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Highlights

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Linking Teaching in Mathematics

Discovering Thoughts, Inventing Future

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Sensing the Necessity and Impacts of Private Tuition in English among Secondary Students in Khulna, Bangladesh

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Sensing the Necessity and Impacts of Private Tuition in English among Secondary Students in Khulna, Bangladesh

Sk. Rezwan Shihab [α] & Nahida Sultana [σ]

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I. Introduction

A significant growth of private tutoring[1] is observed all over the world (Bray and Kwok, 2003; Aurini, 2004). In Japan, for example, tutorial schools, known as *Juku*[2], served 65.2 percent of junior secondary students (Bray, 2009). In Romania, supplementary education covers 32 percent students in rural areas and 58 percent students in urban areas (UNESCO, 2000).

The reasons for taking private tutoring depend on various situations and circumstances. The desire to get high marks and to improve examination grades, required for admission in the universities and in certain specializations, is motivating students to seek private tuition (Habashneh and Al-Naimi, 2006, Al-Farra, 2009). Other reasons for seeking private tuition include low academic performance of students, poor academic skills of some teachers, and the desire to obtain more information on the course subject (Habashneh and Al-Naimi, 2006; Al-Farra, 2009). Moreover, it provides a structured framework for young people to spend more time in schools that eventually minimize the chances of dropping out of school (Bray and Kwok, 2003). In addition, the mainstream educational systems can be learned from private tutors who are sometimes innovative and closely tied to the needs of their students (Seth, 2006).

The positive outcomes of private tuition are many. Private tuition is perceived as a means to enhance educational opportunities that facilitate social mobility. Studies show that private tutoring improves the school performance of the children (Mischo and Haag, 2002; Nath, 2007) and increases their chances of successfully moving through the educational system (Tansel and Bircan, 2006). Moreover, parents, who employ private tutors, are more involved in children's schooling and are generally satisfied with public education (Davies, 2004). On the contrary, teachers, who work as private tutors, improve their financial situation, political influence and social status at the expense of the parent's hard-fought income (Nath, 2007; Popa and Acedo, 2006).

Now a day, private tutoring is an intense social, economic and educational problem for the family. Some parents admitted the cost of private tuition as the burden for family income (Safarzynska, 2011; Ali, 2013). But the parents usually bear the economic burdens of private tuitions for their children as the higher examination grade of the children has a significant social impact on the family. Besides, the parents who cannot turn to private tutoring, their social status is decreased. If any children are unable to achieve better exam grades for the lack of private tuition, their family status is also devalued. This situation may lead some problems within the family. Moreover, private tuition also arises some educational problems for the students as well as for the parents. However, the students who are getting private tuition from the self-school teacher, are generally allowed to take extra favors from those

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[1] The education outside the formal schooling system where the tutor teaches particular subjects in exchange for a financial gain (Tansel and Bircan, 2006).
[2] Special private schooling, primarily in Japan, that offer lessons conducted after regular school hours, on weekends, and during school vacations (Wikipedia, 2015).

teachers where the other students are deprived. Sometimes, parents are willing to remain confidential about private tuition, because school teachers would wrongly interpret it as lack of confidence in the schools (Bray and Kwok, 2003).

In response to these problems, this study proposes to investigate the impact of private tuition on English on the students of secondary level in Khulna City. This study considers determining the impacts and aspects of English private tuition on students of secondary level in Khulna City, Bangladesh.

a) *Significance of the Study*

This study has significance in both practical and theoretical level. On the one hand, private tuition is a worldwide phenomenon indeveloped countriesand developing countries in particular. It generally offers cooperative learning and pays attention to the needs of the students. It also proposes better learning and competitive environment thus, motivates the students for better performance. On the other hand, this study theoretically shows the resemblance of social theories which focuses on the acquiring or construction of knowledge, learning through interaction, reflection of own understandings of the students and so on.

Practically, private tutoring is a generalized phenomenon, advantaging the upper social classes and exacerbating the burden on the lower established social classes. The spread of private tutoring is related to problems within the educational system in developing countries, including an inadequate number of universities, large class size, and low public educational expenditures. Besides, the weak formal education of public schools is responsible for spreading of private tutoring. Sometimes, students have to be discriminated in their schools if they do not receive private tuition from their school teacher. Their parents also have to invest great efforts and bear economic burdens to provide private lessons for their children because their social status can be devalued if they are failed to provide private tutoring. Moreover, parents sometimes show discrimination between males and females in terms of providing private tutoring.

From sociological or theoretical view, this study can provide the ideas to new researcher to go for further explanatory research. Thereby, I focus on the impact of private tuition, particularly on the segment of students of secondary level.

II. Methodology

This study was explanatory in nature. In this study, the researcher had tried to find out the nature of tuition of English subject among Secondary level students and its outcome. The study was based on quantitative research design. This study had also followed deductive research approach as this approach refers to the reasoning from the general to the particular. A deductive design might test to see if this relationship or link did obtain on more general circumstances.

Responses were collected on the basis of a survey questionnaire in this study to look for the impact of English private tuition on secondary students in the study area.

a) *Study Area*

The study was carried out in ten selected educational institutions located in the Khulna City Corporation area of Bangladesh. The educational institutions were selected purposively. Out of the ten, six educational institutions provided co-education and the rests were exclusive for female students. The selected educational institutions are as follows:

Table 1: Profile of the Study Area

Name of the Educational Institutions	Established (in Year)	Total Number of Students
Islamabad Collegiate School, Khulna	1944	400
Shahid Suhrawardy Girls' School, Khulna	1996	200
Shahid Suhrawardy High School, Khulna	1948	234
Adarsha Pre-cadet & High School, Khulna	1968	220
Fatima High School	1959	810
Pioneer Girls' High School, Khulna	1956	370
Khulna Shishu High School	1976	355
Rupsha High School, Khulna	1960	1050
Khulna Collegiate Girls' School and College	1996	3000
Iqbal Nagar Girls' High School, Khulna	1961	3500

source: Author's compilation, based on the information of the respective schools, 2016.

b) *Unit of Analysis*

For acquiring the objectives of the study, some specifications were needed to determine the unit of analysis. Data were collected from the (i) students of secondary level (class IX and X) with (ii) gender parity to address the situation of male and female students equally and (iii) half of them having private tuition and the remaining students had not, to identify the difference between the respondents who have private tuition and who have not.

c) *Population of the Study*

In this study, the population was consisted of 2390 students, which was identified through own generated census from the selected schools of Khulna city in Bangladesh.

Table 2: Population of the Study

Institutions	Number of Students (Class ix-x)	Samples Drawn	
		Male	Female
Islamabad Collegiate School, Khulna	105	10	10
Shahid Suhrawardy Girls' School, Khulna	75	0	20
Shahid Suhrawardy High School, Khulna	72	20	0
Adarsha Pre-cadet & High School, Khulna	Z	10	10
Fatima High School	198	20	0
Pioneer Girls' High School, Khulna	119	0	20
Khulna Shishu High School	35	20	0
Rupsha High School, Khulna	336	20	0
Khulna Collegiate Girls' School and College	700	0	20
Iqbal Nagar Girls' High School, Khulna	650	0	20
Total	2390	100	100

Source: Author's compilation, based on the information of the respective schools, 2016.

d) *Sampling Procedure*

In this study, data were collected through the techniques of stratified random sampling. In the language of sampling, stratified random sampling represents stratifying the population by any criteria and selecting simple random sample or systematic sample from each of the resulting strata (Bryman, 2012). It generally subdivides the population into smaller homogeneous groups to get more accurate representation (Best and Kahn, 2006).

In this study, the total sample size was 200. The 200 secondary level studying students were taken from the earlier mentioned schools of Khulna city in Bangladesh. For this study, data were collected from two sources, (a) primary and (b) secondary sources.

e) *Data Collection*

For conducting the study, primary data were collected through face-to-face interaction with the respondents. The researcher had tried to identify the students of secondary level for determining the impact of private tuition on them. Teachers and guardians were selected randomly for focus group discussion.

To make the data more accessible and amenable, secondary data source assists mostly (Scott, 2006). For conducting the study, data was collected from relevant books, journals, articles and websites.

f) *Techniques of Data Collection*

In this study, interview schedule was used as a part of field survey which is a method of collecting social data at the individual level and it ensures higher response than any other method of data collection (Jary and Jary, 2000). So, the researcher followed the method of interview schedule, which was semi-structured as a technique of data collection.

g) *Development of Study Instruments*

Relevant journals, reports and books were reviewed intensively to identify the variables related to study objectives. The variables were incorporated into a semi-structured interview schedule containing both open and close-ended questions. The interview schedule was divided into some sections focusing on impact of private tuition of English on secondary students. Some variables regarding impact of private tuition on secondary students were reflected from literatures. The major veriables could be listed as the socio-economic inequalities, gender inequalities, cultural factors, parents' educational levels, affordability, accessibility and availability, demand for Tutoring by subject, demand for Tutoring by gender, demand for tutoring by students, demand for tutoring by school type, ineffectiveness of public education system, high school equalization policy, learning activities, learning materials, non-academic motives, corruption and so on.

III. Literature Review

Dang (2013) found that rich families invest more in tutoring privately their children than the poor class. In Vietnam, only 15 percent of the households in the poorest quintile invested in private tutoring compared with 27 percent in the next quintile and about 30 percent for the other quintiles. Punyasavatsvt (2011) provided the similar observation that the parents in highest income quintile spent 2.7 times more on private tutoring than the parents in lowest income quintile, in Thailand. Cameron (2012) noted about the other thing that private tutoring is so widespread in some societies that most parents feel the need of investing on tutoring if they possibly can.

Bray and Kwo (2014) noted that disparities are evident in the gender of students who receive private tutoring. In some countries, male students receive more

private tutoring than female students. Nath (2008) also indicated the alike that boys are more likely to receive tutoring than girls, in Bangladesh.

Feagin and Sikes (1995) and Ogbu (1992) explained that gender, family structure and socio-economic status each influence family decision making regarding private tutoring. Zhou and Bankston (1998) further suggested that academic success can also be explained in terms of cultural factors of various ethnic groups. Besides, Rumberger and Larson (1998) noted that one of the most cultural artifacts is language. Language differences exist as a result of migration patterns where language mediates the process of cultural assimilation. Kao and Tienda (1995) added with Rumberger and Larson (1998) that students who speak a language at home that is different from the language on school examinations. So, the students generally perform below who speak the test language at home. Therefore, it becomes more important for them to get supplementary tuition for leveling up the drawback. Actually, academic achievement is associated with human and economic capital brought by parents and is tethered to the context of the reception.

Duru-Bellat (2004) found that education level of parents influences the child's performance at school. The parents, who have higher levels of education, are more likely to support and encourage their child's schooling. Paviot et al., (2005) also mentioned that the educated parents value and understand the economic and social benefits that better education can provide.

Zhang (2013) found that the families with higher income and those living in the urban area are more likely to receive private tutoring. He reflected not only the demand for tutoring but also the supply of tutoring. Supply and demand factors are tied up closely through the community where a family resides. Affordability concerns with both the financial capabilities of the families and the costs of tutoring that the families are willing to invest.

Bray (2011) mentioned that the intensity of demand for tutoring is partly influenced by its purposes. Private tutoring can provide long-term support throughout the year and it is oriented to high-stake examinations likely to be taken before examinations of schools. As tutoring is task or examination based, this tends to be taken by pupils when they face major examinations. Tutoring is especially prominent at the transition points at which students have to compete for the admission to the next level of education.

Davies (2004) observed that the most popular subjects in tutoring are closely linked to what are tested in high stake examinations in some Asian countries. Mathematics, Physics and Chemistry are mostly demanded in tutoring of Vietnam as these three subjects are taken by many students. Pallegedara (2012) found the similar thing that students usually go to private tuition according to their major subjects in Sri Lanka. Shen (2008) added that Mathematics and English are mostly demanded in tutoring of Mainland China, as these subjects are significant for entrance examinations. Bray (2011) also identified that Mathematics and Languages are most popular subjects for demanding tutoring in many countries. Tansel and Bircan (2006) added with Bray (2011) that these subjects are popular in terms of utility, essentiality and importance in mainstream curriculum as well as in major examinations. In the circumstances in Bangladesh, English rests at the top priority subject for private tuition because it is an important study subject in many public exams and a good grade in English is a minimum requirement for admission in higher studies.

Kim and Lee (2010) noted that the ineffectiveness of the public education system is found as one of the determinants of private tutoring. Lee and Hong (2001) also mentioned that the public education system is regulated strictly by the government especially after the introduction of the Middle School and High School Equalization Policy in Korea.

Lai-yin (2004) observed that examination pressure is the biggest reason for seeking private tutoring at upper secondary levels of schooling. Examination skills are the most common among extra learning needs identified by students. Students generally seek private tutoring in order to cope with examination pressure. The situation is more serious at the upper level of secondary schooling.

Johnson (2008) suggested that the physical arrangement of the classroom can affect the overall social, intellectual and emotional environment of students' literacy learning. The physical arrangement of classroom in the tutorial center and the mainstream schools shows significant differences, and their influence on students' learning is yet to be examined.

Curriculum Development Council (2004) noted that learning activities need to be authentic and purposeful, engaging learners in genuine acts of communication to enable learners to communicate effectively. These activities should also be related to needs, interests, imagination and daily life experiences of learners as well as appreciation of other cultures of the world. Ho (2011) also observed that the major learning activities in shadow education are doing mechanical drills and rote memorizing which aim at helping students to develop examination skills. Sometimes it also helps them to cope with the heavy homework pressure of the school.

Bray and Percy (2003) found that inadequacy in mainstream schooling is one of the major factor that drive students to seek for help from private tuition. Bray and Lykins (2012) also noted that a large proportion of students who took supplementary tutoring stated that they had not received sufficient exercises in school, and the full syllabus content had not been covered. Besides, Bray and Percy (2003) exposed that private tutors often

distribute a lot of supplementary exercises and notes, which are essential for their students. The exercises and notes provided by the tutors are often color-printed and include a lot of pictures that facilitate understanding of the students. This can help to strengthen students' attention and lengthen their concentration span.

The learning gains much depend on the motivation, attitudes, and learning styles of the learners as well as on the quality and teaching styles of the tutors. Yung (2011) also identified that the regulations on teaching materials, learning activities and teaching styles are highly dependent on the private tutors in shadow education. The quality of private tutors seems to be a critical factor that can affect the effectiveness of shadow education on students.

Lai-yin (2004) found that education is the most potent means for upward social mobility where private tutoring is regarded as a kind of educational investment. He also argued that the majority people agreed to this statement.

Sultana (2011) identified that there are academic and non-academic reasons for taking up private tutoring. One reason for attending private tutoring is that students may have the desire of meeting friends or fit into peer groups. Besides, some of the parents send their children to private tutoring even though there is no real need. The parents think that they need to simply send their children to private tutoring because that is what they can do for their children (Gauci and Wetz, 2009). In addition, Bray (2011) found some flexible packages of private tutoring in different subjects and homework supervision, which are offered by the tutoring centers.

IV. Findings and Discussion

a) *Academic Record and Receiving Private Tutoring*

Students generally receive private tutoring for achieving better academic records. As a dependent variable, academic records are divided into four types like A+, A, A- and B+, are shown in the column of table 01 and as an independent variable, receiving private tutoring is positioned in the rows of the same table.

Table 3: Academic Record by Receiving Private Tutoring

Receiving Private Tutoring	Academic Record								N	%
	A+		A		A-		B+			
Yes	27	27%	63	63%	5	5%	5	5%	100	100%
No	24	24	46	46	25	25	5	5	100	100
N	51	25.5	109	54.5	30	15	10	5	200	100
Pearson's χ^2= 33.126 (3); p<0.000 (0.01)										

Source: Sample Survey, 2016.

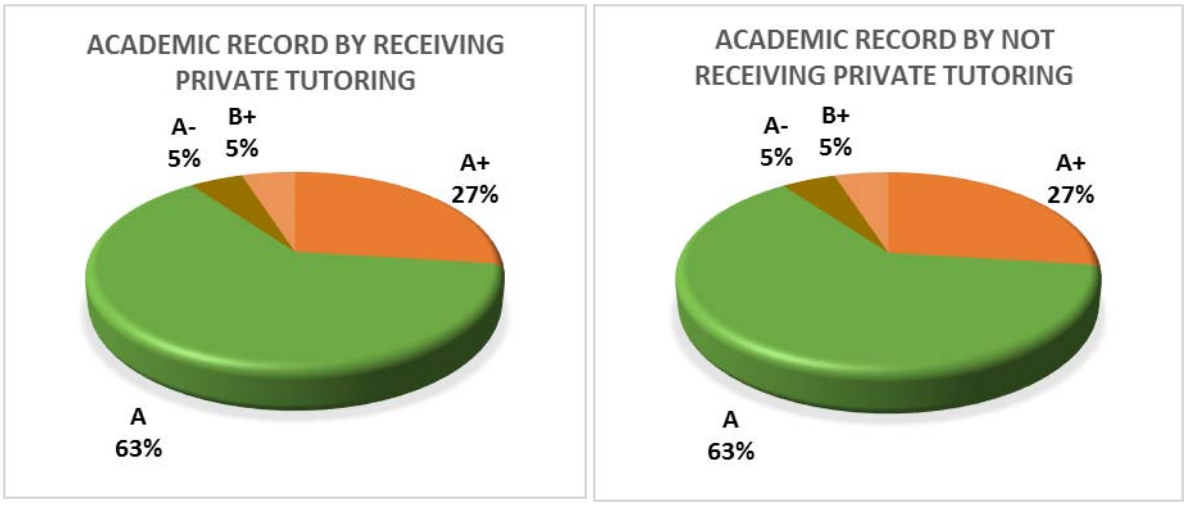

Figure 1: Academic Record by Receiving Private Tutoring

Data in table 03indicate that the maximum 27 percent students achieved A+, who received private tuition where maximum 24 percent students got A+ without any supplementary help from private tuition in English. Again, the highest 63 percent students achieved A, who received private tuition; where maximum 46 percent students got A without receiving private tutoring in this subject. Therefore, it is clear that higher academic records partly depend on receiving private tutoring. Here p<0.000 statistically represents

that academic record and receiving private tutoring are significantly associated. From the above discussion, therefore, it is quite proved that private tuition positively effects on the academic performances of the students of secondary level.

b) Way of Finding Tutor

Students find out about their suitable tutoring options from various sources. Commonly, they tend to follow the peer groups and the nearby options available to their locality.

Table 4: Way of Finding Tutor

Way of Finding Tutor	Frequency	Percent (%)
Introduced by School Teachers	28	28
Introduced by Classmates/Friends	58	58
Introduced by Relatives/Others	14	14
Total	100	100
Mean: 1.86 and Standard Deviation: 0.636		

Source: Sample Survey, 2016.

As manifested in the above table, indicates that only 14 percent respondents had found English tutors by relatives or others while 58 percent was introduced by classmates or friends. Where 28 percent of the respondent had found tutors by school teachers.

c) Level of Understanding of Students in Classroom and Receiving Private Tutoring

Receiving of private tutoring in English sometimes determine the understanding of lessons by students themselves. Here, level of understanding lessons of students is identified as dependent and status of receiving private tutoring is recognized as independent variable where both are to be found on the column and row of table 03, respectively.

Table 5: Level of Understanding Lessons in English in Classroom by Status of Receiving Private Tutoring

Status of Receiving Private Tutoring	Understanding of Students						N	%
	Low		Medium		High			
Yes	12	12%	78	78%	10	10%	100	100%
No	35	35	60	60	5	5	100	100
N	47	23.5	138	69	15	7.5	200	100
Pearson's χ^2= 15.270 (2); p<0.000 (0.01)								

Source: Sample Survey, 2016.

Data in table 05 show that the highest 78 percent students who received private tuition in English had medium capacity to understand their lessons clearly; where the maximum 60 percent students had also the medium capacity, who did not receive private tuition. Again, only 12 percent students had low capacity who received private tuition but 35 percent students had low capacity for understanding lessons who did not receive private tuition. Moreover, 5 percent student showed high level of understanding when they did not receive private tuition as against the percentage was counted more than double (10%) among the tuition receiving students. Therefore, it is evident that the students, who received private tutoring, are rather more capable to understand their lessons clearly. Here p<0.000 statistically proves that level of understanding of students and status of receiving private tutoring are significantly associated. From the above discussion, it can be easily summed up that receiving private tuition increases student's understandings about their lessons.

d) Answering the Learned Questions and Receiving Private Tutoring

Besides being a study subject, English is a knowledge and often it is found that students become anxious while they face situations in which they have to respond in English. At times, they can't perform well in the lessons which they have already learnt and it happens out of sheer fear or anxiety for the language. Answering capacity of the learned question may develop through the assistance of private tuition. As a dependent variable, answering the learned questions is divided into three forms such as low, medium and high, which are shown in the column of the table 04 where status of receiving private tutoring is accepted as independent variable which is placed on the same table. Here, N represents both the total number of respondents and percentage of them in column of table 04.

Table 6: Answering the Learned Questions by Status of Receiving Private Tutoring

Status of Receiving Private Tutoring	Answering the Learned Questions						N	%
	Low		Medium		High			
Yes	6	6%	44	44%	50	50%	100	100%
No	17	17	57	57	26	26	100	100
N	23	11.5	101	50.5	76	38	200	100
Pearson's χ^2= 14.513(2); p<0.001 (0.01)								

Source: Sample Survey, 2016

Data in the table 06 shows that the highest 50 percent students who received private tuition, had high capacity to answer the learned questions; where the maximum 26 percent students had also the high capacity, who did not receive private tuition. Again, only 6 percent students had low capacity who received private tuition in English when 17 percent students had low capacity to answer the learned questions who did not receive private tuition. Therefore, it is evident that the students, who received private tuition, had more capability to answer the learned questions. Here p<0.001 statistically proves that status of receiving private tutoringin English and answering the learned questions are significantly associated.

e) *Sum up of Knowledge and Mistakes and Receiving Private Tutoring*

Some good number of students can even identify their strong and weak points while studying a subject. They can evaluate themselves and their progress while taking adequate measures for further development. The sum up of knowledge and mistakes can be governed by the receiving of private tutoring. As dependent variable, sum up of knowledge and mistakes is classified into three categories such as low, medium and high, which are presented in the column of the following table. Again, status of receiving private tutoring is recognized as independent variable which is positioned in the row of the same table. Here, N represents both the total number of respondents and percentage of them in column of table 05.

Table 7: Sum up of Knowledge and Mistakes by Status of Receiving Private Tutoring

Status of Receiving Private Tutoring	Sum up of Knowledge and Mistakes						N	
	Low		Medium		High			
Yes	35	35%	55	55%	10	10%	100	100%
No	43	43	52	52	5	5	100	100
N	78	39	107	53.5	15	7.5	200	100
Pearson's χ^2= 4.599 (2); p<0.099 (0.10)								

Source: Sample Survey, 2016.

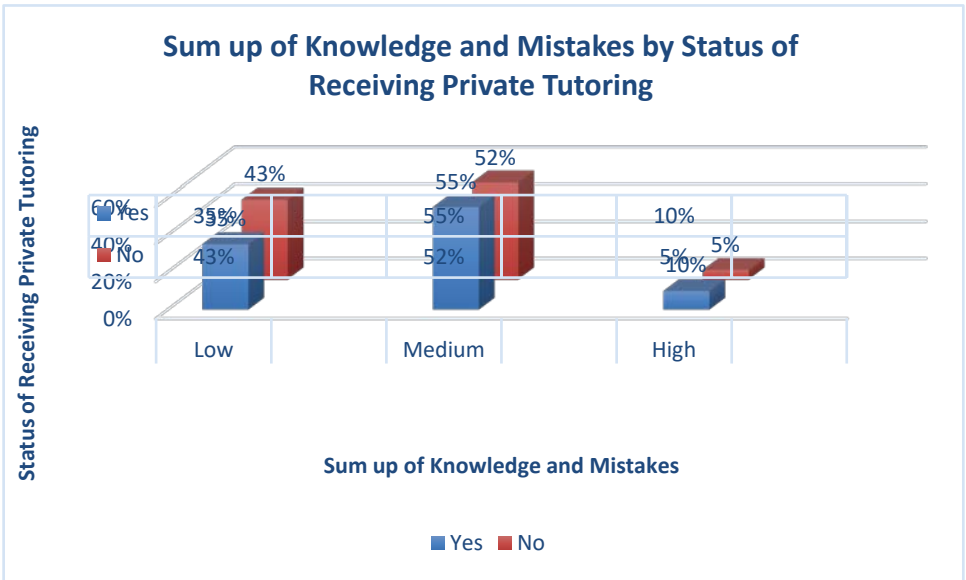

Figure 2: Sum up of Knowledge and Mistakes by Status of Receiving Private Tutoring

Data in table 07 determines that the highest 55 percent students who received private tuition in English, had medium capacity to sum up their knowledge and mistakes when the maximum 52 percent students had also the medium capacity, who did not receive private tuition. Besides, 35 percent students had low capacity who received private tuition where 43 percent students had also low capacity to sum up their knowledge and mistakes who did not receive private tuition. Therefore, it is evident from the above table that the students, who received private tuition, are more capable to sum up of their knowledge and mistakes. Here $p<0.001$ statistically proves that status of receiving private tutoring and sum up of knowledge and mistakes are significantly associated.

The impact of private tuition in English in the aspects of nature is clear in Khulna City. The secondary level continuing students are found with taking various forms of tutoring. Mainly, students of secondary level have the motives to go for private tuition as secondary level is the turning point for the education system of Bangladesh. Besides, the impact of private tuition in English, either positive or negative, can significantly place on the whole life of a student. To identify this impact, the researcher has followed some certain aspects: (1) receiving private tutoring, (2) forms of tutoring, (3) types of tutor, (4) way of finding tutor, and (5) getting study related help. Receiving private tutoring was chosen by half of the respondents, as it is a quantitative research where the researcher examines the relationships among the variables. To determine relationships, half of the respondents had private tuition and the remaining did not have. This study indicates that half of the respondents (50%) had received private tuition and the rest of the respondents (50%) had not done so. There are various forms or issues of tutoring based on the theory of social constructivism and socio-cultural theory, which provides a framework for the present study to investigate the major issues of current teaching and learning as well as implementation of co-operative learning. The forms are “one to one”, “group to one”, “multiple to one” and so on. The students generally choose them according to their necessity and affordability of their family. The study shows that more than half of the respondents (54%) had taken “one to one” forms of tutoring and only 5 percent respondent had received “class to one” forms of tutoring. There also exist different sources for receiving private tutoring like class teacher of school, other teachers of school, teachers from other schools, professional tutors and so on. The study found that more than half of the respondents had received private tuition from the class teachers of school and 19 percent from other teachers of school. Only 4 percent respondents had taken tutoring from professional tutors.

In Bangladesh, there are many ways of attaching with tutoring or finding tutors in spite of having schooling based on the actor network theory, which provides a way of intervening in education issues. The ways are by friends or classmates, by relatives or by school teacher. The study manifested that only 14 percent respondents had found tutors by relatives or others while 58 percent were introduced by classmates or friends. Where 28 percent of the respondents had found tutors by school teachers. The most popular subjects in tutoring are closely linked to what are tested in high stake examinations in some Asian countries (Davies, 2004). English is one of the mostly demanded subjects in tutoring in Bangladesh as thissubjectis taken by many students. Students mainly receive private tutoring as this investment can enables them to increase their better performances based on the theory of human capital. The demand for private tutoring is mostly dependent on the amount of education received by parents as the educated parents can provide study related help to their children (Zhang, 2013). The study represents that only 11 percent respondents did not get any study related help from their family members while most of the respondents (89%) received such help more or less. Many students do not have to aim for private tutoring or supplementary help as they can receive study related help from any of their family member.

Tutoring is usually received for remedial or advancement purposes. Students generally take tutoring classes to understand their lessons clearly and to improve their grades (Zhang, 2013). Based on the theory of socio-cognitive conflict, receiving of private tutoring can help the students to reassess their understandings and to construct new conceptions. Moreover, other information such as economic, political or social can be learned from tutoring classes. The study also represents that receiving private tutoring is closely associated with the understanding of lessons clearly. It is evident from the study that the understanding level of students widens if they receive private tutoring. Receiving of private tutoring also habitually controls the capacity of the students to explain their lessons clearly. This study demonstrates that students having private tuition can explain their lessons more clearly than the students not having so. The students, who have private tuition can also progress their capability to answer the learned questions. The study determines the substantial relationship between receiving private tutoring in English and answering the learned questions. The worthy students can largely sum up their own knowledge and mistakes, in the sense that better education helps to shape attitudes and other characteristics as well as imparting skills, based on the Screening theory. The present study validates that the students having private tuition are more capable to sum up their knowledge and mistakes. They become more confident and determined in their studies. There is a significant relation between receiving private tuition and sum up of knowledge and mistakes.

Like any other subjects, the demand for tutoring in English and the thinking about tutoring are partly influenced by its purposes. Private tutoring can provide long-term support throughout the year and it is perceived as better by the students who practically gain this (Bray, 2011). The present study indicates that only 16 percent of the respondents had low level of positive thinking about private tuition and high level of thinking was provided by 35 percent respondents. There is a positive effect of private tutoring on student achievement and it is found in a number of studies (Stevenson and Baker, 1992), (Mischo and Haag, 2002), (Tansel and Bircan, 2005) and (Ireson and Rushforth, 2005). The present study also determines the significant relation between receiving private tutoring and academic record of the students of secondary level. Private tutoring generally feeds off the unmet demand of mainstream schooling and shapes the educational processes in the school classroom (Zhang, 2013). Students of non-formal schools had a higher level of positive thinking about school due to the smaller teacher-student ratio and additional free help from mainstream teachers (Nath, 2008). Besides, examination pressure is the biggest reason for lower level of positive thinking about mainstream schooling (Lai-yin, 2004). The study infers that only 13 percent of the respondents had low level of positive thinking and 26 percent students had high level of positive thinking regarding their school.

The students of secondary level are not beyond gender discrimination in the perspective of third world countries like Bangladesh. Gender difference has mainly been examined by comparing the participation rate of female and male respondents who have attended private tutoring and test the statistical significance of the difference (Zhang, 2013). In Bangladesh, boys are more likely to receive private tutoring than girls (Nath, 2008). The parents are also more willing to invest in the education of male children than female (Zhang, 2013). The female students can be discriminated even by their parents such as not to be sent for private tuition or to pay less for tuitions than male child. In some cases, the pattern of tutoring changes in case of gender issues. This present study proves the continuing social change regarding discrimination against female.

The educational success of the students commonly pertains to the education of their parents. The educated parents value and understand the economic and social benefits that the better education can provide (Paviot et al., 2005). The study shows that the father of the respondents, who had completed education of higher secondary level, was 15 percent of the total. Where, the remaining had tertiary level of education. The children of better educated mothers are also more likely to receive extra instruction at least at the primary level and perhaps at the junior secondary level as well (Montogomery et al., 2000). This study shows that a few number of mothers (16.5%) belonged to education of secondary level, 33.5 percent belonged to higher secondary level and the remaining had completed tertiary level of education.

The families who have greater incomes can invest more amounts for providing quality tutoring to their children than the lower income families (Dang, 2013). Based on the screening theory, the private tuition in English which is provided on a fee-paying basis outside school hours is generally a burden for the family as the amount is not very little. But, the parents have to take this burden as the learning outcome of the specific subject is not satisfactory enough for the students which are taught in mainstream school.

Focus group discussion among some English teachers of mainstream schools and private tutoring agencies as well as guardians brought out some more interesting facts. The advantages of tutoring in English, as expressed by the parents, are more or less the restatements of the purpose of having tutors-– parents arrange for quality English tutors having the notion that children understand the subject better, their grades improve, and also that their children are being helped with homework. The children love the extra assistance as well – in majority they answered that the main advantages are “better explaining of not understood things” and “explaining in detail”, and also the possibility to ask the tutor any questions. Though some students put it in negative that supplementary English tuition put them to extra pressure and they loss any extra time of their own. Teachers from both ends- mainstream school and private tuition, express their positive view on supplementary tuition. In their view, the school system does not ajar the opportunity to learn and practice the lessons well while private tuition can provide the students with the opportunity of knowing the lessons well, practice well and have several tests on that. The tutor can find out and correct their mistakes more precisely and thus the students’ confidence level increases.

V. Conclusion

There was a significant positive effect of private tuition in English on the academic achievement of students at secondary level. Private tuition is very effective in raising the achievement level of students in any academic track. Furthermore, tuition is found more effective in clarifying difficult concepts of students such as understanding their lessons, sum up of their knowledge and mistakes. Gender disparities are not evident on the basis of tuition fee provided by the parents. In some cases, parents invest more fees for their female child than male. It is evident that English tuition broadens the understanding level of students. Moreover, private tuition was found to be more effective and useful because students can be given special attention by the tutor.

This empirical study has strong theoretical significance as it correlates the theories like human capital theory, which conveys that the investment in tutoring may help the students for better academic records; social constructivism and socio-cultural theory, which demonstrates the procedures of current teaching and learning; where actor network theory delivers the ways for attaching with tutoring in spite of having schooling. Based on theoretical view, the study proves that the investment on private tutoring in English can surely turn the better opportunities and further better chances of employment, which leads to better life standards.

The findings determine that the greater access to English tuition can provide greater academic performances. But, all students do not get such access because of their bitter financial condition. The results prove that parents of higher socio-economic status always try to ensure quality supplementary English tuition for their children. However, in some areas, private tuition in English is not so available to be received by the students. So, most of the students who cannot receive private tuition is because of lack of accessibility, availability and affordability. Besides, some students are not eager to receive private tuition as they are satisfied with their lessons of mainstream schooling. Although both the parents and the children are aware of the weaknesses of this shadow education system, the advantages are prevailing, and it brings some positive learning outcomes in case of achieving grades in exams and knowing the subject, i.e. the language better.

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Why has English Become the Language for all the Written Materials at the International Level?

By Tamer Osman
Zhenzghou University

Abstract- This paper is an attempt to explain the reasons and the factors that have made the English language the language of most of the written materials around the world.

Keywords: writing skills, english as a lingua franca, english as a second language, english as a foreign language, international english, global english, writing analytics, writing assessment.

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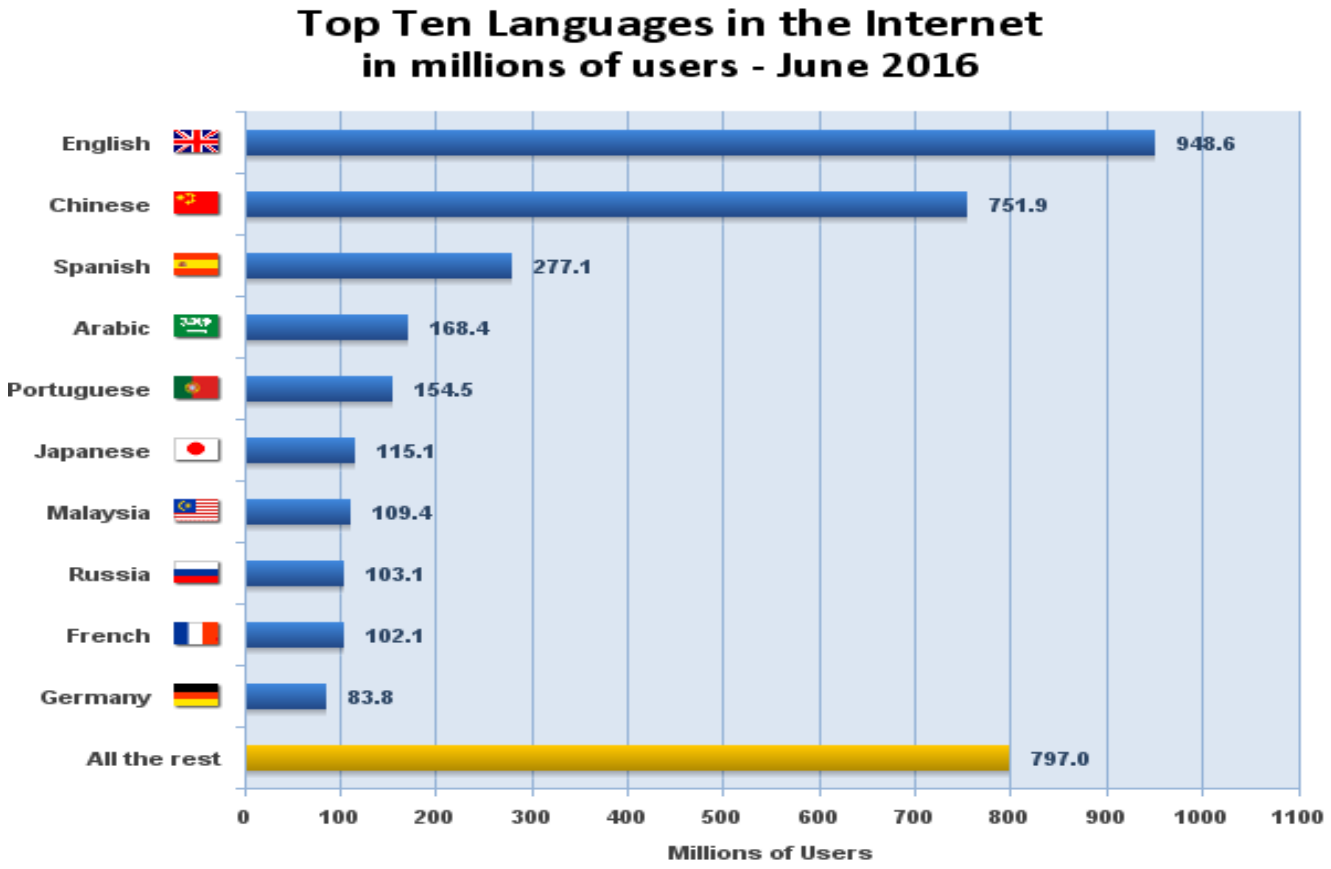
Table (1)



Source: Internet World Stats - www.internetworldstats.com/stats7.htm
Estimated total Internet users are 3,611,375,813 for June 30, 2016
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Table (2)

Top Ten languages used in the web – June 30, 2016 (Number of Internet Users by language)					
Top Ten languages In the Internet	Internet users by language	Internet penetration (% population)	Users growth in internet (2000-2016)	internet users % of world total (participation)	World population for this language (2016 estimate)
English	948,608,782	67.8%	573.9%	26.3%	1,400,052,373
Chinese	751,985,224	53.1%	2227.9%	20.8%	1,415,672,934
Spanish	277,125,947	61.6%	1424.3 %	7.7%	450,235,963
Arabic	168,426,690	43.4%	6602.5%	4.7%	388,332,877
Portuguese	154,525,606	57.9%	1939.7%	4.3%	266,757,744
Japanese	115,111,595	91.0%	144.5%	3.2%	126,464,583
Malay	109,400,982	37.8%	1809.3%	3.0%	289,702,633
Russian	103,147,691	70.5%	3227.3%	2.9%	146,358,055
French	102,171,481	25,9%	751.5%	2.8%	393,892,299
German	83,825,134	88.3%	204.65	2.3%	94,973,855
Top Ten languages	2,814,329,132	56.6%	848.4%	77.9%	4,972,343,316
Rest of the languages	797,046,681	33.7%	1410.0%	22.1%	2,367,750,664
World Total	3,611,375,813	49.2%	900.4%	100.0%	7,340,093,980

I. Introduction

a) Elucidation on the Statistics in Table (1)

Reckoning the number of speakers of the world's languages is an progressively complicated task, particularly with the instigation in many countries to teach English in their public schools. How many people can presently use the global language? David Graddol, a British linguist,estimated a total of 750 million L1 (first or native language) plus L2 (second or nth language) speakers of English in his Future of English Report ,PDF document issued by the British Council. Prof. Martin Schell, a Canadian linguist from Princeton University,has reviewed Prof. Braj Kachru's new book 'Asian Englishes' that manifests that India and China altogether have more than half a billion "users" of English.

In fact, the number of English language users are augmenting and most of them are bilingual or multilingual, but here only one language per person was assigned in order to have all the language totals add up to the total world population (zero-sum approach). No adjustments have been made for infants or illiteracy in the Internet penetration rate calculations. Very few countries have 100% literacy like these six countries: Australia, Denmark, Finland, Liechtenstein, Luxembourg and Norway are six countries .

Regarding children, most are early Internet fosterers (whenever and wherever children are granted the chance to use computers to surf the Web).

Another very interesting fact is that the six official languages of the United Nations (Arabic, Chinese, English, French, Russian and Spanish) are all included in the above Top Ten Internet languages table.[1]

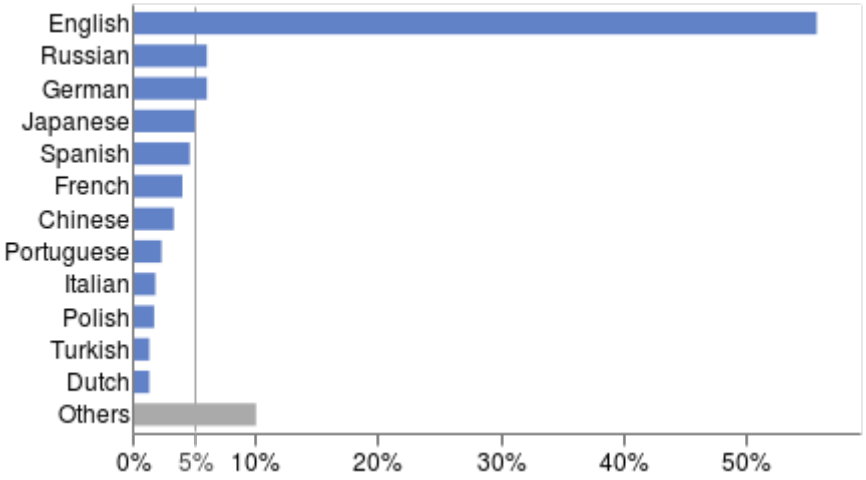
b) Elucidation on Table (2)

Progressing monitoring by W3Techs, World Wide Web Technology Surveys' Tacklers,shows that in March 2015, just over 55 percent of the most visited websites have English-language homepages. Other top languages that are used at least in 2 percent of the one million most visited websites are Russian, German, Japanese, Spanish, French, Chinese, and Portuguese.

The figures from the W3Techs study are based on the one million most visited websites (i.e., approximately 0.27 percent of all websites according to December 2011 figures) as ranked by Alexa.com, and language is identified using only the home page of the sites in most cases. As a result, the figures show a considerably higher percentage for many languages (especially for English) as compared to the figures for all websites.The number of non-English pages is slowly expanding. The use of English online increased by around 281 percent from 2001 to 2011, a higher rate of growth than that of Spanish (143 percent), Chinese (77 percent), Russian (26 percent) or Arabic (201 percent) over the same period.[2]

c) *Content languages for websites*

Table (3): Estimated percentages of the top 10 million websites using various content languages as of 19 January 2017:



d) *Interpretation of The Language Usage in Percentage*

Table (4): Content languages for websites as of 12 March 2014--December 2016

Rank	Language	Percentage
1	English	52.3%
2	Russian	6.4%
3	Japanese	5.7%
4	German	5.4%
5	Spanish	5.0%
6	French	4.0%
7	Portuguese	2.6%
8	Italian	2.3%
9	Chinese	2.0%
10	Polish	1.7%
11	Turkish	1.6%
12	Persian	1.5%
13	Dutch, Flemish	1.4%
14	Korean	0.9%
15	Czech	0.8%
16	Arabic	0.8%
17	Vietnamese	0.6%
18	Indonesian	0.5%
19	Greek	0.5%
20	Swedish	0.5%
21	Romanian	0.4%
22	Hungarian	0.4%
23	Danish	0.3%
24	Thai	0.3%
25	Slovak	0.3%

Rank	Language	Percentage
26	Finnish	0.3%
27	Bulgarian	0.2%
28	Hebrew	0.2%
29	Lithuanian	0.1%
30	Norwegian	0.1%
31	Ukrainian	0.1%
32	Croatian	0.1%
33	Norwegian Bokmål	0.1%
34	Serbian	0.1%
35	Catalan, Valencian	0.1%
36	Slovenian	0.1%
37	Latvian	0.1%
38	Estonian	0.1%
39	Hindi	0.1%

All other languages are used in less than 0.1% of websites. Even including all languages, percentages may not sum to 100% because some websites contain multiple content languages.

e) Internet users by language

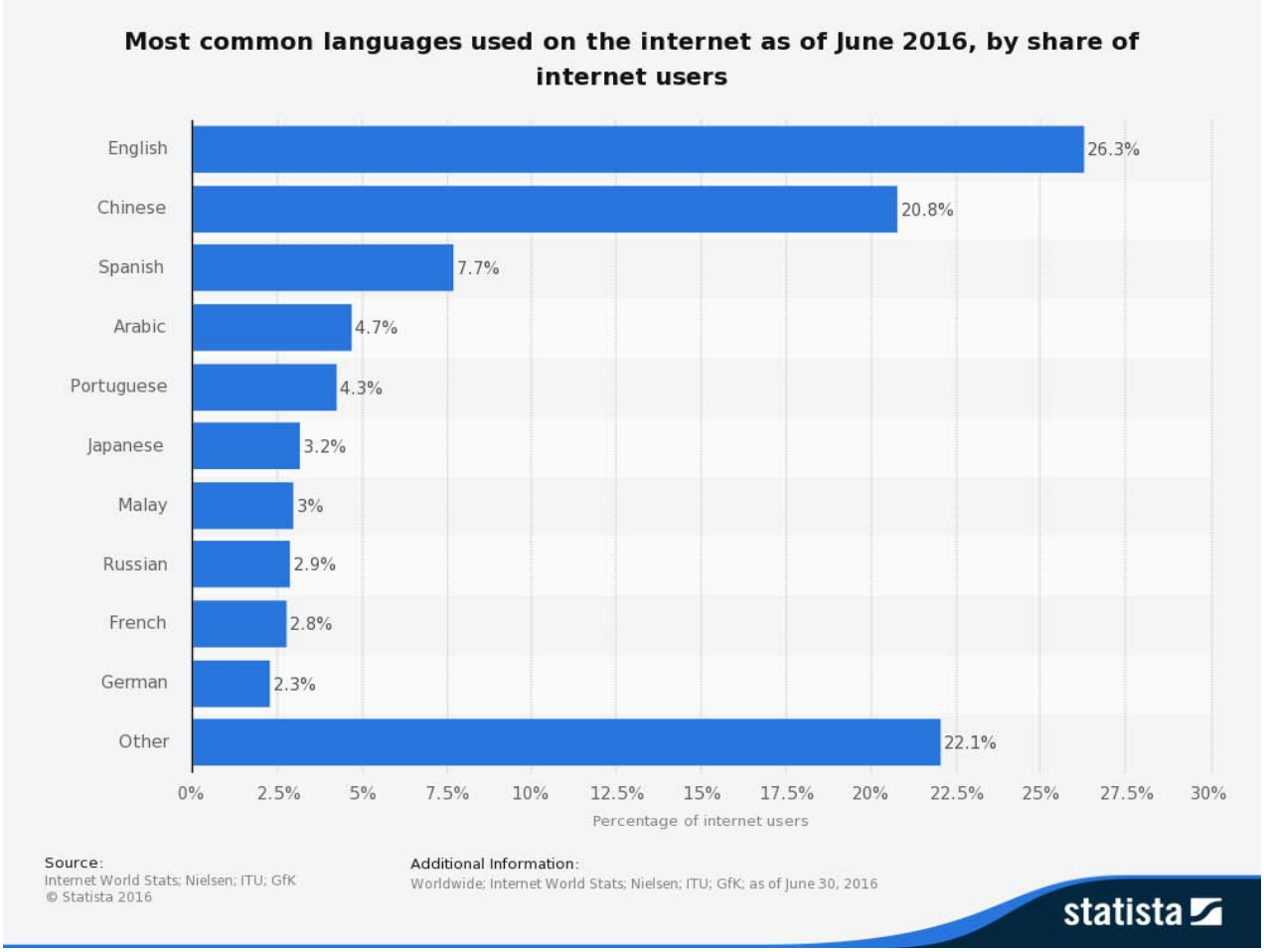
Table (5): Estimates of the number of Internet users by language as of June 30, 2016

Rank	Language	Internet users	
1	English	948,608,782	26.3%
2	Chinese	751,985,224	20.8%
3	Spanish	277,125,947	7.7%
4	Arabic	168,426,690	4.7%
5	Portuguese	154,525,606	4.3%
6	Japanese	115,111,595	3.2%
7	Malay	109,400,982	3.0%
8	Russian	103,147,691	2.9%
9	French	102,171,481	2.8%
10	German	83,825,134	2.3%
11–36	Others	797,046,681	22.1%
Total		3.61 Billion	100%

f) Statistical Elucidation of the Internet Usage and Languages

Statistia Incorporation, one of the leading statistics companies on the internet, has issued statistics showing the most common languages on the internet by share of internet users. As of June 2016, English is the most popular language online, representing 26.3 percent of worldwide internet users. Chinese is ranked second with a 20.8 percent share. The top ten languages accounted for 77.9 percent of global internet users.[3]

Table (6)



These statistical bulletins pose a question about the reason that has made English position this unprecedented rank in regards to its usage .It is expected that the written materials internationally are published in English. This manuscript clearly explains these reasons.

II. English is Considered to be a Lingua Franca (ELF)

As it is used as a Koiné language, i.e. as a common language for communication purposes among the speakers of different mother tongues. ELF function is represented in being a means of intercultural communication rather than referring to it in regards to native-speaker norms.

On the other hand, we find that English as a foreign language targets English within the framework of meeting native speaker norms and emerges the cultural aspects of the English native speakers. Although lingua franc as have been employed for centuries in different communities and societies, ELF revealed its prominence for its large-scale functionality and geographical coverage.

a) Characteristic Aspects

The fashion English is employed in a target context or communication situation as a lingua franca , unlike other languages, chiefly relies on the specific situation of usage. Generally speaking, ELF interactions focuses on functionality rather than form. In other words, communication competences which aim at conveying specific messages are more indispensable than linguistic accuracy. Therefore, interactions using ELF has been increasingly proving its presence virtually.

Based on the Vienna-Oxford International Corpus of English (VOICE) and additional research, the following features of ELF lexicogrammar have been identified:

- Veering the usage of articles including zero articles as in 'our teams have signed contracts with our players.'
- Utilizing 'who' and 'which' as relative pronouns with the same grammatical function as in 'the toy who / the toy which or the man which/ the man who'
- Veering the usage of the prepositional patterns as 'The students have to write about.'
- Inclining to use bare and/or full infinitive rather than to use the gerunds, as in 'I'm looking forward to meet him tomorrow.'

- Tackling collocational patterns with semantic general significance like 'perform a task'
- Resorting to unnecessary clarification like saying 'What is the distance ' instead of ' How far'
- Adopting redundancies and cliches, such as 'I wanted to do with this thing.…' or ' In my opinion,….'[4]

b) Impartiality of ELF

Whereas some linguists believe that English as a lingua franca is a impartial and void of cultural phenomenon, other linguists believe that it should definitely bear the culture and language of its native speakers.Many ELF specialists regard the cultural and linguistic background of communicators as a catalyst affecting their language performance and communication skills.

Cornelia Hülmbauer, Assistant Professor at Austrian Academy of Sciences, thinks that English learners can produce their own identities depending on the community they are addressing and avoid adhering to one identity. That is attributed to the idea that ELF is impartially multicultural and void of cultural dyes.

c) ELF and the Native Speakers of English

ELF is usually handled among non-native speakers of English, but this does not discard native speakers of English from being involved in ELF communications. In these communications, the technicality of interaction is highly considered over natal English accuracy. Therefore, the native speakers of English who are unaware of ELF and intercultural elucidation struggle to convey their messages to non-native speakers since they lack the appropriate strategy of using English in such situations.[5]

The other intricate issue is related to some ELF learners who tend to convey their messages to the recipients without yielding to the norms of the native-speaker English language level.They ignore the linguistic accuracy as long as the materials of their messages has correctly been transmitted to the recipients. That is the reason that has instigated some ELF specialists to believe that English learners can be called 'English users' and not 'English learners'. Hence, English learners are always craving to publish their research in English, but the linguistic inaccuracy could endanger the accuracy of the scientific data and information submitted in their research.Accordingly, they would highly depend on native speakers of English to revise and proofread their papers.

III. Approach and Impetus

One of the conflicting arguments that imposes itself is the incongruity between the constituted opinions on the functions of ELF in quotidian interactions at the international level and the compliant preeminence of the norms of the native- speaker English. Breiteneder regards that learners of English as a Foreign Language usually possess incentive impetus for acquiring and using English with the approach of identifying themselves with the cultures and values of English native speakers. [6]

Consequently, the norms of the native speakers represent a pivotal element if English is dealt with as a foreign language. By contrast, English as lingua franca tacklers incline to concentrate upon the efficient communication with speakers of other linguistic backgrounds.

In ELF communications, perspicuity is an indispensable issue that may not be advantageous for native speakers of English.Thus, when English as a lingua franca users and English as a foreign language users handle editing their academic papers, their performance related to writing skills differ in their level of linguistic accuracy.

a) Perspectives

Three perspectives about ELF are considered: acquired language encompasses learners' errors rather than genuine developments, preserving the idea that ELF is a substantiated variety of English, and advocacy of impartiality notions encountering globalization inclination.

As for the first perspective, developments in ELF take place randomly and lack regular patterns. Rejection to the idea that intuitive views around the usage of English as a lingua franca can create productive input related to innovation in the ELT methodologies.

The second perspective tackles the ELF research that has acquiesced the methodologies of the classic linguistics. This research environs some obstacles when targeting language use in context. For example, the strong emphasis on considering language forms and authenticating them numerically on the account of considering the contextual factors and variations constituting communicative practices across ELF settings is a problematic issue.

This leads to streaked connections between intention, behavior, and culture and English usages that could represent false lines of interrelationships.[7]

The third perspective reveals how ELF has a guise for continued linguistic prevalence adopted by English-speaking world. This concept of linguistic prevalence has been rapidly developed and widely used by Robert Phillipson,Research Professor at Department of English, Copenhagen Business School. Although Phillipson is into this orientation, there are some controversial facts against it.

IV. Related Terminology Related to Lingua Franca

Other terms with slightly different meanings are related to the international prevalence of English,

including 'English as an International Language ' (EIL), 'Global English', 'Global Englishes', 'International English', 'World English' and 'World Englishes', and 'Globish' (Global English).

'Global Englishes' (GEs) are generally viewed as an element heedfully calibrating with ELF. They aim at demonstrating how language use is inconstant and interwoven with cultural abundance, located contextualisation and complex interactions among English language users.

As for the other above-mentioned terms, they bear linguistic characteristics, e.g., 'Globish' annotating simplified English forms for communication purposes vs. 'ELF and GEs' describing the reactions of English language users at time of communication, and 'World Englishes' considering linguistic features and commoners in different regions and communities in the world vs. ELF considering the indigenous usage of the English communication skills. [8]

a) Classification of Englishes

The prevalence of English around the world is often discussed in terms of three distinct groups of tacklers, where English is used respectively as:

1. *Native Language (ENL):* The first language of the majority population of a country is English, such as in the United States, the United Kingdom and Australia.
2. *Second Language (ESL)*: An additional language for intranational as well as international communication in communities, such as in India, Nigeria, and Singapore.
3. *Foreign Language (EFL):* English is used almost exclusively for international communication, such as in Japan.[9]

b) Differential Facets between English as a Lingua Franca and World Englishes

The most prominent differential facet between English as a Lingua Franca (ELF) and World Englishes to appear is related to pronunciation issues.

That is attributed to the notion that any English varieties are effortlessly identified by its distinctive pronunciation characteristics. For example, a speaker of American English can be discriminated from from a non-native speaker, like a speaker of Indian English, via their pronunciation, it is also possible to distinguish a speaker of particular varieties of American. On the other hand, ELF is signalized by a variety of numerous pronunciations, as English language from different cultural backgrounds can communicate with each other using English. This is an arena where communication-activated language changes are distinctly palpable.

The second facet where ELF and world Englishes parallelize is the usage of vocabularies. World Englishes are characterized by their use of culturally-induced lexical items.

That orientation occurs since English language user around the world are involved in expressing their domestic environment and phenomenon, but borrowing from indigenous languages is a instinctive matter. For instance, Ang mo, which literally means 'red hair' in Cantonese, is the colloquial word for a foreigner in Hong Kong English. Moreover, redefining the significance of words away from standard English.

The third facet emanates from the translation of local words or idioms into English. Examples from Mandarin would include political terms such as the four modernizations and the three represents. There are also general idioms like a flowered pillowcase that refers to an attractive but stupid person, the couple who breathes through the same nostril that refers to the strong depth of the relationship.

Therefore, lexical items and idioms are utilized with particular linguistic semantic function when English is used as a lingua franca, because they refer to specific indigenous phenomenon and cultures. As Seidlhofer (2001: 16) mentions that 'unilateral idiomaticity' can lead to involuntary miscommunication when lingua franca is used for conveying messages.

Other linguists like (Honna 2008) supports the notion that idiomatic English can be adopted by ELF since it provides capitulating imagery cleaving to English users' minds. Recent research demonstrates the prominence of ELF idioms and the mutual comprehension between native and non-native speakers around their usage (Seidlhofer 2009).

World Englishes are also characterized by code-mixing (Li 2002; McLellan & David 2007). Most of English language users speaking world Englishes are multilinguals who have learned English as an additional language. Therefore , those users identifying themselves to one common linguistic backgrounds would tend to code-mix, as they display one common identity.Although the percentage of tracking code-mixing with ELF is imperceptible, English language users involved in lingua franca communication do not have identical linguistic backgrounds.[10]

To differentiate between World Englishes from English as a Lingua Franca is to admit that World Englishes are principally about the interpretation of cultural identities with linguistic reflection, whereas English as a Lingua Franca focuses on communication skills without engaging any cultural aspects.

(Kirkpatrick 2007) thinks English language users use a level of language to express their identities via resorting to terms, idioms, accents and strategies that are fostered by local speech communities.

And when they convey out-of-boundary cultural messages, they will consciously borrow from local references with the purpose of being understood.

Cultural and pragmatic norms differ from one culture to another (Blum-Kulka, House & Kasper 1989; Wierzbicka 2003). A considerable feature of World

Englishes is that they mirror local cultural and pragmatic norms. For example, the culturally acceptable fashion to submit and receive compliments are linguistically fulfilled.

Therefore, if it is culturally relevant to accept a compliment with saying 'thank you', people belonging to this culture satisfactorily give and receive compliments in this fashion. However, if the culture rejects the acceptance of compliments, these must be deflected in a way and never admitted. In certain cultures like Japan, receiving compliments represents social embarrassment and impolite behavior under many circumstances if they are used in social milieus. Another example can be stricken related to the English who would: 'I know you're busy but I wonder whether . . . ,' and by the frequent use of 'please', whereas the Chinese do not need such social formalities to request something and using 'please' would be some kind of social exaggerated formality. A third example is related to the protocol of the turn-taking in academic milieus. As Rusdi (1999)demonstrated in the Australian culture, it is acceptable for undergraduate students to interrupt their university teachers in the middle of academic seminars.

On the other hand, in Indonesia, the oldest male among the students have to advance to the first turn before the other students to interrupt the teachers, and is to finish his turn before these other students speak. Other turns will be taken in rank status that is determined by age and gender. A final example of a culturally-specific pragmatic norm is referred to is an extract from Sharifian (2010) and his description of the Persian value of tarof ˆ, a cultural perspective shepherding a meaningful part of quotidian social communications in Persian language. Its realization in conversations may be shaped as 'evident' invitations, reciprocated refusal of offers, persisting on making offers, uncertainty on making requests, delivering constant compliments. These culturally-specific norms are borne to the appropriate local variety of English. Should the World Englishes reveal the cultural norms of their users, these cultural norms are deported to ELF English.ELF users are usually aware of their pronunciation, choice of vocabulary and grammatical functions, but also may be become less conscious that they are transferring their pragmatic norms when using English as a Lingua Franca (House 2009 and the papers in the special-issue of Intercultural Pragmatics).

As Gumperz (1982) stated that the transfer of culturally-specific norms across to English may incite native speakers of English to judge the personalities of such users by grounding their language usage in contrast with their own traditional native-speaker norms.[11]

Thus, through the above-mentioned examples, it can be concluded that the English language user who transfers a pragmatic norm of being unable to accept a compliment might be thought of as an unduly modest person, the user who submits a reasoned request might be aimless, the user who interrupts an Indonesian during an academic seminar might be an inconsiderate person, and a Persian who frequently rejects offers might be an ungrateful person. Because of all these constituted facts, it is vitally important in ELT (English Language Teaching) language to teach English language learners the English-speaking cultural, so that they can attain a comprehensive language acquisition. According to language acquisition principles, language proficiency is assumed to be the objective of language learning with a consideration for the cultural norms of the native speaker. But recently, for example, there have been some changes introduced into English Language Teaching in Asia by Association of Southeast Asian Nations (ASEAN). This Association sees that ELT has to target English as a lingua franca only despite the existence of cultural differences among the member nations taking part in it, but they adhere to a few common pragmatic norms. For example, most of the cultures of ASEAN incline to deflect rather than accept compliments. Most tend to introduce requests rather than make them up front. Most agree upon with permitting speaker to finish a turn rather than interrupt it. And most would probably support the Persian cultural schema of tarof ˆ.

Regardless of suggesting the adoption on behalf of the speakers of English as a lingua franca users in ASEAN settings to the native-speaker norms, they are still heartened to retain their own pragmatic norms when using English as a regional lingua franca, since these norms are expected to be common among the targeted participants interacting with those users.

This also implies that the objective of language learning has to be considerably re-modeled in contexts where the principal role of English is to be a lingua franca. Instead of ensuing the traditional cognitivist second language acquisition (SLA) paradigm and regarding the objective of language learning as the native-like proficiency acquisition, it is necessary to consider adopting a more social perspective of SLA (Firth & Wagner 1997, 2007; Larsen-Freeman 2007), where the ability and skill to use the language successfully becomes a genuine target. This affects more than the possible preference for the linguistic realization of 'local' pragmatic norms in English as a lingua franca communication.

It also affects a probable option for non-standardized grammatical forms over standardized forms. The use of non-standardized forms is characteristic of all varieties of English, including British vernaculars, world Englishes and English as a lingua franca. Indeed, as Britain (2010) alludes to the reign of diversity.

However, it should be considered that much of this diversity is among a range of varieties. It is a common diversity against the standard. Therefore, these

non-standardized forms that are considered to be common across a range of different varieties can be entirely acceptable. Thus, instead of setting a sole objective upon the acquisition of standardized forms, the focus should be on the skill of use language properly in lingua franca contexts. For example, Jenkins (2000, 2007) has explained that the adoption of a lingua franca core with its non-standardized phonological features have been empirically shown to create problems in lingua franca verbal interaction. These should form the base of the syllabus. Non-standardized forms that do not hinder communication do not need to be among the contents of the syllabus.

Accordingly, the objective of language acquisition enables learners or users to use English successfully in lingua franca or multilingual contexts instead of acquiring standardized forms and nativelike proficiency. The target objective should be the acquisition of a multilingual model (see Cook 2002;Widdowson 2003).

V. Prevalence of English Language Due to Historical Reasons

This prevalence is divided into 3 stages:

1st Stage: Fundamental Prevalence

This is the foremost stage of the introduction of English to a new territory over an extensive period of time.

Two linguistic developments took place at this stage:

(a) Linguistic fusion between English and indigenous languages

(b) Fusion among different English dialects of new settlers in North America, Australia and Caribbean, and that eventually resulted in the creation of koiné. Consequently, bilingualism emerged, and new dialects and accents started to exist. Borrowings from other languages and introducing them into English were consecrated to lexical items.

2nd Stage : Extensive Prevalence

The expansion of using English in Asia and Africa since the 19th century. In these regions, English is not the first language, but is employed as a vital lingua franca between ethnic and language groups. Higher education, the legislature and judiciary, national commerce may all predominantly run in English.

This regional prevalence includes India, Nigeria, Bangladesh, Pakistan, Malaysia, Tanzania, Kenya, non-Anglophone South Africa, the Philippines.

Therefore, the UN statistical indications refer to the estimated total number of ESL speakers to range from 150 million to 300 million.

3rd Phase: Over-extensive Prevalence

The prevalence of English encompasses countries where English is widely employed as a medium of international communication. This includes territories such as China, Russia, Japan, non-Anglophone Europe (especially the Netherlands and Nordic countries), South Korea and Indonesia. Estimating the total number of EFL speakers in these regions is difficult to be accurately collected as a statistical figure, since English is used for specific and limited purposes, usually in a business context. The estimates of these speakers range from 100 million to 1 billion.

VI. The Future of World Englishes

Two scripts have been visioned about English's future status as the large-scale interlanguage: it will eventually chunk into plenty of mutually incomprehensible varieties (languages), or Englishes will mold into the world arena, so that differences among all the international communities and societies will gradually vanish.

Should the most recent statistics on global book publishing were released in the last edition of the UNESCO Statistical Yearbook (1999) as follows,

Table (7): Book Publishing by Language

Language	Number of titles	Percentage of total
English	200,698	21,84 %
Chinese (Mandarin)	100,951	10,99 %
German	89,986	9,78 %
Spanish	81,649	8,88 %
Japanese	56,221	6,12 %
Russian	48,619	5,29 %
French	44,224	4,81 %
Korean	35,864	3,90 %
Italian	34,768	3,78 %
Dutch	34,067	3,71 %
Portuguese	33,430	3,64 %

The following statistics in Table (4) on Information users and information production in most spoken languages makes us predict that there will be continuous increase in eliminating obstacles related to

publishing any research in any domain in life in English around the world. Here are the statistics that could demonstrate that this future prediction could be fulfilled.

Table (8): Information users and information production in most spoken languages

Language	Literate population	Information production
English	10,58%	44,29%
German	1,74%	7,60%
Spanish	5,47%	5,91%
Chinese (Mandarin)	14,68%	4,85%
French	4,07%	4,21%
Japanese	2,33%	3,34%
Italian	1,09 %	2.16%
Russian	3,59%	1,96%
Portuguese	3,54%	1,68%
Dutch	0,43 %	1.67%
Korean	1,36%	1,20%
Hindi	4,26%	0,96%
Arabic	4,24%	0,43%
Bengali	1,99%	0,12%

VII. English as The Language of 'Others'

If English is, numerically speaking, the language of 'others', then the force of attraction of the language is almost certain to orient towards the direction of the 'others'.

Henry Widdowson, Emeritus Professor of Education, University of London, sees that there is likely to be a paradigm shift from one of language distribution to one of language spread:

> 'When we talk about the spread of English, then, it is not that the conventionally coded forms and meanings are transmitted into different environments and different surroundings, and taken up and used by different groups of people. It is not a matter of the actual language being distributed but of the virtual language being spread and in the process being variously actualized. The distribution of the actual language implies adoption and conformity. The spread of virtual language implies adaptation and nonconformity. The two processes are quite different.'[12]

In this new paradigm, English prevails and is shaped according to the linguistic and cultural predilections of its users within the framework of the linguistic regional prevalence. However, should English authentically become the language of 'others', the 'others' have to be methodized – or perhaps more likely, methodize themselves to the same English language rules as those claimed by native speakers.

Hence, any linguistic hindrances against publishing any academic works or research by any author or researcher around the world will deliberately be removed in the future.

VIII. Do You Believe that Another Language Could Compete With English As the Language of Written Materials?

The other possible script in the international linguistic force of attraction arena is that English could lose its international role altogether, or, at least, share its with a number of equal languages. Despite the difficulty of the discarded possibility due to the flawless statistics and the efforts of the English-speaking world against the prevalence of the non-native Englishes, the non-native speakers may effectuate some unanticipated changes over time. This view is foreseen by David Crystal, IATEFL President, who cites:

> 'When the internet started it was of course 100 percent English because of where it came from, but since the 1980s that status has started to fall away. By 1995, it was down to about 80 per cent present of English on the internet, and the current figures for 2001 are that it is hovering somewhere between 60 percent and 70 percent, with a significant increase likely over the next four or five years.'[13]

Nevertheless, Crystal predicts that English will retain its international patronizing existence. This proves that English is the current language of written materials and will continue play this role in the future.

IX. International English

It is the notion of the English language as an international mode of communication in plenty of dialects, and an evolution to its internationalization. Sometimes, 'international English' and its related terms

refer to a enticing standardization, i.e. Standard English; however, it has no real standards and rules or objectives up till this moment. It has not been agreed upon whether International English should adhere to classic spelling.

There has been slow progress in adopting alternate spellings.Yet there have been many efforts on behalf of the English-speaking world to make International English more available to English language users from different cultural backgrounds. This would urge academicians and researchers attempt to revise and proofread their academic papers and research according to standard kind of English.

a) English as a Lingua Franca in Foreign Language Teaching

English as an additional language (EAL) is basically grounded upon the standards of either American English or British English and consolidating foreign terms. Moreover, English as an international language (EIL) is EAL with stress on acquiring various main dialect forms; in particular, it assists in providing students with linguistic means to enable them to internationally communicate with any English language users from any background.

Roger Nunn, Department of Communication, Petroleum Institute, Abu Dhabi, cogitates various kinds of competences that is concerned with the teaching of English as an International Language, contending that linguistic competences have to be framed within the progressive developments of EIL.

Several models of "simplified English" have been suggested for teaching English as a foreign language:

- Basic English, developed by Charles Kay Ogden,English linguist and writer in 1930 ; a recent revival has been adopted by Bill Templer, a Chicago-born educator with research interests in English as a lingua franca
- Threshold English Level , developed by Jan van Ek, a Dutch linguist
- Basic Global English, developed by Joachim Grzega, a German linguist at the Catholic University of Eichstätt-Ingolstadt
- Furthermore, Randolph Quirk,Quain Professor of English language and literature at University College London, and Gabriele Stein, a German linguist, have been thinking about taking further steps towards developing Nuclear English.Robert McCrum, a writer, refers to the significance of the term 'Globish' as 'English as global language' while Jean-Paul Nerrière, the author of Parlez Globish, uses it for a constructed language.
- Therefore, 'International English' and 'Globish English' have always been catalysts towards inciting publishers to encourage writers to publish their works in English.

b) Basic Global English(BGE)

The idea of its evolution has occurred as the demand for a kind of English that can be acquired without difficulties has been higher than the demand for acquiring British or American English with the purpose of finding a means for sound international communication. BGE is guided by creating ' affinity and resilience 'among English language users in international contexts where different users with different mother tongues react with each other.

English language teaching is usually related to a pertinent culture, e.g. learners will either acquire American English, so they deal with American culture or British English, so they deal with British culture. Basic Global English is supposed to create the balance among English in all the English-speaking world by adopting one amalgamated version of English. Furthermore, BGE can be considered as a system appropriate for both classroom teaching and self-study.

In fact, BGE has the core of 20 principal grammar rules providing a particular nuance of variation. For example, pronunciation rules are not as strict as in British or American English. But the risky issue is concerned with, for instance, the exceptions used pronunciation systems that would be a hindrance to the mutual understanding among native and non-native speakers of English.

Basic Global English is only built on a 750-word vocabulary baggage . Furthermore, every learner has to acquire 250 additional words that can be chosen freely upon the academic needs and interests of the learners.

BGE handles 'Basic Politeness Strategies' in addition to the basic language skills. These strategies include creating a positive atmosphere, like accepting an offer with saying 'Thank you' or apologizing by saying 'I'm sorry!', and small and simple conversation topics.

Basic Global English has been used in two elementary schools in Germany. Should the learners desire to pass the BGE test, 12 lessons were assigned for half of an academic year. After utilizing the BGE teaching methodology, the learners were able to express themselves about their lives, their family, their hobbies etc…. They were able to make up question about those same topics. And they also learned the numbers from 1 to 31 and acquired vocabulary building including the materials they keep in their schoolbags and the objects in their classrooms. So the efforts exerted to learn English profoundly with the purpose of attaining fluency are increasing, and that implies on the importance of the English language as it is the means of publishing works and research internationally.

X. Cultural Apathy

International English always targets cultural apathy. This has a practical use that can be found in 'Cambridge Guide to English Usage ,2004:

'What could be better than a type of English that saves you from having to re-edit publications for individual regional markets!
Teachers and learners of English as a second language also find it an attractive idea — both often concerned that their English should be neutral, without American or British or Canadian or Australian coloring. Any regional variety of English has a set of political, social and cultural connotations attached to it, even the so-called 'standard' forms.'[14]

With reference to International English, we conclude that it is a concept of English that minimizes the cultural aspects related to the American and British cultural aspects. Therefore, International English has become a product of a spurting world culture that is notionally grounded upon intercommunicational dye and linguistic transculturation, which tends to intermingle both American and British Englishes.

The development of International English is in progressive stages of centralizing itself upon academic and scientific milieus where formal English usage is ubiquitous, and creativity around changing the language is very limited. This formal International English is the door to the whole Western culture and the general Western cultural values.

a) Obstruction

The steady surge of the English language is viewed by authors such as Alistair Pennycook, professor of language in education at University of Technology, as some kind of cultural preponderance , whether it is English in one form or English in two different forms.

Robert Phillipson, a research professor at Copenhagen Business School's Department of English, reveals his counterview about the possibility of language impartiality. In fact, the learners craving for allegedly proper English are encountering the bi-standards of American and British Englishes, and other standard Englishes like Australian, Scottish and Canadian. Edward Trimnell, author of 'Why You Need a Foreign Language & How to Learn One (2005)' altercates that the international portrayal of English is sufficient for basic communication. It can not treat complex issues or academic knowledge or commercial purposes situations.

Frank Trimnell, professor at Ryerson University, also professes that native English-speakers have become 'dependent on the language skills of others' by adopting international English.

b) Theory of Appropriation

Some linguists repudiates both linguistic preponderance and impartiality of English. They oppugned that the concept of the international prevalence of English is better comprehended through the theory of appropriation (e.g. Spichtinger 2000). That theory shows that English is used for local purposes at the international level. For example, protesters in non-English speaking countries often use plates in English to demonstrate their demands for all peoples around the world.

Augustin Bobda, professor of linguistics at University of Yaoundé,has been talking about Cameroon's experience related to English Language Teaching (ELT) with dispensing with the native English mono-cultural element and adapting the curricula of English learning materials to Cameroonian contexts. For instance, there are non-Western topics tackled in several curricula in different regions in the world like the sovereignty of Emirs, traditional medicine or polygamy (1997:225).

Kramsch and Sullivan (1996) have explained the weaving of Western methodology and English language textbooks that are tailored to attune to the Vietnamese culture. The Pakistani textbook 'Primary Stage English' includes texts such as 'Pakistan My Country', 'Our Flag', or 'Our Great Leader' (Malik 1993: 5,6,7) that may be borne with patriotic spirit.

However, within the English-speaking culture, instituting a relationship among ELT, patriotism and Muslim faith is regarded as one of the ELT objectives, as the chairman of the Punjab Textbook Board overtly asseverates: 'The board ... takes care, through these books to inoculate in the students a love of the Islamic values and awareness to guard the ideological frontiers of your [the students] home lands' (Punjab Text Book Board 1997).

XI. Multi-Englishes

Further future standardization of English might confront some difficulties. Those difficulties entail the necessity of opting between endorsing a stable standardization forms of English language and neutralizing the English language to some extent. Genuine attempts to internationalize English might override both current American and British English as standards Englishes for international communication. That would result in constructing General American English and standard British English with a miscellany of other varieties of English that could reposition all these varieties of English.

We may, in due course, all need to be in control of two standard Englishes—the one which gives us our national and local identity, and the other which puts us in touch with the rest of the human race. In effect, we may all need to become bilingual in our own language. — David Crystal (1988: p. 265)

This is the intricate situation when English language users get frustrated due to their "non-standard" dialect of English as their birth tongue, but at

the same time have also been taught how to write and speak with a standard dialect. The problem is that the requirements of some publishing houses obligate authors or academicians or researchers to publish their written materials in journals or books with particular varieties of English, style, and spellings.That could be challenging for some users. As far as spelling is concerned, the differences between American and British usage is currently conspicuous because of the first authoritative lexicographers on each side of the Atlantic.

Samuel Johnson's 1755 dictionary strongly favored Norman spellings such as centre and colour; on the other hand, Noah Webster's first 1783 guide to American spelling preferred spellings like center and the Latinate color.

This differential lexicographical issues between Johnson and Webster are overall responsible for the main diversion in English spellings taking place nowadays. However, these differences are negligible, as spelling is a minor element among the English dialects. International English has always endeavoring to adhere to an agreed-upon spelling patterns.

a) Bi- Standards

There can be two approaches, suggested on my behalf, related to International English: particularistic and comprehensive technique and the new dialect technique.The particularistic could give to individual authors, academicians and researchers a free hand to write and spell as they desire within alleged standardized practices and to credit the validity of differences.

This means that a book like 'The Longman Grammar of Spoken and Written English', published in 1999, is a detailed study of both American and British Englishes with chapters pursuing individual spelling standardization rules.

On the other hand, the new dialect technique can be depicted in 'The Cambridge Guide to English Usage' (Peters, 2004) that aspires to avoid any linguistic bigotry.

Consequently, it urges English language users to utilize an distinctive international spelling system that is composed of both American and British forms , but camber to prefer the American English spellings.

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Inquiry Learning and Cognition: A Summary of Research and Implications for Geography Learning

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Abstract- An important student centered strategy practiced across the schools in USA is Inquiry Learning. However, inquiry involves the adoption of several complex procedures directed using scientific method and hence difficult to be practiced by an average learner unless he gets some external support. Students experiences in the process of Inquiry have been documented in a series of empirical studies. The Information Search Process model(ISP) of Kuhlthau describes seven stages as students proceed through their complex inquiry.However, students can be made to gain expertise in their inquiry learning when they are guided by teachers and experts. Scaffolding refers to supportive situations adults create to help learners extend current skills and knowledge to higher level of competence.The present study is an attempt to validate a new instructional strategy which combines the strong points of two differing strategies,viz.,the inquiry learning and scaffolding for teaching high school geography. Several studies by Bermingham (2016), Kukkonen (2014), Rae's & Schellens report on the effectiveness of these two strategies. The efficacy of the innovative approach on cognitive achievement is tested by comparing the terminal behaviors of two groups, one exposed to the innovative teaching method and the other to the practicing classroom pedagogy. The results show significant positive results in all the seven cognitive variables tested.

Keywords: *scaffolding, inquiry learning, cognitive achievement.*

GJHSS-G Classification: *FOR Code: 130309*

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I. Introduction

The nature of geography has changed significantly during the last 100 years, especially since the second World War. Formerly a mnemotechnic discipline, rarely going beyond the stage of picturesque description and an introduction to history,it has now become the science of terrestrial space, a discipline which studies the spatial distribution of resources and human activities.The fact is that many areas in geography overlap with many areas of physical and life sciences. Concept -based teaching of science -oriented topics in geography is seldom attempted. Children should be taught to go beyond data and information given towards generation of useful and applicable knowledge-a process supported by inquiry learning. Hence more focus is to be given to the instructional practices suitable for realizing the core objective of this unique subject. The concept that every new generation teacher must be inducted into the modalities of scientific inquiry for developing concepts and principles through learner involvement is an accepted teacher training approach.

An important student centered strategy used in modern geography education is what is referred to as Inquiry learning. Inquiry is an approach to learning whereby students find and use a variety of sources of information and ideas to increase their own understandings of a problem, topic or issue. It espouses investigation, exploration, search, quest, research and pursuit. (Kuhlthau et al 2007). However, this strategy cannot be practiced by the average learner unless there is some externalsupport, sinceinquiry means the adoption of several complex procedures, directed using the scientific method.

Students' experiences in the process of inquiry have been carefully documented in a series of empirical studies. (Kuhlthau, 2004). The model of Information Search Process (ISP) describes feelings, thoughts and actions of students involved in complex inquiry tasks in which they are required to construct their own understandings. The seven process stages are *Initiation, Selection, Exploration, Formulation, Collection, Presentation and Assessment.* (Kuhlthau, Maniotes, Caspari, 2007). In a study of inquiry learning in ten schools in New Jersey, found the same pattern of students' feelings, with confusion and uncertainty increasing during the exploration stage in the technological information environment of today's school (Todd, Kuhlthau, and Heinstrom,2005). The stages of exploration and formulation are unpleasant experiences for students as they must encounter lots of new ideas that often conflict with what they already know. Sometimes these inconsistencies and incompatibilities become so threatening that some students want to drop out at this point of time. These research studies clearly point to the fact that learners need the intervention of more mature learners at appropriate points of time during the inquiry process to overcome their learning difficulties. This demands the greater use of scaffolds while employing inquiry learning approaches. The investigator was convinced that physical geography topics need a more specialized pedagogic treatment.

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The experimental instructional strategy (EIS) validated in the present study – 'Scaffold-Supported Inquiry Method 'combines the strong points of inquiry learning with sufficient opportunities for teacher intervention to give scaffolds whenever the students face difficulty in their inquiry process. The effectiveness of this innovative strategy is based on the comparison of two groups of learners exposed to two differing instructional strategies, the first group taught a selected curriculum area in secondary school geography using the EIS and the second group taught the same content using the practicing class room pedagogy. Comparison of the efficacy of the two strategies was done by comparing the outcomes of the two strategies in the two contrasted groups.

Several studies by Bermingham (2016), Kukkonen (2014), Raes and Schellens (2012), Morgan and Brooks (2012), Kuhlthau, Maniotes and Caspari (2007), and Furtak (2006) have reported on the effectivenessof two new important strategies -Inquiry learning and scaffolding and its potential for geography learning.. However, research studies attempting to combine these two strategies in to a single effective instructional method is seldom reported. Hence the investigator felt that integrating these two strategies into a single instructional method and applying it to geography learning would elevate the quality of geography teaching and learning several folds.

II. Literature Review

Inquiry-based learning emerged from a deep literature on constructivist approaches to teaching. Constructivist theories of learning argue that students learn best when discovering and unpacking content for themselves (Yu 2005; Cole 2009). Inquiry-based learning is a concept which encourages teachers to allow learners to get in touch with authentic situations and to explore and solve problems that are analogs to real life. (Li &Lim,2008)). Inquiry learning is a more powerful form of learning as students must engage all their senses. It entails sharp observation skills, critical thinking needed to sift essential from non-essential data, compile and record facts systematically, discover relationships between variables and above all creativity in thinking to give a new interpretation to the discovered generalization (Sreelekha &Uma,2017) .

A study by (Bermingham,2016)highlighted the importance of establishing student engagement and using appropriate questions to facilitate student-led inquiry in geography and found that the fieldwork booklets provided only limited opportunities for students to plan their fieldwork inquiries. In 2008, Spronken & Rachel reported on the effectiveness of inquiry based learning in geography and its benefits for teachers and students. The study revealed that when students become active in the learning process, they evinced improved understanding, more enjoyable learning, developed valuable research skills, higher order learning outcomes and showed better academic performance. Favier and Vanderschee (2012) conducted an Educational Design Research study. The findings highlight the fact that in order to effectively raise students geographic thinking to a higher level, teachers should coach students in structuring, correcting and expanding their geographic thinking via dialogical teaching.

Scaffolding is a term widely used in present - day educational practice to describe the precise help that enables a learner to achieve a specific goal that would not be possible without support. It refers to the supportive situations adults create to help children extend current skills and knowledge to a higher level of competence. The assumption underlying instructional scaffolding is that there is a cognitive distance between what learners know and can do on their own and what they can do with the assistance of a more knowledgeable person. Vygotsky called this area of potential growth the learner's Zone of Proximal Development(ZPD).Students gain competence in their inquiry learning when they are assisted by teachers and adults. But this does not mean full- length teacher support and authority. The teacher intervenes only at the most appropriate moment i.e. instructive interventions are planned at different stages of the inquiry process. This helps the students to move to higher levels of thinking and learning.

In 2016 Park, reported that emotional scaffolding is a critical pedagogical tool that could help teachers reach developmentally appropriate practices for early childhood education in an age of accountability. Astudy by Raes and Schellens(2012) reveal that multiple-scaffolding enhances both knowledge acquisition and meta cognitive awareness. In2008, Li & Lim examined the different dimensions of scaffolding for on-line historical inquiry. Rolls and Holmes(2012) compared the learning behavior of students in the unguided invention condition and guided invention condition. The findings suggest that process - guidance in the form of metacognitive scaffolding augmented the inherent benefits of the invention activities in the guided invention condition and led to gains at both domain and inquiry levels.

The research evidence reinforces the fact that the efficacy of inquiry learning can be increased considerably if it is supported by scaffolding (intellectual supports by mature professionals) at appropriate points which is envisaged in educational theories like the Zone of Proximal Development(ZPD) and other constructivist approaches.

III. Research Methods

a) Purpose

The main objective of the present study was to test the effectiveness of the Scaffold Supported Inquiry

Method named in this report as the Experimental Instructional Strategy(EIS), in achieving defined cognitive outcomes in secondary level geography learning.

b) Research Questions

While carrying out the present study, the investigator formulated certain research questions to give a sense of direction to this research.

- Is the Scaffold - Supported Inquiry Method capable of promoting the achievement in geography of secondary level students significantly when compared to prevailing class room pedagogy?
- Does it enhance all components of cognitive achievement (knowledge, comprehension, application, analysis, synthesis and evaluation)?
- Will there be an observable change in the effectiveness of this method if the entering behavior of both the experimental and control groups were equated?

c) Hypothesis

There will be no significant difference between the experimental and control groups in their achievement in select areas of geography.

d) Objectives

- Assess the efficacy of the experimental instructional strategy for geography learning by comparing the level of learning of the EG and CG equated for their' level of entering behavior in geography' using 'total cognitive outcomes' in the select content in geography as the criterion for comparison.
- Assess the efficacy of the experimental instructional strategy for geography learning by comparing the level of learning of the EG and CG equated for their' level of entering behavior in geography' using each of the six components of the cognitive outcomes as the criterion for comparison.

e) Participants

The original groups of EG and CG (each of size 70 and 65) were reduced to two equated groups by controlling the students entering behavior in the subject-i.e. preliminary level learning in geography. This was done by reducing the two original groups (EG and CG) to two equated groups EG1 and CG1(each of size 57) by selecting equivalent pairs. Each member of the pair was randomly assigned to one of the two groups. When equivalent pairs were not available for any one member, this person was eliminated from final statistical analysis.

f) Method

The investigator mainly adopted the 'quasi-experimental design'- the pre-test post-test nonequivalent group experimental design with appropriate adjustments. This meant the comparison of an experimental group (EG) with a control group (CG) for their learning of a standard content, making use of the experimental instructional strategy for the EG and the conventional classroom teaching for the CG.

g) Instructional Design

The learning content was converted to six instructional units, using the procedures of the new experimental instructional strategy whose efficacy is to be tested viz., the Scaffold Supported Inquiry Method. The topic selected required the students to learn a complex scientific principle'Relation between the geographic latitude of places and their atmospheric temperature'. The innovative method was used to present the above geography content to the experimental group(EG). The same topic was presented to the control group(CG) using the practicing classroom pedagogy, also in six instructional units. Both the groups were taught by the same two teachers, each teaching half the teaching units.

The investigator's selection of the topic for experimental treatment was influenced by the fact that the selected topic provides adequate opportunities for using original experimentation and inquiry approach together with the need for scaffolding and teacher intervention .The area presented a number of complex concepts like the use of 'angular measurements for expressing longitudes and latitudes, how physical factors like the inclination of the sun's rays, at any time determines atmospheric temperature of a place, etc. Use of angles for expressing longitudes and latitudes on the globe, locating places on the globe using the measures of longitudes and latitudes, dividing the surface of the globe in to broad climatic regions based on their proximity to equator/ to the poles, etc. were areas identified for the study. Scientific concepts relating to heat transmission, atmospheric heating, effect of differing slanting of sun's rays from place to place and from one season to another were other areas selected for detailed inquiry.

In inquiry-oriented, materials-centered geography classrooms where text-based learning is de-emphasized, dialogue is a key resource for fostering students' cognitive growth. The teacher enters discussions with students to understand their thinking and move it along. The teacher provides verbal scaffolds--supports that enable students to build powerful thinking strategies and conceptual understanding. To support the students understanding of the concepts, verbal scaffolds in the form of discourse strategies (repeating, recasting, questioning, cued elicitation, use of analogy and meta comments) were used. Furthermore, multimodal scaffolds which include visuals (like maps, diagrams and pictures) gestural and actional cues were employed whenever necessary.

h) Research Results

i. Comparison of The Total Cognitive Terminal Behavior of the two Experimental Groups equated for their entering behavior in Geography.

The fact that the efficacy of any learning situation will depend on the entering behavior of the learners, in respect of the content that the group is required to learn is well accepted in scientific literature. The entering behavior of the two groups were equalized with the help of a common test in geography. This helped to partial out differences if any and reduced the groups to two equated groups each of size 57.

Statistical Data used for Comparison of the Total Cognitive Terminal Behavior of the Two Equated Experimental Groups (EG1 and CG1).

Table1

	Experimental Group	Control Group
Mean	29.2 (M_1)	14.5(M_2)
Standard Deviation	0.8	3.0
Sample size	57(N_1)	57 (N_2)
Critical Ratio = 38.32 (t)		

The very high t-value shows a difference in favor of the EG1. The critical limit for significance at the 0.01 level is 2.58. The t-value obtained is much higher than the above critical limit. This helps us to conclude that the Total Cognitive Achievement for the equated EG1 is far higher than that of the equated CG1.

ii. Comparison of the performance of EG1 and CG1 for each of the sub-components of cognitive achievement.

The previous section of the analysis attempted to assess the effectiveness of the experimental method for producing 'Total Cognitive Outcomes' over the practicing classroom pedagogies. The present section goes deeper in to the question: the efficacy of the EIS for developing each of the six sub-components of the cognitive domain as defined in Bloom's Taxonomy- Knowledge, Comprehension, Application ,Analysis, Synthesis, and Evaluation.

a. *Statistical Data used for the Comparison of the performance of EG1 andCG1 'KnowledgeComponent 'of Terminal Behavior of the Two Experimental Groups*.

Table 2

	Experimental Group	Control Group
Mean	7.9 (M_1)	5.5 (M_2)
Standard Deviation	0.4	1.1
Sample size	57(N_1)	57 (N_2)
Critical Ratio = 15.4 (t)		

The t-value of 15.4 is much greater than the critical level(viz.t=2.58).This leads us to conclude that EIS had a greater influence on EG1 than that of CG1.

b. *Statistical Data used for the Comparison of the performance of EG1 andCG1 for 'ComprehensionComponent 'of Terminal Behavior of the Two Experimental Groups*.

Table 3

	Experimental Group	Control Group
Mean	6.0 (M_1)	3.4 (M_2)
Standard Deviation	0.1	1.0
Sample size	57(N_1)	57 (N_2)
Critical Ratio = 19.47 (t)		

The statistical test of significance for difference between means of the EG1 and CG1 shows a high t-value of 19.47. This clearly proves the effectiveness of the EIS in developing the comprehension component.

c. *Statistical Data used for the Comparison of the performance of EG1 and CG1 for the 'Application Component 'of Terminal Behavior of the Two Experimental Groups.*

Table 4

	Experimental Group	Control Group
Mean	3.6 (M_1)	1.6 (M_2)
Standard Deviation	0.5	0.7
Sample size	57(N_1)	57 (N_2)
Critical Ratio = 17.87 (t)		

The high t-value of 17.87 is a clear proof of the effectiveness of the EIS in developing the comprehension component as against the conventional teaching strategy used for the CG1.

d. *Statistical Data used for the Comparison of the performance of EG1 and CG1 for the 'Analysis Component 'ofTerminal Behavior of the Two Experimental Groups.*

Table 5

	Experimental Group	Control Group
Mean	4.9 (M_1)	1.7(M_2)
Standard Deviation	0.3	0.8
Sample size	57(N_1)	57 (N_2)
Critical Ratio = 30.45 (t)		

The very high t-value helps us to conclude that EIS used for the EG1 is more effective than the strategy used for the CG1.

e. *Statistical Data used for the Comparison of the performance of EG1 and CG1 for the 'SynthesisComponent 'ofTerminal Behavior of the Two Experimental Groups.*

Table 6

	Experimental Group	Control Group
Mean	3.0 (M_1)	1.3(M_2)
Standard Deviation	0.2	0.6
Sample size	57(N_1)	57 (N_2)
Critical Ratio = 17.65 (t)		

The advantage of the superior learning efficacy created by the EIS has resulted in the observed differences.

f. *Comparison of the performance of EG1 and CG1 for the '**Evaluation Component**'of Terminal Behavior of the Two Experimental Groups.*

Table 7

	Experimental Group	Control Group
Mean	3.8 (M_1)	1.1(M_2)
Standard Deviation	0.4	0.8
Sample size	57(N_1)	57 (N_2)
Critical Ratio = 24.75 (t)		

The statistical test of significance for difference between means of theEG1 andCG1 has yielded a high t-value of 24.75, which is far greater than the critical level set for difference at the 0.01 level, viz., t=2.58.

IV. Discussion

The Total Cognitive Terminal Behavior of the two experimental groups equated for their entering behavior has yielded a very high t-value of 38.2, showing that differing levels of entering behavior when equated tends to increase the t-value. This would also mean that partialing the effect of entering behavior increases the level of learning of the experimental group. When it comes to the six components of cognitive learning (Knowledge, Comprehension, Application, Analysis, Synthesis, and Evaluation), the strategy is still effective, but to a lesser extent than for total cognitive learning. This helps us to infer that EIS is most effective for augmenting total cognitive learning. The high t-value obtained for the 'Analysis component' of cognitive outcomes is a clear proof that EIS has a special advantage in respect of meeting the analysis component.

The above analysis provides dependable evidence of the fact that the experimental strategy for teaching the select topic in geography yields far better results in achieving higher levels of geography learning than the practicing class room pedagogy adopted by the control group for teaching the same content. The fact that the two original groups were made equal in

respect of their entering behavior helps us to draw more dependable conclusions about the role of the new strategy to be tested. The fact the Test of Terminal Behavior, in which cognitive outcomes are measured using more sharp -focused and technically constructed tests of learning outcomes, which measure the students deeper level of cognitive functioning like 'analysis, synthesis and evaluation, not normally done in routine class tests,also must have contributed to the noticed differences. The topic selected was also one that demanded sharper concept-oriented and skill oriented methodologies for teaching, as compared with the routine teaching areas in geography like economic geography, human geography which constitutes a major portion of school geography.

V. Conclusions

This study proved beyond doubt the superiority of the EIS viz.,'The Scaffold- Supported Inquiry Method'for teaching secondary school geography.The highly significant differences noticed for each of the seven cognitive outcomes(Total cognitive outcome and six sub-components) used in the study support the fact that the experimental instructional strategy is a highly effective procedure for teaching complex and abstract areas of geography which demands mental manipulation of three-dimensional concepts and constructs like longitudes and latitudes, uses of angular measurements for fixing the location of places on a sphere. The highest critical differences were evident for total cognitive outcomes as compared with the corresponding differences obtained for the six component cognitive outcomes. This indicates the fact that although the EIS is more useful for developing total cognitive outcomes, as defined in Blooms Taxonomy ,it is not equally efficient in producing each of the six component cognitive outcomes separately ,even when we know that the EIS succeeded in creating highly significant t-differences for each of the component cognitive outcomes, although to a slightly lesser extent than for total cognitive outcomes.

All the seven cognitive outcomes (six component cognitive outcomes and their total) were all seen to show highly significant and relatively high positive correlations with each other. The inter correlations among the six component cognitive outcomes are much higher than the similar correlations of the component cognitive outcomes with total cognitive outcome. These R-values are in the range 0.761 to 0.925. This is to be interpreted as due to the presence of a possible common ability component running through all the six component outcomes.

VI. Implications

- A teaching method with a proper balancing of real 'learner involvement in learning'coupled with 'properly conceived and effectively operated teacher support' will help to augment the quality of cognitive learning of students, as compared with the methodologies normally used in present-day classrooms.
- The twin principles, the first intended to 'make the learner responsible for his / her learning', and the second 'the need for professional intervention of the teacher at appropriate points' are to be borne in mind by teachers of geography (or teachers of every subject for that matter) especially when teachers want to teach complex areas of physical geography or its equivalent content in different subjects.
- Partialing the effect of entering behaviour increases the level of learning of the experimental group.
- The success of the EIS in the present study probably indicates the need to evolve parallel methodologies for teaching other areas of physical geography which overlap with physics, mathematics and other life sciences, using the same strategy.
- Topics in geography like layers of the atmosphere, pressure belts, rainfall, wind movements, soil erosion, salinity of the sea, environmental pollution, population migration, etc. are some of the possible areas in geography which are best taught using the new instructional strategy validated in the present study.
- It will be most beneficial if the state curriculum committees in the country make specific references to areas in social-science teaching which can be taught most effectively using the present strategy (EIS) with proper adaptations.

The present study is only an attempt to open a new instructional approach for adoption by the teaching community for teaching science-based areas in social sciences in a big way, if the spirit of 'scientific inquiry' and 'self-discovery' are the preferred teaching approaches for improving the depth of geography learning.

VII. Future Research

A study of the relative efficacy of the present instructional strategy in producing the crucial cognitive and affective outcomes using factor analysis of the relevant cognitive and affective outcomes indicated among select experimental and control groups, like what has been used in the study. A comprehensive study for validating the present methodology (Scaffold-Supported Inquiry Method) for teaching geography in secondary schools, with several other causal / intervening variables for testing its effectiveness for producing several crucial affective outcomes in the other significant domains of human behaviour – affective and psychomotor dimensions, and the more specialized dimensions of cognitive behaviour.

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Linking Teaching in Mathematics and the Subjects of Natural Science

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I. Introduction

Disciplines are historically constructed, but in the recent decades, they exhibit a broad trend toward greater porosity of boundaries. The idea of interdisciplinary is to combine multiple disciplines into one activity. Whereas this may appear to be simple and straightforward, in practice it turns out that those participating in an interdisciplinary endeavor often find it difficult to work across traditional discipline boundaries. In an educational context interdisciplinary implies that the still dominating monodisciplinary approaches should be replaced by approaches enabling more connections to existing knowledge and thus lead to more profound and integrated learning. Despite a widespread desire for a change towards interdisciplinary teaching, teachers are often uncertain about how to go about planning, implementing, and sustaining interdisciplinary teaching programs. Understandable, as teachers traditionally have had their academic training within one or two mono-disciplinary programs. Further, there are many conceptual pitfalls pertaining to the very idea of interdisciplinary teaching and it seems that there is a genuine need for a scholarly discussion about exactly how teachers could be equipped to implement fruitful interdisciplinary activities. Implementing an interdisciplinary teaching approach requires considerations at the level of discipline matter and at the level of pedagogy as well. This is far from a trivial task, partly due to the lack of a framework for integrating productive ideas from a variety of theoretical and practical perspectives. To grasp the challenges from the rise of the interdisciplinary approach to teaching there is a need for

- A didactical framework for interdisciplinary teaching activities.
- In-service teacher training with focus on interdisciplinary teaching activities.
- Prototypes of meaningful interdisciplinary teaching sequences.

In this paper, we address the potential and challenges of interdisciplinary teaching between mathematics and the disciplines of natural science in a Danish upper secondary education context. Mathematics plays a crucial role in the disciplines of natural science; physics, chemistry and biology. This role is brought about predominantly through the building, employment, and assessment of mathematical models. Galileo wrote that the book of nature is written in the language of mathematics, and his quantitative approach to understanding the natural world arguably marks the beginning of modern science. Nearly 400 years later, the teaching of mathematics and the disciplines of natural science is still mainly monodisciplinary and fragmented, and focus in mathematics teaching is on relatively specialized algebraic techniques. The challenge is to replace the current monodisciplinary approach, where knowledge is presented as a series of static facts disassociated from time with an interdisciplinary approach, where mathematics, biology, chemistry and physics are woven continuous together.

Interdisciplinary learning and teaching involving mathematics education has become of considerable interest to some mathematics educators (e.g. Sriraman and Freiman 2011), and we address this issue mainly from a mathematics education position, but we also draw on science education research literature to emphasize central coincident issues in mathematics and science education. We design a didactical framework for interdisciplinary instruction between

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mathematics and the subjects of natural science based on a discussion of pedagogical and didactical problems concerning the interplay between mathematics and the disciplines of natural science. To exemplify the potential of the framework we then present a case study of an intensive in-service teacher-training program, where mathematics and biology teachers with focus on interdisciplinary modeling activities developed and implemented interdisciplinary teaching sequences.

II. A Didactical Framework for Interdiciplinary Teaching

In *International handbook of science education*, Berlin and White (1998) argued that science and mathematics are naturally and logically related in the real world, and that educators therefore must try to capture this relationship in the classroom in an effort to improve students' achievement and attitude in both disciplines. The idea of integrated science and mathematics is not new. For example, a historical analysis of documents related to integrated science and mathematics reported by Berlin and Lee (2005) spans from 1901 to 2001. This analysis documents a strong philosophical support for the integration of science and mathematics education as a way to improve student understanding of the two disciplines. It is emphasized that although each of the human enterprises of mathematics and science has a character and history of its own, each of the disciplines depends on and reinforces the other. However, although a great number of research studies have focused on the development of activities and learning materials, following an interdisciplinary approach there is still no emerging framework supporting an integrated mathematics and science education.

Before discussing the problem of a framework for interdisciplinary teaching, we shortly address the notion interdisciplinary without going into a deeper discussion of this multifaceted notion. Repko (2014) stated *that interdisciplinary studies is a cognitive process by which individuals or groups draw on disciplinary perspectives and integrate their insights and modes of thinking to advance their understanding of a complex problem with the goal of applying the understanding to a real world problem* (p. 28). Obviously, the relationship of disciplinary and interdisciplinary has a productive tension. Interdisciplinary is the study of a complex real-world problem from a perspective of two or more disciplines by drawing on their insights and integrating them to construct a more comprehensive understanding of the problem. With this tension in mind, we apply the term *coincident didactic conceptions* introduced by Dahland (1998) to express that among the didactics of various disciplines, one can trace a number of analogous notions, which make up a didactic intersection. For example, the didactics of mathematics and biology all include discipline-specific elements, but in addition didactic notions can belong to more than just one subject, i.e. one may talk about intersections of didactic notions. The actual content of such intersections ultimately depends on the perspective adopted. We apply the term coincident didactic conceptions to identify and justify a possible didactical framework for interdisciplinary teaching between mathematics and the subjects of natural sciences. The framework is designed upon three pillars, each addressing a didactic intersection of mathematics and the disciplines of natural science: (i) expansion of domain addressing the applications of mathematical concepts in the disciplines of natural science, (ii) conceptualization of the notion of modeling as an interdisciplinary competence, and (iii) the application of the notion of horizontal linking and vertical structuring to facilitate a path from concrete activities in an interdisciplinary context to conceptual anchoring in the involved disciplines.

a) *Expansion of Domain*

In science education, it is often accentuated that many phenomena and their patterns of interaction are best described in the language of mathematics, which then becomes a bridge between the students' verbal language and the scientific meaning we seek to express (Osborne 2002). However, the description is not straightforward to the students. Firstly, there are differences in terminology and notational systems between mathematics and the disciplines of natural science. The same mathematical structure, e.g. a graph, may apply to different phenomena in a discipline of natural science and hence, the semantics of equal constructs may be very different. Secondly, in the dominating mono-disciplinary teaching approach the teachers presume it obvious that the basis mathematical facts must be apprehended before application in a discipline of natural science. This leads to the problem of transfer, which is one of the biggest challenges in education. It is well known that it is difficult for the students to apply concepts, ideas and procedures learned in one subject, e.g. mathematics, in a new and unanticipated situation, e.g. in biology.

Niss (1999) identified the key role of *domain specifity* as a significant example of the major findings of research in mathematics education. A student's conception of a mathematical concept is determined by the set of specific domains in which that concept has been introduced for the student. When a concept is introduced in a narrow mathematical domain, the student may see it as a formal object with arbitrary rules. This results in the recognized difficulty of application of the concept in new settings. As an alternative we introduce the notion of *expansion of domain* and point at that interdisciplinary activities between mathematics and disciplines of natural science offer a great variety of

domain relations and context settings that can serve as a basis for developing a more practical and coherent structure of a mathematical concept. By expansion of domain to include contexts from the disciplines of natural science, the problem of domain specifity is transcended and the curriculum is presented as a cohesive program (Michelsen 2006).

The notion of expansion of domain aligns with research providing insights into strategies that students might apply to recognize similarities across contexts. Lobato (2003) addressed this central educational issue and argued for a more nuanced and differentiated view of levels of transfer, the *actor-oriented transfer perspective*. In this perspective, focus is on the type of conceptions that students could have developed given the instructional treatment, and one assumes that learners are making connections between situations nearly all the time, guided by aspects of the situation that they find personally salient. Rebello et al. (2005) considered transfer as the dynamic creation of associations between information read-out by the student in a new situation and a student's prior knowledge. In this kind of transfer, *vertical transfer,* the student recognizes features of the situation that intuitively activate elements of prior knowledge. The student typically does not have a preconceived knowledge structure that aligns with the problem information. Rather, the student constructs a mental model in situ through successive activation and suppression of associations between knowledge elements. Consequently, the critical issue is to design an instructional environment that supports the students' construction of personal relations of similarities across situations. This calls for an exploitation of meaningful starting points and activities from which conceptual structures in mathematics and the disciplines of natural science can emerge.

b) Modeling - an interdisciplinary competence

Models are important in the development of scientific knowledge as they link theories with phenomena. Students' development of potent models should be regarded among the most significant goals of mathematics and science education. The pedagogical power of models comes not just from students using existing models, but also from enabling students to design, build, and assess models of their own (Brady et al. 2015; Gilbert 2004). An extensive research literature recognizes the importance of models and modeling, both in mathematics education and in science education (Halloun & Hesteness, 1987; Gilbert, 2004; Kaiser & Sriraman, 2006; Stillman, Blum & Biembengut 2015). Freudenthal (1991) emphasized phenomenological exploration, and argued for that the starting point for mathematics education is those phenomena that beg to be organized. Modelling by mathematization treats specifically the role of mathematics in the disciplines of natural science, and of the link with mathematics in various fields of science education. Pointing at the dramatically change in the nature of problem solving activities and at the difficulties to recruit students capable of graduate level in interdisciplinary such as mathematical biology and bio-informatics Lesh & Sriraman (2005) suggested a bottom up solution. That is, initiate and study the modeling of complex systems that occur in real life situations from the early grades. One could add that the disciplines of natural science offers complex systems to be modeled. This indicates that modeling might provide a generic methodology that can serve as a common ground for learning disciplines such as mathematics, physics, chemistry and biology. Modeling activities take place in an interdisciplinary context and are therefore a possible frame for elucidation of the relations between mathematics and the subjects of natural science.

In Denmark, the notion of subject competences functions as a flexible framework for a description of what is means to master a discipline independent of specific topics and specific levels. Competency is someone's insightful readiness to act appropriately in situations in a way that is guided by one's knowledge from a discipline. Competence-based teaching permeates the Danish educational system, and there are fundamental potentials in terms of an overlap between disciplines. Eight mathematical competences and four science competences are identified, and the competency of modeling is identified both as a mathematical and science competence. The modelling competence in mathematics includes structuring an intra- or extra-mathematical situation to be modelled, mathematizing the situation, analyzing and tackling the model, interpreting the results, validation of the model, communicating about the model, monitoring the modelling activity. The reference to the modelling of extra-mathematical situation underscores that the competence is not specific to mathematics, and therefor modeling should be considered as *an interdisciplinary competence*. Modeling is a specific problem solving strategy with scientific and pragmatic purposes and as a rule, scientific and everyday life problems call on modelling and do not accept traditional and historical determined boundaries between subjects.

c) Horizontal Linking and Vertical Structuring

Historically, mathematical understandings have arisen from nonmathematical preoccupations in the world where increasing refinements of material entities eventually led to the development of ideal objects typical of mathematics (Davis & Hersh 1980, Kitcher 1985, Lützen 2011). There exist frameworks for learning mathematics reflecting this. The notion of emergent model suggested by Gravemeijer (1997) has as the departing point situation specific problems, which are subsequently modeled. The problems first offer the

opportunity to develop situation-specific methods and symbolizations. Then the methods and symbols are modeled from a mathematical perspective and in this sense, mathematical models emerge from the learning activities. The models first come into being as a model of the situation, and then the model gradually becomes an entity in its own right and begins to serve as a model for mathematical reasoning. The shift presented from a model of to a model for should concur with a shift in the way the students perceive and think about the models; from models that derive their meaning from the context situation modeled to thinking about the mathematical content of the models (Doorman & Gravemeijer 2009).

Michelsen (2006) suggested an extension of the notion of emerging modeling to include interdisciplinary activities between mathematics and subjects of natural science. The extension consists of two phases: (i) horizontal linking, and (ii) vertical structuring. In the phase of horizontal linking thematic integration is used to connect concept and process skills of mathematics and one or more disciplines of natural science by modeling activities in an interdisciplinary context, e.g. modeling the process of consumption and removal of alcohol. The vertical structuring phase is characterized by a conceptual anchoring of the concepts, e.g. metabolism and concentration in biology and linear growth models, parameters and variables in mathematics, and process skills from the horizontal linking phase by creating languages and symbol systems that allow the students to move about logically and analytically within mathematics and the relevant disciplines(s), e.g. biology, of natural sciences without reference back into the horizontal linking phase. The shift from the horizontal linking to the vertical structuring phase might thus concur with a shift from interdisciplinary teaching to discipline-oriented teaching reflecting the productive tension between interdisciplinary and disciplinary. It should be stressed that the model is iterative. Once the concepts and skills are conceptually anchored in the respective disciplines, they can evolve in a new interdisciplinary context, as part of a horizontal linkage. Thus, the underlying assumption is that the disciplines are themselves the necessary precondition for and foundation for the interdisciplinary enterprise.

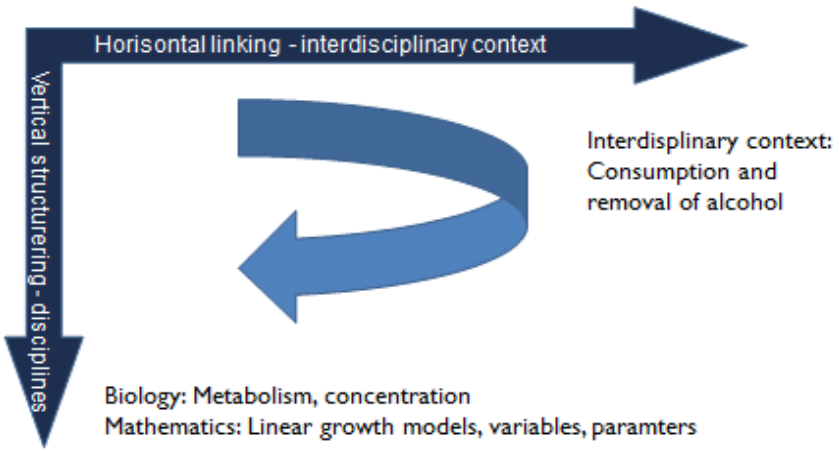

Figure 1: Horizontal linking and vertical structuring

To support a learning path from the horizontal linking phase to the vertical structuring phase model-eliciting activities are included. Model-eliciting activities are open-ended, interdisciplinary problem-solving activities that are meant to reveal students' thinking about the concepts embedded in these activities. To get instructional value out of the model-eliciting activities a standard organizational scheme is applied. The scheme consists of a sequence of four phases: (i) warm up activities given the day before to start up the model-eliciting activity, (ii) model-eliciting activities aiming at encouraging the students to work in teams and to express their ways of thinking visible for teachers (iii) model-exploring activities with the goal for the students to develop a powerful representation system for making sense of the targeted conceptual system, and (iv) model-adaption activities with focus on applying the conceptual tool that was developed in the model-eliciting activity and refined in the model-exploring activities (Lesh & Doerr 2003). We notice that the modeling-eliciting activities involve shifting back and forth between among a variety of relevant representations, graphs, tables, equations etc., and the competence of representation comes into play. This competence has an exploratory aspect as the students have to understand and utilize different representations and a productive aspect as well, where the students choose and translate between a variety representations. E.g., in the case of mathematical modeling of a biological phenomenon, the shifts between representations take place in an interdisciplinary mathematics-biology context and draws on biological as well as mathematical knowledge and skills. Consequently, the competence of representation should

be considered as an interdisciplinary competence like the modelling competence. In the last phase of the movement from the horizontal to the vertical phase there is a shift towards to thinking about the mathematical and biology content of the model-eliciting activities, and investigating the structure of the conceptual tools developed and anchoring them in mathematics and biology, respectively. Therefore, the model-eliciting activities lead from the interdisciplinary context to the subjects:

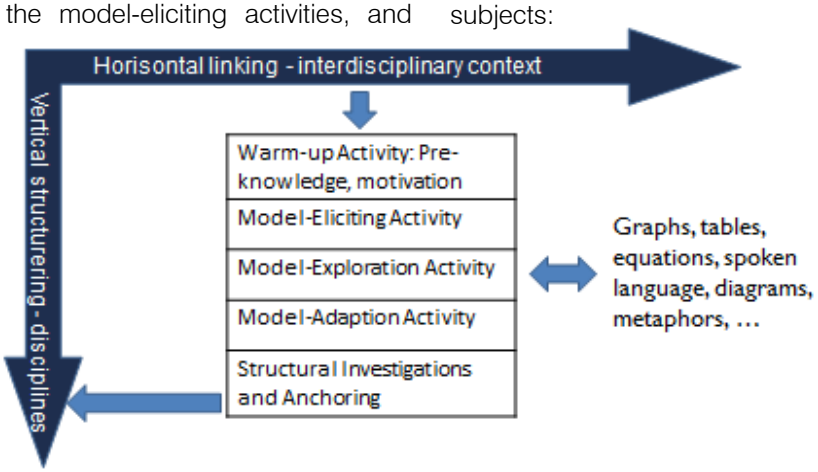

Figure 2: The path from the interdisciplinary context to the disciplines through model-eliciting activities

III. The Mathematics-Biology Program For In-Service Teachers

To exemplify the potential of the three pillar didactical framework we present a case study of an intensive in-service teacher-training program, where Danish upper secondary education mathematics and biology applied the framework to develop, implement and evaluate interdisciplinary teaching sequences centered on modeling activities.

The Danish upper secondary education is organized in specialized so-called study packages containing compulsory disciplines, core disciplines, and elective disciplines. An important feature of a package is that the core disciplines form a coherent program, which is ensured by a closer interaction between the disciplines. Some of the packages include mathematics and biology as core disciplines. To fulfill the objective of coherence in the study packages interdisciplinary teaching across mathematics and biology is demanded. However, the actual classroom practice in Denmark reflects the situation described in the international literature: as a rule, the connections between mathematics and biology in the classroom are weak (Jungck 1997, 2005; Cox et al 2016), and the process of connecting the two disciplines should start with the education of teachers (Michelsen 2010, Šorgo 2010). Connecting mathematics and biology is about change, not for the sake of change but for achieving a more comprehensive understanding of core concepts and skills in the two disciplines. This requires that mathematics and biology teachers are prepared to change their minds about the relations between the two disciplines. Real interdisciplinary teaching requires a professional teaching force empowered with the skills necessary for designing learning experiences that maximize student potential. Teachers working together in ways providing professional support for one and another leads to improvements in practice (Loughran 2006), and teachers consider professional development initiatives to be effective if they have a clear relevance for their own teaching practice, and the opportunity to exchange experiences with colleagues (Wood et al. 2008).

a) Mathematics and Biology

Through the times, mathematics was and is inspired by biological problems and as a result, mathematical concepts were constructed and became central elements of the culture of mathematics. An example is the Fibonacci numbers appearing in the pedigrees of idealized honeybees. This is one of the first examples of a population model resulting in exponential growth, and on top of that with a golden growth rate. The immediate effect of Fibonacci's work was not the study of living organisms, but the Fibonacci sequence continued to delight and thrill mathematicians. The well-known occurrence of the Fibonacci numbers in flowers, e.g. the spirals in the head of sunflowers, led to description by Segerman (2010) of an interesting coloring of the points of the sunflower spiral, involving a "metric" on the positive integers which counts the number of distinct non-consecutive Fibonacci numbers needed to sum to a given number.

Jungck (1997, 2005) pointed at, that the absence of strong curricular ties between biology and mathematics misrepresents contemporary biological research, and the need for more mathematics in biology education and problem-solving based curriculum in biology should therefore be addressed. The last century in the history of mathematics is characterized by the increasing influence of applied mathematics. In such different fields as engineering, economics, biology, and

medicine applied mathematics has played, and still plays a more and more important role in new development and breakthroughs (Steen 2005). The foundations of many fields of biology and in particular the new fields are inherently mathematical. The method of mathematical modeling applies very broadly in many biological fields including some like population growth and spread of disease (Cohen 2004). Instead of focusing on how to overcome the challenges of implementing mathematics into biology, Jungck (2011) suggested the development of individual biological models that can be easily adopted and adapted for use in both mathematics and biology classrooms. Models and modelling are also suggested as tools to transcend the obstacles preventing the integration of mathematic, physics, and engineering into the biology curriculum and vice versa (Chiel et al 2010).

b) Mathbio in the Study Package

In an attempt to offer upper secondary in-service teachers in mathematics and biology didactical tools to prepare themselves for the practical challenges of interdisciplinary teaching, the Laboratory of Coherent Teaching and Learning at University of Southern Denmark in collaboration with the organization Danish Science Gymnasiums in 2015-16 offered the professional development program 'MathBio in the study package'. The overall aim of the program was to enable teachers to implement interdisciplinary teaching sequences between mathematics and biology in their daily classroom practices. The program involved 30 teachers from eight upper secondary schools in the Region of Southern Denmark. It was the core idea of the program to involve teachers in design, implementation, and evaluation of innovative instructional sequences dealing with a wide range of aspects of mathematics and biology.

The program was organized as an intervention project structured around a combination of four seminars at the university and phases of practice at the participating teachers' schools. The teachers were asked to work in pairs, one mathematics teacher and one biology teacher, and they participated in regularly meetings with mathematics and biology education researchers from the Laboratory of Coherent Teaching and Learning. The fundamental aim of the phases of practice was that the teachers designed and implemented an interdisciplinary mathematics-biology teaching sequence. At the seminars the teachers was introduced to the didactical framework for linking mathematics and the disciplines of natural science, different types of organizing interdisciplinary teaching, inquiry based teaching, examples of interdisciplinary mathematics-biology teaching sequences and presentations by researchers working on the interface between mathematics and biology, e.g. computational biology and reconstruction of body size by statistical methods. At the final seminar, the teachers presented their interdisciplinary mathematics-biology teaching sequences at a poster session. Moreover, at a special session at the seminar three elected groups each gave an oral presentation of their teaching sequences, followed by a discussion among all the participating teachers initiated by prepared questions from two selected teachers. To make the improvements in interdisciplinary mathematics-biology sharable and usable for a larger community of teachers, descriptions of all the developed teaching sequences were subsequently made available at the website of Danish Science Gymnasiums.

During the program, the teachers filled in a pre-designed protocol to keep track of the development of the teaching sequences. The protocol included fields for teaching and learning goals, content of the teaching sequence with reference to the curriculum, subject oriented and didactical reflections, requirement for didactical supervision, evaluation of the teaching sequence and other issues relevant for the development of the sequences. The written protocols offer insight into the teachers' experiences with the challenges of interdisciplinary teaching, and understanding and application of the three pillars of the didactical framework. Therefore, the protocols were analyzed in order to get an idea of the kind of interdisciplinary mathematics-biology teaching activities that teachers devised, and the type of reflections and experiences regarding interdisciplinary teaching that the teachers themselves addressed.

c) The 13 Interdisciplinary Teaching Sequences

Based on selected excerpts from the teachers' protocol we provide an overview of the 13 teaching sequences developed and implemented by the teachers and a discussion of the teachers' reflections about interdisciplinary teaching.

Tabel 1: Interdisciplinary mathematics-biology teaching sequences developed by the teachers

Heredity: 1- and 2-gens segregation, chi-square test, population biology and Hardy-Weinberg equilibrium.
Enzyme kinetics 1: Enzymes and proteins, processing of equations and authentic figures, modeling.
Enzyme kinetics 2: Differential equations, numerical integration, visualizations, composition and structure of enzymes, classification of enzymes.
Evolution and statistics: Evolution mechanisms in the development of multi-resistant bacteria, stochastic processes, descriptive statistics, simple probabilities, numerical modeling.
Genetics: Genetic basic concepts and theory of hypothesis tests.
The standard curve and modeling of data for yeast cells: Analyze and process data from experimental work, handle simple formulas and apply simple functions to model data.
Logistic growth: Applying function expressions to data material from other disciplines.
Growth of microorganisms: Exponential and logistic growth, growth rate, serial dilution, microorganisms and fermentation.
Brewing beer: Beer, yeast cell growth, factors affecting the growth rate, carbohydrate, biochemistry of metabolism, differential equations, mathematical models, logistic growth, exponential growth, proof technique.
Population biology and probability: The Hardy-Weinberg Law and chi-square test.
Population genetics in associated with a study trip to Malta: Sampling of different phenotypic features in Malta and Denmark and comparing the frequency of the two countries.
Cell growth: Virus and pro- and eukaryotic cells' structure and function, linear and exponential growth, modelling of growth, and the limitations and validity of models.
Growth rate and decoloring of Azorubin: Spectrophotometry including the application of the Beer-Lambert law, linear relationships and exponential growth.

The themes of the instructional sequences address well-known classical mathematical and biological topics like linear, exponential and logistic growth, differential equations, numerical integration chi-square test, probability, statistics, population biology, cell growth, enzymes, Hardy-Weinberg equilibrium, genetics, and evolution. This is probably a consequence of the fact that there in both subjects is a well-defined curriculum, and that teachers are using textbooks, which reflects this curriculum.

The teachers searched for and identified meaningful starting points and connections between the two disciplines. In the majority of the teaching sequences, the biological experiment functioned as the interdisciplinary context connecting biology and mathematics. The experiment delivered data, which were processed by mathematical methods.

Focus is on modeling biological processes by differential equations and the interplay between experiment and theory. (Excerpt from a teacher protocol)

The overall objective of the sequence is that students achieve knowledge of evolution and skills in applying probability theory to model simple stochastic processes. Biology takes the advantage of that evolution randomness principle addressed extensively in mathematics provide can form a solid basis for a focus on the consequences in biology. The mathematical model construction is easily accessible as it is based on an animation and difference equations. (Excerpt from a teacher protocol)

The challenges encountered by the teachers were mainly of practical and technical nature, e.g. the application of different software in the two disciplines.

The biotech experiment provided a better understanding of how to set up and apply mathematical models. The transfer of data from data-collection software loggerpro to math programs is time consuming. (Excerpt from a teacher protocol)

Mathematical modeling had a prominent position in the teaching sequences. In the majority of teaching sequences, modeling activities implied a movement from a biological context, e.g. an experiment, to a mathematical context, e.g. and finding the equation of the regression function for the data from an experiment. This is an approach close to what the teachers are used to teach. However, in the teaching sequences developed in the program there are a distinct connection between the learning activities in the two subjects, and therefore a link between mathematics and biology. Furthermore, the teachers were aware of, that the interdisciplinary aspects of modelling open up for addressing concepts like variables, functions and

chi-square test in an interdisciplinary context, and thus transcend the problem transfer.

The students gained a better understanding of the chi-square test. The students benefited greatly from combining the two subjects. The students responded positively to the teaching sequence in the course evaluation. (Excerpt from a teacher protocol)

The goal is to support the students in practicing to apply mathematics in a real situation. Based on experiments made in biotechnology mathematics is applied to plot the data and produce a mathematical model. It is a core idea is the processing of data supports the students' understanding of theoretical math concepts. (Excerpt from a teacher protocol)

The limitations of a model were also addressed in the teaching sequences.

The goal is to apply mathematical models to experimentally biological data and get an understanding of the models' limitations. (Excerpt from a teacher protocol)

Focus is on practical application of mathematical models, especially the models' applicability to biological systems. The students should adopt a critical attitude towards to the model's potential and limitations. (Excerpt from a teacher protocol)

Furthermore, the exploratory aspect of interdisciplinary modeling activities involved shifting back and forth among a variety of relevant representations of the concepts involved, which might help the students to ascribe a mathematical as well as a biological meaning to the representations and their mutually relations and by this transcend the language barrier between the two subjects.

The goal is to create an interdisciplinary process, in which mathematics applied in a biological context, to relate observations, model and symbol representations to each other, and to collect process and evaluate data from experiments and taking into account the sources of error, uncertainty and biological variation. (Excerpt from a teacher protocol)

A group of teachers pointed at, that the processing of data might support the students' understanding of variables.

Focus is on modeling the data series with an expected linear relationship between the two methods of counting yeast cells in a liquid medium. The goal is that the students achieve a basic understanding of variables and their relationships. (Excerpt from a teacher protocol)

However, a group of teachers drew attention to the disparity between what is considered as good data in mathematics and the data appearing in biology. In mathematics data are "nice" and fit to a well-known functional dependency, and that is not always the case in biology.

The students did not act enthusiastic to cell growth. More attention should have been called to what is considered as good data in mathematics and the kind of data appearing in biology. (Excerpt from a teacher protocol)

In was an issue in several of the protocols, that practical application of mathematics might ascribe a more concrete understanding of an abstract mathematics concept like differential equations.

The overall idea is learn biotech matter based on practical tasks like beer brewing. The teachers and students jointly brew beer and collect data by measuring the mass loss in the fermentation flask. A rather abstract topic like differential equations is applied in a concrete situation. (Excerpt from a teacher protocol)

In some of the teaching sequences a phase with experiments was followed by phase with mathematical as well as biological inquiries. E.g. in the teaching sequences 'Enzyme kinetics 1' the Michaelis-Menten function deduced as a pure mathematical inquiry while the principles of enzyme kinetics were addressed in a pure biological context:

Biology provides data for analysis in mathematics, and mathematics provides an understanding of data analysis in biology. The teaching sequence takes a practical approach to the chi-square test including different games with dice, candy etc. (..). Mathematics offered biology the opportunity to gain a deeper understanding of the Michaelis-Menten function, and biology offered mathematics the chance to work with an equation illustrating the strength of modeling. The students responded positive to the interdisciplinary activities. (Excerpt from a teacher protocol)

The starting point is that the two disciplines are mutually supportive and collaborate in that the biology delivers data, which are processed in mathematics. Mathematics provides an understanding of chi-square test and applies this as a tool in the analysis of biological data. Moreover, mathematics contributes with the deduction of the Hardy-Weinberg law, and offers examples of how we by simulation can illustrate Hardy-Weinberg equilibrium. (Excerpt from a teacher protocol)

The majority of the teaching sequences described a path from an experimental situation in biology to an investigation of a mathematical construct in mathematics, e.g. a graphical representation:

The application of mathematics to explain the biological model motivated the introduction of further examples of sigmoidal curves and logistic growth. (Excerpt from a teacher protocol)

The goal is to create an interdisciplinary process, in which mathematics applied in a biological context, to relate observations, model and symbol representations to each other, and to collect process and evaluate data from experiments and taking into account the sources of error, uncertainty and biological variation. (Excerpt from a teacher protocol)

In general, the teachers' reported positive about their experiences with interdisciplinary teaching, and a

group of teachers point on the learning potential and transfer value to future interdisciplinary activities:

A joint mathematics and biology program has positive influence on students' learning. The students developed a subject oriented as well as an interdisciplinary understanding and are well-prepared for future interdisciplinary tasks. (Excerpt from a teacher protocol)

The insight gained by teachers as through participation in the programmed was also addressed:

The sequence was very instructive for us as teachers. It provided us with an insight into the other subject and gave us a glance of the students' activities in another subject. (Excerpt from a teacher protocol)

According to the teachers, the students responded positive to the interdisciplinary approach and experienced a closer connection between the subjects of mathematics and biology. However, it should be noted that some of the students ask for more structure, and that some of the students' focus is on the products of the teaching sequence, and not on the processes linking the two subjects.

We need to be more focused on coordinating and adjusting the process along the way. The students experienced a closer connection between the subjects, but they want a stricter structure with precise and clear requirements for the final product. (Excerpt from a teacher protocol)

The students' evaluation of the sequence was positive. The students appreciated that mathematics apparently is applicable in biology. However, the students' comments show that their focus is on the products of the teaching sequence, and not on the processes linking the two subjects. (Excerpt from a teacher protocol)

IV. Concluding Remarks

The purpose of this paper has been to propose a didactical framework for scaffolding teachers endeavor for realizing widespread desire for a change towards interdisciplinary teaching. As pointed at by Roth (2010) we need to think interdisciplinary from before disciplinary. With the proposed didactical framework we argue that considering modeling as an interdisciplinary competence we can think interdisciplinary from before disciplinary. The excerpts from the teachers' protocols shows that the teachers adapted the three pillars of the didactical framework (i) expansion of domain, (ii) modeling as an interdisciplinary competence, and (iii) horizontal linking and vertical structuring. The didactical framework provides the teachers with a structure for identifying interdisciplinary topics with a significant content for the participating subjects, and modeling serves as the unifying activity in the students' modules.

Looking at the topics of the teaching sequences it is not unfair to say that they are ones belonging to the traditional content of mathematics and biology. This is of course due to a still very discipline oriented curricula, and the fact that the teachers have had their academic training within one or two mono-disciplinary programs. It worth noticing, that a group of teachers addressed the benefit of getting insight into the other subject through participation in the program. And one could for a moment think what it might be, as if learning materials emphasizing the interdisciplinary nature of mathematics and biology were available. Clearly, there is a demand for up-to-date interdisciplinary learning materials to achieve a more integrated curriculum.

The teachers were aware of the potential of expanding the domain of an abstract concept to an interdisciplinary context of mathematics and biology. The teachers focused on the potential of the interdisciplinary teaching to develop common understanding and language across the two disciplines. This should be contrasted to the traditional approach, where the students are expected to transfer mathematical concepts to a biological context by themselves. With reference to research (Schoenfeld & Arcavi 1988, White & Mitchelmore 1996) showing that a major source of students' difficulties in applying functions is an undeveloped concept of variable, it should be noted that in the teaching sequences variables represent quantities that change and not as only as symbols to be manipulated, and functions are the tool to study the relationships among the changing quantities.

The dominating role of modeling activities in the teaching sequences might be seen as an indication of, that the teachers considered modeling as a competence, which can be applied in an interdisciplinary context and act as a kind of glue between the two disciplines. Evidently, the teachers considered the biological experiment as the obvious common ground for the interplay between mathematics and biology. Exploring the experiment takes the students to mathematical modeling, and they take ownership of their model

Concerning the intended path from the in interdisciplinary concrete situation in horizontal linking phase to the conceptual anchoring in the disciplines in the vertical structuring phase, the excerpts from the teachers' protocols show that the path is only unfolded fully in some the teaching sequences. In the majority of the sequences the path is typically from an interdisciplinary context to mathematics, and not to biology too as intended. Firstly, it should be acknowledged that the teachers strive to establish connections between the two disciplines. Secondly, the teachers' experiences with interdisciplinary teaching were limited, and the program was their first encounter with the horizontal linking and vertical structuring approach. Thirdly, the fact that are examples of a path from an interdisciplinary context to the two disciplines

indicates that some the teachers adapted the three pillars of the framework.

The students' positive responses to the interdisciplinary teaching sequences indicates that interdisciplinary modelling activities may motivate the students' learning process and help them to establish cognitive roots for the construction of important mathematical and biological concepts. This is in keeping with research findings showing that interdisciplinary modeling activities contribute to the learning of concepts in the involved disciplines and improve the students' interest in mathematics and the subjects of natural science (English 2013, Michelsen & Sriraman 2009).

The experiences from the professional development program "MathBio in the study package" in the form of the teachers' reports on their development and implementation of the instructional sequences and the presentations given at the final seminar show that in general it is possible for the teachers from two disciplines to plan, carry through, evaluate and report about interdisciplinary modeling activities. The teachers gained insights regarding their teaching, in particular the limitations of the disciplinary approach and potential of interdisciplinary teaching. Across their disciplines the teachers supported each other in the development and the implementation of the mathematics-biology teaching sequences. The program structure with practice at school, workshops at the university and the final seminar with presentation of the teaching sequences made it possible for the teachers to share their ideas and experiences with their colleagues and having contacts with academic experts in the fields of modeling and educational research. However, to get full profit of interdisciplinary modeling activities further research on the constraints and possibilities of the cooperation between the subjects of mathematics and biology is needed.

The problem addressed in this paper is twofold. On one hand mathematics evidently has played and will play an exceptionally important role in the development of biology, but this role is underrepresented in biology curricula. On the other hand mathematics learned at upper secondary level seems to have little relevance to the biology taught. A primary motivation for introducing interdisciplinary mathematics-biology teaching into the classrooms is the rapidly changing nature of these disciplines as they are practiced in the professional world. Current upper secondary curricula in mathematics and biology don't reflect the interdisciplinary flavor of modern biology, e.g. bioinformatics, and behind the needs of life.

One of the great challenges in the contemporary work of mathematics and biology education researchers and teachers of mathematics and biology is how the interdisciplinary perspective should be reflected in the classrooms. If reform of mathematics education with closer links to biology education is the aim, then prototypes of instructional sequences with learning materials that are in harmony with new perspectives must be adapted by the teachers. A reasonable, yet not exhaustive, answer to this is an increased focus on modeling activities in the daily teaching practice of mathematics and biology. In order to accomplish this, it is important that both pre-service and in-service teachers gain experiences with modelling activities linking mathematics and biology.

The major challenge is capacity building, which is providing support for teachers so that they can develop understandings and skills required to teach for interdisciplinary mathematics and biology curriculum. To work together, mathematics and biology teachers do not need to be experts on each other's subject, but they do need to have a good understanding of how mathematics and biology interact in educational settings. Teachers reflecting about practice through collaboration with trusted colleagues makes the tacit explicit and develops knowledge, skills and expertise in practice. A factor relevant to successful innovations is the degree to which it is perceived better than the existing program it hopes to supersede. Lesh & Sriraman (2005) introduced the main law survival of the useful law that determines the continuing existence of innovative programs and curriculum materials. Usefulness involves going beyond being powerful in a specific situation and for a specific purposes to also be sharable with other people and re-usable in other situations. It is therefore of great importance to make the improvements available to a larger community of teachers. In 2016-17 a new group of 70 teachers from 19 Danish schools are involved in the second version of the professional development program "MathBio in the study package", and they draw on the experiences from the first version of the program.

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Why Saudi Learners of English Prefer using Bilingual Paper Dictionary? Facts and Opinions

By Sultan Samah A Almjlad

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Keywords: bilingual dictionaries, paper dictionaries, Saudi learners, reasons.

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Keywords: bilingual dictionaries, paper dictionaries, Saudi learners, reasons.

I. Introduction

Dictionary is treasure of information that can facilitate foreign language learning. As the learners need to learn the vocabulary which are the most important sources to make them proficient in language learning (Carter &McCarthy, 1988). Dictionary is real tool and dependable source for learning vocabulary in second or foreign language (Ali,2012). Li (1998) referred to the role of dictionaries indicating that the dictionaries among the most successful books about languages learning. Languages cannot be learnt without mastery of its vocabulary as the language cannot be used or conveyed without understanding and using its vocabulary appropriately. This fact was confirmed by Wilkins' (1972, p. 111) who indicated that "without grammar very little can be conveyed, without vocabulary nothing can be conveyed". Consequently, the foreign language learners should realize the fundamental role of the vocabulary in language learning which can be difficult process without using the dictionary which facilitates the process of learning vocabulary. Although the importance of dictionary use in foreign language learning and although the development of dictionaries and their types and although the huge increase of Saudi learners for learning English, the question which raises itself why Saudi Learners of English use bilingual dictionary. This study will be conducted to identify the reasons behind the preference of using bilingual dictionary.

II. Literature Review

a) Studies of bilingual dictionary: Uses and Preferences

Many studies have been conducted on dictionaries in general and on bilingual dictionaries in particular. These studies conducted included various EFL contexts. Most of these studies confirmed the preference of using bilingual dictionaries among foreign language learners in general and Saudi learners in particular. Al-Smael (2000) conducted his study on the Saudi learners discovering that the bilingual dictionary was the most preferred dictionary by his Saudi undergraduate English major students as comparison to the monolingual dictionary. Al-Fuhaid (2004) discovered that the most of his Saudi English major university students used the bilingual dictionary more than other types of dictionaries. El-badry (1990) conducted a study on Arab leaders in both Egypt and the UK. El-badry (1990) wanted through her study to identify the fact of bilingual Arab-English dictionary and the habits of dictionary users toward this issue. El-badrys' findings discovered that most of her participants used bilingual English-Arabic dictionaries more frequently used than monolingual English dictionaries and bilingual Arabic-English ones. Albesbasi(1991) conducted on translation task and how the students use their dictionaries and what types of dictionaries used by the participants. Albesbasi observed that the learners used bilingual dictionaries more often than monolingual dictionaries. Almjlad (2017) conducted his study on Saudi EFL learners who were studying in University of Salford investigating a number of areas in dictionary use. Almjlads' study discovered that most of Saudi learners of English used their dictionaries for checking the Arabic meaning of the target words. Moreover, Almjlad also through his study discovered that the Saudi learners of English preferred using bilingual dictionary in its paper format.

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b) Studies of bilingual dictionary: Reasons and Justifications

Bilingual dictionaries as stated above the most important dictionaries and frequently used among EFL learners. However, the question which raises itself what is the purpose of using bilingual dictionary? It is undoubtedly that there are reasons and motivations may lead the EFL learners to use this type of dictionaries frequently. There are a number of the studies which investigated this question to discover more reasons for using bilingual dictionary by foreign learners. Scholfield (1982) justified using bilingual dictionaries by saying that the meaning of unfamiliar L2 words can be found by the learner easily because of inclusion the first language as work as facilitator to the learner as comparison to monolingual dictionary. Stein (1989, p.41) attribute using bilingual dictionaries frequently because they offer 'quick general understanding' for certain elements, such as the names of plants, animals, cultural institutions, technical and scientific terms. Carter and McCarthy (1988) justified using bilingual dictionaries by foreign language learners by saying that the learners can understand the bilingual dictionary when searching for the meaning of new words without consuming more time, unlike the monolingual dictionaries containing some clues and definitions which cannot be deduced by the learners. Hopfling (2006) provided justification behind using bilingual dictionary by foreign learner sindicating that bilingual dictionary can enable the EFL learners to reach quickly the correct information. Al-Fuhaid (2004) conducted a study on Saudi learners of English majors. His study indicated that the monolingual dictionaries were moderately used by his Saudi English major students attributing this fact to the frequent use of bilingual dictionary by Saudi learners. Moreover, one reason can be considered as vital reason of using bilingual dictionary frequently which is the learner's proficiency level of English. Many studies refer to this issue confirming that the reason behind using the learner's bilingual dictionary their English level proficiency. Al-Ajmi (1992) discovered that advanced English major students used the monolingual dictionaries more than the bilingual dictionaries. Ahmed (1989) conducted a study on Sudanese EFL learners of English and found that lower level learners used the bilingual dictionaries more than the monolingual ones while good university students relied heavily on the monolingual dictionaries Alqahtani (2005) discovered that those students with advanced level of language used the monolingual dictionary more frequently than did less proficient students.

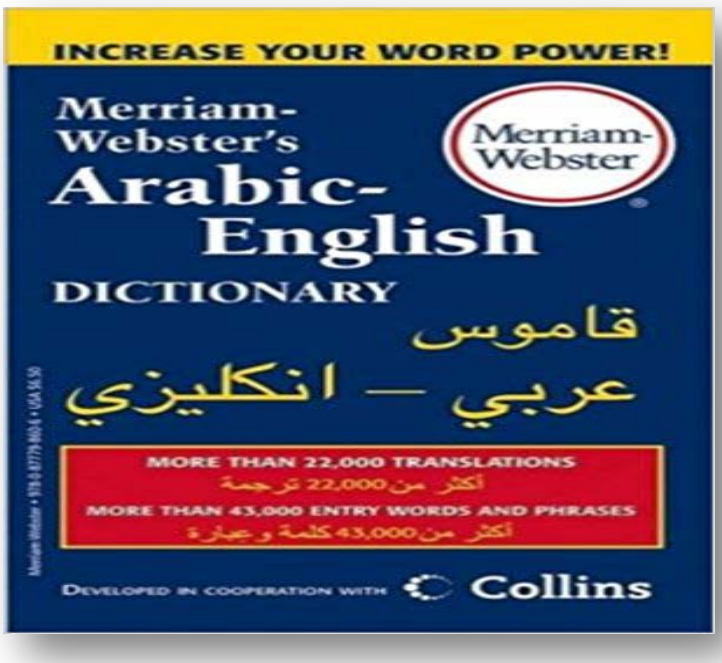

Figure1: Picture of the cover of Arabic- English Merriam Websters dictionary

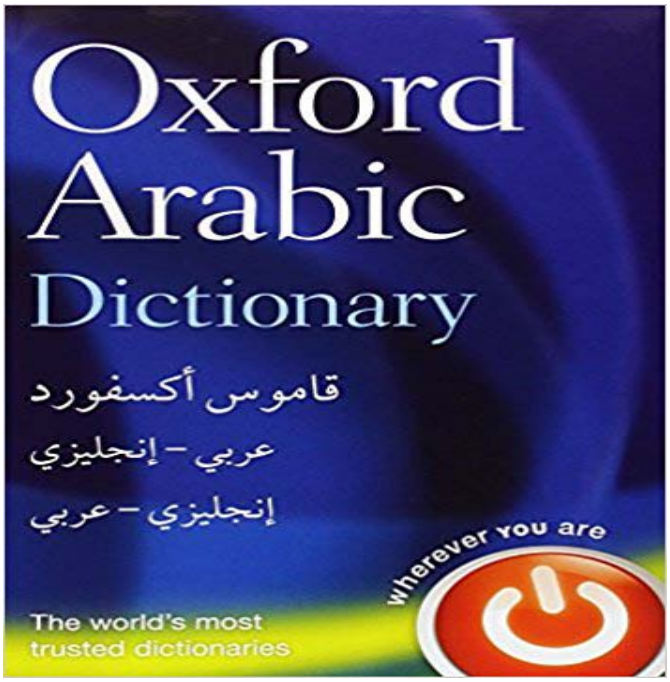

Figure 2: Picture of the cover of Arabic- English Oxford dictionary

III. Research Methods

a) Participants

The participants included in this study were 30 Saudi males postgraduate and undergraduate students. The two groups were studying in Manchester's universities namely university of Manchester and University of Salfordin the United Kingdom. All the Saudi students who participated in the present study were holders of the Saudi government scholarship to study in the UK. The students were studying in different specialisms in both universities. All the participants were selected randomly, subject to willingness to participate in the current study.

Table. 3.1: Subjects

University name		Academic level		Total
		Undergraduate students	Postgraduate students	
1	University of Salford	8	6	14
2	University of Manchester	7	9	16
		15	15	30

All the participants had passed IELTS proficiency test between 2012 and 2014 and average overall score was 5.83 (MIN=5, MAX=7, SD=.56). The proficiency level of the participants in the communication skills of English was between bad to excellent according to the self-assessments of these skills. However, their skills assessment was ranging between satisfactory and good in their self-assessments of the four communication skills of English. The details of self-reported assessment of the students in the communication skills of English are given in the table 3.2.

Table

Assessment		Writing	Reading	Listening	Speaking
	bad	5	7	8	0
	satisfactory	10	8	12	11
	good	11	11	4	14
	excellent	4	4	6	5
	Total	30	30	30	30

b) Instruments

The study used a mixed-method approach, employing both qualitative and quantitative techniques. Ivankova et al. (2006) indicate that the application of a mixed method approach improves the reliability of research in the sense that it helps in measuring the degree to which the research instruments yield consistent results after repeated administration. The first instrument was the questionnaire to gather information about the reasons of preference of using bilingual dictionary. The questionnaire was summarized to two sections. The first section was related to personal information and English language proficiency level. The second section was directly related to answer the research question which is identifying the reasons behind the preference of Saudi learners using bilingual dictionary over other dictionaries types. To answer research question, the questionnaire included a list of reasons of preference bilingual dictionary. The answer of this question in the questionnaire was based on 5 likert scale ranging from always to never and each one of these items given number from 1 to 5 as it is given in the table 3.2.The second collecting data tool was the interview as the interview can work after the questionnaire to give further detail on the same issue. a great deal of information was obtained through semi-structured interviews with the participating students.

Table 3.2: Scores of the Student's Questionnaire Answers

Answers	Always	Often	Sometimes	Rare	Never
Scores	5	4	3	2	1

c) Procedure

The present study was conducted on Saudi undergraduate and postgraduate students who were studying in university of Manchester and university of Salford in the UK. The researcher, after explained everything related to the study for the participants, he started distributing the questionnaires individually for all the participants who agreed to take part in the study. The distribution of the questionnaires took place in different locations of inside and outside the University. The period of completion of the questionnaires to be answered fully and then returned to the researcher consumed about two weeks. Regarding the interviews, the participants were asked kindly upon their desire to provide the researcher with their contact details if they accept to take part in the interviews or if they wish to obtain a report of the final results of the study after collecting and analysing the data. The interviews were made after questionnaires were answered by the participants. The interviews were conducted by coordinating between both the researcher and the participants who already accepted to take part in the audio-recorded interviews showed their approval through ticking the statement 'yes, I agree to take part in audio-recorded interview' mentioned in the bottom of the questionnaire in order to meet them and discuss with them the reasons of using bilingual dictionaries. The period of time for each interview ranged between 30-35 minutes. The interviews were conducted with the participants outside the two universities campuses.

d) Data Analysis Procedure

The study adopted two research methods(i.e. mixed methods approach): questionnaire and interview. The results of the questionnaire has been analyzed depending on the answers of the students as they were recorded from 1(never) to 5(always). The results discussed in the results and discussion section with using the numbers of the respondents on each item of the questionnaire. Regarding interviews, the interview were recorded, translated and transcribed. Some excerpts of the interviews were used to support the answers obtained from the questionnaire to answer the research question directly.

IV. Results and Discussion

In this chapter, the data will be presented and discussed. The research question will be presented in this section in order to be answered based on the findings of the participants of the study. The findings of both questionnaire and interview will be presented in this section.

a) Research question of the study

What are the main reasons of preference of bilingual paper dictionaries by Saudi learners of English?

i. *The fact of using bilingual dictionary confirmed by Saudi EFL learners*

This question, which the study was attempting to answer was representing in showing the reasons and motives to use bilingual paper dictionary by Saudi EFL learners. The questionnaire included a list of reasons as the learners were given the questions to choose their real reasons behind their preference for using bilingual paper dictionary. Most of the learners of language answered that they mainly use it in their translation tasks to check the equivalents of the target words. They answered in the questionnaire that they always use bilingual paper dictionary in their translation activities and when they want to check the words in Arabic of the target English words. Approximately25 respondents answered the questionnaire with the option of always for translation task and checking equivalents of the target

words. This result was not new as it was discovered by a number of studies conducted in this area, which confirmed this factual result that most of EFL learners including Saudi learners used their bilingual dictionaries for checking the equivalents of the target words. Because A bilingual dictionary involves providing equivalents to the lexical units of one language by the lexical units of another language i.e. "coordinate with lexical units of one language those lexical units of another language which are equivalent in their lexical meaning." (Zgusta, 1971: 274). This result was actual in translation tasks when the majority of Saudi participants confirmed that they use their bilingual dictionaries for checking the Arabic equivalents of the target English words. Two of the participants were majoring in English language and were pursuing their postgraduate studies in TESOL and Applied Linguistics confirmed that they always use their bilingual dictionaries in both translation tests and assignments.

ii. *The reasons of using bilingual dictionaries by Saudi EFL*

The reasons which made the Saudi learners prefer using bilingual paper dictionaries were circling about the use of native Arabic language in the dictionary. Most of Saudi learners indicated that they prefer using this kind of dictionaries because of inclusion of native language which facilitate finding the equivalents of the target words rapidly. This reason referred to by Scholfield (1982) by saying that the main reason behind using bilingual dictionaries is that the meaning of unknown second language words can be checked more easily because the dictionary contain the first language which is the native language of the EFL learner. The Saudi learners preferred bilingual dictionary in its paper format over electronic format for some reasons which they consider it as advantages of using paper format over electronic format. The Saudi EFL learners preferred paper format of bilingual dictionary over electronic because it is more comprehensive and detailed than the electronic ones. However, the electronic dictionaries with all its formats suffer from lack of sufficient information about words that searched by users. Moreover, the electronic dictionaries may depend on manufacture factors such as amount of memory, storage capacity, batteries capacity etc. All these factors may make the electronic dictionaries not practical for foreign languages learner's needs. Kent (2001)indicates that electronic dictionaries require power so batteries must be recharged after use.

iii. *Some excerpts from interviews with the participants*

R: Why do you prefer using bilingual dictionary?
P1: I prefer bilingual dictionary because can facilitate the process of finding the equivalent meaning of the target words.

R: Which format of bilingual dictionary do you prefer?
P2: I prefer paper bilingual dictionary.

R: Why do you prefer this format?
P2: Because it contains large quantities of information as comparison to electronic dictionaries.

R: What are the activities and tasks do you mostly use bilingual paper dictionaries?
P3: I mostly use this type of dictionaries for translation, when I am given translation homework from the teacher , I greatly depend on the bilingual paper dictionary.

R: Do you use it for other activities otherwise translation activities?
P3:I, generally use to check the Arabic meaning of the new and unfamiliar words whether for myself or for any formal translation task in classroom or at home.

R: What are the best advantages of using bilingual paper dictionaries as comparison to electronic ones for example.
P4: I prefer using bilingual paper dictionary for one advantage which is that bilingual dictionary in its paper format can provide more details and information can make the learning of new vocabulary more useful as comparison to electronic ones.

V. Conclusion

This study investigated the reasons and the facts of Saudi EFL learner's preferences towards bilingual paper dictionary. The study confirmed very important fact which is using bilingual paper dictionary for translation tasks as the most participants referred to this fact. Moreover, the study indicated that the reasons behind using paper bilingual dictionary over other electronic dictionaries were related to rich content of information. The study stated that the paper dictionary can provide more details regarding the vocabulary such as examples, collocations, grammatical, syntactic and phonological aspects contrary to the electronic dictionaries which only provide the meaning of the new words without giving any further details for clarification and usage. Moreover, the findings of the study showed the crucial reason for preference of using bilingual paper dictionary over monolingual dictionaries namely using

the mother language of the target learners(e.g. Arabic-English Dictionary) for Arab learners of English.

a) Limitations of the study

This study, like all studies, has limitations. These limitations and weaknesses were limited to the following points:

1) The number of the participants was very few from only two universities and consequently the results of this study cannot be generalized.
2) The subjects of the study were male only. The results would be more practical if female students were included in the study with male counterparts.
3) The study could provide more valuable findings if all the participants were majoring in English language.

b) Recommendations for future research

The researcher recommends the future researchers who are interested to conduct their studies in the area of dictionaries to focus on the perceptions of the EFL learners and experience of EFL teachers. Moreover, the researchers in this area are advised to use a mixed research approach to provide more valid and reliable results. The researcher also recommends for the future research to include English language majoring students with larger samples. Moreover, The researchers interested in dictionary use are strongly advised to recruit learners from various proficiency levels of English to study of impact of the proficiency level on the dictionary use, as this will provide valuable results.

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Family Patriarchy and Self-Reliant Development among Students in Akwa Ibom State, Nigeria

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Abstract- The study determined the relationship between family patriarchy and self-reliance of students in Secondary Schools in Akwa Ibom State, Nigeria. Research questions and hypotheses were formulated for a research direction. The study adopted a correlational research design. Stratified random sampling technique was used. The researchers' developed instrument called Family-Patriarchy for Self-reliance Scale (FPSRS) with a reliability coefficient of .71 and .82 on Cronbach Alpha were used to elicit data from 400 respondents, which 380 was suitable for data analyses; respondents were randomly selected from the population of 58,230 students. Linear Regression statistics was used for the data analyses. The research questions were answered with Pearson r statistics while the hypotheses were tested using t-test of significance of correlation. Findings indicated (very high/moderate positive) significant relationships among variables. The study concluded that family patriarchy is significantly to build self-reliant traits. It was recommended that parents should rear their children to foster the self-reliant spirit in males and females to ensure equal opportunities for self-reliance.

Keywords: family, parental patriarchy, heterosexual patriarchy, student's self-reliance.

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Uyanga, U. D. [α] & Effiong, S. C. [σ]

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I. Introduction

Patriarchy is globally recognised as a practice of male dominance and oppression of women in the society. McDowell and Pringle (2012) defined patriarchy as a form of mental, social, spiritual, economic and political organisation or structuring of society produced by the gradual institutionalisation of sex-based political relations created, maintained and reinforced by different institutions linked closely together to achieve consensus on the lesser value of women and their roles. It involves the societal structures or institutionalisation of social systems that prevent women from participating or benefitting from family activities for economic, political, culturally and religious power to earn a position in the society. According to Effiong (2012), patriarchy is a common cultural feature in Nigeria that extols males' authority, domination and supremacy over the female in all spheres of human endeavour. In the family, patriarchal behaviours enable male children to hold power in all the important areas including property ownerships. This strength may have contributed to males possessing a self-reliant personality that was developed early in life. Perhaps, the development of these skills makes them to be independence towards economic, social, religious and spiritual activities to oppress females and make them possess lesser values in the society.

Nigerian parents always socialise their male children to be viewed as breadwinners and heads of households, whilst female children are taught to be obedient and submissive housekeepers (Silberschmidt, 2009). The cause of such differentiation and discrimination may be that most societies view girls as sexual mortal and not as economically productive human beings (Charvet, 2002). These children are nurtured and socialised by their parents in the nuclear and extended families with regards to their sexes. Nevertheless, parents do not socialise female children based on the fact that they are humans that deserve equal treatment opportunities, but unconsciously differentiated their societal roles with that of males. Thus, to the extent that while allocating family estates, the girl child is never a beneficiary (Aina, 2009). Silvia (2009) espoused that the girl child is an inheritable estate to another family, and they could also be inherited by the brother-in-law or the nearest relation of the husband, notwithstanding whenever the husband dies. These female children would marry out and joins another family whilst the males shall ensure the survival of the family name through bringing additional member(s) into the family (Human Rights Monitor, 2001). Perhaps, this is the reason why heterosexual relationships favour males than their female counterparts in terms of control, dominance, discrimination and oppression.

Heterosexual patriarchy assumes the interpersonal relationship pattern between male and female children streamlined by parents as acceptable behaviours based on the cultural expectations or norms of the society. Hence, a boy is reared to exhibit the role of a man, which is to provide financial supports to the family and be responsible for the security and protection of the women and children (Anderson, 2013). Anderson (2013) noted that man generally participates in the public realm through education, business, politics and religious activities, while the women's role usually has

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been consigned to childrearing and sex. The discriminatory sex roles may have relationship with children's dependency that affects their self-reliant development in the society. Beauvoir (2007) stated that a girl is defined to be different from a boy. It is categorised that man's body is normal and woman's body is abnormal; man's way of knowing is the standard and a woman's way of knowing is perceived as emotional and unsuitable for the public arena (Beauvoir, 2007).

Besides, common observations in Akwa Ibom State in particular, and Nigeria at large indicate that cultural and traditional practices supports heterosexual patriarchy in order to preserve leadership position of kindred to only the male individuals for the protection of their lineage. Yet, in this culture, the eldest man directs the affairs of the family members and nearly all patriarchal practices tend to oppressively be executed on female persons. Effiong (2012) remarked that in the family, the male child is preferred to the female child; males rule females by right of birth and even if the male child is not the first born in the family, the male is automatically considered the head of the family, who should protect and look after the sisters. It is commonly observed in the family recently, that the toys that parents buy for their children also aid in the socialisation process and indirectly adhere to patriarchal principles. For instance, a girl child is given toys with hair-styles or kitchen utensils to play with, whilst the boy child is given toy cars, guns, puzzle games and other toys that may require physical energy or mental abilities. As a result, the girl child is socialised to become a mother in terms of care, soft, emotionally sensitive, and to have all motherhood features. While boys are not pampered; rather they are passing through harsh disciplines and provided with strenuous activities that would bolster their capacity to achieve at a particular situation, that continue to make them stronger. The patterns boys are nurtured tends to encourage their capacity as leaders and become self-reliance, as well as domineering, which these traits were developed at the early stage of life.

Family patriarchal activities may relate to self-reliant development of students through interaction and possess economic ability of these students, in order to meet their basic needs of life in a sustainable manner with dignity. Self-reliance is a concept that denotes individualism. Kim and Isma'il (2013) proudly defined self-reliance as the ability to think and act without the help or influence of others, the ability to decide what you should be or do. Bloom (1998) and Ikoku (2000) submitted that self-reliance should be seen as a development strategy based on indigenous socio-economic engineering. Perhaps, its philosophy is improvement from within, which must be inculcated as a personality trait into children at JSS3 level of education, as an important take-off point, for better living. This is because transiting to the next level of education is when children set life goals as senior adolescents to make their spheres rolling for achievement. However, self-reliance at this stage is positioned centrally within the discourse of community development and is linked to similar terminologies like self-help, mutual-help, indigenous participation and rural development (Kim and Isma'il, 2013).

Charles and Lots mart (2010) acknowledged that self-reliance encourages the need for people to improve their living conditions using home initiatives and resources at their disposal. Hence, male children are mostly reared to provide for their families (Bernard 2001; Aweda 2004; Stock 2005; Carrigan, Connell & Lee, 2007; Kramarae, 2012). These patterns of discriminative development may have enduring relationship with patriarchal activities in families, which relate to the development of children's personality. Sultana (2011) reported that the discriminatory patterns of nurturing make girls children to suffer from male dominance, burden of household work, inadequate educational opportunities, sexually harassed by males, and have no place in terms of inheritance and property right as well as no control over fertility. Radical Feminist Theory could explain the concept of patriarchy using language to radically reordering the society through social awareness of the rights and privileges of women and to be liberated from unjust social system that enforces gender roles and evoke males' dominance over females. Hence, this study would be significant to parent, male and female children in bringing societal peace among siblings and families as well as social equity.

II. Statement of the Problem

Families are expected to nurture children to meet up with the standard of life that could prepare them for self-reliant personality. It is a truism that patriarchal activities have made most female children to be dependent, which is traceable to family rearing patterns. However, some parents pamper their female children while using harsh discipline method on males. Some of the parents basically talk to females in the family mildly; give them warmth, approach them softly in their interpersonal dealings. Parents nurture female child with the compliment that she is a girl, while most of the parents become harsh on their male children because they are growing up to become men. These mild and gentle approaches to female children contribute to greater number of them not being able to cook the type of food they eat. Hence, the problem of this study is that female children profess to be dominated, oppressed, and discriminated by males that affect their independent living in the society. This inability of females to possess self-reliant personality instigated the researchers to

verify whether family patriarchy has relationship with self-reliant development of students in Secondary Schools in Akwa Ibom State, Nigeria.

III. Purpose of the Study

This study aims at determining the relationship between family patriarchy and self-reliant development of children in Secondary Schools in Akwa Ibom State, Nigeria. The specific objective of this study sought to:

1) Assess the relationship between parental patriarchy and self-reliant development of children in Akwa Ibom State.
2) Ascertain the relationship between heterosexual patriarchy and self-reliant development of children in Akwa Ibom State.

IV. Research Questions

The following research questions were postulated:

1) What is the relationship between parental patriarchy and self-reliant development of children in Akwa Ibom State?
2) What is the relationship between heterosexual patriarchy and self-reliant development of children in Akwa Ibom State?

V. Null Hypothesis

The following null hypotheses were formulated to guide this study and were tested at .05 level of significance:

1) There is no significant relationship between parental patriarchy and self-reliant development of children in Akwa Ibom State.
2) There is no significant relationship between heterosexual patriarchy and self-reliant development of children in Akwa Ibom State.

VI. Research Methods

The research adopted a correlational design. The reason for using this design was that the researchers sought to determine the relationship between variables that cannot be manipulated, and the nature of the relationship exists between them. The study was conducted in Akwa Ibom State that was created from the former Cross River State on 23rd September 1987, which the state's capital is in Uyo. It has thirty-one Local Government Areas, located in the coastal-southern part of Nigeria; occupies the landmass of 7,245.925 square kilometers of Nigeria's Wealth Basin. Lying between the Latitudes $4^{0}30^{1}$N and $5^{0}33^{1}$N North of Equator and Longitudes $7^{0}30^{1}$E and $8^{0}25^{1}$E of East of the Greenwich Meridian with the population of 4,805,451 people (2006 Census Figure of the National Population Commission, Abuja). Junior secondary two (JSS3) schools were chosen to be studied because students at this stage fall between the age of puberty and early adolescent that should be cultured for enduring self-reliant personality for effective future attainment in their respective profession or traits towards sustainable living in the society.

The population for this study consists of all the 58,230 students of Junior Secondary School III (JSS3) in the public secondary schools in Akwa Ibom State. This JSS3 students' population comprises of 23,292 males and 34,938 females in the study area (Planning, Research and Statistic Directorate of the State Secondary Education Board, Akwa Ibom State Students' Enrolment of 2015/2016 Session). The sample size for this study consists of 400 JSS3 students (160 males and 240 females) using Yamen's population reduction formulae from the study population. Stratified random sampling technique was used to select the subjects from three senatorial districts of Akwa Ibom State. The research instruments called "Family Patriarchy Questionnaire (FAPQ) and Self-reliant Development Scale" (SEDS) were developed by the researchers, derived from the findings of the reviewed literatures related to the study. The instrument appeared in sections, A and B. Section A obtained personal information from the respondents, while section B elicited information from the variables of Family Patriarchy such as parental patriarchy and heterosexual patriarchy. The instrument was measured on a 4-points summated scale with the weight of 4 – 1, from Strongly Agree to Strongly Disagree. The instrument was administered by the researchers to the subjects, after obtaining permission from the Principals of Schools. The 400 copies of the instrument administered to the respondents were collected, and properly arranged for data analyses.

The content and face validity of the researchers' constructed instrument for this study was ascertained by 3 experts in the field of education properly scrutinized, rigorously edited and checked for accuracy of the instrument. An internal consistency was established with the Cronbach Alpha coefficients of .80 for parental patriarchy, .82 for heterosexual patriarchy and .71 for self-reliant development variables were obtained, through a pilot test of 20 JSS3 students of public secondary schools in Akwa Ibom State that was not part of the main study. Linear Regression statistics of degree of relationships (r-value) was used to answer the Research Questions and t-test of significance relationship was used to test the null Hypotheses. However, all the hypotheses were tested at .05 levels of significance. In order to determine the basis for answering the research questions, the researchers used Pearson "r" statistic to answer the research questions so as to establish the relationship between the dependent and independent variables in the study. The bases for the decision for the research questions conclusion were as follows: 0.00 – 0.20 = very low relationship, 0.20 –

0.40 = low relationship, 0.40 – 0.60 = moderate relationship, 0.60 – 0.80 = high relationship and 0.81 – 1.00 = very high relationship.

VII. Result

The results of data analyses of this study are presented in tables 1 to 4 below:

Research Question 1

What is the relationship between parental patriarchy and self-reliant development of JSS3 Students?

Table 1: Summary of Pearson r correlation coefficient between parental patriarchy and self-reliant development of JSS3 students

Variable	n	r	r^2	Decision
Parental Patriarchy	380	0.96	0.92 (92%)	Very High Positive Relationship
Self-reliance of student				

Table 1 shows very high positive correlation coefficient between parental patriarchy and self-reliance development of JSS3 students in the study area. The result indicates that, sample of 380 gave the Pearson r as 0.96 and r^2 as 0.92, which is very high and positive linear relationship. Hence, concluding that the correlation coefficient between parental patriarchy and students' self-reliant development is very high and positive. The coefficient of determination (r^2) calculated was 0.92, which means 92 per cent of the variation in students' self-reliance was accounted for by parental patriarchal activities. The rest of 8 per cent could be explained by parental patriarchy activities in the family. Nevertheless, the fact that the correlation was positive also means that, as parental patriarchal activities in families are increases by 92 per cents, so also the self-reliant development by 8 per cent.

Research Question 2

What is the relationship between heterosexual patriarchy and self-reliant development of JSS3 Students?

Table 1: Summary of correlation between heterosexual patriarchy and self-reliance of JSS3 Students

Variable	n	r	r^2	Decision
Heterosexual Patriarchy	380	0.78	0.41 (41%)	Moderate Positive Relationship
Self-reliance of students				

Table 2 shows moderate positive linear correlation coefficient between heterosexual patriarchy and self-reliant development of JSS3 students in the study area. The result indicates that, sample of 380 gave the Pearson r as 0.78 and r^2 as 0.41, which is moderate and positive linear relationship. It is concluding however, that the linear correlation coefficient between heterosexual patriarchal activities and self-reliant development in family is moderate and positive. The coefficient of determination (r^2) calculated was 0.41, which means 41 per cent of the variation in self-reliant development of JSS3 students was accounted for, by heterosexual patriarchy. The rest of 59 per cent could be explained by heterosexual patriarchal activities in the family. Nevertheless, the fact that the correlation was linearly positive also means that, as heterosexual patriarchal activities in homes increases by 41 per cents so also the self-reliant development of students. The research question is answered that there is moderate positive relationship between heterosexual patriarchy and self-reliant development of students in Junior Secondary Schools in the study area.

VIII. Testing the Hypotheses

a) Hypothesis 1

There is no significant relationship between parental patriarchy and self-reliant development of JSS3 Students?

Table 3: Summary of t-test significance of Correlation Analysis for the Relationship between Parental Patriarchy and Self-reliant Development of JSS3 Students

Variable	R	sig	df	t-cal	p-value	Decision
Parental Patriarchy	0.96	0.05	378	58.6**	.000	Significant
Self-reliant development						

Correlation is significant, p < .05, df = 378 (2tailed).

Table 3 shows that the t-test significance of correlation analysis for the relationship between the parental patriarchy and self-reliant development is significant. As in Table 3, finding shows that the r-value of 0.96, t-calculated of 58.6**, df = 378, p-value = .000, $p < .05$ level at 2-tailed test. This result indicates significant relationship because, with very high r-value, t-calculated is greater than the p-value at .05 levels of significance, two tailed test. The hypothesis 1 is rejected. This implies that there is significant relationship between the parental patriarchy and self-reliant development of JSS3 students in the study area.

b) Hypothesis 2

There is no significant relationship between heterosexual patriarchy and self-reliant development of JSS3 Students?

Table 4: Summary of t-test significance of correlation analysis for the relationship between heterosexual patriarchy and self-reliant of JSS3 students

Variable	r	Sig	df	t-cal	p-value	Decision
Heterosexual Patriarchy						
	0.78	0.05	378	8.91*	.000	Significant
Self-reliance development						

**Correlation is significant, $p < .05$, df = 378 (2-tailed).*

Table 4 shows that the t-test significance of correlation analysis for the relationship between the heterosexual patriarchy and self-reliant development is significant. As in Table 4, the result shows that, Pearson r-value of 0.78, t-calculated of 8.91*, df = 378, p-value = .000, $p < .05$ level at 2-tailed test. This result indicates significant relationship because, the moderate r-value and t-calculated is greater than the p-value at .05 level of significance, at tailed test. The hypothesis 2 is rejected. This implies that there is significant relationship between the heterosexual patriarchy and self-reliant development of JSS3 students in the study area.

IX. Discussion of Findings

The study revealed that there is a very high positive relationship between parental patriarchy and self-reliant development of JSS3 students in the study area. This implies that the level of parental patriarchal activities cultivated in students correlate with self-reliant development as a personality trait among students to affect their future life endeavours. It was observed from the findings of this study that the significant relationship revealed in this study would help to initiate equality between male and female children to affect their independent life that would promote their self-employability, which can assist female children to surmount dominance and discrimination by males in the society. This finding is incongruent to the finding of Kambarami (2006), which revealed that once a girl reaches puberty all teachings are directed towards pleasing one's future husband as well as being a gentle and obedient wife. This condition of lives does not permit female children to plan on how to be independent that would promote self-reliance as a personality. Hence, girls would find it difficult to establish business of their own, join politics independently and have the authority to enter into any transaction without the influence of the husband or a man. This is because, the nurturing of these female children endeared them to always think of how to submit and please men around them

Hypothesis 2 was rejected. Table 4 indicated that there is a moderate significant relationship between heterosexual patriarchy and self-reliant development of JSS3 students in the study area. This result showed that there is a unpretentious association between heterosexual patriarchal activities in the family and self-reliant development among students that are coming up to play the role of continuity in life. Though the relationship is moderate, yet the relationship is clearly felt as it implicated in the circumstances of self-reliant development as a personality for the sustenance of independence living of girls later in life. The result of this study is in antagonistic with the findings of Chirimuuta (2006), which revealed that boys are reared to exhibit the role of men, which is to provide financial supports to the family and be responsible for the security and protection of the women and children; while women are reared to compliment men's fame and satisfy their sexual desires. Probably, this is the reason female children are reared to be gentle, submissive and soft in order to promote heterosexual relationships and sustain marriages in the society.

X. Conclusion

Based on the findings, it is hereby concluded that family patriarchy has considerable significant correlation between the family patriarchal activities by parents that would involve capacity for self-reliance. The finding of this study is that there is moderate and high positive (significant) relationship between the variables of family patriarchy (parental patriarchal activities and

heterosexual patriarchal activities) and self-reliant development of students in secondary schools in Akwa Ibom State, Nigeria. Thus, for a family to rear and groom individuals that will be economically productive, such a family should endeavour to rear their children of both sexes in similar pattern. That is if harsh rearing pattern would help to produce self-reliant personality for males, the same should be done to females in order to produce similar results of parental upbringings and heterosexual experiences from the family. This would make them possess similar traits, energies, and mental abilities that would economically, socially, environmentally and educationally fit to make females overcome dominance, oppression, suppression and discrimination by their male counterparts for quality of life in the society.

XI. Recommendations

Based on the conclusion, it is recommended that for self-reliant development to thrive in female children as a personality trait, families should cultivate such personality ingenuity in their children. School should nurture female children the same way they nurture male in order to cultivate strength, mental ability, and energy in them and motivate them to work harder like male to achieve self-reliance as a personality trait in the society. This would go a long way to re-modifying their mental images or intelligence towards the tasks of self-reliant development for the future quality of life.

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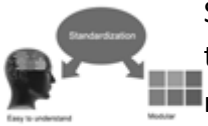

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3. Submission of Manuscripts,

4. Manuscript's Category,

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12. Make all efforts: Make all efforts to mention what you are going to write in your paper. That means always have a good start. Try to mention everything in introduction, that what is the need of a particular research paper. Polish your work by good skill of writing and always give an evaluator, what he wants.

13. Have backups: When you are going to do any important thing like making research paper, you should always have backup copies of it either in your computer or in paper. This will help you to not to lose any of your important.

14. Produce good diagrams of your own: Always try to include good charts or diagrams in your paper to improve quality. Using several and unnecessary diagrams will degrade the quality of your paper by creating "hotchpotch." So always, try to make and include those diagrams, which are made by your own to improve readability and understandability of your paper.

15. Use of direct quotes: When you do research relevant to literature, history or current affairs then use of quotes become essential but if study is relevant to science then use of quotes is not preferable.

16. Use proper verb tense: Use proper verb tenses in your paper. Use past tense, to present those events that happened. Use present tense to indicate events that are going on. Use future tense to indicate future happening events. Use of improper and wrong tenses will confuse the evaluator. Avoid the sentences that are incomplete.

17. Never use online paper: If you are getting any paper on Internet, then never use it as your research paper because it might be possible that evaluator has already seen it or maybe it is outdated version.

18. Pick a good study spot: To do your research studies always try to pick a spot, which is quiet. Every spot is not for studies. Spot that suits you choose it and proceed further.

19. Know what you know: Always try to know, what you know by making objectives. Else, you will be confused and cannot achieve your target.

20. Use good quality grammar: Always use a good quality grammar and use words that will throw positive impact on evaluator. Use of good quality grammar does not mean to use tough words, that for each word the evaluator has to go through dictionary. Do not start sentence with a conjunction. Do not fragment sentences. Eliminate one-word sentences. Ignore passive voice. Do not ever use a big word when a diminutive one would suffice. Verbs have to be in agreement with their subjects. Prepositions are not expressions to finish sentences with. It is incorrect to ever divide an infinitive. Avoid clichés like the disease. Also, always shun irritating alliteration. Use language that is simple and straight forward. put together a neat summary.

21. Arrangement of information: Each section of the main body should start with an opening sentence and there should be a changeover at the end of the section. Give only valid and powerful arguments to your topic. You may also maintain your arguments with records.

22. Never start in last minute: Always start at right time and give enough time to research work. Leaving everything to the last minute will degrade your paper and spoil your work.

23. Multitasking in research is not good: Doing several things at the same time proves bad habit in case of research activity. Research is an area, where everything has a particular time slot. Divide your research work in parts and do particular part in particular time slot.

24. Never copy others' work: Never copy others' work and give it your name because if evaluator has seen it anywhere you will be in trouble.

25. Take proper rest and food: No matter how many hours you spend for your research activity, if you are not taking care of your health then all your efforts will be in vain. For a quality research, study is must, and this can be done by taking proper rest and food.

26. Go for seminars: Attend seminars if the topic is relevant to your research area. Utilize all your resources.

27. Refresh your mind after intervals: Try to give rest to your mind by listening to soft music or by sleeping in intervals. This will also improve your memory.

28. Make colleagues: Always try to make colleagues. No matter how sharper or intelligent you are, if you make colleagues you can have several ideas, which will be helpful for your research.

29. Think technically: Always think technically. If anything happens, then search its reasons, its benefits, and demerits.

30. Think and then print: When you will go to print your paper, notice that tables are not be split, headings are not detached from their descriptions, and page sequence is maintained.

31. Adding unnecessary information: Do not add unnecessary information, like, I have used MS Excel to draw graph. Do not add irrelevant and inappropriate material. These all will create superfluous. Foreign terminology and phrases are not apropos. One should NEVER take a broad view. Analogy in script is like feathers on a snake. Not at all use a large word when a very small one would be sufficient. Use words properly, regardless of how others use them. Remove quotations. Puns are for kids, not grunt readers. Amplification is a billion times of inferior quality than sarcasm.

32. Never oversimplify everything: To add material in your research paper, never go for oversimplification. This will definitely irritate the evaluator. Be more or less specific. Also too, by no means, ever use rhythmic redundancies. Contractions aren't essential and shouldn't be there used. Comparisons are as terrible as clichés. Give up ampersands and abbreviations, and so on. Remove commas, that are, not necessary. Parenthetical words however should be together with this in commas. Understatement is all the time the complete best way to put onward earth-shaking thoughts. Give a detailed literary review.

33. Report concluded results: Use concluded results. From raw data, filter the results and then conclude your studies based on measurements and observations taken. Significant figures and appropriate number of decimal places should be used. Parenthetical remarks are prohibitive. Proofread carefully at final stage. In the end give outline to your arguments. Spot out perspectives of further study of this subject. Justify your conclusion by at the bottom of them with sufficient justifications and examples.

34. After conclusion: Once you have concluded your research, the next most important step is to present your findings. Presentation is extremely important as it is the definite medium though which your research is going to be in print to the rest of the crowd. Care should be taken to categorize your thoughts well and present them in a logical and neat manner. A good quality research paper format is essential because it serves to highlight your research paper and bring to light all necessary aspects in your research.

Informal Guidelines of Research Paper Writing

Key points to remember:

- Submit all work in its final form.
- Write your paper in the form, which is presented in the guidelines using the template.
- Please note the criterion for grading the final paper by peer-reviewers.

Final Points:

A purpose of organizing a research paper is to let people to interpret your effort selectively. The journal requires the following sections, submitted in the order listed, each section to start on a new page.

The introduction will be compiled from reference matter and will reflect the design processes or outline of basis that direct you to make study. As you will carry out the process of study, the method and process section will be constructed as like that. The result segment will show related statistics in nearly sequential order and will direct the reviewers next to the similar intellectual paths throughout the data that you took to carry out your study. The discussion section will provide understanding of the data and projections as to the implication of the results. The use of good quality references all through the paper will give the effort trustworthiness by representing an alertness of prior workings.

Writing a research paper is not an easy job no matter how trouble-free the actual research or concept. Practice, excellent preparation, and controlled record keeping are the only means to make straightforward the progression.

General style:

Specific editorial column necessities for compliance of a manuscript will always take over from directions in these general guidelines.

To make a paper clear

· Adhere to recommended page limits

Mistakes to evade

- Insertion a title at the foot of a page with the subsequent text on the next page
- Separating a table/chart or figure - impound each figure/table to a single page
- Submitting a manuscript with pages out of sequence

In every sections of your document

· Use standard writing style including articles ("a", "the," etc.)

· Keep on paying attention on the research topic of the paper

· Use paragraphs to split each significant point (excluding for the abstract)

· Align the primary line of each section

· Present your points in sound order

· Use present tense to report well accepted

· Use past tense to describe specific results

· Shun familiar wording, don't address the reviewer directly, and don't use slang, slang language, or superlatives

· Shun use of extra pictures - include only those figures essential to presenting results

Title Page:

Choose a revealing title. It should be short. It should not have non-standard acronyms or abbreviations. It should not exceed two printed lines. It should include the name(s) and address (es) of all authors.

Abstract:

The summary should be two hundred words or less. It should briefly and clearly explain the key findings reported in the manuscript--must have precise statistics. It should not have abnormal acronyms or abbreviations. It should be logical in itself. Shun citing references at this point.

An abstract is a brief distinct paragraph summary of finished work or work in development. In a minute or less a reviewer can be taught the foundation behind the study, common approach to the problem, relevant results, and significant conclusions or new questions.

Write your summary when your paper is completed because how can you write the summary of anything which is not yet written? Wealth of terminology is very essential in abstract. Yet, use comprehensive sentences and do not let go readability for briefness. You can maintain it succinct by phrasing sentences so that they provide more than lone rationale. The author can at this moment go straight to shortening the outcome. Sum up the study, with the subsequent elements in any summary. Try to maintain the initial two items to no more than one ruling each.

- Reason of the study - theory, overall issue, purpose
- Fundamental goal
- To the point depiction of the research
- Consequences, including definite statistics - if the consequences are quantitative in nature, account quantitative data; results of any numerical analysis should be reported
- Significant conclusions or questions that track from the research(es)

Approach:

- Single section, and succinct
- As a outline of job done, it is always written in past tense
- A conceptual should situate on its own, and not submit to any other part of the paper such as a form or table
- Center on shortening results - bound background information to a verdict or two, if completely necessary
- What you account in an conceptual must be regular with what you reported in the manuscript
- Exact spelling, clearness of sentences and phrases, and appropriate reporting of quantities (proper units, important statistics) are just as significant in an abstract as they are anywhere else

Introduction:

The **Introduction** should "introduce" the manuscript. The reviewer should be presented with sufficient background information to be capable to comprehend and calculate the purpose of your study without having to submit to other works. The basis for the study should be offered. Give most important references but shun difficult to make a comprehensive appraisal of the topic. In the introduction, describe the problem visibly. If the problem is not acknowledged in a logical, reasonable way, the reviewer will have no attention in your result. Speak in common terms about techniques used to explain the problem, if needed, but do not present any particulars about the protocols here. Following approach can create a valuable beginning:

- Explain the value (significance) of the study
- Shield the model - why did you employ this particular system or method? What is its compensation? You strength remark on its appropriateness from a abstract point of vision as well as point out sensible reasons for using it.
- Present a justification. Status your particular theory (es) or aim(s), and describe the logic that led you to choose them.
- Very for a short time explain the tentative propose and how it skilled the declared objectives.

Approach:

- Use past tense except for when referring to recognized facts. After all, the manuscript will be submitted after the entire job is done.
- Sort out your thoughts; manufacture one key point with every section. If you make the four points listed above, you will need a least of four paragraphs.

- Present surroundings information only as desirable in order hold up a situation. The reviewer does not desire to read the whole thing you know about a topic.
- Shape the theory/purpose specifically - do not take a broad view.
- As always, give awareness to spelling, simplicity and correctness of sentences and phrases.

Procedures (Methods and Materials):

This part is supposed to be the easiest to carve if you have good skills. A sound written Procedures segment allows a capable scientist to replacement your results. Present precise information about your supplies. The suppliers and clarity of reagents can be helpful bits of information. Present methods in sequential order but linked methodologies can be grouped as a segment. Be concise when relating the protocols. Attempt for the least amount of information that would permit another capable scientist to spare your outcome but be cautious that vital information is integrated. The use of subheadings is suggested and ought to be synchronized with the results section. When a technique is used that has been well described in another object, mention the specific item describing a way but draw the basic principle while stating the situation. The purpose is to text all particular resources and broad procedures, so that another person may use some or all of the methods in one more study or referee the scientific value of your work. It is not to be a step by step report of the whole thing you did, nor is a methods section a set of orders.

Materials:

- Explain materials individually only if the study is so complex that it saves liberty this way.
- Embrace particular materials, and any tools or provisions that are not frequently found in laboratories.
- Do not take in frequently found.
- If use of a definite type of tools.
- Materials may be reported in a part section or else they may be recognized along with your measures.

Methods:

- Report the method (not particulars of each process that engaged the same methodology)
- Describe the method entirely
- To be succinct, present methods under headings dedicated to specific dealings or groups of measures
- Simplify - details how procedures were completed not how they were exclusively performed on a particular day.
- If well known procedures were used, account the procedure by name, possibly with reference, and that's all.

Approach:

- It is embarrassed or not possible to use vigorous voice when documenting methods with no using first person, which would focus the reviewer's interest on the researcher rather than the job. As a result when script up the methods most authors use third person passive voice.
- Use standard style in this and in every other part of the paper - avoid familiar lists, and use full sentences.

What to keep away from

- Resources and methods are not a set of information.
- Skip all descriptive information and surroundings - save it for the argument.
- Leave out information that is immaterial to a third party.

Results:

The principle of a results segment is to present and demonstrate your conclusion. Create this part a entirely objective details of the outcome, and save all understanding for the discussion.

The page length of this segment is set by the sum and types of data to be reported. Carry on to be to the point, by means of statistics and tables, if suitable, to present consequences most efficiently.You must obviously differentiate material that would usually be incorporated in a study editorial from any unprocessed data or additional appendix matter that would not be available. In fact, such matter should not be submitted at all except requested by the instructor.

Content

- Sum up your conclusion in text and demonstrate them, if suitable, with figures and tables.
- In manuscript, explain each of your consequences, point the reader to remarks that are most appropriate.
- Present a background, such as by describing the question that was addressed by creation an exacting study.
- Explain results of control experiments and comprise remarks that are not accessible in a prescribed figure or table, if appropriate.
- Examine your data, then prepare the analyzed (transformed) data in the form of a figure (graph), table, or in manuscript form.

What to stay away from

- Do not discuss or infer your outcome, report surroundings information, or try to explain anything.
- Not at all, take in raw data or intermediate calculations in a research manuscript.
- Do not present the similar data more than once.
- Manuscript should complement any figures or tables, not duplicate the identical information.
- Never confuse figures with tables - there is a difference.

Approach

- As forever, use past tense when you submit to your results, and put the whole thing in a reasonable order.
- Put figures and tables, appropriately numbered, in order at the end of the report
- If you desire, you may place your figures and tables properly within the text of your results part.

Figures and tables

- If you put figures and tables at the end of the details, make certain that they are visibly distinguished from any attach appendix materials, such as raw facts
- Despite of position, each figure must be numbered one after the other and complete with subtitle
- In spite of position, each table must be titled, numbered one after the other and complete with heading
- All figure and table must be adequately complete that it could situate on its own, divide from text

Discussion:

The Discussion is expected the trickiest segment to write and describe. A lot of papers submitted for journal are discarded based on problems with the Discussion. There is no head of state for how long a argument should be. Position your understanding of the outcome visibly to lead the reviewer through your conclusions, and then finish the paper with a summing up of the implication of the study. The purpose here is to offer an understanding of your results and hold up for all of your conclusions, using facts from your research and generally accepted information, if suitable. The implication of result should be visibly described. Infer your data in the conversation in suitable depth. This means that when you clarify an observable fact you must explain mechanisms that may account for the observation. If your results vary from your prospect, make clear why that may have happened. If your results agree, then explain the theory that the proof supported. It is never suitable to just state that the data approved with prospect, and let it drop at that.

- Make a decision if each premise is supported, discarded, or if you cannot make a conclusion with assurance. Do not just dismiss a study or part of a study as "uncertain."
- Research papers are not acknowledged if the work is imperfect. Draw what conclusions you can based upon the results that you have, and take care of the study as a finished work
- You may propose future guidelines, such as how the experiment might be personalized to accomplish a new idea.
- Give details all of your remarks as much as possible, focus on mechanisms.
- Make a decision if the tentative design sufficiently addressed the theory, and whether or not it was correctly restricted.
- Try to present substitute explanations if sensible alternatives be present.
- One research will not counter an overall question, so maintain the large picture in mind, where do you go next? The best studies unlock new avenues of study. What questions remain?
- Recommendations for detailed papers will offer supplementary suggestions.

Approach:

- When you refer to information, differentiate data generated by your own studies from available information
- Submit to work done by specific persons (including you) in past tense.
- Submit to generally acknowledged facts and main beliefs in present tense.

Please carefully note down following rules and regulation before submitting your Research Paper to Global Journals Inc. (US):

Segment Draft and Final Research Paper: You have to strictly follow the template of research paper. If it is not done your paper may get rejected.

- The **major constraint** is that you must independently make all content, tables, graphs, and facts that are offered in the paper. You must write each part of the paper wholly on your own. The Peer-reviewers need to identify your own perceptive of the concepts in your own terms. NEVER extract straight from any foundation, and never rephrase someone else's analysis.

- Do not give permission to anyone else to "PROOFREAD" your manuscript.

- Methods to avoid Plagiarism is applied by us on every paper, if found guilty, you will be blacklisted by all of our collaborated research groups, your institution will be informed for this and strict legal actions will be taken immediately.)
- To guard yourself and others from possible illegal use please do not permit anyone right to use to your paper and files.

Criterion for Grading a Research Paper (Compilation) by Global Journals Inc. (US)

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Topics	Grades		
	A-B	**C-D**	**E-F**
Abstract	Clear and concise with appropriate content, Correct format. 200 words or below	Unclear summary and no specific data, Incorrect form Above 200 words	No specific data with ambiguous information Above 250 words
Introduction	Containing all background details with clear goal and appropriate details, flow specification, no grammar and spelling mistake, well organized sentence and paragraph, reference cited	Unclear and confusing data, appropriate format, grammar and spelling errors with unorganized matter	Out of place depth and content, hazy format
Methods and Procedures	Clear and to the point with well arranged paragraph, precision and accuracy of facts and figures, well organized subheads	Difficult to comprehend with embarrassed text, too much explanation but completed	Incorrect and unorganized structure with hazy meaning
Result	Well organized, Clear and specific, Correct units with precision, correct data, well structuring of paragraph, no grammar and spelling mistake	Complete and embarrassed text, difficult to comprehend	Irregular format with wrong facts and figures
Discussion	Well organized, meaningful specification, sound conclusion, logical and concise explanation, highly structured paragraph reference cited	Wordy, unclear conclusion, spurious	Conclusion is not cited, unorganized, difficult to comprehend
References	Complete and correct format, well organized	Beside the point, Incomplete	Wrong format and structuring

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