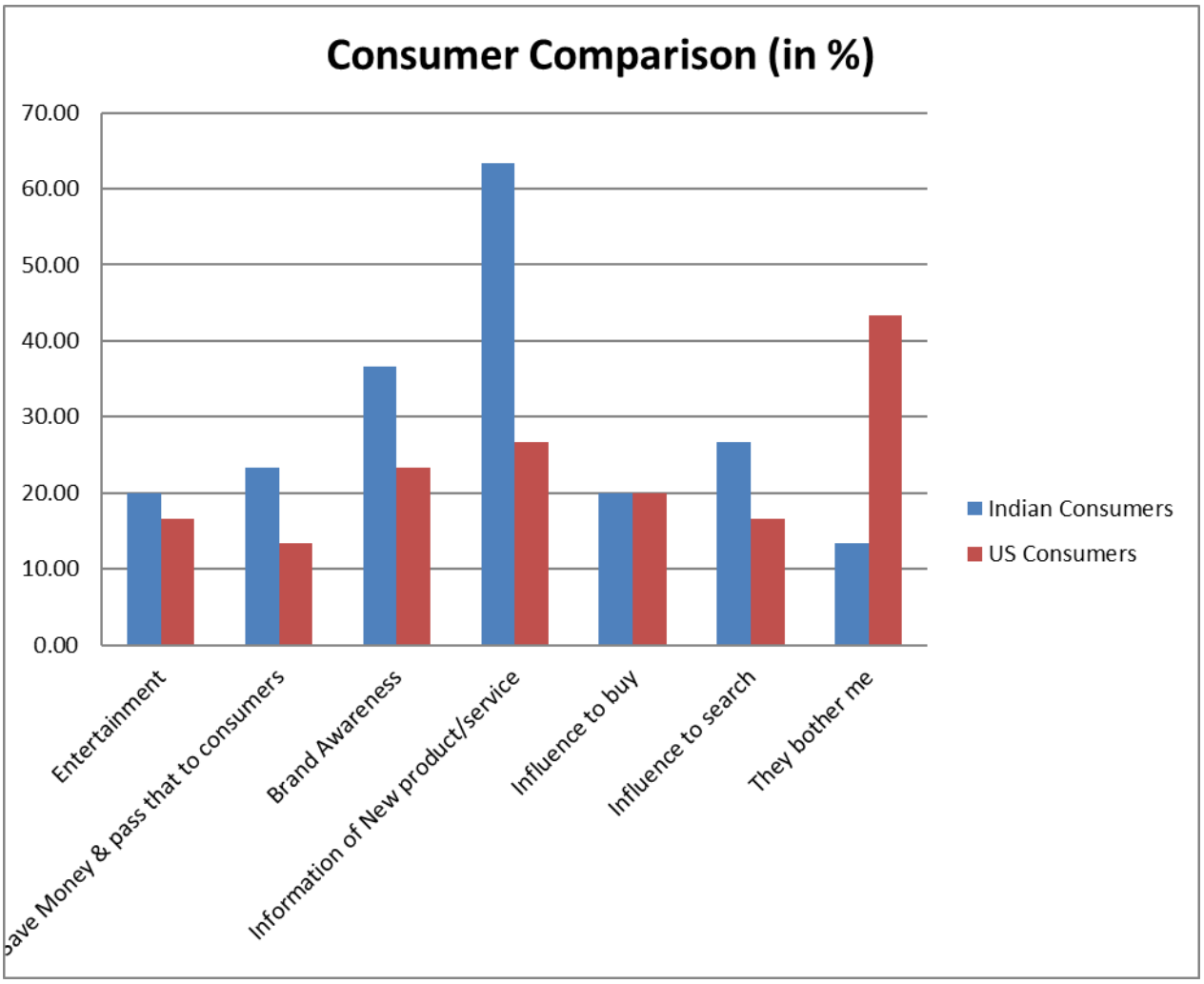


Chart 2- Consumers opinions of web-advertisement.

The fact that India's e-commerce industry is at its nascent stage is evidenced by the novice enthusiasm revealed through the higher percentages, as compared to US data, below.

- 63.34% of Indian consumers and 26.67% of US consumers replied that the advertisement makes them aware of the new products/services through web-advertising.
- 36.67% of Indian consumers and 23.33% of US consumers agree that web advertisements make them aware of advertisers' brands'.
- 20% of Indian consumers and 16.67% of US consumers responded that they look at rich video media used in the web-advertising '…as entertainment'
- 23.34% of Indian consumers and 26.67% of US consumers believe that 'Advertisers should save their money and pass the savings on to us'. It was the youngest population, from 15-25, who thought that advertisers should just pass on the savings to the consumers.
- 26.67% of Indian consumers and 16.67% of US consumers believe that advertisements influence them to search online for more information. The inquisitive minds of the brigade were influenced to find more about the product and went and searched online for more information.
- Only 20% of Indian consumers and 20% of US consumers were influenced to buy products from the advertisers.

  Here is the answer to the advertisers to be more practical and realistic for their services/products which are marketed.

- 13.34% of Indian consumers and 43.33% of US consumers are bothered/disturbed by the web-advertisers. The eMarketers' have to check how the consumers are targeted. Many remarked that the pop-up advertisement distracts them in their work and the web-surfer don't get attracted to it, but are irritated to an extent that they just close the adv., turn the videos' off or move to different location/website.

Internet security- the biggest issue

When questions related to shopping online were asked, the issues which plagued the consumers Indian and US consumers showed very little difference in their views. Table 2 gives the opinions of consumers regarding security and service.

No.	Online Shoppers Concerns	Indians (%)	US (%)
1	Security (Credit/Debit card)	33.33	30.00
2	Poor service	16.67	6.67
3	Timely delivery	13.33	6.67
4	Quality	30.00	23.33
5	No return policy	10.00	3.33

Table 2: opinions of consumers regarding security and service

Inexperienced Indian consumers usually shop online for electronics and books, while experienced Indian consumers, similar to U.S. consumers, shop for everything available online. These are experienced populations, such as software professionals, who are aware of the web-network security provided. These consumers like the convenience of online shopping versus shopping at brick and mortar stores. Online shoppers' biggest concerns are about the security websites provide. Online credit/debit card frauds are on the rise due to security lapses which put-off the consumers from completing the task of shopping. In India, there is no return policy by most retailers, so consumers find it easier and more feasible to shop in brick & mortar shops. Only safe products and services are options for these online shoppers.

Conclusion

The US e-commerce industry is about 40 years old, with the impactful 22 years in our everyday life, had similar concerns earlier, as previous results indicate. Consumers were also worried about their privacy and security breaches. Developed countries' consumers have not stopped shopping online, however, they have made a few changes in their behavior and are shopping for electronics and books, with experienced consumers shopping for all things available online. The U.S.'s e-commerce industry is well developed and equipped to tackle the safety issues. One can say that they have learned from the consumer's behavior, from years of experience, that being consumer oriented, being ethical and adhering to the moral values of the society, you gain. Consumers, build trust for long time and do not leave the brands and jump on to different brands in lieu of less price or mere good service. Though, inexperienced or old (age-group) consumers prefer shopping in brick and mortar stores, they benefit from web advertisement. They may just surf the web, for information, daily work, e-mail, comparison of prices of products/service, or to just chat on social networks.

Since the e-commerce industry in India is still developing, it is facing challenges. The research shows that IT professionals who are aware of internet-security are willing to shop online. To tap a larger market segment, (other than just software professionals) e-marketers have to educate the consumer on the safety of their information and provide authentic, high quality products/services. Overall, both countries' consumers feel intruded upon and bothered by web-advertisement, hence development on that front is required for great viewership and greater ROI.

The survey by the researchers signifies the same issue which is faced by all internet users. Not just in India but all developed and developing countries are facing this issue. India's e-commerce being in its nascent stage has long way to go and if it is to develop or succeed, the sellers-retailers will have to assure buyers that they will have secure transactions. The ISACA survey also indicated the concern for security in India where Indians were more than twice as likely to say they made fewer online purchases overall because of data breaches, compared with the e-commerce markets in Australia, the USA and UK.

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