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# Effectiveness of University Teachers Training Modules

Muhammad Sarwar*
Shafqat Hussain**
Ashfaque Ahmad Shah***

## Abstract

*National Academy of Higher Education (NAHE) is an organ of Higher Education Commission (HEC) of Pakistan. It is responsible for university teachers' training. It is continuously imparting training to university teachers in different phases. Evaluation of such trainings is perceptible and the present study is expected to add to the literature on evaluation of teacher training modules in higher education context in Pakistan. This study was aimed at the evaluation of the training NAHE Phase II which was started in 2008. Present study was delimited to evaluate training modules' effectiveness prepared and used for continuous professional development (CPD) programme of university teachers in NAHE Phase II. Evaluation of modules was further delimited to the perception of trainees. The sample of this study was consisted of 487 (out of 769) trainees from the 19 (out of 38) training centres in the Pakistan. Data were collected through a questionnaire consisted of 7 indicators and 49 items. This questionnaire had been developed on the basis of objectives of the modules. Analysis of data revealed that all the modules were effective. The objectives of modules were also clear, achievable, relevant, addressing the need of university faculty, and aligned to the content of modules. The content of the modules was also found interesting. The module I 'teaching as a profession' was found to be the most effective. The module VII 'research methods and skills' was the least effective as compared to the rest of the modules. This study may help policy makers, teacher trainers, resource persons and the teachers concerned with such trainings.*

**Keywords**: Higher Education, Faculty Development, Training Modules, Evaluation.

* Associate Professor, Department of Education, University of Sargodha, Pakistan, Email: drsarwar@ymail.com,00-92-321-8600055
** Associate Professor, Department of Education, G C University of Faisalabad, Pakistan, Email: drhssn@yahoo.com, 00-92-300-7711441
*** Assistant Professor, Department of Education, University of Sargodha, Pakistan, Email: multanxa@gmail.com, 00-92-300-7350668

## Introduction

Role of teacher is the most important component in education system; and higher education has no exception in this regard. A well-motivated and well-trained teacher is an essential feature for the development of a nation in its entirety. It is a matter of fact that the expertise of a teacher like academic qualifications, mastery of the subject, competence in teaching, and devotion (to profession) has significant impact on teaching learning process. Higher education, in general, aims at improving teachers' qualities i.e. enhancing understanding and knowledge, and helping to shape a civilized and democratic society. It is a great source of cultural and socio-economic development of a country (Khan, 2005). By attaining excellence in the field of higher education any nation can be grown up to a developed nation within the life span of a single generation.

Kasule, Wesselink, and Mulder (2016) stressed on the need to make participation in formal and informal professional development activities mandatory for university teachers. Higher education teachers are subjected through a very stringent selection process. They indeed possess required qualification which is signatory of their possessed specific competence in their field of academic specialization. Besides, they are closely evaluated in their suitability to the demanding and competitive higher education milieu in which they are expected to perform in. But the required pedagogical training for their active participation into future professional work remains, nevertheless, absent. It is a common global phenomenon prevailing at higher education in general. In order to bridge this gap in-service trainings are continuously arranged.

These in-service trainings are termed as *continuous professional development* (CPD). In recent years, CPDs are getting more importance in order to meet continuously increasing standards of quality higher education. Teaching at higher education level, especially in developed countries has brought a sizable literature as a result of heightened interest in research in this area (Couper, 2000; Knight, Tait, & Yorke, 2006; Lueddeke, 2003).

Considering of having an impeccable focus on CPD for higher education personnel in Pakistan the establishment of *National Academy of Higher Education* (NAHE) was brought into being in 1983 under the auspices of the *University Grants Commission*(UGC, 1989). After the establishment of *Higher Education Commission* (HEC) in 2002 NAHE continued its functioning under the umbrella of HEC. Its major objectives include: arranging in service teachers training programmes for both college and university teachers; to carry out and improve research; to develop curricula at higher education level; to arrange workshops, conferences, symposia, seminars, etc.; to work as a hub to retrieve and to spread information on administration, curriculum and evaluation of higher education; and to launch centres for faculty development and research.

Faculty development is an inclusive and continuous process of professional development, and self-recognition within the framework of organizational development and growth (Shroyer, 1990) Quality of education heavily depends on the quality of faculty. Sole purpose of faculty development is to enhance the expertise, skills and knowledge of the employees so that they can perform more efficiently in their particular jobs. Hence, faculty development can be defined as the activities planned to improve skills, understanding and knowledge of teachers that lead to transform teacher's thinking and classroom behavior.

To this end NAHE has been organizing *faculty development programmers* (FDP) for the professional development of university teachers under the patronages of HEC. The objectives of teachers training program, as documented in *Eighth Five Year Plan* (1993-1998) were: to attain the practical skills that can be useful in actual classrooms situation to enhance the excellence of teacher competence at higher education level to update teacher's subject knowledge as well as their teaching techniques so that they can do justice with their jobs

In order to add to competence of university teachers through professional development courses NAHE started providing this facility of CPD at their door step. As part of the faculty development program, Phase I (*Professional Competency Enhancement Program for University Teachers* (PCEPT)) was launched in 2004 under *Learning Innovation Division* (LID) which is a subdivision of HEC and actively playing its role (Chaudary & Imran, 2012).

Keeping in view the dire needs and demand of university community NAHE launched its sequel i.e. the Phase II in July 2008. In Phase II 38 Human Resource Development Centres were established at public sector universities. It was funded by USAID Pre-Service Teacher Education Program in Pakistan. The objective of NAHE Phase II was to equip the faculty of higher education with seven basic principles of professional teaching skills making them certified Professionals. It also aimed at to impart professional development training to 2500 faculty members of higher education institutions. It targeted 2100 faculty members under PCEPT (Professional Competency Enhancement Program for Teachers) component and 400 under ITE (Incorporating Technology in Education) component. The main emphasis was on the enrichment of basic teaching competences of the faculty members of different disciplines. Its aim was to convey technology based and research oriented training to add to actual practicality in teaching learning situation. Another aim of NAHE was to enhance computer literacy of the faculty members of higher education institutions. It also aimed at to organize trainings in the form of workshops, seminars, conferences, and/or lectures for the teachers of higher education institutions in order to expose them to the modern trends in teaching and education. It also aimed at to boost professional and managerial skills of the personnel involved in conducting these trainings, through national and international

forums. It also aimed at developing andrologogical and research skills among higher education faculty through conducting professional development programmers at their door step.

**Background of NAHE Phase II**

NAHE took upon the responsibility of developing seven modules for Professional Competency Enhancement Program for University Teachers (PCEPT). These seven modules were developed by competent specialists from seven universities.

The modules developed were purposefully kept generic in nature as the target groups of trainees were supposed to be a heterogeneous mix from various fields of academic specialization. Another, assumption herein was that that the trainees, nevertheless, were competent enough in their respective fields of academic specialization as they had previously been subjected to stringent scrutiny during the selection process as a faculty member. Making a critical analysis of their specific competence in this article goes, straightforwardly, beyond the scope of this article.

A 4-day workshop was conducted from 5th to 8th October, 2009 in collaboration with Pre-Service Teachers Education Program (Pre-STEP), a project of the United States Agency for International Development (USAID). In this workshop the contents and language of the modules were reviewed and the final modifications were made under the direction of the team of reviewers from Michigan State University, USA and experts from Pre-Step, USAID Project. Pilot testing was conducted to examine the value of the content (from 12th February to 13th March, 2009), therefore, establishing modules' potency to meet the need of the hour. The name of the modules and universities are given below:

1. Teaching as a Profession (The Islamia University of Bahawalpur)
2. Academic Planning and Management Skills (Aga Khan University, Karachi)
3. Curriculum Development, Assessment and Evaluation (Iqra University, Quetta)
4. Learners' Psychology (University of Education, Lahore)
5. Androgogical Skills (Allama Iqbal Open University, Islamabad)
6. Communication Skills (Army Public College of Management Sciences, Rawalpindi)
7. Research Methods and Skills (Fatima Jinnah Women University, Rawalpindi)

In order to avoid prolixity, the researchers briefly discussed the major focus of each of the training modules in the ensuing paragraphs.

The major objectives of Module – I are to realize the importance of teaching profession in the 21st century, comprehend the teachers' anticipated role in educational organizations, notice professional principles and enable teachers to improve personalities, appreciate and exercise the role of teachers as an intellectual of society, improve the aptitude to live with and among alterations with a positive attitude, prepare

themselves about their role as a mediator of social change, discuss research results and best practices with colleagues in conferences and to enable them to develop an academic network(Adeeb, Rahmani, Hussain, & Nadeem, 2009).

The main objectives of Module – II are to complete sample practical activities that will give teachers confidence to handle more difficult tasks in terms of planning and managing their academic and organization tasks, cultivate a more original and expert approach towards their work with the provision of their co-workers in their role set for advanced methods to their academic planning and management and to exhibit leadership qualities by becoming promoters of change in their settings, through knowledge and skills gained during the course in order to foster a spirit of learning community(Khaki, Halai, & Cane, 2009).

Module – III expects to train university teachers with the basic knowledge and skills required. Its main objectives are to play an effective role in designing curriculum for their teaching areas and to develop and grade various kinds of tests in accordance with the learning outcomes intended for their courses (Khawaja, Akhter, & Mirza, 2009).

The main objectives of Module – IV are to understand learner's psychology and its philosophies, and relate it to make the teaching-learning process operative, Identify features of adult learners, involve pupils in active learning by using learner-centred skills, and know requirements and welfare of the learner, use action and thinking in teaching procedure, assist learners to learn new roles in learning procedure, hold learners accountable for their learning ,try to demonstrate application of knowledge and to boost the professional capability of participants by making them understand learners' stressors and find ways to manage those stressors (Naseem, 2009).

The objective of Module – V is to improve the androgogical skills of the learners through continuous practice (Mahmood & Siddiqui, 2009).

Module – VI offers ample prospects for self-probe and self-education to make learners "aware" about themselves and more particularly of their communication style. The emphasis is inward rather than outward. It shall help discovering their own personality types and related communication styles so that they can become accustomed them effectively to their own communication state individually as well as skillfully both in educational and non-educational locations (Khattak, Yaqoob, & Basri, 2003).

The objective of Module – VII is to enable the learners to exhibit knowledge of the concept of research, the reasons for leading research, where it is conducted, how it is done, and by whom; why research; the characteristics of quality research; qualitative and quantitative research; and ethics of research (Sheikh & Bibi, 2009).

**Research Statement**

This article is focused on the trainees' perception about the effectiveness of the training modules used during faculty development programme termed as NAHE Phase II.

**Objective of the Study**

The objective of the study was to evaluate the perception of trainees about effectiveness of training modules used for teacher training in NAHE Phase II

## Methodology

The study, designed to be descriptive one, included quantitative analysis of trainees' perception on the training they had been subjected though recently. Question may be raised on the validity of effectiveness measured through the trainees' perception. There are various grounds to defend this apparently debate able situation. Firstly, trainees are mentally as well psychologically mature enough. Secondly, they appear to be responsible professionals. Thirdly, they are neither supposed to be in a fearfulness/anxiety nor with an expectation of advantage/favoritism. And, lastly, they are the most direct source of information on the topic the researchers are interested to highlight in this article. Therefore, no other source may be as direct and reliable as the trainees themselves do.

All the trainees of NAHE Phase II from 38 centres established at public sector universities of Pakistan were the population of the study. The sample of this study consisted of 487 (out of 769) trainees from 19 centres all over Pakistan. Multilevel sampling frame included proportionate and cluster sampling techniques.

Table 1
*Indicators in the Study*

| Indicators | No of Items |
|---|---|
| Effectiveness of Teaching as Profession module | 06 |
| Effectiveness of Academic Planning and Management Module | 06 |
| Effectiveness of Curriculum Development, Assessment and Evaluation Module | 12 |
| Effectiveness of Learner's Psychology Module | 04 |
| Effectiveness of Andragogical Skills and Abilities Module | 08 |
| Effectiveness of Communication Skills Module | 05 |
| Effectiveness of Research Module | 08 |
| Total | 49 |

## Results

A 49-items-questionnaire based on intended learning out comes given in seven modules was developed by the researchers; and was, henceforth, used as the research instrument in order to collect quantitative data on 5-point rating scale (see the table below). Pilot testing of the research instruments had been carried out at one of the NAHE training centres. Value of Cronbach Alpha (0.983) indicated very high reliability of the instrument. Following table describes 7 indicators included in this study.

### Modules Review

Modules were reviewed by the researchers in order to ensure the relevance with its objectives. All the modules were relevant to their objectives, objectives of faculty development programme (FDP) and in turn they were aligned with the objective of National Academy of Higher Education (NAHE). The results were discussed and finally got approved from the relevant experts.

Table 2
*Training Modules Relevance to Objectives*

| Statements | SA (%) | A (%) | SA+A (%) | Neutral (%) | DA (%) | SDA (%) | SDA+DA (%) |
|---|---|---|---|---|---|---|---|
| 1. The objectives of Modules were clear | 21.9 | 60.6 | 82.5 | 13.8 | 3.3 | 0.4 | 3.7 |
| 2. The objectives of Modules were achievable | 18.3 | 61.4 | 79.7 | 13.2 | 6.5 | 0.6 | 7.1 |
| 3. Modules' objectives addressed faculty needs | 23.0 | 56.5 | 79.5 | 12.8 | 7.5 | 0.2 | 7.7 |
| 4. The contents in the Modules were interesting | 21.5 | 54.5 | 76.0 | 19.3 | 4.5 | 0.2 | 4.7 |
| 5. The Modules were useful and effective | 31.3 | 53.1 | 84.4 | 12.6 | 2.8 | 0.2 | 3.0 |
| Total (Module Effectiveness) | 23.2 | 57.22 | 80.42 | 14.34 | 4.92 | 0.32 | 5.24 |

Table 2 reflected that according to the trainees the objectives of the modules were clear, achievable, address the need of university faculty. Content of the modules was interesting and the modules were useful and effective. Overall percentage of modules effectiveness revealed, 80.42% trainees responded that the modules of the training were effective, only 05.24% trainees were not in the favor of modules

effectiveness, whereas 14.34% respondents did not comment on the effectiveness of modules.

Table 3
*Training Modules Effectiveness*

| Name of Modules | SA (%) | A (%) | SA+A (%) | Neutral (%) | DA (%) | SDA (%) | SDA+DA (%) |
|---|---|---|---|---|---|---|---|
| 1. Teaching as a Profession | 26.3 | 56.81 | 83.11 | 13.81 | 2.95 | 0.16 | 3.12 |
| 2. Academic Planning and Management | 27.92 | 55.63 | 83.55 | 12.96 | 2.97 | 0.57 | 3.54 |
| 3. Curriculum Development, Assessment and Evaluation | 22.23 | 53.97 | 76.20 | 17.84 | 5.17 | 0.82 | 5.99 |
| 4. Learner's Psychology | 24.45 | 51.52 | 75.97 | 17.9 | 5.6 | 0.5 | 6.1 |
| 5. Androgogical Skills | 27.1 | 55.17 | 82.27 | 13.86 | 3.6 | 0.27 | 3.87 |
| 6. Communication Skills | 20.92 | 57.38 | 78.3 | 16.58 | 4.54 | 0.6 | 5.14 |
| 7. Research Methods and Skills | 22.56 | 37.52 | 60.08 | 25.1 | 12.9 | 1.95 | 14.85 |
| Training as a whole | 24.50 | 52.57 | 77.07 | 16.86 | 5.39 | 0.70 | 6.09 |

In Table 3, the respondents described that the modules of training were very effective. Majority of the respondents were agreed that all the modules like 'teaching as a profession', 'academic planning and management', 'curriculum development, assessment and evaluation', 'learner's psychology', 'androgogical skills', 'communication skills' and 'research methods and skills' were very effective to improve the skills among the trainees.

Table 4
*Effectiveness of "Teaching as a Profession" - Module 1*

| Statements | SA (%) | A (%) | SA+A (%) | Neutral (%) | DA (%) | SDA (%) | SDA+DA (%) |
|---|---|---|---|---|---|---|---|
| 1. The training has improved my understanding of role of teaching profession in higher education | 21.7 | 61.0 | 82.7 | 14.8 | 2.0 | 0.6 | 2.6 |
| 2. The training helped me having good professional relationships with my colleagues and students | 34.3 | 53 | 79.4 | 10.4 | 2.2 | 0 | 2.2 |
| 3. The training improved my professional approach to become an academic leader in higher Education | 29.1 | 52.0 | 81.1 | 12.8 | 5.7 | 0.4 | 6.1 |
| 4. After the training my awareness to deal with academic issues through discussions has improved | 26.4 | 58.5 | 84.9 | 12.6 | 2.6 | 0 | 2.6 |
| 5. The training polished my personality as an academic leader | 24.8 | 58.5 | 83.3 | 14 | 2.8 | 0 | 2.8 |
| 6. The training made me realized the ideological and philosophical notion in teaching profession | 21.5 | 57.9 | 79.4 | 18.3 | 2.4 | 0.00 | 2.4 |
| Total (Teaching as a Profession) | 26.3 | 56.81 | 83.11 | 13.81 | 2.95 | 0.16 | 3.12 |

Table 4 illustrated that the respondents were of the view, that training improve their understanding about the role of teacher in higher education, to develop good relationship with colleagues and students, improvement in professional approach, dealing with academic issues and clarity about ideological and philosophical notion in

teaching as profession. As whole 83.11% trainees responded that training groomed their teaching as profession, only 03.11% trainees differed with them; however, 13.81% respondents held their opinion unexpressed.

Table 5
*Effectiveness of "Academic Planning and Management" - Module 2*

| Statements | SA (%) | A (%) | SA+A (%) | Neutral (%) | DA (%) | SDA (%) | SDA+DA (%) |
|---|---|---|---|---|---|---|---|
| 1. The training improved my ability to maintain good relations with my students | 25.0 | 62.6 | 87.6 | 10.0 | 2.2 | 0.2 | 2.4 |
| 2. The training improved my ability to maintain good relations with my colleagues | 27.4 | 59.3 | 86.7 | 10.6 | 2.4 | .4 | 2.8 |
| 3. The training has improved my understating of responsibilities of a university teacher | 25.6 | 59.3 | 84.9 | 13.4 | 1.6 | .2 | 1.8 |
| 4. The training improved my ability to maintain good relations with my head of department | 29.5 | 51.2 | 80.7 | 15.2 | 3.0 | 1.2 | 4.2 |
| 5. The training improved my leadership abilities as an academic leader | 29.5 | 50.8 | 80.3 | 14.4 | 4.3 | 1.0 | 5.3 |
| 6. The training improved my understanding of barriers in interpersonal relationships | 30.5 | 50.6 | 81.1 | 14.2 | 4.3 | .4 | 4.7 |
| Total (Academic Planning and Management) | 27.92 | 55.63 | 83.55 | 12.96 | 2.97 | 0.57 | 3.54 |

Table 5 indicated that the respondents were of the view, that training improved the ability to maintain good relation with students, colleagues, university teachers, and

head of the department. It also improved leadership abilities as an academic leader and understanding barriers in interpersonal relationship. Collectively 83.55% trainees answered that training was helpful in their academic planning and management, only 03.54% trainees indicated that training was not helpful in their academic planning and management, whereas 12.96% respondents did not comment on academic planning and management.

Table 6
*Effectiveness of "Curriculum Development, Assessment and evaluation" - Module 3*

| Statements | SA (%) | A (%) | SA+A (%) | Neutral (%) | DA (%) | SDA (%) | SDA+DA (%) |
|---|---|---|---|---|---|---|---|
| 1. The training helped me using curriculum as a tool to achieve the learning outcomes of a course | 21.5 | 59.6 | 81.1 | 14.2 | 4.1 | 0.6 | 4.7 |
| 2. The training helped me understand the process of curriculum development | 18.9 | 53.3 | 72.2 | 20.9 | 6.3 | 0.6 | 6.9 |
| 3. The training helped me to select appropriate content for my lectures | 30.1 | 48.4 | 78.5 | 15.6 | 4.9 | 1 | 5.9 |
| 4. The training helped me to evaluate curriculum for its improvement | 21.1 | 51 | 72.1 | 18.9 | 8.3 | .8 | 9.1 |
| 5. The training helped me to deliver lecture aligned with the objectives of the course | 26.4 | 50 | 76.4 | 18.5 | 4.3 | 0.8 | 5.1 |
| 6. The training helped me to develop ability to sequence the selected content of a particular course | 23 | 49.4 | 72.4 | 20.5 | 6.3 | 0.8 | 7.1 |
| 7. The training helped me to align | 14.6 | 59.1 | 73.7 | 21.9 | 3.7 | 0.8 | 4.5 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| assessment procedure with the learning outcomes of a course | | | | | | | |
| 8. The training improved my ability to develop objective type of test in line with learning outcomes | 19.7 | 58.7 | 78.4 | 16.3 | 4.3 | 1 | 5.3 |
| 9. The training improved my ability to develop subjective type of test in line with learning outcomes | 21.9 | 56.5 | 78.4 | 15 | 5.9 | 0.8 | 6.7 |
| 10. The training improved my ability to develop oral type of test in line with the learning outcomes | 23.2 | 54.7 | 77.9 | 15.7 | 5.3 | 1 | 6.3 |
| 11. The training improved my ability to award sessional marks as per performance of students in class | 24.8 | 51.4 | 76.2 | 19.5 | 3.7 | 0.6 | 4.3 |
| 12. The training improved my ability to develop proper marking scheme for subjective test | 21.5 | 55.5 | 77 | 17.1 | 4.9 | 1 | 5.9 |
| Total (Curriculum development, Assessment and Evaluation) | 22.23 | 53.97 | 76.19 | 17.84 | 5.17 | 0.82 | 5.98 |

Table 6 confirmed that the respondents explained, that training was helpful in order to use curriculum as a tool to achieve learning outcomes, to understand the process of curriculum development, selection of appropriate content for lecture but training was not helpful in the evaluation of curriculum for improvements, to align the lecture with objectives and selection of content for particular course. As whole 76.19% trainees replied that training was helpful in the process of curriculum development,

assessment and evaluation, only 5.5% trainees disagreed with; whereas 17.58% did not comment on assessment and evaluation.

Table 7
*Effectiveness of "Learner's Psychology" - Module 4*

| Statements | SA (%) | A (%) | SA+A (%) | Neutral (%) | DA (%) | SDA (%) | SDA+DA (%) |
|---|---|---|---|---|---|---|---|
| 1. The training improved my capacity to keep students of different ability engaged in active learning | 25.4 | 51.8 | 77.2 | 16.7 | 5.7 | 0.4 | 6.1 |
| 2. The training improved my understanding of learner's psychology to make teaching more effective | 22.4 | 54.7 | 77.1 | 17.9 | 4.5 | 0.4 | 4.9 |
| 3. The training helped me identify learning difficulties of my students in classroom | 22 | 53.5 | 75.5 | 18.3 | 5.9 | 0.2 | 6.1 |
| 4. The training increased my ability to motivate students towards their studies | 28 | 46.1 | 74.1 | 18.7 | 6.3 | 1 | 7.3 |
| Total (Learner's Psychology) | 24.45 | 51.52 | 75.97 | 17.9 | 5.6 | 0.5 | 6.1 |

Table 7 displayed that the trainees said, that the training improve their capacity to keep students engaged in different activities, to make the teaching effective, understanding student difficulties in classroom, ability to motivate students towards studies. Over all 75.97% trainees noted that training was helpful in order to understand learner's psychology, only 6.1% trainees responded that training was not helpful in order to understand learner's psychology, whereas 17.9% respondents remained neutral about learner's psychology.

Table 8
*Effectiveness of "Andragogical Skills" - Module 5*

| Statements | SA (%) | A (%) | SA+A (%) | Neutral (%) | DA (%) | SDA (%) | SDA+DA (%) |
|---|---|---|---|---|---|---|---|
| 1. The training has improved my skill to deal with problem students | 30.3 | 52.4 | 82.7 | 11.8 | 5.3 | 0.2 | 5.5 |
| 2. The training has improved my quality of teaching | 31.3 | 54.1 | 85.4 | 11.4 | 3 | 0.2 | 3.2 |
| 3. The training has enabled me to understand well the role of teaching profession in higher education. | 21.7 | 60.0 | 81.7 | 13.8 | 4.5 | 0 | 4.5 |
| 4. The training helped me understand nature of communication barriers in classroom | 25.4 | 56.5 | 81.9 | 15 | 3 | 0.2 | 3.2 |
| 5. The training has improved my classroom management skills | 27 | 54.5 | 81.5 | 14.2 | 3 | 1.4 | 4.4 |
| 6. The training has improved my skill of understanding individual difference of students | 26.2 | 54.3 | 80.5 | 15.6 | 3.9 | 0 | 3.9 |
| 7. The training has improved my confidence in teaching | 24.2 | 56.1 | 80.3 | 16.1 | 3.5 | 0 | 3.5 |
| 8. The training has improved my planning skills for teaching | 30.7 | 53.5 | 84.2 | 13 | 2.6 | 0.2 | 2.8 |
| Total (Androgogical Skills) | 27.1 | 55.17 | 82.27 | 13.86 | 3.6 | 0.27 | 3.87 |

Table 8 returned that the respondents described, that training improved their skills to deal with students' problems, quality of teaching, classroom management,

confidence in teaching and planning skills for teachers, to understand the nature of communication barriers and to understand individual differences. Collectively 82.27% trainees responded that training was helpful in order to improve androgogical skills and abilities in classroom setting, only 3.87% trainees contradicted with their counterparts and 13.86% respondents remained impartial on androgogical skills and abilities.

Table 9
*Effectiveness of "Communication Skills" - Module 6*

| Statements | SA (%) | A (%) | SA+A (%) | Neutral (%) | DA (%) | SDA (%) | SDA+DA (%) |
|---|---|---|---|---|---|---|---|
| 1. The training has improved my understanding of communication process | 16.9 | 63.2 | 80.1 | 15 | 4.3 | 0.6 | 4.9 |
| 2. After the training I can understand communication barriers inside and outside classroom | 19.7 | 58.7 | 78.4 | 16.9 | 4.1 | 0.6 | 4.7 |
| 3. The training helped to better understand the importance of feedback in communication process | 20.3 | 56.5 | 76.8 | 18.5 | 4.3 | 0.4 | 4.7 |
| 4. I can use in an observable manner the hand and eye gestures for effective communication | 21.5 | 55.9 | 77.4 | 18.1 | 3.5 | 1 | 4.5 |
| 5. The training helped to better understand the body language of students | 26.2 | 52.6 | 78.8 | 14.4 | 6.5 | 0.4 | 6.9 |
| Total (Communication Skills) | 20.92 | 57.38 | 78.3 | 16.58 | 4.54 | 0.6 | 5.14 |

Table 9 showed that the respondents were of the view, that training improved their understanding in communication process, communication barriers inside and out

the classroom, to use eye gestures for effective communication and to understand the body language of the students. Collectively 78.3% trainees responded that training was helpful in order to improve communication skills in classroom setting, 5.14% trainees described that training was not helpful in order to improve communication skills in classroom setting, whereas 16.58% respondents were neutral on the improvement of communication skills.

Table 10
*Effectiveness of "Research Methods and Skills" - Module 7*

| Statements | SA (%) | A (%) | SA+A (%) | Neutral (%) | DA (%) | SDA (%) | SDA+DA (%) |
|---|---|---|---|---|---|---|---|
| 1. The training has improved my confidence in research supervision | 19.3 | 43.7 | 63 | 28.3 | 6.7 | 2 | 8.7 |
| 2. The training has improved my confidence in article writing | 19.7 | 42.3 | 62 | 26.6 | 10 | 1.4 | 11.4 |
| 3. After faculty development program my understanding of research has improved | 19.1 | 43.7 | 62.8 | 26.4 | 9.4 | 1.4 | 10.8 |
| 4. The training improved my capacity to write better research questions. | 25.8 | 35.4 | 61.2 | 21.5 | 15.2 | 2.2 | 17.4 |
| 5. My ability to write better research hypotheses has improved after training | 25.4 | 34.1 | 59.5 | 24.2 | 14.6 | 1.8 | 16.4 |
| 6. The training improved my capacity to help students to write better research proposal for their thesis | 22.8 | 34.3 | 57.1 | 24.4 | 16.3 | 2.2 | 18.5 |
| 7. The training has improved my chances of publishing research work | 23.8 | 31.5 | 55.3 | 26.4 | 15.4 | 3 | 18.4 |
| 8. The training helped me better to understand the ethics involved in conducting research. | 24.6 | 35.2 | 59.8 | 23 | 15.6 | 1.6 | 17.2 |
| Total (Research Methods and Skills) | 22.56 | 37.52 | 60.08 | 25.1 | 12.9 | 1.95 | 14.85 |

Table 10 recorded that the trainees narrated, that training was not helpful in supervision, article writing, understanding of research, development of better research questions and hypothesis, to write better research proposal, chance of publishing research work and to understand ethics involve in conducting research. Collectively 60.08% trainees agreed to that that the training was helpful in order to improve the

process of research, whereas 14.85% trainees responded that training was not helpful in order to improve the process of research, and 25.1% stayed neutral about improvement of research process.

Gender does not appear to play a significant part(Lueddeke, 2003) on teaching scholarship. The independent-samples t-test was conducted to compare the responses of male and female trainees regarding modules of training. The difference was not found between the responses of male and female regarding all modules except for the module on 'research skills', where there was found a significant difference between male (M = 28.83, SD = 7.04) and female (M = 28.36, SD = 6.70) trainees, with t (487) = 2.310, p = 0.021. It may be concluded that male expressed of having better understanding on the module related to the research skills as compared to their female counterparts.

## Discussion

It was found that all the training modules used in NAHE Phase II were effective. There are three perceptible reasons for apparently such a strong finding on the effectiveness of these modules. Firstly, the modules were written by highly seasoned professionals. Secondly, these modules took additional advantage of previously experimented modules during NAHE Phase I. Thirdly, the resource persons and the course coordinators involved in Phase II were more experienced than that of their colleagues in NAHE training Phase I. First two reasons are referring to intrinsic strength of the modules whereas the last one refers to extrinsic dimension of it. And above all, there is encouraging reflection of increasing improvement in NAHE phases of training. Present study confirmed that the sequence of training programmes were helpful in increasing professional competence among teachers in higher education.

The respondents said that the modules were effective. It seemed if they would have been realizing need of training in their professional development. Previous studies did support our findings. A study on faculty development program was conducted by Hussain, Sarwar, and Anwar (2010)It was the most similar study to that of what we carried out. All the modules being evaluated in our study (except two namely *research methods and skills*, and *curriculum development*) were present there; and interestingly, they were noted to be effective in both of the studies.

Another study by Kayani, Morris, Azhar, and Kayani (2011) did support our results. Here it may be remarkable to mention that the *teaching as profession* was distinguished to be the most effective module in both of the studies. It seemed if they would have been realizing need of training in their professional development. It was comprehensible as university teachers did not get any formal training; they usually had never availed an opportunity to learn *teaching as a profession*.

Modules related to the classroom management skills were found effective by Postareff, Lindblom-Ylänne, and Nevgi (2007)as our study revealed as well. It was further observed that positive changes took place in teachers who had attended more in-service pedagogical trainings. Similar results were noted in another study conducted by (Fakhra, 2012) which was mainly focused on instructional, professional and organizational development. Aziz and Akhtar (2014), studying pedagogical assessment and management and research, give an account of results similar to that of ours.

Module VII (research methods and skills) was found to be the least in its effectiveness as considerable majority (i.e. 60.08%) of the respondents reported it; whereas 25% of the respondents remained neutral. In fact, this module is concerned with the classroom research which is usually conducted by the professionals in teacher education. As the trainees in NAHE Phase II belonged to the other disciplines as well especially from pure sciences, therefore, it's reportedly least effectiveness is intelligible. Teachers having their field of interest other than teacher education may not be aware of the mechanics involved in classroom research. So, they did not realize the need of this module. That's why they feel that this module was not addressing their needs and consequently reported to be less effective. The researchers noted that their finding on gender's insignificant is in accordance with other researchers e.g. (Lueddeke, 2003).

## Conclusions

All the seven modules were found to be effective. Only 6.09% respondents perceived that these were not effective. Objectives of the modules were found to be clear, achievable, and relevant. Modules were reported to be addressing the need of university faculty and were perceived aligned with the content of these modules. Further, the content of modules was also reported to be interesting.

The respondents perceived that the module I (teaching as a profession) was the most effective and module VII (research methods and skills) was the least effective among the modules.

Very small proportion (i.e. 3.12%) of the respondents disagreeing with the majority of their counterparts believed that the module I (teaching as a profession) was not effective. Similarly, 3.54% respondents perceived that the module II (academic planning and management) was ineffective. Whereas, 5.98% respondents perceived that the module III (development, assessment and evaluation of curriculum) was not effective. The effectiveness of module IV (learner's psychology) was ranked 6$^{th}$ by the respondents; and 6.1% respondents perceived that the module IV was ineffective. The 3$^{rd}$ most effective module was the module V (androgogical skills); and only 3.87% respondents perceived that it was not effective. The module VI (communication skills) was ranked at 4$^{th}$ position regarding its effectiveness; and a small portion of the

respondents (i.e. 5.14%) perceived that it was ineffective. The least effective module was found to be the module VII (research methods and skills); for which relatively larger proportion of respondents (i.e. 14.85%) as compared to their counterparts perceived that it was ineffective.

It was finally concluded that the training modules used for teacher training in NAHE Phase II were perceived by the respondents as the effective training modules. However, the respondents highlighted the need for discipline specific training for higher education teachers which the researchers found in accordance with the *discipline-based approach* in 'developing the scholarship of teaching in higher education' proposed by (Couper, 2000).

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# Developing a Validated Instrument to Measure Teachers' Job Performance: Analyzing the Role of Background Variables

Akhtar Ali*****
Syed Zubair Haider******

**Abstract**

*The present study creates and validates a brief instrument to measure teachers' job performance in schools and then establishing the effect of background variables (gender, location, and job status) on the performance. The statements of this scale were developed with the experts' suggestions. The current research was accomplished in two studies. In Study 1, Teacher's Job Performance Scale consisted of 24-items was developed by using an empirical approach. In exploratory factor analysis (EFA) with a principal component method (PCM) and varimax rotation, 3-factors were emerged namely Instructional Qualities, Professional Qualities and Personal Qualities. While in second study, psychometric properties of newly developed tool were determined. The results of the confirmatory factor analysis (CFA) also verified 3-factors structure in the developed scale. Internal consistency reliability and construct validity were also satisfactory for this scale. The results of both studies make available preliminary support that TJPS demonstrates tremendous psychometric properties. Therefore, it could be considered as a reliable and valid heads' ratings instrument for assessing the job performance of teachers. The overall results revealed a significant difference between male/female and permanent/contractual teachers regarding performance. However, on the basis of heads' ratings, the performance of teachers from urban and rural areas did not differ significantly.*

**Keywords**: Teacher performance, job performance, validation

## Introduction

The teacher is an essential element of all educational systems. He has to perform numerous tasks such as a researcher, curriculum developer, team member or leader, professional and being an analyst (Richards and Lockhart, 1996). Teachers are

* Dean Faculty of Education/ Chairman, Department of Education, The Islamia University of Bahawalpur, Pakistan

** Assistant Professor, Department of Educational Training, The Islamia University of Bahawalpur, R.Y.Khan Campus, Pakistan. Tel: +92-332-9601095. E-mail: zubairiub@hotmail.com

respected by the community as they considered educated and well-informed individuals about various subjects of a school. A teaching institution without a teacher is much the same as a body without the spirit, a skeleton without blood and flesh, and a shadow without the stuff. We may put any effort to obtain our goals, arrangements, programs, curricula, gear and managerial structure; however, this is just the teacher who put life into the skeleton (Aziz, 2012). A capable teacher will dependably look for the future opportunity, at the accomplishment of educational objectives. A capable instructor will be more ready to make a viable learning environment and to deal with his/her class so that the excellence of students will constantly be at the maximum level. Baldoni (2005) accepted that if the teaching-learning process in a school is handled and run by capable teachers, it is believed to be normal and will produce high caliber students. The role of teacher is not only the provision of knowledge or skills to his/her students, but they also have an important responsibility of moderating the teaching-learning process and learning environment (Kayisoglu, 2015).

In line with other sectors, the education sector is also dependent on the good performance of its individuals as the quality of an educational process is affected by employees' work performance. This is also regarded as an output of a task, and it has a strong association with customer satisfaction, deliberate goals of an organization and monetary involvement. Ghasemi and Keshavarzi (2014) define performance as a set of attitudes related to work which a person performs or act. As'ad (1995) found that performance or work performance is a condition of accomplishment and achievement attained by an individual on the workplace. Armstrong (2007) argued that performance is a conversion of beliefs to accomplishments, not only the way to attain the outcomes, but it is also the effect that has extracted from intellectual and bodily actions and can be regarded away from the results. The work of Campbell, McCloy, Oppler, and Sager (1993) was considered as a valuable work related to the performance. In psychological outlooks, they define performance as a person level factor and regarded it something related to a single individual and something a single individual performs.

Job performance or work performance is one of most important component of organizational behavior research that has been regarded as an essential indicator of effective organization. Thus the success of an institution is based on the good performance of its employees (Colquitt, LePine, & Wesson, 2010). The job performance is also considered as an extent to which an individual reaches or obtains a job-related quality or quantity. Suliman and Al Kathairi (2012) expressed that the term job performance normally refers to whether an individual does his work properly, by evaluating generally agreed five elements such as skills to perform a job, willingness to innovate, work performance with quality and quantity and knowledge of job responsibilities. Despite the confusion that how these phenomena should be accurately defined, but this is a very central variable that associates with the success and output of

the organization (Yusoff, Ali, & Khan, 2014). This is also considered as a total outcome that an individual renders and that is recognized by the institution.

The excellence and performance of a teacher have been a focused apprehension in education. The efficient job performance of a teacher is indispensable for improving an educational system as a whole (Yusoff, Khan, & Azam, 2013). Teacher's performance is defined as the aptitude to fulfill the requirements and demands of the professional development process to the required level by a homogeneous set of knowledge, perspectives, behavior, and skills in a way to accurately display the things (Ghasemi & Keshavarzi, 2014). In view of Werang and Lena (2014) a teacher job performance is the quality and skills of a teacher to put together all necessary and related variables for the increment and improvement of the educational process. Selamat, Samsu, and Kamalu (2013) believed that teacher's job performance is a teacher's method and strategies of teaching and it is associated with teacher's efficiency. It is a process of determining teacher's engagement in daily routine activities to run the school affairs properly. This is also judged as teacher's noticeable attitudes associated with results which are related to instructive objectives.

After determining the importance of teacher's job performance, the second important issue emerged is related to its measurement. A review of teacher's work performance literature reveals that there are some scales available for the measurement of work performance (e.g., Stanford Center for Assessment, Learning and Equity, 2013; Ross, Singer-Dudek, & Greer, 2005; Rebore, 1985). But, they have two clear limitations, first, these scales are developed for West and second, most of the scales measure employees' performance within organizations. They are not specifically designed for measuring teacher's job performance. Despite a growing body of research into teacher's performance, there is a lack of appropriate scales for evaluating teacher's performance based on head's ratings in Pakistan, which raises the significance of this research. Considering its value, the main objective of this research is to address the above issue by developing and validating a scale for measuring teacher's performance based on their heads' ratings.

## Study 1: Examining the Dimensionality of the Proposed Instrument

This study was carried out to develop and validate Teacher's Job Performance Scale. The development of this scale was comprised of following steps.

### Step 1: Developing Items Pool

The first step of developing TJPS was the items' generation. For this purpose, 20 M.Phil students (15 male, 5 female), 20 Ph.D. students (10 male, 10 female), 10 secondary school teachers (5 male, 5 female) and 10 schools heads (5 male, 5 female) of different subjects were requested to fill in an open-ended questionnaire to find out their perspectives regarding the essential aspects of job performance of teachers. They were requested to mention all those qualities, skills, behaviors and characteristics,

which they think, are crucial for teachers' good job performance. The responses were carefully analyzed and on the basis of them, statements were developed and arranged in the frequency distribution. The statements with the highest frequency were retained to make a pool of 40 items (statements). These statements were displaying different dimensions of teachers' job performance. Moreover, with the help of literature review, these statements were carefully examined and scrutinized by the researcher.

**Step 2: Assessing Items Suitability**

In the next step, experts were asked to examine items generated in the form of statements. Primarily, these 40 statements were given to 10 Ph.D. researchers and 03 university lecturers and they were asked to develop the categories of these statements for teachers' job performance. The purpose was to scrutinize items and clearly designate items into different dimensions to check the inter-rater-reliability. On the basis of researchers' opinions, three facets of teachers' job performance were developed e.g., Instructional Qualities, Professional Qualities, and Personal Qualities. After making these dimensions, the 40 statements were given to the 05 lecturers, 05 assistant professors and 10 Ph.D. researchers, and they were requested to place each statement into their respective category. The selection criterion for the items of different dimensions was 70% consensus among the experts. The repeated statements and the items which were not clearly related to the job performance were rejected. Therefore, only 24 statements out of total 40 could be clearly designated into three categories of teacher's job performance. These statements were written with four-point Likert scale and the scores assigned to this scale were ranging from 1 to 4. Finally, an initial form of the scale for measuring job performance of teachers by their respective heads was developed and was put in next step for EFA.

**Step3: Pretesting**

In this step, after finalization of the items, EFA was run to study the scale structure.

## Participants and Method

To further validate the TJPS and to provide an estimation of its reliability, 24-items were given to head teachers (only the head teachers of public high and higher secondary schools were selected because of their better understanding to evaluate their teachers and having different management related experience and certifications). The population of the study was head teachers of public high and higher secondary schools situated in district Bahawalpur. Total 54 head teachers of public high and higher secondary schools were randomly selected and requested to rate the performance of their randomly selected 432 secondary school teachers (08 teachers per school (04 science and 04 arts). Simple random sampling technique is always preferred due to enhanced generalizability with a wider involvement of participants (Haider & Qureshi, 2016). Of the head teachers, 27 (50%) were male and 27 (50%) were female.

Approxmately 35 (65%) heads hold master degree and 19 (35%) M.Phil. All of the head teachers have M.Ed degree as profession qualification. The head teachers age range from 36 – 55 years ($M$ = 46.87, $SD$ = 8.75) and experience range from 12 – 26 years ($M$ = 18.10, $SD$ = 8.92). However, the completed questionnaire of 376 secondary school teachers (188 male and 188 female) with age 19-48 years ($M$ = 32.43, $SD$ = 8.29) and experience 1-27 years ($M$ = 13.29, $SD$ = 8.15) from 54 public high and higher secondary schools were returned by their heads with a response rate of 87.03%. Data were approximately 5 times greater than the total number of statements (Field, 2013). We personally visited the selected schools and requested the headmaster/headmistress to rate their teachers' performance. In some schools, it was noted that some school heads were hesitant in providing the true information. However, we convinced them, informed them the rationale of the study, assured respondents the confidentiality, and requested to complete the scale.

## Exploratory Factor and Reliability Analysis

EFA with PCM followed by varimax rotation was run on 24-statements to extract the uncorrelated items of the questionnaire. The correlation analysis revealed that all statements correlate with at least the other variable at .30 which suggests suitable factorability. All 24-items in the scale associated fairly and none of the correlation coefficients were large so, there was no reason to remove any statement. Moreover, the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy revealed that it is very suitable for this data. The value of KMO = .826 is higher than the suggested value of .5 (Kaiser, 1974). Furthermore, Bartlett's Test of Sphericity was also significant, $\chi^2$ (66) = 6082.40, $p < .000$, demonstrating that factor analysis is a suitable method (Bartlett, 1954). Normal distribution of all items also suggested that there is no need to delete any item due to a high skewness (>2) or kurtosis (>7) (Finch &West, 1997). Considering this overall criteria, EFA was considered appropriate with 24-items.

To reach a meaningful factor structure, 1, 2, 3, and 4-factor solution was examined. Finally, the whole procedure yielded 24-items divided into 3-dimensions with each factor has more than one eigen-value and together explained 64.05% of the common variance in the measured construct (Table 1). The final factors were comprised of those items with factor loadings equal to or greater than 0.4 on a specific dimension, cross-loadings not exceeding .3 and not loaded on two or more than two factors simultaneously. These findings, therefore, present primary help for the strength of proposed instrument (i.e., TJPS). The minimum score achieved could be 24 and maximum 96, whereas, high score demonstrates better job performance.

Table 1
*EFA Factors Loadings based on Principal Components Method*

| Q # | Items | F1 | F2 | F3 |
|---|---|---|---|---|
| Q5 | Teacher properly prepares and delivers his/her lectures | .93 | | |
| Q14 | Teacher uses daily life examples to clarify concepts | .91 | | |
| Q1 | Teacher encourages students to participate in co-curricular and extracurricular activities | .83 | | |
| Q9 | Teacher uses different teaching methods in classroom | .79 | | |
| Q19 | Teacher appreciates students' questioning and classroom discussion | .71 | | |
| Q20 | Teacher uses variety of teaching materials (AV aids) in classroom | .65 | | |
| Q13 | Teacher provides a favorable learning environment to the students | .52 | | |
| Q7 | Teacher constantly evaluates students' learning | .40 | | |
| Q24 | Teacher maintains a respectable relationship with students | | .89 | |
| Q16 | Teacher actively participates in school activities | | .81 | |
| Q15 | Teacher maintains strict discipline in classroom | | .79 | |
| Q18 | Teacher obeys rules and regulations of school | | .74 | |
| Q3 | Teacher has a good working relationship with colleagues | | .61 | |
| Q23 | Teacher maintains a good relationship with administrative staff | | .58 | |
| Q11 | Teacher keeps contact with the parents | | .53 | |
| Q17 | Teacher gives attention to increase his/her profession knowledge | | .49 | |
| Q6 | Teacher is punctual in performing duties | | | .87 |
| Q12 | Teacher has a good sense of humor | | | .81 |
| Q22 | Teacher speaks loudly in the classroom | | | .77 |
| Q10 | Teacher gives proper attention to his/her work | | | .71 |
| Q4 | Teacher performs his/her duties honestly | | | .62 |
| Q8 | Teacher performs his/her duties according to the requirement | | | .51 |
| Q2 | Teacher has a good personality | | | .44 |
| Q21 | Teacher is a responsible person | | | .41 |
| | Eigen Value | 5.45 | 2.61 | 1.30 |
| | % of Total Variance | 31.42 | 21.77 | 10.86 |
| | Cronbach's Alpha | .74 | .83 | .70 |

The first factor was named as "Instructional Qualities," consists of 08 items representing the teaching qualities of school teachers. The loadings of these 08 items (05, 14, 01, 09, 19, 20, 13, and 07) range from .93 to .40, with 31.42% explained variance. The second dimension "Professional Qualities," comprises 08 items signifying the professional qualities of school teachers. These 08 items (24, 16, 15, 18, 03, 23, 11, and 17) load .89 to .49 with 21.77% explained variance. The third and last factor is termed as "Personal Qualities," also involving 08 items describing the personal characteristics and qualities of school teachers. These 08 items (06, 12, 22, 10, 04, 08, 02, and 21) have factor loadings between .41 and .87, and together explain 10.86% of the variance. The analysis of the reliability coefficient of TJPS depicts the Cronbach's α value of .87 for whole scale.

## Study 2: Role of Background Variables (Gender, Location and Job Status)

The idea of group comparison was used as indicator of construct validity (Cohen & Swerdlik, 2010) for the effect of gender, location and job status in performance.

## Respondents

In the second phase of the study, data were collected from 80 headmasters/headmistress of conveniently selected public high and higher secondary schools, and they were requested to rate the performance of their 640 secondary school teachers (08 teachers per school (04 science and 04 arts). However, the completed scale of 621 secondary school teachers from 80 public high and higher secondary schools of district Bahawalpur were returned by heads with a response rate of 97.03%. Of the teachers, 308 (49.6%) were male, and 313 (50.4%) were females. Out of total sample, 315 (50.7%) were from urban schools and 306 (49.3%) were from rural schools. The teachers age range from 21 – 59 years ($M$ = 40.03, $SD$ = 10.48) and experience from 1 – 38 years ($M$ = 15.52, $SD$ = 10.37). Of the head teachers, 40 (50%) were male and 40 (50%) were female. Approxmately 48 (60%) head teachers have academic qualification as master, 26 (32.5%) M.Phil and 6 (7.5%) Ph.D. The head teachers age range from 38 – 57 years ($M$ = 45.12, $SD$ = 9.68) and experience range from 15 – 30 years ($M$ = 19.45, $SD$ = 10.25) respectively.

## Results

For determining the psychometric properties of the scale, CFA, internal consistency reliability and correlation matrix for subscales were calculated. Descriptive statistics were computed on transformed scores.

### Hypothesized Model 1

The first model was hypothesized as one factor (TJPS), explaining all variance between 24 statements. From the first model, we are thinking teacher's job performance as a single main factor. This perception was strengthening by the formal practice of

assembling new construct by including the individual statements in the construct to get the total score.

**Hypothesized Model 2**

In second model, we hypothesized that 24 statements split into three first-order factors (i.e., instructional qualities, professional qualities and personal qualities) relied on the findings of previous study. The varimax (orthogonal) rotation in Study-1 extracted three dimensions, thus, Model 2 is considered a reasonable model for current data.

Table 2
*Hypothesized Models and Goodness-of-Fit Indices*

| Fit measure | Threshold for good fit | Threshold for acceptable fit | 1 First-order factor model value | 3 First-order factor model value |
|---|---|---|---|---|
| $X^2$ (df) | – | – | 993.52 (102) | 243.69 (96) |
| $X^2/df$ | $X^2/df < 3$ | $3 < X^2/df < 5$ | 9.41 | 2.96 |
| NFI | $.95 \leq NFI \leq 1$ | $.90 \leq NFI \leq .95$ | .59 | .91 |
| GFI | $.95 \leq GFI \leq 1$ | $.90 \leq GFI \leq .95$ | .82 | .93 |
| RMSEA | $0 < RMSEA < .05$ | $.05 < RMSEA < .08$ | .08 | .05 |
| TLI | $.95 \leq TLI \leq 1$ | $.90 \leq TLI \leq .95$ | .64 | .90 |
| CFI | $.95 \leq CFI \leq 1$ | $.90 \leq CFI \leq .95$ | .61 | .92 |

NFI = Normed Fit Indices; GFI = Goodness of Fit Index; RMSEA = Root Mean Square Error of Approximation; TLI = Tucker-Lewis Index; CFI = Comparative Fit Index.

In the present study, many indices were utilized to obtain the satisfactoriness of the hypothesized models (Table 2). Since there is no agreed upon or globally tolerable statistic as an index of ensuring model adequateness, for this reason, different indices were measured to check the models. Moreover, chi-square and Goodness of Fit Index (GFI) were also calculated to check the individual model. In addition, RMSEA was also employed to calculate the lack of fit in the hypothesized models (Browne & Cudeck, 1993; Steiger & Lind, 1980). In the end, two incremental fit index measures, TLI (Tucker & Lewis, 1973) and CFI (Bentler, 1990) were also used. Evaluating all the indices of goodness-of-fit judged in Study-2, first hypothesized model does not give a considerably better fit by normal standards. However, Model 2 significantly improves all indices compared to the first model and displays good fit, as specified by the different indices of model fit.

Table 3
*Mean, SD, Correlation Matrix, and Alpha Reliability Coefficients for TJPS and Sub-scales*

| Sr # | Measures | Mean | SD | 1 | 2 | 3 | 4 |
|---|---|---|---|---|---|---|---|
| 1 | Instructional Qualities | 2.73 | 0.62 | 1.00 | | | |
| 2 | Professional Qualities | 3.12 | 0.51 | .608** | 1.00 | | |
| 3 | Personal Qualities | 3.04 | 0.53 | .662** | .816** | 1.00 | |
| 4 | TJPS | 2.96 | 0.49 | .866** | .892** | .918** | 1.00 |
| | Cronbach's α | | | 0.719 | 0.816 | 0.773 | 0.887 |

**p < 0.01

Pearson correlation matrix for TJPS and its dimensions are good (Table 3). Dimensions to total scale association and inter-subscales association are significant at p < .01 that demonstrate the internal consistency and a measure of construct validity. Overall statistically moderate and high positive correlations were found among the subscales of TJPS. Professional qualities has a moderate significant correlation ($r$ = .608, $p$ < .01) with instructional qualities. The facet, personal qualities also has moderate correlation with instructional qualities ($r$ = .662, $p$ < .01) and high correlation with professional qualities ($r$ = .816, $p$ < .01). Similarly, TJPS has high correlation with instructional qualities ($r$ = .866, $p$ < .01), professional qualities ($r$ = .892, $p$ < .01), and personal qualities ($r$ = .918, $p$ < .01) respectively.

In gender-wise analysis, independent sample t-test was applied to study the difference among male (n = 303) and female (n = 313) teachers on TJPS.

Table 4
*Gender Difference on TJPS*

| Sr # | Scales | Gender | Mean | SD | t | Sig | 95% CI | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | LL | UL |
| 1 | Instructional Qualities | Male | 2.75 | 0.85 | 2.327 | .032 | -1.237 | -.063 |
| | | Female | 3.40 | 0.24 | | | | |
| 2 | Professional Qualities | Male | 3.25 | 0.47 | 1.274 | .219 | -.596 | .146 |
| | | Female | 3.48 | 0.30 | | | | |
| 3 | Personal Qualities | Male | 3.13 | 0.66 | 1.361 | .190 | -.827 | .177 |
| | | Female | 3.45 | 0.37 | | | | |
| 4 | TJPS | Male | 3.04 | 0.60 | 1.969 | .044 | -.827 | .027 |
| | | Female | 3.44 | 0.23 | | | | |

There is a significant difference between both groups regarding performance (Table 4). In instructional qualities subscale, the difference is statistically significant among male ($M$ = 2.75, $SD$ = .85) and female ($M$ = 3.40, $SD$ = .24) teachers $t$ (619) = 2.327, $p$ < .032. Moreover, on the basis of overall TJPS, there is also a significant difference between the performance of male ($M$ = 3.04, $SD$ = .60) and female ($M$ = 3.44, $SD$ = .23) teachers $t$ (619) = 1.969, $p$ < .044. As a whole, the high mean score of female teachers showed that they are more efficient performer in schools as compared to male teachers.

In location-wise analysis, independent sample t-test was applied to study the difference among urban (n = 315) and rural (n = 306) teachers on TJPS.

Table 5
*Location Difference on TJPS*

| Sr # | Scales | Location | Mean | SD | t | Sig | 95% CI | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | LL | UL |
| 1 | Instructional Qualities | Urban | 2.73 | 0.64 | -.279 | .780 | -.112 | .084 |
| | | Rural | 2.74 | 0.61 | | | | |
| 2 | Professional Qualities | Urban | 3.13 | 0.51 | .562 | .574 | -.057 | .104 |
| | | Rural | 3.11 | 0.51 | | | | |
| 3 | Personal Qualities | Urban | 3.06 | 0.54 | .888 | .375 | -.046 | .123 |
| | | Rural | 3.02 | 0.53 | | | | |
| 4 | TJPS | Urban | 2.97 | 0.50 | .396 | .693 | -.062 | .094 |
| | | Rural | 2.96 | 0.49 | | | | |

There is no significant difference between urban ($M$ = 2.97, $SD$ = .50) and rural ($M$ = 2.96, $SD$ = .49) groups regarding teachers' performance $t$ (619) = .396, $p$ < .693 (Table 5). As a whole, the high mean score of urban teachers revealed that they performed better than the rural teachers.

In job-status-wise analysis, independent sample t-test was applied to study the difference among permanent (n = 520) and contractual (n = 101) teachers on TJPS.

Table 6
*Job Status Difference on TJPS*

| Sr # | Scales | Job Status | Mean | SD | t | Sig | 95% CI | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | LL | UL |
| 1 | Instructional Qualities | Permanent | 2.79 | 0.72 | 2.283 | .029 | .056 | .953 |
| | | Contractual | 2.28 | 0.58 | | | | |
| 2 | Professional Qualities | Permanent | 3.15 | 0.56 | 3.182 | .003 | .192 | .868 |
| | | Contractual | 2.63 | 0.42 | | | | |
| 3 | Personal Qualities | Permanent | 3.07 | 0.61 | 3.691 | .001 | .278 | .958 |
| | | Contractual | 2.45 | 0.32 | | | | |
| 4 | TJPS | Permanent | 3.00 | 0.55 | 3.688 | .001 | .248 | .854 |
| | | Contractual | 2.45 | 0.25 | | | | |

The results revealed that there is a significant difference between permanent and contractual teachers regarding job performance in high and higher secondary schools. In the subscales, such as instructional qualities, professional qualities, personal qualities and in total teacher's job performance (TJPS) permanent ($M$ = 3.00, $SD$ = .55) and contractual ($M$ = 2.45, $SD$ = .25) teachers differ significantly $t$ (619) = 3.688, $p$ < .001. As a whole, the high mean score of permanent teachers showed that they performed better as compared to contractual teachers in high and higher secondary schools.

**Discussion and Conclusion**

The core purpose of the current study was to develop an indigenous, short and psychometrically suitable tool to measure the teacher's job performance in Pakistan and analyzing the effect of background variables on their work performance. As very few attempts have been made so far to measure this fact in the country, the present TJPS is the important tool of its kind developed in Pakistan. This is a multidimensional scale comprised of three factors such as instructional qualities, professional qualities, and personal qualities. In the scale validation procedure, EFA extracted a 24-item scale, which shows appropriate psychometric properties and further confirmed by CFA. The findings of EFA demonstrated that factor loadings ranged from 0.40 to 0.93 and the value of KMO was 0.82. Moreover, the total eigen-values for all the 24-items were above 1. The scale reliability statistics reveals that the Cronbach's α of overall scale was 0.87 and mean item-total-correlation up to 0.73, which proves the internal consistency of the scale.

Further, CFA was applied to know the items structure and fitness in the second study. The 3-factor-model was found much reliable with data and revealed better fit as compared to 1-factor-model, i.e. $\chi^2/df = 2.96$, NFI = .91, GFI = .93, RMSEA = .05, TLI = .90, and CFI = .92. In addition, the correlations between TJPS and its subscales were also in the expected direction, maintaining the convergent validity of the TJPS. This result also supports the assumption that the TJPS dimensions evaluate various aspects of teacher's job performance. It is also proposed that TJPS is internally reliable and a valid measure for identifying job performance among school teachers.

Numerous studies have demonstrated that teachers' gender has its effect on teachers' performance and effectiveness. The findings of the current study also revealed that the difference between male and female teachers regarding performance is significant. The performance of female teachers was much better than the male teachers in public schools. Hanif, Tariq, and Nadeem (2011) argued that gender is a strong predictor of teacher's job performance. They believed that gender accounted for 15% variance in teacher' job performance and emerged as a major determinant of work performance of teachers. Norlander-Case, Reagan, and Case (1999) expressed that female teachers tend to perform better in teaching than their male counterparts. On the contrary, Akiri and Ugborugbo (2008) found no noteworthy dissimilarity between the performance of male and female secondary school teachers.

Moreover, the study reveals no considerable difference between urban and rural school teachers regarding performance. The findings provide evidence that the performance of urban and rural secondary school teachers is same. However, the high mean score of urban teachers demonstrates better performance of urban teachers as compared to rural teachers in public schools. This result is also supported by Akiri and Ugborugbo (2008) described no significant difference between the performance of urban and semi-urban teachers at secondary school level. However, they reported a major difference between urban and rural teachers in terms of performance. The study results also explained a significant difference between the performance of permanent and contractual teachers in schools. Moreover, the high mean score of permanent teachers described that they performed better as compared to contractual teachers. Furthermore, Fyfe (2007) reported no significant difference between the performance of permanent and contractual teachers. On the other hand, some studies demonstrated that there is a significant difference between the performance of permanent and contract teachers. They found contract teachers more efficient as compared to regular teachers (Atherton & Kingdon, 2010; Hameed, Dilshad, Malik, & Batool, 2014). The low performance of contractual teachers in the present study may be attributed to various reasons resulted by weaker commitment, low job satisfaction, low level of organizational justice, the absence of ethical climate, the harsh behavior of management and strict supervision of contractual teachers.

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# *Going Green, Living Green* and Use of Green Spaces at the Tertiary Institutions of Nigeria

Kofo A Aderogba (PhD)[*]

## Abstract

*Environmentalists have been warning that human economic and social activities are exceeding the limits of the planet; and man has kept on pushing those limits back with clever and new technologies and unsustainable behavior. This work has tried to show what the concept of Going Green means for university communities using Tai Solarin University of Education as a case study. The entire Ijagun Community was studied because both the university and the historic settlement, the university host community, Ijagun, have grown together since the establishment of the Tai Solarin College of education. The community of Ijagun was toured and so also the university campus (Ijagun Campus). The changing face of the earth was observed and records taken of the human population, plants and animals, vegetal cover, physical development and structures by number and type, road network, pollution, waste generation and its management, etc. The Registry, Establishment, and Works Directorates of the university provided data and information on student registration, staff and the physical structures, layout and development of the campus. A standardized and pretested questionnaire was also used to collect data and information from two categories of subjects: colleagues (10) and 400 Level students (40) from each of the 5 colleges. The work found out that the concept of Going Green and Living Green is not popular particularly among students: Green areas are few, everyone crosses lawns indiscriminately, waste is generated and poorly managed, vegetal cover is fast decreasing, there is no respect for plant and animal life forms, no thought of mitigation measures against global warming and climate change, etc. Generally, the entire environment is vulnerable to environmental degradation, leading to an unsustainable environment. There must be specialized media for educating and training every member of the community to go green and live green. The university itself may have to do more to encourage going green and living green towards attaining a sustainable green academic community.*

**Key Words:** Green, university environment, conservation, sustainable academic community

[*] Department of Adult Education, College of Specialized and Professionalized Education, Tai Solarin University of Education, Ijagun, Ogun State, Nigeria
Email: kofoaderogba@yahoo.com

## Introduction

As assert by Hawken, Lovins, and Lovins (2016) that for decades, environmentalists have been warning that human economic and social activities are exceeding the limits of the planet; and man has kept on pushing those limits back with clever and new technologies; yet, they observe "living systems are undeniably in decline." This apparent conflict need not be so, in fact, there are fortunes to be made in reconciling man's expanding social and economic activities with the living systems. For example, *An Inconvenient Truth* by Al Gore (2006) is about the campaign of a former Vice President of the United States of America to educate the general public about global warming via a comprehensive slide show. The film, which he says has shown more than a thousand times, is an illustrated talk on climate aimed at alerting the public to an increasing "planetary emergency" due to global warming, and shows re-enacted incidents from Al Gore's life story which influenced his concerns about environmental issues.

Gore (2006) argues that if appropriate actions are taken soon, the effects of global warming can be successfully reversed by releasing less carbon dioxide ($CO_2$) and planting more vegetation to consume existing $CO_2$. Gore calls upon his viewers to learn how they can help in these efforts. He concluded with the following words:

Each one of us is a cause of global warming, but each one of us can make choices to change that with the things we buy, the electricity we use, the cars we drive; we can make choices to bring our individual carbon emissions to zero. The solutions are in our hands, we just have to have the determination to make it happen. We have everything that we need to reduce carbon emissions, everything but political will. But in America, the will to act is a renewable resource.

Since the release of the film, it has been credited with raising international unrestricted awareness of global warming and reenergizing the environmental movement. The documentary has also been included in science curricula in schools around the world, but has triggered some controversies too (Gupta, 2010; Hill and O'Neill 2008).

In their work entitled *Ready? Set? Green!* Hill and O'Neill (2008) assert that "living green means reversing climate change, and that it also means "protecting children and pets, improving one's own health, and saving money. They say that it does not necessarily demand a radical overhaul of life – just some simple adjustments, such as switching to healthier cleaning products and driving fewer kilometers each week. They posit that "it is the definitive (and recyclable) guide to modern *green living*. It offers solutions to make homes, offices, cars, recreation, tourism, and vacations, production, products and services more eco-friendly." Their work also include advice on how to properly insulate houses, cancel junk mails, and choose fruits and vegetables wisely. There is no doubt that *Ready, Set, Green!* will help to change the future of the

planet and restore balance to daily lives regardless of geographical location and climate conditions (Hill and O'Neill (2008).

**Statement of the Problem**

The community of Tai Solarin University of Education is growing in its built up area, human population, needs and the phenomena of climate change and global warming kept on threatening. These should have implications for the *Going Green* and *Living Green*, environmental management, sustainability and community life. Though the community is naturally growing and developing like many of human settlements in the west and of course, in Nigeria (Mabogunje, 1981), the university has greatly impacted on the community over the years: There have been massive changes in the landscape, vegetation cover, built-up area, infrastructures, human population and others. The naturalness is greatly obviously depleted. The carrying capacity is being over stretched. The environment is consistently degrading. It is not unlikely that the trend will continue as there are no mechanism for check-mating. These have significant implications for sustainability and Environmental Education.

**Objective of the Study**

The objective of this study is to unravel what the concept of *going green* and *living green* means for university environment, using Tai Solarin University of Education, Ijagun, Ogun State in Nigeria as a case study; and make suggestions for sustainable *going green* and *living green* in an academic community. Indirectly, the entire Ijagun Community was studied because both the university and its historic settlement, the host community, have grown together over the years. Specifically, the work:

1. Examined what understanding the community of Tai Solarin University of Education has of *going green* and *living green*;
2. Examine the challenges of *going green* and *living green* in the academic community of the Tai Solarin University of Education, Ijagun, Ogun State, Nigeria; and
3. Make suggestions for *going green* and *living green* in the academic community (Tai Solarin University of Education) and in any academic institution.

The work looks at both the university campus and its host community, Ijagun and immediate environ together since both have growth together since the inception of the College of Education. Ijagun is the University and the university is Ijagun.

**Research Questions**

The following research questions were answered for the purpose of pursuing the objectives therefore:

1. What is the perception of *going green* and *living green* to the university community?

2. What are the challenges of *going green* and *living green* in the university community?
3. What are the contemporary practices of *going green and living green* in the university community?

## The Community of Tai Solarin University of Education

Ijagun is one of the adjoining villages south of Ijebu-Ode. It is in Odogbolu Local Government Area of Ogun State, Nigeria. The town is about 100 kms away to Lagos Metropolis in the south and almost the same distance to Ibadan, that is, to the north. It is situated on the Ewekoro Formation and the soil is lateritic clayish. The climate is tropical continental. The rainfall is not less than 1,500 mm and spreads for a period of about eight months, April to November. The dry season (December to March) is when harvesting of crops and preparation for the next planting season are done.

Ijagun lies within the high rain forest of southwestern Nigeria, but the natural vegetation has been cleared for human settlement, cemetery, transportation network, educational land use, agricultural land use and other uses. What therefore remains substantially is secondary vegetation and cultigens.

The history of the community is relatively long and the sources are diverse. But all the sources have it that it was a farmstead inhabited by an Ijebu group, a very long time ago. Other adjoining settlements are Ijele, Imaweje, Idagbo, Igido-Ogbo, Oke Lamuren, Iwapa and Odo Gamaji. The population of each of them is, by the 2006 head count, less than 2,000 people (National Population Commission, 2006). A good proportion of the indigenes work and live outside the community, that is, in Ijebu-Ode, Abeokuta, Ibadan and Lagos Metropolis and beyond, but they usually come around during Charismas and New Year, Esther, Eid-El Kabir and Ed-El Muluid to celebrate with their loved ones. During such festival periods, and when the university is in session, is when the community experiences its optimal though spontaneous population that is made up of more youths than the aged and children.

Table 1 shows the increasing number of student population over the years, 2005/2006-2015/2016. The table shows that the student population in the community was 12,338 in the 2005/2006 session. It was only lowest in 2008/2009 (5,512) but as high as 14,324 in 2015/2016 session. It thus means that the student and staff population put together could constitute over 75% of the human population in the community, as it is, at its current optimum.

Table 1

*Student Registration, 2005/2006 - 2015/2016 Academic Session.*

| *Session* | *Males* | *Females* | *Total* |
|---|---|---|---|
| 2005/2006 | 4925 | 7431 | 12,338 |
| 2006/2007 | 5118 | 8405 | 13,523 |
| 2007/2008 | 4403 | 6411 | 10,814 |
| 2008/2009 | 1890 | 3844 | 5,512 |
| 2009/2010 | 4296 | 6208 | 10,501 |
| 2010/2011 | 4014 | 5876 | 9,890 |
| 2011/2012 | 3922 | 6404 | 10,326 |
| 2012/2013 | 3682 | 6010 | 9,692 |
| 2013/2014 | N/A | N/A | 11,273 |
| 2014/2015 | 53/89 | 6984 | 12,373 |
| 2015/2016 | 6114 | 8213 | 14,324 |

Source: Directorates of Academic Planning, Quality Assurance and Research, Tai Solarin University of Education, Ijagun, Ijebu-Ode, Nigeria.

The community, made up of Christians, Muslims, African Traditional Religion practioners and atheists adherents, is peaceful and law-abiding. The population of both Christians and Muslims is almost equal; but both are far more than 95.20% of the entire population. There are churches and mosques and shrines of gods and goddesses within and around the community. However, the shrines are decreasing in number and now practically exist only in the shadow of their pasts.

The major occupation is agriculture, with cassava, maize and vegetables as their major food crops. Cocoa and oil palm trees that are sparingly cultivated make little or no impact in the socioeconomic lives of the indigenes who are well known traders (Mabogunje, 1980).

The establishment of the College of Education in Ijagun in the early 1980s ushered in the community's new look, status and major attributes of an educational community much of which (new look) has been gradually growing and getting more pronounced as the years go by. The student population that was about 2,000 at the inception of the College of Education, doubled with the metamorphosis of the College of Education to a University of Education (the first in Nigeria). Apart from the student population, over 38.45% of who reside in Ijagun, there are academic, non-academic and ancillary staff of the University that number over 1,000 people. Suffice to say that the University has opened up the community for additional trade and commerce, translating into a great improvement in transport and communication. Mobile phones are now freely used in every nook and cranny of the community with businesses in the sales of cell phones and airtime forming part of the trade and commerce now. Telephone masts

are now a significant feature of the landscape.

The built-up area has increased by over 500.00%, that is, between 1980 and 2015. Whereas there was only one access road, that is, the road from Ijebu-Ode that passes through to Imaweje and Ijele before, now the University has opened up another road that makes access to Ijebu-Ode through a dual carriageway possible. The number of roofs/houses has tremendously increased from less than 200 units to over 1,000 units in Ijagun though the University owns the best, the most colourful and the most gigantic of the buildings. As the student population soars so also the number of residential buildings and the number of academic and administrative buildings on the campus. Waste, particularly around students' residential areas, has also soared and it is becoming problematic.

However, lack of basic infrastructures, namely pipe-borne water, lock-up shops, hospitals and maternity homes, post office, police post and other facilities is a setback for further sustainable growth and development. Thus, the community is fervently yearning for government intervention in the provision of social services and infrastructures.

The philosophy of the university is "to train teachers who are proficient in their respective disciplines and concomitantly possess vocational skills and entrepreneurial capabilities to achieve the required human capital for all-round development. This will be in reference to students' capacity for scholarship development that recognises dignity of labour, personal integrity and selflessness." The *mission* of the university states thus:

to enhance the quality of teaching and learning and continuously update the methods and skills of knowledge providers by equipping them with modern technology and services delivered by skilled and motivated members of staff to meet the contemporary and future needs of Nigeria with the capacity to compete globally.

In all respects, socially, and in environmental management, the community should be able to leverage on these endowments for sustainable living and development of Ijagun as a host for the university. The foregoing has demonstrated the changes occurring in the community of Ijagun and the university, but what does the concept of *Going Green* and *Living Green* mean to the academic/rural community; and how much of *Green* can be observed in Ijagun and on the university campus for sustainable environment bearing in mind the threatening climate change and global warming?

By and large, the question is: what are the implications of the above development for the environment, *Going Green* and *Living Green*, environmental management, sustainability and community life? The community is naturally growing and developing like many other human settlements in western Nigeria and, of course, in Nigeria generally; and the university has greatly impacted on the host community over the years: There have been massive changes in the landscape, vegetation, built-up areas,

infrastructures, human population etc. It seems there is no *naturalness* anymore. The carrying capacity of the ecosystem is being overstretched. The environment is consistently being degraded, and it is not unlikely that the trend will continue as there are no mechanisms for checking the damage. This, certainly, has significant implications for sustainability and for environmental education.

## Methodology and Limitations

It is a tremendous advantage that the researcher has been part of the community since the inception of the College of Education in Ijagun through the transition to the university status of the institution. That enabled the work to leverage on her experience of the changing environment of the community. In addition, the entire community of Ijagun was toured, so also the university campus (Ijagun Campus). The changing face of the earth (the environment) was observed and records were taken of the human population, plants and animals, vegetal cover, development in structures by number and types, road network, pollution, waste generation and management, etc. The Registry, Establishment and Works Directorates of the University provided data and information on student registration, the staff (academic and non-academic), the physical structure, layouts and development of the campus. A standardised questionnaire was also used to collect data and information from two categories of subjects: (1) 10 colleagues (academic and non-academic) who were part of the community since the inception of the College of Education; and (2) 40 400-level students, from each of the 5 colleges of the university.

The work could not access topographical maps of the community that would have given a sequence of changes in the topography over the years. But records from the Works Directorate of the university and the over 35 years of experience in the community of the researcher adequately supplemented for these.

## Results and Discussion

### Community Understanding of the Concept:

The concept of *Going/Living Green* is "Fully Understood" by only 5.24% of the respondents, "Well Understood" by 7.4% and "Understood" by 10.00%. It was "Partially Understood" by 14.76%, "Not Understood" by over one-fifth, that is, 21.90%; and as much as 35.24% "Don't Know." Cumulatively, less than 40.00%, that is, 37.14%, together, picked "Fully Understood," "Well Understood," "Understood" and "Partially Understood." Inversely, over 50.00%, that is, 62.86% are either "Others," "Don't Know," or "Not Understood" (see Table 2).

*Table 2*
*Understanding of the Concept of Going/Living Green*

| *Understanding of Going Green* | *Frequency* | *Proportion (%)* | *Cumulative Percentage* | *Inverse Cumulative % Proportion* |
|---|---|---|---|---|
| Fully Understood | 11 | 5.24 | 5.24 | 100.00 |
| Well Understood | 15 | 7.14 | 12.38 | 94.76 |
| Understood | 213 | 10.00 | 22.38 | 87.62 |
| Partially Understood | 31 | 14.76 | 37.14 | 77.62 |
| Not Understood | 46 | 21.90 | 59.04 | 62.86 |
| Don't Know | 74 | 35.24 | 94.28 | 40.96 |
| Others (Specified) | 12 | 5.72 | 100.00 | 5.72 |
| *Total* | *210* | *100.00* | | |

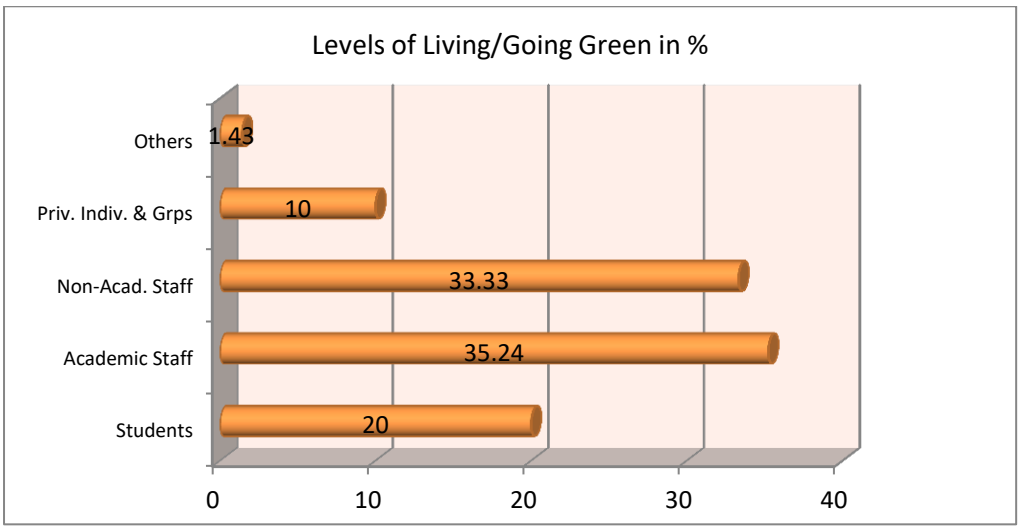


Fig. 1: Extent of Knowledge of the Concept of *Living/Going Green* in the University Community

Figure 1 shows that only 20% of the students have *Gone/Lived Green*. 10% of Private Individuals and Groups have been *Living* and *Going Green*. 33.33% of the Non-Academic Staff and 35.24% of the Academic Staff have *Gone Green* and are *Living Green*. These figures are highest among the Academic Staff (35.24%), while Private Individuals and Groups (except others [1.43%]), 10.00% are the least.

**Environmental Interaction, Living Green and Damages**

21 ways by which members of the community have lived, interacted and damaged the environment between 1980 and 2014 were pre-determined and summarised. One of them was ambiguous and consequently rejected and thus reduced the number of the pre-determined variables by one. They were all estimated and express in percentages. The "Human Population" has increased by about 75.00%, the "Built-up Area" by 85.00%, "Facilities and Amenities," 30.00%, "Pollution," 70.00% and "Waste Generation and Poor Management," 85.00%. Others, "Level of Income" (65.00%), "Religious Centers," (65.00%), "Environmental Degradation" (55.00%), "Cemetery Areas" (30.00%), "Road Network" (including streets, roads, paths, lanes, etc.) (65.00%), "Communication" (75.00%), "Physical Structure" 85.00%, "General Level of Literacy" (65.00%) and "Consumptions" (94.00%) have all increased over space and time. Conversely, "Waste Management" (-55.00%), "Animals and Pet Live Forms" (-35.00%), "Animal and Plant Species" (-25.00%), "Vegetal Cover" (-35.00%), "Green Areas" (-30.00%), and "Environmental Sanitation" (-45.00%) have all reduced and or deteriorated by significant proportions over space and time (see Figure 2).

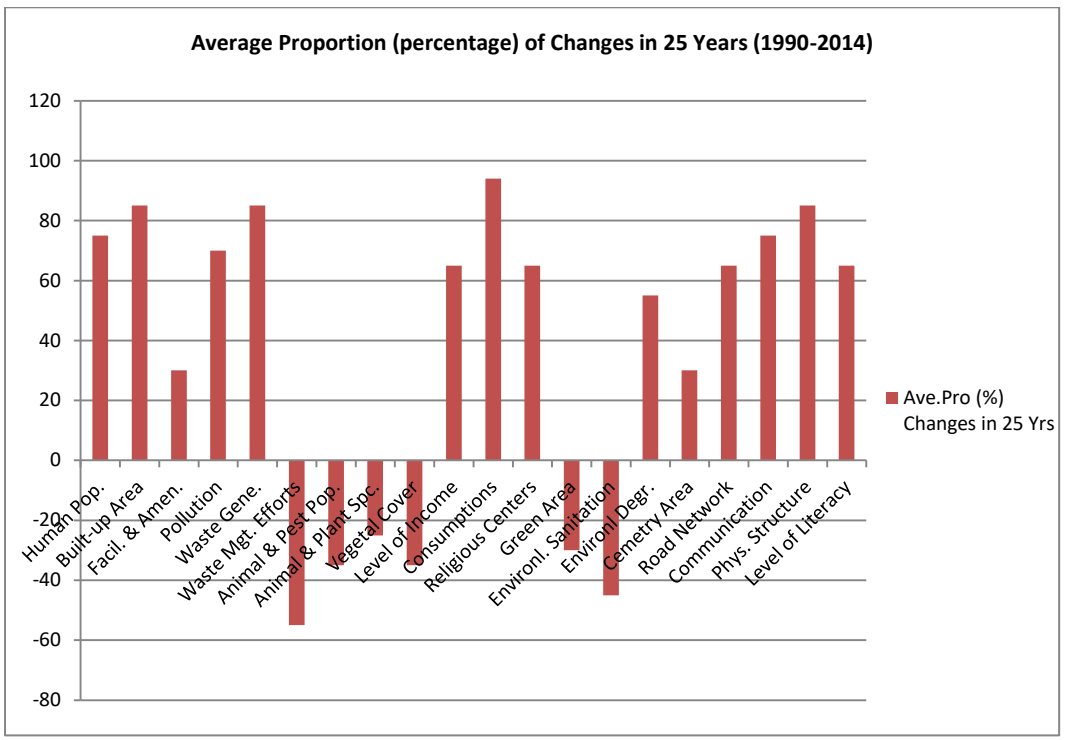


Fig. 2: Estimated Average % Proportion of Changes in the Physical environment in 25 Years (1990-2014)

Specifically, Table 3 shows generic roles the community has played towards *Going Green* and *Living Green.* 36 alternatives derived from literature (Al Gore, 2006; Aderogba and Bankole, 2016; Grove, 1997; Gupta, 2010; Hill and O'Neill, 2008; Lambin, Turner, Geist, Agbola, Angelsen, Bruce, Coomes, Dirzo, *et al*, 2001; Team Treehugger, 2014; Worldwatch Institute, 2006; 2009; 2010) were put across to the 210 subjects, though some of the alternatives are similar and interrelated. Each respondent picked more than one choice. Less than 10.00% had participated in "Sustainable Management of Waste" (4.29%), "Planting of Windbreakers" (6.19%), "Keeping and Maintenaning Green Lawns" (1.43%), "Teaching and Educating Adults and Youths" (8.57%), "Educating Adults" (3.33%), Prevention and Elimination of Bush Burning" (3.33%), "Use of Natural Resources" (5.24%), "Use of Eco-friendly Products" (8.10%), "Ensuring Ecological Balance" (3.81%), "Respecting Plant and Animal Life Forms" (2.38%), Consumption of Local/Primary Goods and Services" (9.05%), "Protection of Watersheds" (0.95%), "Practising Sustainable Cultivation of Crops" (3.33%), "Avoidance of Pollution" (7.14%), "Eating/Buying Only Required Goods and Services" (5.23%), "Reducing Green House Gas (GHG) and Effects" (3.33%), "Conserving/Saving Energy" (8.10%), "Consuming Only Organically Grown/Produced Goods" (4.76%), "Buying/Consuming Only Required Goods and Services" (5.24%), "Adopting Green Driving Practices" (6.19%), "Reducing Waste" (7.62%),"Use of Environmental Friendly Materials Only" (1.90%), "Use of Green Goods and Services Only" (3.81%), "Campaign for *Going Green/Living Green* (1.43%), "Eating Fruits and Vegetables" (9.05%), "Use of Energy Saving Bulbs and Machines/Systems" (8.57%), "Putting an End to Uncontrollable Use of Chemicals" (3.33%), "Putting an End to Uncontrollable Use or Destruction of Vegetation" (4.29%) and "Avoiding Crossing through Lawns" (5.71%).

Others (Specified)" (30.95%), "Planting of Flowers" (14.76%), "Reduction in Paper Consumption" (27.62%), "Avoiding Printing of Junks" (41.90%), "Less Driving and Burning of Fuel" (18.57%), "Keeping Green Areas" (13.81%) and "Planting of Ornamental Plants (10.00%) are highest activities/roles played towards *Going/Living Green* though there may be some other explanations for the high proportions.

**Table 3**
**Selected Generic Roles the University community has played towards Going/Living Green**

| *Roles Played Towards Going Green* | *Frequency* | *Proportion (%)* |
|---|---|---|
| Sustainable Management of Waste | 9 | 4.29 |
| Planting of Windbreaks | 13 | 6.19 |
| Keeping and Maintenance of Green Lawns | 3 | 1.43 |
| Planting/Cultivation of Cover Crops | 11 | 5.24 |

| | | |
|---|---|---|
| Planting of Ornamental Plants | 21 | 10.00 |
| Teaching/Educating Youths | 18 | 8.57 |
| Prevention/Elimination of Bush Burning | 7 | 3.33 |
| Keeping Green Areas | 29 | 13.81 |
| Use of Natural Resources | 11 | 5.24 |
| Use of Eco-friendly Products | 17 | 8.10 |
| Less Driving and Burning of Fuel | 39 | 18.57 |
| Ensuring Ecological Balance | 8 | 3.81 |
| Respecting Plant and Animal Life Forms | 5 | 2.38 |
| Consumption of Local Goods and Services | 19 | 9.05 |
| Protection of Watersheds | 2 | 0.95 |
| Practising Sustainable Cultivation of Crops | 7 | 3.33 |
| Avoidance of Pollution | 15 | 7.14 |
| Eating Buying Only Required Goods and Services | 11 | 5.23 |
| Reducing Green House Gas (GHS) and Effects | 7 | 3.33 |
| Conserving Energy/Saving Energy | 17 | 8.10 |
| Consuming only Organically Grown/Produced Goods | 10 | 4.76 |
| Consuming only Required Goods and Services | 11 | 5.24 |
| Adopting Green Driving Practices | 13 | 6.19 |
| Reducing Waste | 16 | 7.62 |
| Use of Environmental Friendly Materials only | 4 | 1.90 |
| Use of Green Goods and Services only | 8 | 3.81 |
| Campaign for Going Green/Living Green | 3 | 1.43 |
| Eating Fruits and Vegetables | 19 | 9.05 |
| Use of Energy Saving Bulbs and Machines/Systems | 18 | 8.57 |
| Educating Adults | 7 | 3.33 |
| Putting an end to Uncontrollable Use of Chemicals | 7 | 3.33 |
| Putting an end to Uncontrollable Destruction of Vegetation | 9 | 4.29 |
| Avoiding Crossing through Lawns | 12 | 5.71 |
| Avoiding Printing of Junks | 88 | 41.90 |
| Reduction in Paper Consumption | 58 | 27.62 |
| Planting of Flowers | 31 | 14.76 |
| Others (Specified) | 65 | 30.95 |

Similarly, Figure 3 shows an estimation of levels of achievement/participation in *Greening* the environment. The subjects are grouped into six: "Private Individuals and Groups," "Students," "Academic Staff," "Non-Academic Staff," "Unions," "The University (Management)"; and a seventh one, "Others." The level of achievement of

"Others" and the "Unions" is just 3% each. "Non-Academic Staff" and "Students" attained 4.00%. The "Academic Staff" achieved 7.00%, while "Private Individuals and Groups" achieved 21.00%.

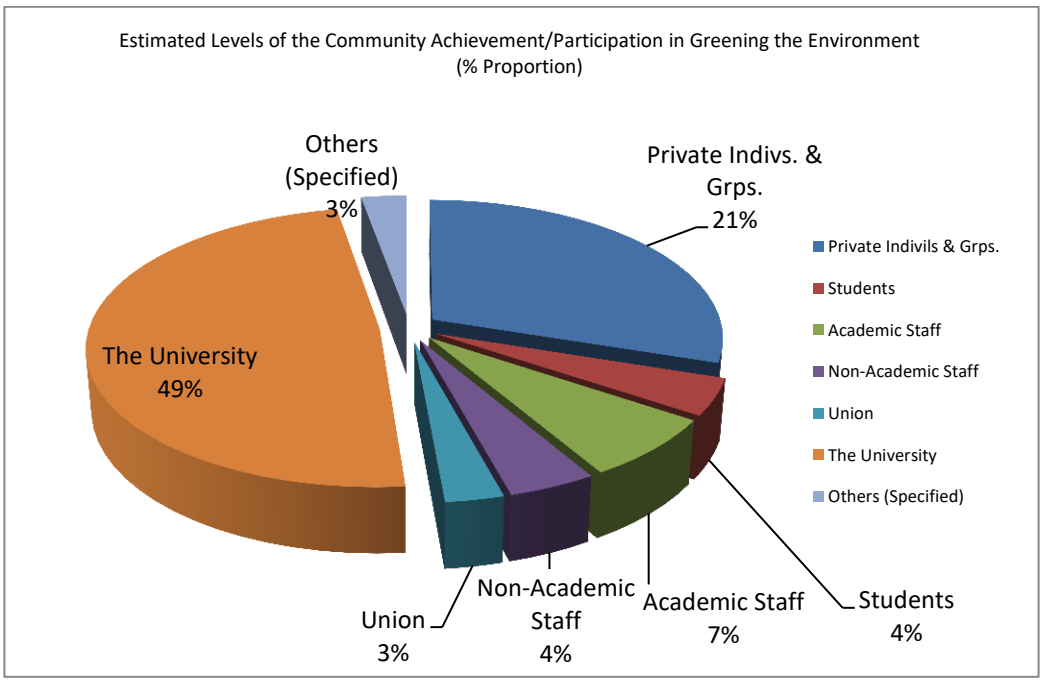


Fig. 3: Estimated Levels of Community Achievement/Participation in Greening the Environment

The "Private Individuals and Groups" should include those students in hostels and other individuals who have planted ornamental plants and flowers around their hostels and places of abode; minimize and manage waste; and consistently advocate against pollution. The University, through the culture and practices of beautifying the environment of each block of buildings on the campus, roads and paths has achieved 49.00%, that is, the highest. To mark the Student Weeks, students of Geography and Environmental Management do give lectures, talks and campaign about *greening* the environment and *living green.*

A non-academic staff member of the university who transited from the College of Education (to the university) strongly stated and made suggestions that:

> Flowers were planted to beautify the environment, and the ornamental plants had existed even before the takeoff of the University, but there seems to be no addition, no modification. Care

> for the beautification of the environment and or greening the community is not the primary concern of the university now …. All of us can collaborate to mitigate the effects of climate change and global warming. [We should] plant more trees and shrubs, create lawns and paths, …. prevent trampling on grass areas, reduce waste and develop sustainable waste management behavior, etc. A quick and subtle suggestion: Why don't we create paths across those lawns that everybody is trampling upon? It takes us virtually nothing to do that!

In a similar way, a 400-level student of the College of Humanities laments on the status of *Going Green* and *Living Green* at the halls of residence (among the indigenes) and on campus generally as follow:

> *Going/Living Green* is not the issue but this community is made up of the indigenes, the staff (academic and non-academic), students and visitors [the latter of who are minute in proportion]. …. We are many. We are all culprits: No [one has] respect for the plants and flowers; we don't admire them at all; we trample on grass and cross lawns anyhow! Flower beds are not respected either. Waste is indiscriminately generated and poorly managed; [waste] generation and [the] effects of Green House Gas (GHG) are unabated and noticeable. We [students] buy and consume as if the end has come (as long as there is money). We travel again and again [often]. …. Often, vegetal cover has been replaced by bare ground. The wind raises dust in the dry seasons and rain leads to marshy grounds. …. Our residential places are worse: No regular supply of water, people defecate around houses and along roads and paths. Environmental sanitation is very poor. …. All of us can be part of gentrification [rejuvenation], *Going Green* and *Living Green*. It is a matter of policy and determination. Everybody needs to be purposefully educated too. The school has to teach every student about climate change and global warming and the impacts.

A 100-level female student of Agricultural Science felt disappointed about the environment he met on resumption as a student and heaps the blames on the student and the university authority as following:

> 'Am disappoint for the way student behave: we drop dirt (pieces of papers, sachets of water, nylon of bread, food left over, kitchen remains, rags, etc.) anyhow and we care least about where we pass through on the campus. …. The make-up of some of us ladies is exaggerated, odd and could be injurious to the body. …. I have never

> seen anybody correcting anyone. …. In our residences, some tune radio and television volumes to the highest. The university must come up with environmental policies and programmes that should involve every stake holder; and subsequently impose penalty on environmental defaulters. It is expected that we should think green, live green and adapt.

Going green is making more environmentally friendly decisions such as to "reduce, reuse and recycle." And there are a number of reasons for Going Green as LoveToKnow Corporation (2016) specifies three main reasons, namely:

a. Endangered animals, deforestation, global warming and growing landfills are having a detrimental effect on planet earth, and some day may make the planet a very unpleasant place to live;
b. Going green involves taking steps to minimize the damage humans are doing; to live an environmentally responsible life, and to make choices that will help preserve the earth and its non-renewable resources instead of destroying them; and
c. By eating natural, organic, locally produced foods, you save on carbon emissions, limit the use of dangerous pesticides and have a healthier meal.

The Corporation also gave two examples thus:

1. When you switch your light bulbs to compact fluorescent lamps and start recycling; and
2. It is to recycle and buy recycled products.

However, the foregoing has established that the understanding of the concept of *Going Green* and *Living Green* is ridiculously low in the university community, while actions that negate the ideal are high. The changes, positive and negative, that have occurred in the community are enormous. Consequently, directly and indirectly, there is pollution of land, water and air; there is loss of energy irrespective of the source(s); waste is massively generated and poorly managed; the level of conservation of the resource endowment (tangible and intangible, exhaustible and inexhaustible) is perceptibly low; and the ecological balance of the earth is not protected. Any positive roles played by individuals and groups and the university are considerably low. Though the University has hitherto played some leading roles in *Going Green* and *Living Green*, it is laying back; and much more could be done.

Team Treehugger (2014) gives explicit reasons for *Going Green* and describes Top Ten Tips for *Going* and *Living Green* (Team Treehugger, 2014). Similarly, Wise Bread, (2010) outlines 30 Easy Ways to *Go Green* in offices (and in a university community). Also, the Appendix describes 10 Ways to *Go Green* and *Save Green* ((Worldwatch Institute, 2010). These may be adequately considered as quite sufficient for *Going Green* and *Living Green* in any human community (Lieberman, 2013; Stohr,

2013; Malone, 1999; Cheng, 2013; Dala Lama, 1990) and in a university community in particular.

**Conclusion**

The concept of *Going Green* and *Living Green* is more or less alien to over 50 % of the respondents to our questionnaire in the community of Tai Solarin University of Education. The community is consistently increasing in human population, built-up areas, and human activities. The impact of climate change and global warming did not isolate the community unaffected (Inter-Governmental Panel on Climate Change (IPCC), 2007). The community is therefore getting more and more vulnerable to environmental degradation and deterioration.

There is a need for a reduction in pollution (of land, water and air), conservation of energy (regardless of the source[s]), reduction in the level of unwarranted consumption and waste generation, conservation of resources (tangible and intangible, exhaustible and inexhaustible), and protection of the ecological balance of the environment. To start with, there must be massive environmental education, and gentrification, and only the University can take the lead.

**Recommendations**

The principles of the five Rs inherent in environmental protection and management, though complex and interrelated, are imperative for protecting the community from affordable environmental damage, as well as helping to ensure that living in the community is viable and sustainable. The onus is, however, on the individuals, the students, university in-house unions and the university to collaboratively work and comply with the principles of *Living* and *Going Green.* A man cannot give what he does not have. The university must make Environmental Education a must for every student. The program of study of every student must include *Environmental Education*, and made compulsory, though it may not be a unit carrying course. In this way, the students (and indirectly the community) will be educated and well informed about their environment; and even armed with the tools and techniques of teaching, caring and *Going/Living Green.* In the same vein, the university may have to extend its Corporate Social Responsibility (CSR) to the entire Ijagun Community – it is an inclusive part of the university and it is within this part that over 75% of the students reside. Thus, the university may have to design, develop and deliver programs to the youth and adults alike on the concept of Going/Living Green and its significance or benefits. The Appendix could be a robust background to the scheme.

All members of the community, academic, non-academic and others must be made to be participants in the programme/schemes of *Going/Living Green.* Tree planting by students, lecturers, non-academic staff, in-house unions, visitors; as well as campaigns, competitions, debates, public lectures, debates, etc. will go a long way to educate and inform the public about the concept and scheme of *Going Green* and *Living*

*Green*. This paper is of strong opinion that: (1) *Environmental Education* must be part of the university curriculum for every student; and (2) Orientation of students must include lectures/talks/discussions/debates on *Going Green* and *Living Green*. It may not be without cost however, but the benefits will outweigh the cost. As asserted by Abler, Adams and Guold (1976), for the environment to change and man's roles to bring this about is circularly causal: As the days (and seasons) pass by, there are changes, alterations, modifications and additions to and or subtraction from the surface of the earth (of the community). The onus is therefore on all stakeholders to adjust and intensifying the greening activities for community sustainability.

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## Appendix

### 10 Ways to Go Green and Save Green

How can we live lightly on the Earth and save money at the same time? Below is the idea of the World watch Institute, a global environmental organization. The organization share ideas on how to ***GO GREEN*** and ***SAVE GREEN*** at home and at work. Climate change is key. There are many of the steps to take to stop climate change and make lives better.

The following are the 10 simple things that could be done to help reduce human environmental impact, save money, and live a happier, healthier life though some sound advanced for most African communities.

1. **Save energy to save money**.
    - Set your thermostat a few degrees lower in the rainy season and a few degrees higher in the dry season to save on heating and cooling costs.
    - Install compact fluorescent light bulbs (CFLs) when your older incandescent bulbs burn out.
    - Unplug appliances when you're not using them. Or, use a "smart" power strip that senses when appliances are off and cuts "phantom" or "vampire" energy use.
    - Wash clothes in cold water whenever possible. As much as 85 percent of the energy used to machine-wash clothes goes to heating the water.
    - Use a drying rack or clothesline to save the energy otherwise used during machine drying.
2. **Save water to save money.**
    - Take shorter showers to reduce water use. This will lower your water and heating bills too.
    - Install a low-flow showerhead. They don't cost much, and the water and energy savings can quickly pay back your investment.
    - Make sure you have a faucet aerator on each faucet. These inexpensive appliances conserve heat and water, while keeping water pre2ssure high.

- Plant drought-tolerant native plants in your garden. Many plants need minimal watering. Find out which occur naturally in your area.

3. **Less gas = more money (and better health!).**
    - Walk or bike to class/work. This saves on gas and parking costs while improving your cardiovascular health and reducing your risk of obesity.
    - Consider telecommuting if you live far from your class/office/work. Or move closer. Even if this means paying more rent, it could save you money in the long term.
    - Lobby your local government to increase spending on sidewalks and bike lanes. With little cost, these improvements can pay huge dividends in bettering your health and reducing traffic.
4. **Eat smart.**
    - If you eat meat, add one meatless meal a week. Meat costs a lot at the store-and it's even more expensive when you consider the related environmental and health costs.
    - Buy locally raised, humane, and organic meat, eggs, and dairy whenever you can. Purchasing from local farmers keep money in the local economy.
    - Watch videos about why local food and sustainable seafood are so great.
    - Whatever your diet, each low on the food chain. This is especially true of sea food.
5. **Skip the bottled water.**
    - Use a water filter to purify tap water instead of buying bottled water. Not only is bottled water expensive, but it generates large amounts of container waste.
    - Bring a reusable water bottle, preferably aluminum rather than plastic, with you when traveling or on campus.
    - Check out for short article for the latest on bottled water trends.
6. **Think before you buy.**
    - Go online to find new or gently used secondhand products. Whether you've just moved or are looking to redecorate, consider a service like Craiglist or Free Sharing to track down furniture, appliances, and other

items cheaply or for free.

- Check out garage sales, thrift stores, and consignment shops for clothing and other everyday items.
- Watch a video about what happens when you buy things. Your purchases have a real impact, for better or worse.

7. **Borrow instead of buying.**
    - Borrow from libraries instead of buying personal books and movies. This saves money, not to mention the ink and paper that goes into printing new books.
    - Share power tools and other appliances. Get to know your neighbors while cutting down on the number of things cluttering your closet or garage.
8. **Buy smart.**
    - Buy in bulk. Purchasing food from bulk bins can save money and packaging.
    - Wear clothes that don't need to be dry-cleaned. This saves money and cuts down on toxic chemical use.
    - Invest in high-quality, long-lasting products. You might pay more now, but you'll be happy when you don't have to replace items as frequently (and this means less waste!).
9. **3Keep electronics out of the trash.**
    - Keep your cell phones, computer, and other electronics as long as possible.
    - Donate or recycle them responsibly when the time comes. E-waste contains mercury and other toxics and is a growing environmental problem.
    - Recycle your cell phone.
    - Ask your local government to set up an electronics recycling and hazardous waste collection event/center.
10. **Make your own cleaning supplies.**
    - The big secret: you can make very effective, non-toxic cleaning products whenever you need them. All you need are a few simple

ingredients like baking soda, vinegar, lemon, and soap.

- Making your own cleaning products saves money, time, and packaging- not to mention your indoor air quality.

11. **Bonus Item!**
    - Stay informed about going green.

# Using Social Media Websites in Enhancing Learning and Interactions at Post Graduate Level

Nasrin Akhter[*]
Nasreen Akhter[**]
Rafia Asif[***]

**Abstract**

*The excessive use of social media websites (SMW) may bring benefits or problems for students. The use of such websites may help students to inculcate the habits of team work and collaboration with their class fellows and teachers. The instructors at university level can make use of social media to enhance learning, to develop interaction, discussion, to increase collaboration and foster good interaction skills among students. The major advantage of using social media websites is an increase in the ability to skim and scan information. The present study was aimed to explore the potential of social media websites in relation to learning. It was conducted following the mixed method approach, using a questionnaire and interview. A sample of 646 students and 10 teachers was drawn. It was found that the potential of social media websites is well recognized in the educational sector. The sites provide access to much information, with Face book being the most popular among students and teachers for academic interaction. However, the cost of the equipment, along with problems of erratic electricity supplies and uncertainty over privacy settings, posed problems while there was evidence that the excessive use of these devices could create problems for students. The study recommended the appropriate use of social media resources to the students, and teachers.*

**Key words:** Social Media Websites, Interactions, Face book, Learning, Mobile Technologies

## Introduction

In the present age of technology, technological advances are revolutionizing the world. For many, social media websites have become an essential aspect of our lives. Social media websites are taken as all types of online technologies through which

[*] Assistant Professor of Education, Faculty of Education, University of Okara, Renala Khurd; E-mail: nasrin_cs2005@hotmail.com (Corresponding Author)
[**] Assistant Professor, Department of Education, The Islamia University of Bahawalpur, E- mail: drnasreenakhtar01@gmail.com
[***] University of Education, Faculty of Education, Lahore (Okara Campus)

people interact with each other (Media Rating Council, 2015). In views of Colin *et al.* (2011), social media is defined as *applications of web based and mobile technologies to convert interaction into a dialogue.* It can be defined as any type of device which is used to generate information, share ideas and develop learning and interaction among people in virtual communities. By the types of media, social media falls within the area of electronic media. In views of Jones and Uribe-Jongbleod (2013) social media is a type of online media. This provides opportunities to its users to interact, exchange ideas, discuss and comment online.

In the past, people used to communicate with others using letters, cards, telegraph and telephone. Today, world has much changed and people correspond with others through social media websites like Facebook, Twitter, etc. (Millanovic, 2015). The internet has made the world smaller and information is only as far away as a single click. With social media websites, we have even more access to news and opinions than ever before.

Social media is being used for interacting others not only for business purpose but also for entertainment, educational and even sharing information to unknown persons. Educationists and students are also using it to disseminate and receive academic information with one another. They have awareness about effective role of social media in developing interactions and improving learning. Much literature on the topic is available in result of research in the field.

Markovic (2010) noted that institutes of higher education are making use of online learning or e-learning. Sabol and Pianta (2012) are in view that interaction between students and their teachers is important to enhance interaction with each other that is important for academic and personality development of students. Therefore, Barczyk, and Duncan (2013) observed that many teachers consider use of a social media websites like Facebook as a tool to enhance learning and interaction among students and teachers. Roblyer, Marsena, Witty, and Roblyer (2010) revealed that 297,000 teachers are Facebook members and it is not only a means of social interaction but also a source of exchanging educational material among students and teachers.

Mazer, Murphy and Simonds (2007) has reported the use of social media as an important tool to improve rapport and enthusiasm among students and teachers. Colin *et al.* (2011) see social media websites being of value in delivering educational outcomes, as well as encouraging supportive relationships, identity formation, and promoting a sense of belonging and self-esteem among users.

Yamamichi (2011) noted the two-way interaction aspect that is possible though use of social media, very different from books and papers. By using forms of social media, students get opportunities to verify information and share with friends and teachers on the basis of give and take. They develop their interaction with people that

are not near to them. Sometimes they interact to those whom they have not ever seen or met. On the other hand, they learn to analyze materials found from different sources. These develop habit of discovering correct information and learn by trial and error. This is not possible by just attending classes in the institution or by reading course books.

Introvert students feel confident to communicate while using the social media websites. Moody (2010) suggested that more introvert and shy students might make use of social media websites. Curtis (2014) argued that teachers should interact with students via a social media group without exposing private information. Therefore, a site like Facebook helps in academic discussion through group formation among students and teachers.

Haque (2014) observed that Facebook is the most used site in Pakistan, with 15.4 million being involved (8.5% people of the population of Pakistan), with Pakistan ranking 7$^{th}$ number among the top 10 countries making use of the internet in Asia. Zafras (2011) found that 79% university students in Pakistan make use of Facebook. Khan (2012) noted that 60% male students claimed to make use of social media websites for educational purposes while Maqsood (2008) found that Pakistan university students consider social media websites as platforms to express their personalities. However, there is little evidence about the ways social media websites are being used in developing learning and interaction in Pakistan, along with an exploration of any difficulties encountered by the students and teachers.

In considering potentials and problems, it has to be recognized that the internet has offered to students an unparalleled access to information. Information can be accessed and shared easily. It encourages collaboration and, perhaps, team work. However, it can make students too dependent on others and over-reliant on the collations of information developed by others. The easy access to information and insights can undermine the benefits that students can gain when they have to spend time gathering, sifting and seeking to make sense of information. Indeed, the social media websites cannot be seen as any replacement for direct face to face communications.

**Statement of the Problem**

Present study was conducted to analyze use of social media sites for enhancing learning and interactions at post graduate level. In this study, patterns of use of social media websites in context of enhancing learning and interactions were attempted to explore. In addition, investigations of problems of students in utilizing social media websites were focused.

**Objectives of the study**

Three broad aims were in mind in this study. Working with postgraduate students, the objectives of study were to:

1. Explore patterns of use of social media websites in the context of enhancing learning and interactions.
2. Identify the important advantages of social media websites for students
3. Explore the difficulties of students in using social media websites.

**Research Questions of the Study**

Keeping in mind the objectives of the study, present study focused to search answers of following research questions:

1 How do postgraduate students perceive the potential of social media websites in enhancing learning and interactions?

2 How do the teachers of postgraduate students perceive the potential of social media websites in enhancing learning and interactions?

3 How do postgraduate students perceive the difficulties of using social media websites in enhancing learning and interactions?

4 How do the teachers perceive the difficulties of using social media websites in enhancing learning and interactions?

**Research Methodology**

In present study, survey method of descriptive research was adopted. Population of this study was postgraduate level students and their teachers across a range of the public and private universities. At sampling stage, a sample of 646 master's level students and 10 teachers from three districts of Punjab, Pakistan was chosen on the basis of convenience of researchers. Random sampling was not done because approach and cooperation from randomly selected sample was not possible for researchers.

Tools of the study were a questionnaire and interview. The questionnaire involved three sections, with a total of 35 items. Items on questionnaire were on 4 point likert scale about main constructs inquired about the uses of Social media websites and its advantages and limitations in using social media websites. The interviews were semi-structured in nature. Content validity of items of the tools was evaluated by the expert opinion method involving five experts in education. Internal consistency of questionnaire was calculated applying Cronbach's Alpha method that was 0.79.

Data was collected approaching sample of the study personally. Respondents were requested to fill in questionnaire objectively without showing their personal identity on the script. For analysis of data, frequencies of responses were calculated and chi square statistics were applied.

Inevitably, self-report, though either questionnaire or interview is open to potential inaccuracy in that respondents may not be able to see themselves as they really

are but more in line with what they wish to be. However, in this study, there is no reason to think that this will be a major source of error in that the aims are simply to gain insights into how students and the teachers see the potential and problem associated with the use of social media websites in the context of learning at postgraduate level. In this, there was no personal or social pressure to respond in any ways other than with totally honesty. Thus, validity of results does not seem a major issue. Given the very large samples of students, reliability is highly unlikely to be an issue either (Reid, 2003). However, overall, it has to be recognized that self-report only gives an indication of what respondents think and that this may for not correspond precisely to the situation. Therefore, calculated value of r =0.79 (Cronbach Alpha Value) from students' responses indicated good level of consistency in responses. In the light of this, results from students' questionnaire and interview of their teachers are discussed with caution in the following.

**Results and Interpretation**

Results of the study based on data collected from questionnaire and interview. Therefore, results of the study have presented in the following separately.

**Findings from Questionnaire**

The first group of questions considered the potential usefulness of social media websites. The results about the potential uses of social media have showed in table 1

Table1

*Opinions about usefulness of social media websites*

| *Statements* | *SA* | *A* | *DA* | *SDA* |
|---|---|---|---|---|
| *n* = 646 | *%* | *%* | *%* | *%* |
| Social media has become an integral part of my life | 37 | 53 | 7 | 3 |
| I enjoy using social media websites | 25 | 59 | 12 | 4 |
| I mostly use social media through mobile internet | 33 | 40 | 22 | 5 |
| The use of social media websites is not a complete wastage of time | 20 | 53 | 21 | 6 |
| I use social media websites to get new information | 35 | 46 | 14 | 5 |
| Social media websites help me to make new friends | 22 | 43 | 28 | 7 |
| I am informed of the homework assigned by teachers | 24 | 50 | 19 | 7 |
| Social media websites help me in developing research skills | 30 | 50 | 15 | 5 |
| Social media websites facilitate me in my interaction with teachers | 18 | 45 | 30 | 7 |
| I prefer getting new information using social media websites instead of reading books | 25 | 41 | 25 | 9 |

Note: SA = Strongly Agreed, A= Agreed, DA= Disagreed, SDA= Strongly Disagreed

According to table1, Overall, respondents hold positive views about the potential of social media websites seeing them as personally useful as well as helpful in relation to studies. However, significant minorities do not see social media websites helpful in making new friends while the use of such sites for interactions with teachers is not supported by a large minority.

The next group of items considered Facebook specifically. This section considered the potential uses of facebook in developing students-teacher interaction. The results have given in table 2.

Table 2

*The use of Facebook in developing students-teachers interaction*

| *Statements* | *SA* | *A* | *DA* | *SDA* |
|---|---|---|---|---|
| *n = 646* | *%* | *%* | *%* | *%* |
| Facebook helps me in sharing information related to my courses | 24 | 46 | 22 | 8 |
| I use Facebook to collaborate with my class fellows | 25 | 50 | 17 | 8 |
| Facebook is easy and quick means to update my knowledge | 20 | 47 | 26 | 7 |
| Facebook discussion forum helps me to discuss any topic with class fellows and teachers | 17 | 42 | 31 | 10 |
| Facebook has changed my perceptions about a course | 12 | 33 | 45 | 10 |
| Facebook facilitates me in learning my subjects | 14 | 34 | 40 | 12 |
| Facebook use is helpful for shy students to express themselves | 20 | 46 | 25 | 9 |
| I use Facebook to post pictures / diagrams | 24 | 42 | 24 | 10 |
| Facebook inculcates healthy student teacher interaction | 18 | 38 | 36 | 8 |
| I use Facebook to share links with my friends | 28 | 47 | 18 | 7 |
| I use Facebook to get news updates | 26 | 46 | 20 | 8 |
| Facebook facilitates me to complete my home work | 13 | 30 | 45 | 12 |
| Facebook helps me to contribute educational resources | 15 | 41 | 33 | 11 |
| Facebook is good to interact with teachers outside of campus | 16 | 45 | 26 | 13 |
| Facebook play vital role in my campus life | 17 | 30 | 39 | 14 |

Note: SA= Strongly Agreed, A= Agreed, DA= Disagreed, SDA= Strongly Disagreed

According to table 2, overall, students reacted positively to the majority of statements made. However, in a number of areas related to learning, Facebook is clearly not seen as a key way forward by large numbers. Thus, in the context of they own learning, large proportions are unconvinced that Facebook facilities learning, help with homework completion, or play a vital role in learning. At the same time, large proportions do not see Facebook laying any major role in learning and interactions while it has not altered perceptions about the courses undertaken or offered educational resources. All this suggests that the use of Facebook varies very considerably across the student population. Perhaps its major use lies in academic interactions (social or educational) but, for many, its impact may minimal out with social interactions.

The next group of questions explored the difficulties and limitations in using social media websites that students could identify. The results have showed in table 3.

Table 3
*Think about possible difficultés or limitations in using social media websites*

| *Statements* | *SA* | *A* | *DA* | *SDA* |
|---|---|---|---|---|
| *n = 646* | *%* | *%* | *%* | *%* |
| Heavy cost to purchase computer is a difficulty in using social media websites | 26 | 44 | 23 | 7 |
| Shortage of electricity is a difficulty in using social media websites | 28 | 44 | 24 | 4 |
| Privacy setting of Facebook account is a problem for its users | 20 | 38 | 31 | 11 |
| Excessive use of Facebook creates health problem for its users | 29 | 43 | 22 | 6 |
| Having too many friends through social media websites likely to be more harmful | 28 | 44 | 24 | 4 |
| Facebook detracts my attention from studies | 29 | 43 | 22 | 6 |
| Facebook use has isolated me | 18 | 45 | 28 | 9 |
| Students using social media websites feel hesitation in face to face interaction | 22 | 44 | 27 | 7 |
| People with fake details can create problem for others | 43 | 34 | 16 | 7 |
| Lack of clear cut policies about use of social media websites can create difficulties for students | 28 | 45 | 20 | 7 |

Note: SA= Strongly Agreed, A= Agreed, DA= Disagreed, SDA= Strongly Disagreed

According to table 3, Students identify some practical problems and this includes financial costs, electricity supply problems, privacy settings and unethical use of the systems. In addition, many students are aware that social media websites can generate dangers of social isolation, leaving social contacts to be electronic rather than face to face. Perhaps, this is how they see the sites as unhealthy. They are also aware that extensive use of such sites can take them away for their studies.

With such a large sample, it was possible to compare the response patterns for males and females. This was carried out using chi-square as a contingency test (see Reid, 2003). Table 4 shows the items where statistically significant differences were observed in relation to gender of students.

Table 4

*Gender Differences in the Preference of Using Social Media Websites*

| *Statements* | *Gender* | *SD* | *DA* | *A* | *SA* | $\chi^2$ | *df* | *p* |
|---|---|---|---|---|---|---|---|---|
| Social media websites help me to make new friends | Female | 26 | 124 | 157 | 73 | 11.6 | 3 | p< 0.01 |
| | Male | 17 | 57 | 121 | 71 | | | |
| Social media websites help me in developing research skills | Female | 17 | 38 | 206 | 119 | 17.4 | 3 | p< 0.05 |
| | Male | 14 | 57 | 118 | 77 | | | |
| Heavy cost to purchase computer is a difficulty in using social media websites | Female | 23 | 74 | 189 | 94 | 11.8 | 3 | p< 0.01 |
| | Male | 20 | 72 | 97 | 77 | | | |
| Shortage of electricity is a difficulty in using social media websites | Female | 16 | 72 | 185 | 107 | 12.6 | 3 | p< 0.01 |
| | Male | 12 | 80 | 100 | 74 | | | |
| Excessive use of Facebook creates health problem for its users | Female | 33 | 71 | 157 | 119 | 10.7 | 3 | p< 0.05 |
| | Male | 12 | 70 | 118 | 66 | | | |
| I use Facebook to collaborate with my class fellows | Female | 39 | 68 | 181 | 92 | 8.3 | 3 | p< 0.05 |
| | Male | 12 | 42 | 142 | 70 | | | |
| Facebook is good to | Female | 52 | 109 | 167 | 52 | 8.8 | 3 | p< 0.05 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| interact with teachers outside of campus | Male | 29 | 57 | 126 | 54 | | | |
| Lack of clear cut policies about use of social media websites can create difficulties for students | Female | 24 | 64 | 167 | 125 | 13.5 | 3 | p< 0.01 |
| | Male | 23 | 66 | 120 | 57 | | | |
| I prefer getting new information using social media websites instead of reading books | Female | 24 | 89 | 166 | 101 | 8.9 | 3 | p< 0.05 |
| | Male | 32 | 70 | 103 | 161 | | | |

According to table 4, the statements are highly significant and women response of agreement is high than males except for the last one that is "I prefer getting new information using social media websites instead of reading books". About the limitations for use of social media for students female agreement pattern is high than of men in perspectives to; developing research skill, paying cost of computer and facing problems by using social media due to lack of clear cut policies about use of social media websites . Furthermore, social media websites facilitate female students in their work to make new friends, collaborate with class fellows and interact with teachers.

Tables 5 to 6 show a comparison between the subgroups on the basis of area of study of students. Only those items where significant differences were found are being shown.

*Table 5*
*Area of Study Differences in the Preference of Using Social Media Websites*

| ***Statements*** | ***Area of study*** | ***SD*** | ***D*** | ***A*** | ***SA*** | $\chi^2$ | ***df*** | ***p*** |
|---|---|---|---|---|---|---|---|---|
| Social media has become an integral part of my life | Science | 4 | 17 | 74 | 62 | 17.52 | 8 | p< 0.05 |
| | Social sciences | 11 | 13 | 113 | 58 | | | |
| | Education | 7 | 14 | 155 | 117 | | | |
| I mostly use social media through mobile internet | science | 9 | 50 | 48 | 50 | 15.61 | 6 | p< 0.05 |
| | Social sciences | 10 | 33 | 84 | 69 | | | |
| | Education | 12 | 61 | 129 | 91 | | | |
| Social media websites | Science | 9 | 33 | 69 | 46 | 16.49 | 6 | p< |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| help me in developing research skills | Social sciences | 13 | 33 | 97 | 53 | | 0.05 |
| | Education | 9 | 29 | 158 | 97 | | |

According to table 5, the students belongs to Education department, agreement response pattern is more likely higher than sciences and social sciences students. This explores that students of education have more trend to use social media websites, use social media through mobile internet and feel social media websites helpful in developing research skills.

*Table 6*

*Area of Study Differences in the difficulties of Using Social Media Websites*

| *Statements* | *Area of study* | *SD* | *DA* | *A* | *SA* | $\chi^2$ | *df* | *P* |
|---|---|---|---|---|---|---|---|---|
| Shortage of electricity is a difficulty in using social media websites | Science | 11 | 43 | 60 | 43 | | | |
| | Social sciences | 9 | 54 | 88 | 45 | 14.5 | 6 | p< 0.05 |
| | Education | 8 | 55 | 137 | 93 | | | |
| Lack of clear cut policies about use of social media websites can create difficulties for students | Science | 14 | 27 | 80 | 36 | | | |
| | Social sciences | 11 | 50 | 93 | 42 | 19.6 | 6 | p< 0.01 |
| | Education | 22 | 53 | 114 | 104 | | | |

According to table 6, the response pattern of agreement in education department is higher than the other two categories. Shortage of electricity and lack of clear cut policies can create problems for students and of education sector.

**Findings from the teachers Interview data**

A semi-structured interview was conducted with 10 teachers teaching postgraduate classes, the participants all having experience of more than 3 years. All teachers were qualified with M.Sc./M.Phil and IT trained. Mostly teachers were in the 30 to 35 years age range. They were teaching a variety of subjects. The interview data were transcribed and the transcripts were read carefully to identify common ideas that were being expressed. In analyzing and coding data, the teachers were described as T1, T2, and T3 ….etc. The data suggested the following three broad themes:

a. Uses of SMW in developing student-teacher integration

b. The role of SMW in developing learning and interaction

c. Limitations/Disadvantages of SMW in educational context at post graduate level

**Uses of SMW in developing student-teacher integration**

The majority of the response from interview data shows that the teachers agree that social media websites are popular among students and teachers and useful in various ways as said: *Social media (Facebook) has been proved in my case an interactive instruction medium for contents and students respond accordingly* (T1). Thus, teachers at university level make frequent use of social media websites for delivering lectures and they also share different types of material in audio or videos form, seeing this as time saving and interesting for both the students and teachers.

There was a time when physical presence of teachers and students was integral for the accomplishment of teaching-learning process. Now, teachers can teach students sitting in far off areas safely. For example, said one: *This tool of social media can be every effective for remote areas where physically it is impossible to conduct regular classes due to lack of security, infrastructures and other feasibilities* (T5). Thus, distance and location do not pose problems. Also, the teachers use SMW to discuss different topics via Facebook groups and share course related material with students even out of campus. Moreover, one said as*: physical presence is not necessary. In classroom we do not have appropriate tools. If students missed classes even then they can persuade flow. Social media websites can be used to show videos and chat* (T10). Thus, the use of SMW is beneficial for those students who missed some of the lectures due to some reasons, personal problems or health issues etc.

**The role of SMW in developing learning and interactions**

A majority of the teachers appreciated the role of social media websites in classroom activities and developing learning and interactions among students and teachers. The teachers perceived that the Facebook is helpful in generating interaction with students. For example, said by T8: *I use Facebook and Twitter as supportive aid to upload assignment to Facebook groups. I use Facebook for discussion and interaction with students* (T8). Thus, Facebook help teachers to interact easily with students.

Teachers said that they used social media websites for delivering instructions, receiving students' assignments and providing feedback on their work, for example: *Social media tools are highly interactive for Pakistani environment. The teachers can be in a better position to keep track of students all educational activities* (T4). Thus, using social media websites, the teachers and students can obtain latest information about their studies. Also, they thought that students mostly use social media websites

for leisure time or entertainment but they thought that the mindsetcould be changed easily. For example, one said: *Students mostly use SMW for entertainment but we can mold their habits to adopt SMW to get latest information* (T8). However, this view may be optimistic.

Thus, social media websites are the best means of obtaining latest course related information without limitation of time and place. Furthermore, some of the interviewees expressed that the use of social media websites help in watching students' activities: *Students' activities can be easily tracked and saved for future or later validation and analysis (T9).*Therefore, a trend of electronic learning is on rise in the world. Students and teachers can easily interact with each other which are helpful for students' adjustment in this modern world of technology.

**Problems in using Social media websites**

According to some interviewees, incoming students have to face difficulties in the use of social media websites but they felt that this problem could be solved by proper training and guidance by their teachers, as said by one: *Newcomers can feel difficulties and this is only in the beginning. Mentors can demonstrate or upload a video lecture about how to effectively use social media in teaching-learning process (T5).* Thus, newcomers feel difficulties in using social media websites. Also, articulated by T10 as: *There is awareness of technology in developed countries but in developing countries like Pakistan there is lack of awareness and training to use latest technology* (T10). Thus, Facebook is not helpful because lack of awareness about the use of latest technology.

One of interviewees criticized the government on not developing policies regarding the use of social media websites in education departments and universities and on misuse of funds for that purpose. He pointed out that *libraries are not equipped with the latest books. These are not up to date; out students do not have other resources* (T3). Thus, our libraries are not up to date according to current needs of students. The majority of the interviewees expressed that *social media websites use may divert student attention from their studies: SMW are used to perform a lot of tasks. SMW can divert your attention from your goal and may reduce your performance* (T7). Thus, the biggest disadvantage of social media websites could be that our students may get distract from their true direction and performance.

**Discussion**

This study found that the students and teachers highly appreciate the importance of social media websites in educational program. This study was aimed to explore students' perceptions of the social media websites usage and difficulties. Firstly, the research question inquired about the students' perceptions of using social media websites. Secondly, the research questions inquired about the student's perceptions of using Facebook. Thirdly, the research questions inquired about the

difficulties in using SMW.

This study shows that teachers are in the favor of using social media websites for the exchange of educational materials among students similar with the findings of Roblyer *et al*. (2010) revealed that 297,000 teachers are Facebook members and their study express that the Facebook is not only the source of socializing things but also the means of exchanging educational material between teachers and students. Maintained the above, Barczyk and Duncan (2013) also revealed that Facebook is a great tool to enhance the teaching learning process in classroom and outside the campus.

The results shows that figure which is similar with this findings of Gafni and Derin (2012) stated that social media websites facilitate students to give and get feedback and new suggestions for their studies and they also enhance the attraction among student and teachers relationship. Maintained the above, Onomo (2012) suggested that social media websites are the great means of interaction with others, organization of data, and collection of data and exchange of information with other concerns. And this study is also revealed that by the student's agreement social media websites are a great source of getting, organizing, interpreting and analysis of data.

Crook (2008) argued teachers are mostly interested to mix up SMW in classroom to make interaction abilities with students and social networking sites (SNS) facilitate university students in interaction with other students and teachers, and help in psychological development of students. This finding is also similar with this research social media websites are used to enhance the educational program. Maintained that, the results show the student will know how he can take it whether as a source of entertainment or for education purpose. That is also similar with (Crook, 2008). This research also revealed that students used Facebook as it is the integral part of their lives and it is also an easy access of material to them. And they use it frequently at any time anywhere from any source similar to the findings of Kirschner and Karpinski (2010). Roblyer *et al.*, (2010) described that students consider Facebook an integral part of lives because it provides an easy access to educational resources. The findings show that the SMW play a vital role in campus life. According to Jou, Chuang and Wu (2010) previous studies clearly reflect that SNSs have become vital and essential components of education. Also SMW helps the learner to make adjustments with their peers of emotional, educational and behavioral different patterns to sort out (Fovet, 2009).

**Conclusions and Recommendations**

From the students and teachers data, the use of SMW is well perceived. The students are more satisfied in working with the help of social media websites. Both the teachers and students use Facebook for close collaboration with their colleagues and friends. Facebook helps participants to make new friends and facilitate students to interact with their teachers. They highly enhance the teaching-learning process and help the students to keep in touch with their teachers outside the campus. SMW introduce

the new educational trends and all the individuals are well aware of all the happenings. SMW are important in the production of fruitful material. They are a quick and direct means of academic interaction. On the contrary, the heavy cost of these devices create hurdles for using them and shortage of electricity, privacy settings, excessive use of these devices creates problems of health for students.

It is clear that the postgraduate students and their teachers are very familiar with the new technologies and social network sites. There is considerable potential in such developments in that there is easy student access to information on almost anything, albeit with risks of plagiarism. Such sites also offer useful ways for teachers to make contact with students, perhaps to give instructions, to issue information, as well as for teachers to receive work from students and offer feedback. However, there are dangers and personal information is best never included.

While there are dangers related to privacy and excessive time spent on social network sites, the technologies do offer potential for the learning process. However, such sites must never replace the personal contact between students and their teachers (or indeed, student-student contact). Further work is needed to establish the ways by which such new technologies are changing student work and learning habits, with potential benefits and losses. In addition, the cost implications need explored to see whether some students are facing unfair disadvantages.

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# Students' Academic Performance and its Relationship with their Intrinsic and Extrinsic Motivation

Muhammad Ayub Buzdar[*]
Muhammad Naeem Mohsin[**]
Romana Akbar[***]
Noor Mohammad[****]

## Abstract

*In educational perspective, motivation is associated to learning and academic stimulation. At university level motivation of students is vital in light of the fact that it is fundamental for their accomplishment in the professional life to be entered. In this study, the ac academic performance of the students in relation to their intrinsic and extrinsic motivation is explored. Focus of the research study was to explore the academic performance of the students at university level and to trace out the relationship of academic performance with their intrinsic and extrinsic motivation. 600 students from different departments of the university participated in the study. Harter's scale for measuring intrinsic and extrinsic motivation modified by Lepper (2005) and self-developed scale for academic performance were used to collect data. Pearson product moment correlation showed significant relationship between the students' academic performance and their intrinsic and extrinsic motivation.*

**Keywords:** Stimulation, Incentives, Self-determination, Achievement

## Introduction

Concept of motivation has been defined by different people in different ways. In its simplest term it is urging to do something. Motivation refers to the reasons for specific behavior (Lai, 2011). In simple words motivation provides the individuals with the force essential for directing and empowering their energy and passion to lead them to better satisfaction and better educational performance (Coetzee, 2011). The researchers and psychologists have found three types of motivation comprising intrinsic motivation, extrinsic motivation, amotivation.

[*]Assistant Professor, Department of Education, Government College University Faisalabad.ayubbuzdar@gmail.com
[**]Chairman/Associate Professor, Department of Education, Government College University Faisalabad
[***]MPhil Scholar, Department of Education, Government College University Faisalabad
[****]Assistant Professor, Faculty of Education, Lasbela University Lasbela

What individuals do without any type of external incentives is called intrinsic motivation.Such actions are done by the individual for fun and enjoyment rather than for external rewards and gifts. From birth all individuals are active, playful, and inquiring. They do not need external incentives to do such actions. The experimental studies done on animal behavior found the existence of intrinsic motivation. When the researchers found many animals showing spontaneous and playful activities without rewards or incentives for them to do the actions(Ryan & Deci, 2000). Students with positive level of intrinsic motivation may show better results and higher level of satisfaction (Ayub, 2010). The literature recommends that students should be intrinsically motivated in order to make progress in their academic career. For most of the actions individuals are not intrinsically motivated and this arise the need for some reward and external motives. Thus extrinsic motivation is related to the action that is done to get some rewards (Coetzee, 2011).

The students who are extrinsically motivated determine the standards of their performance according to social norms and customs and hencethey are normally more social and friendly. These tendencies of externally motivated students can be used by the teachers to make the academic performance of the students better and effective(Coetzee, 2011). Amotivation is stated as having no motivation. . It simply means the students who are neither intrinsically motivated nor extrinsically (Coetzee, 2011). These students have negative concepts about learning process and their contribution in learning is normally very low(Ayub, 2010).

Many psychologists have presented theories of motivation. These are categorized as content theories and process theories. Content theories are concerned with the instincts that motivate people to do some work(Turabik & Baskan, 2015). These theories assume that all the individuals have the similar needs and these needs motivate them for actions or to fulfill the needs(Literature Review on Theories of Motivation, n.d.). These theories include Maslow's hierarchy of needs, Herzberg's two factor theory, McClelland's need for achievement theory and Alfred's E.R.G theory.Process theories emphasize the cognitive differences of the individuals. These theories put emphasis on the behaviors of the human beings and try to find out the causes of certain behaviors can be controlled. The theories falls under this category are as Vroom's Expectancy Theory, Goal Setting Theory, Self Regulation Theories, Self Efficacy Theory, and Adam's Equity Theory.

Academic achievement shows outcomes of the performance that indicate the degree to which student has achieved specific goals that were kept in focus by the school, college and university for the instructional activities of the students(Soufi, Damirchi, Sedghi, & Sabayan, 2014). The competent and successful people are those who are highly educated. Too much emphasis is placed on educated and excellent performance as was never before. Academic performance of students is also very

important. There is a great impact of academic performance on student's motivation and determination. Students with poor academic performance fail to seek admission to higher level institutions. Dropout rate of students increases because of poor performance. That is why the academic performance of the students has always been a topic of interest for the researchers and educators(Valli Jayanthi et al., 2014). Every government provides various facilities for students' learning and education to get good results from them. Academic performance of students is vital for the institutions. These are the operators of society to advance education in the country. Responsibility of the preparation of future era lies on them. Furthermore, foundations whether open or private attempt to do their commitment viably.

Motivation is very important factor for educational life of the students. Most research work has been done on motivation due to its relevant importance. But mostly the cognitive factors of motivation are discussed by the researchers in relation to the academic performance. The effective factors relating to motivation as intrinsic and extrinsic motivation are not given much importance by the researchers. Especially in Pakistani context no concern is shown to the motivation of the students for improving their performance. The results of researches conducted in other countries are not suitable and applicable in Pakistan Because of cultural differences. Likewise the situations prevailing in our educational institutions are different. Thus the focus of the study was on the extrinsic and intrinsic motivation of the students and its effects on the academic performance of the students.

## The Current Study

Student's academic performance is a basic concern for educationists. Proper motivation of students may play helpful role for good performance of the students. In this study the academic performance of the students is explored keeping in view its relationship with intrinsic and extrinsic motivation of the students. Students of top ranking university of Pakistan participated in the study. Focus of the study was to investigate the relationship of intrinsic and extrinsic motivation of the students with their academic performance. The study found answer to the following research questions.

1. What level of intrinsic and extrinsic motivation exits among students included in the sample?
2. What is academic performance of students included in the sample?
3. To what extent motivation is related with academic performance at university level?

## Research Methodology

We focused our study to explore academic performance of the students in relation to their intrinsic and extrinsic motivation. To meet this objective,we followed quantitative research approach to achieve the target. Survey method was considered appropriate for the purpose of data collection. Scale originally developed by Harter (1981) for measuring motivation and modified by Lepper (2005) was utilized to explore intrinsic and extrinsic motivation of the students. Another scale for exploring the next aspect of the study i.e., academic performance of students was self-developed by the researchers. This scale was consisted of five subscales i.e. Assignment and Classroom Tasks, Learning Performance, Class Participation, Learning Comprehension and Learning Cooperation and Coordination. The instrument was developed using five point Likert scale. The instrument was presented to ten field experts/educationists working at Government College University to check the content and face validity of scales. Their comments helped us to improve the scale. Secondly, the instrument was first given to 100 students of master's level for pilot testing. They were asked to point out any problem they found in reading, understanding and responding to the items. Almost all of the students found the instrument easy and understandable. Final instrument was prepared andmodified keeping in view the opinion or observations of the experts and results of pilot testing. Overall reliability of the instrument was calculated as .88.

600 masters level students enrolled at Government College University, Faisalabad, Pakistan participated in the study. The students were selected from 6 faculties and 20 departments of the university. These students were enrolled in social sciences, medical sciences as well as in arts and humanities. The students were selected through multiphase random sampling where at first phase the faculties were selected. In second phase departments were selected and in third phase the students were selected from each department randomly. Students were asked to give their opinion confidently which was assured to them. Data collected from students was analyzed using SPSS.

## Findings of the study

Means of each subscale were calculated through SPSS software. Mean score (see table 1) for the subscales of intrinsic motivation (i.e., challenge (M=3.78), curiosity (M=4.06) and independent mastery (M=3.98) show that students have strong tendency to be internally motivated for their performance. Whereas the mean score for the subscales of extrinsic motivation (i.e., easy work (M=3.09), pleasing teacher (M=3.10) and dependence on teacher (M=3.82) show that tendency for extrinsic motivation for studies is average among the students. The mean score for the subscales of academic performance (i.e., assignment and classroom tasks (M=3.78), learning performance (M=3.06), class participation (M=3.21), learning comprehension (M=3.02) and learning cooperation and coordination (M=3.55) show that prevalence of academic performance among students is also average. Overall prevalence of intrinsic motivation is average

with M=3.94, prevalence of extrinsic motivation is moderate with M=3.33 and the prevalence of academic performance is average with M=3.35. It is found that students are more intrinsically motivated than extrinsically motivated for their academic performance.

Table 1

*Mean score representing the student's opinion against different subscales of intrinsic and extrinsic motivation and academic performance*

| ***Scale*** | ***Subscale*** | ***Mean*** | ***SD*** |
|---|---|---|---|
| Intrinsic Motivation | Challenge | 3.78 | .686 |
| | Curiosity | 4.06 | .592 |
| | Independent mastery | 3.98 | .647 |
| Extrinsic Motivation | Easy Work | 3.09 | .647 |
| | Pleasing Teacher | 3.10 | .759 |
| | Dependence on Teacher | 3.82 | .751 |
| Academic Performance | Assignment and Classroom Tasks | 3.78 | .609 |
| | Learning Performance | 3.06 | .636 |
| | Class Participation | 3.21 | .637 |
| | Learning Comprehension | 3.02 | .721 |
| | Learning cooperation and coordination | 3.55 | .611 |

The table 2 indicates positive and significant relationship among various constructs of intrinsic and extrinsic motivation and academic performance. Only two constructs of extrinsic motivation (dependence on teacher and easy work) have insignificant relationship with the constructs of academic performance (learning performance and class participation) respectively. It indicates that intrinsic and extrinsic motivation has a positive and significant relationship with academic performance of the students.

Table 2

*Pearson correlation coefficients showing relationship among intrinsic and extrinsic motivation and academic performance*

| | *Assignment and classroom tasks* | *Learning performance* | *Class Participation* | *comprehension* | *Learning Cooperation & Coordination* |
|---|---|---|---|---|---|
| Challenge | .338** | .165** | .355** | .129** | .274** |
| Curiosity | .445** | .172** | .422** | .112** | .316** |
| Independent Mastery | .467** | .164** | .210** | .127** | .292** |
| Easy Work | .038 | .192** | .020 | .236** | .145** |

| | | | | | |
|---|---|---|---|---|---|
| Pleasing Teacher | .119** | .216** | .254** | .289** | .213** |
| Dependence on Teacher | .393** | .099* | .404** | .203** | .215** |
| Intrinsic Motivation | .497** | .202** | .403** | .148** | .354** |
| Extrinsic Motivation | .281** | .227** | .328** | .333** | .268** |

* Correlation is significant at the 0.05 level.
**The correlation coefficient is significant at the 0.01 level;

## Discussion

The main objective of the study was to find out the academic performance of the students in relation to their intrinsic and extrinsic motivation. We found the results of study remained consistent with previous researches. For example Ayub (2010)established significant relationship between the students' academic performance and their motivation. LikewiseSikhwari(2014)revealed that academic achievement was significantly correlated with the aspect of motivation among the students. like these Lepper, Corpus, and Iyengar(2005) also reached the same conclusion of positive correlation between intrinsic and extrinsic motivation and academic performance of the students. According to Afzal et al. (2010) students with high level of intrinsic motivation perform much better academically than those who are extrinsically motivated. Extrinsic motivation according to them does not keep students motivated for long time but it may help them to do a specific job and get a reward. Intrinsically motivated students take challenges and do their work with interest. They have commitment with their own selves to achieve high scores and learn more.

Another study conducted by Rehman and Haider(2013) found that students' learning becomes better when teachers use some kind of rewards or certain types of punishments in the classroom. It shows that intrinsic motivation has direct relationship with the learning and performance of the students. On the same grounds Jovanovic and Matejevic(2014)considered the relationship between rewards and intrinsic motivation for learning and depict significant relationship between intrinsic motivation and learning of the students. They also concluded that certain type of external motivation is necessary to motivate students for their good learning. There is some increase in the motivation of the students there exist a positive improvement in their academic performance is the conclusion of study done by Muhammad et al.(2015). They found direct positive correlation among students' motivation and their academic performance. The same results have been found in result of present study which verifies the result of above mentioned study. A study by Afzal et al. (2010) on students' motivation and its relationship with their academic performance, a positive and mutual relation was found between the variables. They also concluded that the relationship is reciprocal meaning

that students with high level of motivation have outstanding performance as well as the performance of the students remained dominantwith high level of motivation.

In a study on relationship between motivation, self-concept and academic achievement of the students conducted by Sikhwari (2014) also reveal significant relationship between motivation and achievement of the students. Findings of Lemos and Veríssimo(2014) also partially support the results of the current study. The study concluded that intrinsic motivation is positively related to the academic achievement of the students but extrinsic motivation has negative relationship with their achievements. This research also verifies the results of Amrai et al. (2011) which depicts relationship between academic motivation and academic achievement of the students remained significant. The results of a study by Lepper et al. (2005) shows positive relationship of intrinsic motivation with the academic achievement of the students and negative relationship with extrinsic motivation of the students. But surprisingly they found low or negative relationship of intrinsic motivation with the academic achievement of students at lower levels of education. At this stage they suggest to motivate students for their good performance.

## Conclusions

The focus of the study was on student's academic performance in relation to their intrinsic and extrinsic motivation at university level. For accomplishmentof conclusions different statistical procedures were employed. First question of the study was concerning the level of intrinsic and extrinsic motivation exits among students at Government College University Faisalabad. It is found that the prevalence of intrinsic motivation is moderate whereas the prevalence of extrinsic motivation is average. The second question was concerning the academic performance of students at Government College University Faisalabad. The results show that student's academic performance at university level is average. This aspect neither remained very good nor very bad, rather it was satisfactory.

The last and third question was to find the extent to which motivation is related with academic performance at university level. For this purpose Pearson Product correlation revealed the relationship between different indicators of intrinsic and extrinsic motivation as well as indicators of academic motivation. Almost all the indicators of intrinsic and extrinsic motivation were positively correlated with the indicators of academic performance. Just one indicator of extrinsic motivation i.e., easy work was negatively correlated with two indicators of academic performanceviz assignment and class room tasks and second indicator class participation. Overall correlation was significant. Summing it up, we concluded that academic performance of the students has positive and significant correlation with their intrinsic and extrinsic motivation. More researchesmay be conducted to find out the ways on how to improve the intrinsic and extrinsic motivation of the student in future.

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# Exploration of Mathematical Thinking and its Development through Geogebra

Muhammad Khalil[*]
Naveed sultana[**]
Umair Khalil[***]

**Abstract**

*The purpose of this study was to know about the potential effect of geogebra software on students' mathematical thinking and to explore thinking structure in analytic geometry. To investigate geogebra effect, a sample of forty students (grade-12) of F.G Boys Inter College Mardan Cantt was selected. Further, they were divided on the basis of their grade-11 scores record into experimental and control group. Two groups with almost equal statistical background were constructed through pair random sampling and with the same compatibility in the biological age and the social background. A six week experiment of 22 lessons was prepared and two teaching methods (tradition vs geogebra aided instructions) were tested for two groups (Experimental vs Control). The data were collected through researcher made test. To find the significance means differences of the two groups, t- test was used. The study showed that there were statistically significant differences between the means of two groups of the five variables (generalization, analytical thinking, logical thinking, abstract thinking and representation).The only aspect which was found to be insignificant was the problem solving, for which the mean score of the experimental group was improved but with no statistical significance.*

**Keywords**: Mathematical thinking, Geogebra, TPCK.

## Introduction

It has been the demand of education all over the world to instill thinking behavior in students. But the important questions are what thinking is? And how we think to think? Cognitive scientists are common in this fact that thinking is the mental attribute of mind that is related to its function rather than its structure. And on the basis of this cognitive ability humans rule the whole universe and due to the same attribute, we rank the groups in different context with different labels. Additionally, different cognitive scientists defined thinking and mathematical thinking in different ways with

[*] Faculty of Arts and Social Sciences, Northern University Nowshera KPK Pakistan, mkhalilkhan@yahoo.com (Corresponding Author)
[**] Department of Secondary Teacher Education AIOU Islamabad Pakistan
[***] Department of Statistics, Abdul Wali Khan University, Mardan

respect to the function of mind. Like, in the book of Feldman (2007), thinking is the manipulation of mental representation of information. In the same way, in the book of Ruggiero (1998),"Teaching thinking across the curriculum" thinking is a mental activity or attitude of mind or habit of mind that helps in various dimensions: in the solution of a problem, searching for the truth, desire to understand, and reaching for meaning and decision making.

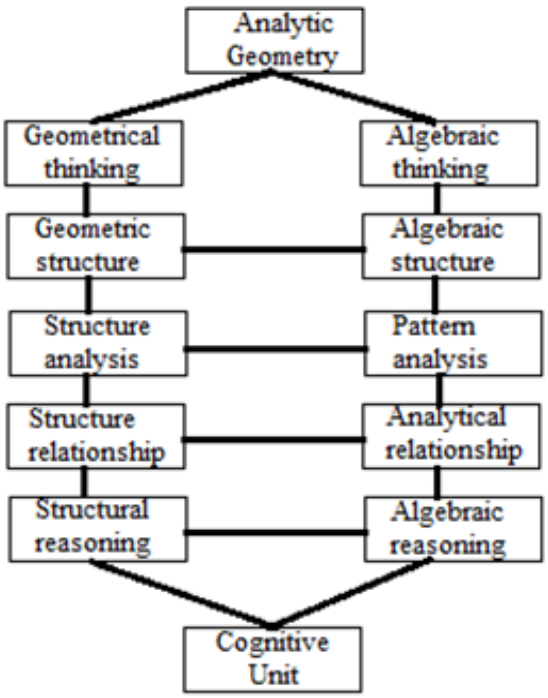
Another, thinking is the mental innate ability of human being (Vogel, 2014) and mathematical thinking develops this ability in valuable and turn it into powerful way of thinking. One must be clear in this point that thinking and mathematical thinking both are the habits of mind and both uses the same mental resources in their functional behavior. Explicitly mathematical thinking is a number of interrelated attributes which are necessary for mathematics while abstract attribute is one of the most difficult attribute in mathematical thinking (Devlin, 2000). Likewise, according to Waismann (2003), mathematical thinking is the hypothetical behavior of functional mind, and in mathematics learning we use it as a guessing and validating behaviors. So, due to this important hypothetical behavior an individual represents a concept in different semiotic systems of representation. Similarly, the importance of mathematical thinking by a distinguished mathematics educationist Stacey (2007) declared and described these mental behaviors for three ways: (1) for one of the main goal of school everywhere, (2) for learning mathematics and (3) for teaching mathematics. In conclusion, mathematical thinking is the hypothetical possibility, to the solution of a problem in hypothetical world. And the main function of mathematical thinking is to evoke our unconscious thinking to conscious, or in other simple words, mathematical thinking is like a regulator to regulate our thinking in an effective way.

There are many aspects of mathematical thinking which are strongly interconnected, it is very tough cognitive process to describe and categorize them in various ways (Karadag, 2009). Due to this reality, for assessing and the teaching of analytic geometry, a mathematical thinking model of six important aspects are categorized and described in this study. In this model, the object of analytic geometry is considered as a structure which results in different forms: expressions, equations, relations and functions. Each of these forms constitutes of variables, parameters and constants. While, in order to solve the course content of the subject analytic geometry, one must be aware of this structure which results in different forms.

Moreover, to articulate the structure of analytic geometry the following six aspects of mathematical thinking are very crucial :(1) Generalization (2) Analysis and analytical thinking (3) Logical thinking (4) Abstract thinking (5) Problem solving (6) Representation.As, algebraic concepts are everywhere in school geometry and, it is a best approach to the solution of problem in geometry by involving and understanding the concepts of variables (Dindyal, 2007). So, to learn and understand Analytic

Geometry both Algebraic and Geometric analysis of each nested results of structure is important and, the six aspects of algebraic geometric thinking model (Generalization, Analysis, Logical thinking, Abstract thinking, Problem solving, Representation) is an approach towards the understanding of analytic geometry. And to conceptualize the concept in analytic geometry, the six mathematical thinking skills of dual nature are essential and in this study, it has given the name of algebraic geometric thinking model. The model is a hybrid of Algebra and Geometry. To understand Analytic geometry both the aspects (algebraic and geometric thinking) are necessary.

**Figure 1: Dual thinking behaviour in analytic geometry**




For every algebraic structure, there is an equal geometrical representation in coordinate geometry. Markus Hohenwarter used the approach of Descartes and combined algebra and geometry into software language (GeoGebra). In Mathematics education, GeoGebra is being used mostly at every level.

## Geogebra

Geogebra is a free of cost dynamic mathematics teaching learning software which is being used in most of the countries from primary to tertiary level. It joins three disciplines: geometry,algebra and calculus. One can easily download it through internet www.geogebra.org. (Hohen et al., 2008 ). Two ypes of representations

(algebraic and geometric) are necessary for understanding analytic geometry (Huang, 2012, 2013). And both these issues are integrated into geogebra in a very sopfisticated way. They are labeled into this softwae as: algebra and geometry window. Through a click, the object of analytic geometry can be easily moved dynamically that cause effective understanding (Misfeldt, 2008).

## Model To Integrate Geogebra Technology In Teaching of Analaytic Geometry

### Description of the Model

On the whole, in education, teaching of mathematics is tough and complex cognitive entity. But for effective teaching, three basic aspects: the content knowledge, the pedagogical knowledge and the pedagogical content knowledge are a license. In addition, along with these three, the teacher must know about the mathematical thinking of the students as well (Baş, et al, 2013). As, mathematics teaching is the transformation of mathematics content with concept, so to make it understandable and meaningful for the students, the teacher must know about the different aspects of its transformation. And in the process of this transformation, the teacher must know and understand the various aspects of learner: his/her misconceptions, psychological age and developmental stage as well.

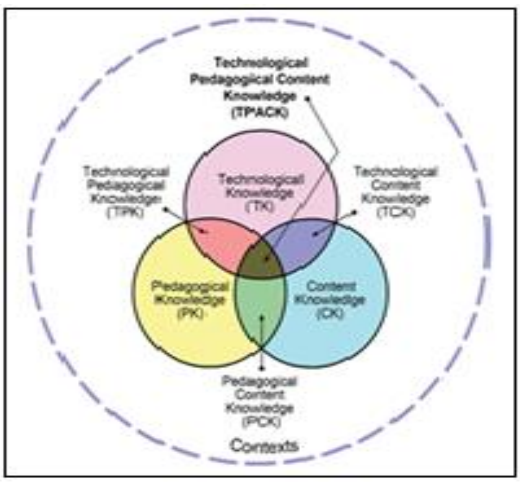
Furthermore, to teach effectively, teacher must have necessary skills and competencies. In these skills, teacher should not only rely on a single content or subject matter knowledge, but he must equip himself with pedagogical content knowledge that influences teaching and content knowledge of teacher as well. In addition, Nakıboglu and Karakoç (2005) described that teacher should have the awareness of four interrelated categories: content knowledge, pedagogical knowledge, context of the learning and pedagogical content knowledge. And pedagogical content knowledge which is the intersection result of content plus pedagogy is the continuous understanding of professional development of teacher in a specific discipline.

However, the integration of technology into mathematics that change the role of teacher in the classroom does not depend on a single factor, but it takes into account different interrelated components. Gómez-Chacón and Joglar (2010), specified them in to four different components that are, cognitive, didactical, technological and affective components. To integrate technology, teacher must have a proper skill and competency. Like other profession, teaching can be learned and teacher should be a part of scholar community (Shulman, 1987).

According to UNESCO (2008), technology proficiency is necessary for the professional development and the effective integration of technology depends on the ability of teacher in technology proficiency. Ramatlapana (2014) described that the engagement of students due to technology results in higher order thinking. To

implement and integrate technology in mathematics education is not so simple, teacher should have the knowledge of technological pedagogical content knowledge (TPCK) which is the extension of pedagogical content knowledge (PCK) and the teacher technological knowledge should be built around these three domains: content knowledge, pedagogical knowledge and technological knowledge. Now, how technology is to be used into the classroom to make teaching more effective. Mishra and Koehler (2006) described the three important, complex interactive domains: content, pedagogy and technology. The integration model of content, pedagogy and technology in TPCK is shown in figure 2.

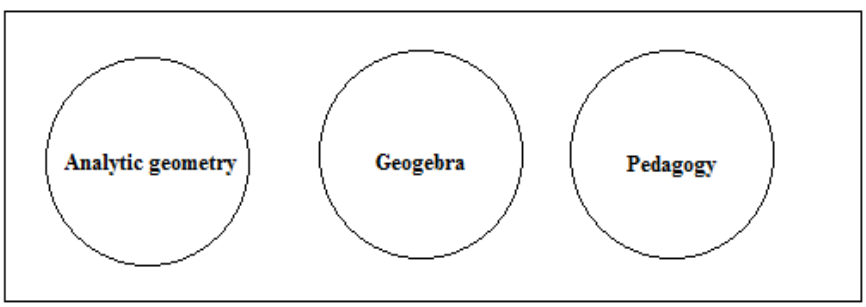
**Figure 2: Intersection behavior of content, pedagogy and technology**




Source: Mishra & Koehler, 2009, p. 63

The three overlapping circles results into four interrelated kinds of knowledge. In which three (PK, CK & TK) are the intersection of any two domains of content, pedagogy and technology, while the intersection of all three domains results into a new discipline of technological pedagogical content knowledge (TPACK). TPACK is the complex combination of technology with pedagogical content knowledge.To implemet geogebra into teaching of analytic geometry,during teacher training,two disciplines should be combined: Geogebra and pck for analytic geometry.

**Figure 3 Three domains of Model**



**Analytic Geometry Content Knowledge**

The organization of knowledge in the mind of teacher, understanding of structure of subject and its different representation, transformation; beyond the facts and concept of a domain (Shulman, 1986).

**Geogebra Technology Knowledge**

How to operate geogebra software regarding its function and tools and application. The expertise in the features of geogebra and its potential (Niess, 2006).

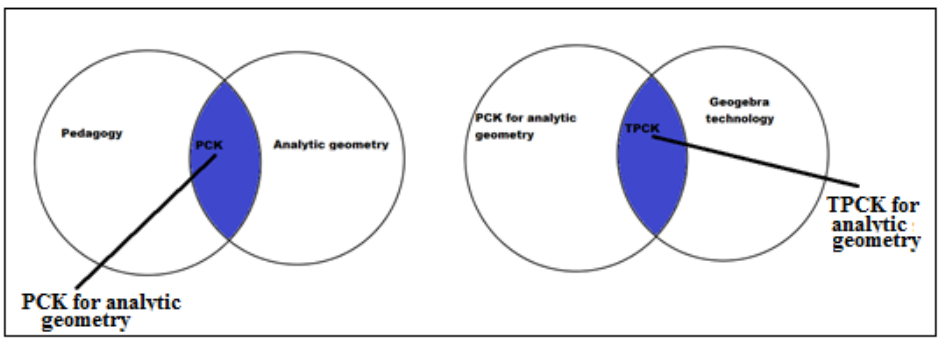
**Pedagogical Knowledge**

One of the effective focus elements in teacher education program that includes: the knowledge of teaching and learning process. The reflections of this are optimum engagement of students in the class. On the basis of this demarcation is drawn between professional and non-professional (Mahmood, 2014; De Miranda, 2008).

**Pedagogical Analytic Geometry Knowledge**

The pedagogy of how to teach and design the lesson plans for the content of analytic geometry to make teaching effective. A teacher ofanalytic geometry must know, how to make the content easier to the students. While teaching, he must use illustrations and to model the situation to daily life (Işık, Öcal, & Kar, 2013).

**Figure 4: PCK & TPCK FOR analytic geometry**



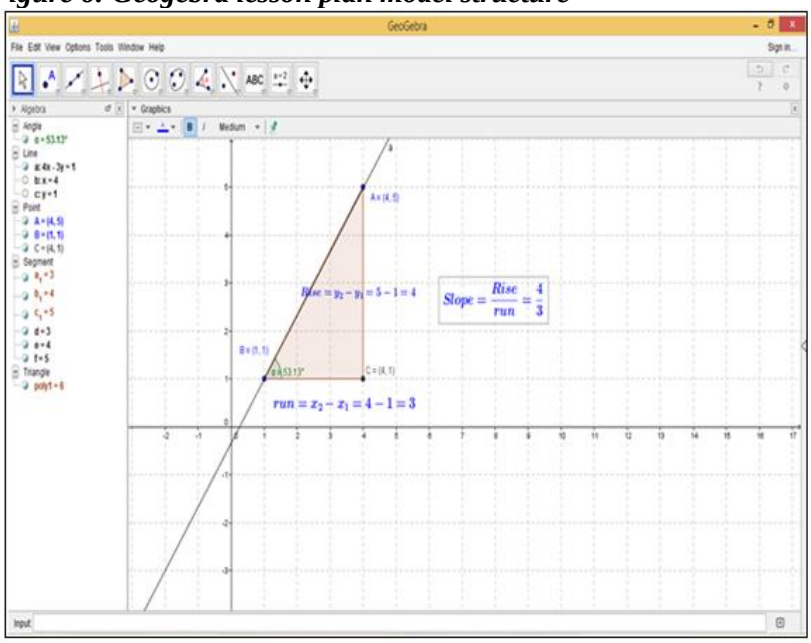

**TPCK for Analytic Geometry**

To teach analytic geometry through geogebra, three basic principles are require: 1) teacher must know about the content knowledge 2) pedagogical knowledge for teaching analytic geometry simply how to teach and 3) about the geogebra tools, its function, strength and applications. To combine pedagogical content knowledge of analytic geometry with geogebra technology is a complex cognitive pedagogy (Guerrero, 2010).

Through geogebra integrated lessson,the concept of slope involving different steps can be validated practically by constructing the triangle along the line. The sense of every concept can be prevailed by proper lesson planning and through correct implementation of tools of geogebra (Hohenwarter & Hohenwarter, 2008). Some basic points in planning the activity through geogebra:

a. Keeping the main objective or result of the lesson.
b. Mention the geogebra tools which will be used in the activity.
c. Design the possible action which can result the process into valid result.
d. The process of the concept should be performed through step by step.
e. Sub concept should be validated in each step and sense of understanding must be maintained in action.
f. Connect the sub concepts in scientific way.
g. Concretize and then generalize the concept.
h. The slope concept activity through geogebra is run in the below geogebra window

***Figure 6: Geogebra lesson plan model structure***



**Objectives of the Study**

The main objective of the study was to explore the significant effect of geogebra on grade-12 students in six aspects of mathematical thinking.

**Sıgnıfıcance of the Study**

Thinking and mathematical thinking is the pre-requisite for high grade mathematics. Both teacher and students need it in their capacity of teaching and learning. This research is useful in understanding different and dual aspects of mathematical thinking in analytic geometry in addition, the role of DGS in getting these aspects in scientific ways.

**Hypothesis of the study**

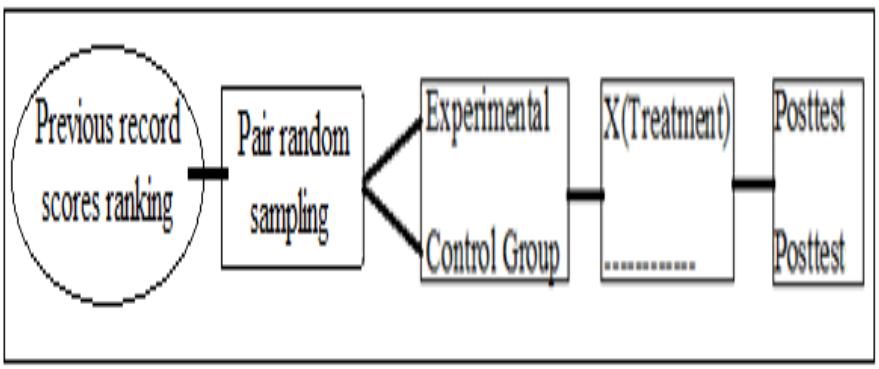
GeoGebra aided instructions do not effect significantly the mean scores of the students in each aspect of mathematical thinking post-test.

## Methodology

**Design of the Study**

A true posttest only equivalent groups design was used because of low sample size of the total of forty students. This design is very powerful, suitable and authentic to unearth the causal effect of the small sample over random sampling. Because the random sampling in small sample there might be a chance that result into two non-equivalent random groups. In such cases, the effect might be owing to non-equivalent group rather than experimental variable. To reduce the risk, rank order should be used. And during the pair-random sampling process the students were divided and exposed to two groups, on the basis of certain characteristics which should be highly correlated with the post-test (Newby, 2014; Nestor & Schutt,2014; Ary, Jacobs, Sorensen & Walker, 2013; Cohen, Manion & Morrison, 2011).

**Figure 7: Research Design**



**Instrument**

A six week experiment of 22 lessons were prepared for this study.All the lessons were prepared by the researcher with the help of internet, GeoGebra website, GeoGebra research material (GeoGebra self-learning supporting material) and were uploaded on (http://tube.geogebra.org/mkhalilkhan). The six aspects of mathematical thinking were selected which were constructed in collaboration with mathematics educationist in the area of mathematical thinking especially with Amir Zaman and Ma 'moon (PhD doctors, 2014). And to test the hypothesis, a test of 36 questions for this study of reliability (Cronbach's Alpha coefficient 0.92) was constructed by the researcher to measure students' mathematical thinking ability(Boslaugh & Watters, 2008). İn scoring the test, rubric identify what is being assessed and it is important for the different level of an individual in response to the test item (Angelelli, 2009; Danielson & Marquez, 1998). For this research, the four point rubric scale was developed for each item. The maximum and minimum score for each item was assigned four/4 and zero/0 respectively.

***Table 1***

*Rubric for İtem Response for Mathematical Thinking Test*

| *Response score* | *Detail description* |
|---|---|
| 4 | Correct answer with strong justification and correct reasoning. Using of proper reasoning and diagram and deep understanding. Process understanding. |
| 3 | Incorrect answer with consistent reasoning along with some process |
| 2 | Correct answer with inconsistent reasoning and error in mathematical process. |
| 1 | Correct option with no reasoning or justification or with a little sense of understanding in writing justification. |
| 0 | No response, completely incorrect with no reasoning |

**Treatment**

Two teaching methods (tradition verses geogebra aided instructions) were tested on each group of 20 students. Six week experiments of 22 lessons were prepared for this study. All the lesson plans were prepared by the researcher with the help of internet, GeoGebra website, GeoGebra research material (GeoGebra self-learning supporting material) and were uploaded on (http://tube.geogebra.org/mkhalilkhan).

The experiment was started on 1st August 2014 and ended on 19th September 2014, in which two different instruction patterns were used for two groups. Both groups were taught by the same teacher under the supervision of researcher. The teacher who

was volunteered for this experiment had master degrees in mathematics and education along with expertise in computer field. He was assisted 10 days training in GeoGebra learning and in implementation. The assistance was delimited to the contents: GeoGebra installation, GeoGebra menu and toolbar, navigation bar and construction protocol, slider creating, creating dynamic object, GeoGebra object properties, inserting text into graphic window, visualization of linear equation with concept, open and save GeoGebra files.

Moreover, the only difference in the two treatment patterns was that the GeoGebra aided instructions were conducted in a well-equipped computer lab. Ten computers were arranged there in U-shape and the students worked there in the pairs. On first two days, the experimental group students were trained about GeoGebra using in the two main topics: GeoGebra installation and GeoGebra user interface. While all the lessons were taught through GeoGebra applets and directed activities. The experimental group students were mostly involved in GeoGebra learning environment through drill and practice. In addition, they were engaged to learn the analytic geometry concept through applets and further they were also assigned to solve the problems with the help of GeoGebra.

**Results**

The data were collected by a criterion test and analyzed using SPSS.

**Table 2**
*Descriptive statistics of experimental and control groups performance on six aspects of mathematical thinking post-test*

| *Six Aspects of M. T* | *N* | *Group* | *Mean* | *Std. Deviation* |
|---|---|---|---|---|
| Generalization thinking | 20 | Exp. | 20.8 | 2.71 |
| | 20 | Cont. | 17.6 | 4.4 |
| Analytical thinking | 20 | Exp. | 20.1 | 2.6 |
| | 20 | Cont. | 15.3 | 4.3 |
| Logical thinking | 20 | Exp. | 18.6 | 3.3 |
| | 20 | Cont. | 14.7 | 4.6 |
| Abstract thinking | 20 | Exp. | 18.95 | 2.5 |
| | 20 | Cont. | 15.25 | 3.7 |
| Problem solving | 20 | Exp. | 17.2 | 3.6 |
| | 20 | Cont. | 14.9 | 4.2 |
| Representation thinking | 20 | Exp. | 20.15 | 2.96 |
| | 20 | Cont. | 14.95 | 4.07 |

In table 1, the descriptive statistics for both the groups (experimental group and control group) shows that in all six cases, the average marks obtained by the experimental group was higher than that of the control group. And at the same time if we look at the column of the standard deviation, we can see that the standard deviations of the experimental group are lower than that of the control group.

*Table 3*
*Significance of difference for experimental and control groups on six aspects of mathematical thinking*

| *Six Aspects of M. T* | *Exp.& Cont. Groups Mean Diff* | *t-test for Equality of Means* | |
|---|---|---|---|
| | | *Calculated t-values* | *Sig. (2-tailed)* |
| Generalization thinking | 3.2 | 2.77 | 0.009 |
| Analytical thinking | 4.8 | 4.24 | 0.000 |
| Logical thinking | 3.9 | 3.09 | 0.004 |
| Abstract thinking | 3.7 | 3.69 | 0.001 |
| Problem solving | 2.3 | 1.84 | 0.073 |
| Representation thinking | 5.2 | 4.62 | 0.000 |

All t-tests in table 2 explore whether the means for each groups are same at significance level of alpha($\alpha = 0.05$). From the column of significance (i.e p-value), it can be seen that all the mathematical thinking tests were significant except problem solving as the significance value isless than 0.05. Hence it was concluded that the null hypothesis that there is no significant difference between the two groups (i.e control group and experimental group), is rejected. Therefore, it can be stated that there were significant differences between the two groups on the means of the five variables (generalization, analytical thinking, logical thinking, abstract thinking and representation). The only variable among the six variables which do not have any significant difference is the problem solving.

## Discussion

Mathematical thinking is the essence for mathematical learning. Tasks, tools and environment are necessary for developing both these in every education system. Specifically, to learn analytic geometry, the integration of geogebra is the best tool in learning different aspects of this subjects as well different thinking aspects of the discipline. And, because of its open source and free in access, it can easily be used and implemented in our education system of Pakistan. But until now, the potential of this software in ability and in effectiveness has not been exposed here in Pakistan. İn this study, this software was used for the development of six aspects of mathematical thinking in analytic geometry. The result showed that, geogebra improved the six

aspects (Generalization, analytical thinking, Logical thinking, Abstract thinking, Problem solving, Representation) of experimental group in comparison to control group at significant level.The findings of this research also supports the claims of different studies conducted by); Mwei et al (2011), Tran et al (2014), Bakar et al (2010), Demirbilek & Özkale (2014), Erbas & Yenmez (2011), Olkun et al (2005) and Shadaan, P. & Leong. K. E. (2013). All of them reported that the technology-integrated environments cause increase in competencies, achievement, positive attitude, mathematical reasoning and mathematical thoughts across different grades.

## Conclusion

Technology should be used as a tool to support mathematics instructions along with students' mathematical thinking. Educational choices should be made on the basis of objectives, methodologies, role of the teacher and the level of the students while implementing appropriate technology. It is to add that, the geogebra applet should be built in a way that students are able to explore it independently and get a sense of concept with minimum assistance of the teacher. Geogebra is a free package and it is specially designed for the high school mathematics. It is easy to use and learn and implement in the classroom. A proper computer lab is the basic requirement to implement it in mathematics learning. So, the school and college administration need to facilitate students and teachers with respect to computer lab. Another fact is that, in this research study, the fact was to investigate the dynamic geometry software significant effect on the six aspects of M.T. In result, all the aspects of mathematical thinking except problem solving improved with significance. Because the problem solving is a tough cognitive activity, so, teacher trainers must keep them in their minds, while teachers training programs with the focus and emphasis on PCK (pedagogical content knowledge) and TPCK (technological pedagogical content knowledge).

## Recommandations

Mathematics teaching should be a professional profession, and a four years program (B.S elementary and secondary mathematics education) should be implemented for pre service mathematics teachers like in turkey (METU/ Ankara). The main aim of such type of program is to develop and groom pre service teacher with a well sound understanding of how to teach mathematics and how students learn mathematics through the different ages and stages,along with confidence in the use of technology with problem solving behavior. The program should be emphasis on mathematical thinking and professional development of pre service mathematics teacher.

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## APPENDIX

Scores of pretest and posttest

| | Exp. Group | Cont. Group |
|---|---|---|
| Students | Grade-11 Pretest scores | Grade-11 Pretest scores |
| $S_1$ | 84 | 84 |
| $S_2$ | 83 | 80 |
| $S_3$ | 77 | 77 |
| $S_4$ | 76 | 76 |
| $S_5$ | 74 | 74 |
| $S_6$ | 74 | 73 |
| $S_7$ | 72 | 72 |
| $S_8$ | 70 | 70 |
| $S_9$ | 69 | 69 |
| $S_{10}$ | 68 | 67 |
| $S_{11}$ | 66 | 66 |
| $S_{12}$ | 64 | 65 |
| $S_{13}$ | 58 | 58 |
| $S_{14}$ | 56 | 56 |
| $S_{15}$ | 55 | 56 |
| $S_{16}$ | 53 | 54 |
| $S_{17}$ | 53 | 53 |
| $S_{18}$ | 52 | 53 |
| $S_{19}$ | 49 | 50 |
| $S_{20}$ | 33 | 43 |

# Effect of Human Resource Practices on Employees' Retention in a Private University of Pakistan

Ijaz Ahmed Tatlah[*]
Muhammad Anwar[**]
Muhammad Amin[***]

**Abstract**

*The purpose of this study is to find out the effect of Human Resource (HR) practices on employees' retention in a private university. One hundred faculty members including male and female, out of 400, were randomly selected to collect data. A structured questionnaire was used having Alpha value of 0.94 in the result of pilot testing. Regression analysis was applied to find out the effect of human resource practices on employees' retention. Results show that there is a significant effect of HR practices on employees' retention. It is suggested that educational institutions may re-think and improve their HR practices in order to retain the valuable employees. Further research about the topic may also be conducted at all level institutions.*

***Key words***: Human Resource Practices, Employees' Retention

## Introduction

Human resource practices are intentional in nature. These symbolize a vigorous supervision and organization that organizes the institution with professionals. Human resource practices from the substance subsidiary the way your institution's human investment will function on your behalf. For instance, human resource practices contain framing a system for determining and analyzing the effects of an exact member recompenses package. Supplementary instances contain the formation of a package to decrease work-associated harms, and building a structure to confirm service rules are followed.

Human resource practices are the means over which human resource employees can improve the guidance of the institutional employees. This happens over the preparation of emerging wide motivational programs and teaching developments, such as formulating arrangements to straight and support administration in carrying out ongoing performance reviews. Human resource practices similarly contain raising opportunities over which workers will have chances for progression. For example, the plan of a contrivance assisting consistent of workers' suggestions a chance for your

[*] Assistant Professor University of Education Lahore, e-mailtatlah@ue.edu.pk, 03334319981
[**] Assistant Professor University of Education Lahore, e mail: dranwar@ue.edu.pk
[***] Assistant Professor University of Education Lahore, e mail: amin@ue.edu.pk

staff members to develop to the management situations.

The Principles of HR practices in educational settings are explored as follows. The purpose of HR practices is like a moderator concerning the human resource management policies and human resource management results in educational institutions. Sivasubramaniam and Kroeck (1995) ruminate numerous perceptions on HRafter the perspective of appropriate otherwise incorporation. They recommend that several forms ofHRM maybe categorized for example having an interior or exteriorfit.Exteriorfitdescribes the human resource management for example a plannedincorporation,whileinteriorfit stays a model of performs. Someinvestigators have strainedto scrutinize which fit stays suitable.

The effects of HRM practices on professional performance were studied by Lee and Lee's (2007) which includes training and development, teamwork, HR planning, compensation or incentive, and performance evaluation. Moreover, the effects of HRM practices on professional act comprising worker's productivity, quality of the product and institution's tractability were also described in their study. To certify that an educational institution is able to realize the accomplishment through its people is the general purpose of HRM (Armstrong, 2009). In the literature of Human Resource Management practices, the use of innovative style, Human Resource Management practices considered to attain the high stages of the performance of worker, commitment and flexibility has been the mutual theme. This indicates that existing Human Resource practices have direct association to the performance issues and institutional policy making than existed example through earlier methods towards the employees' supervision (Bach & Sisson, 2000).

Investigation has revealed that study of Human Resource Management necessities a universal perception (Kochan, et al., 1992). It is significant to remind that across the Middle Eastern countries, the connections in attitudes towards the work and management practices occur, while considerable differences have been studied concerning nations of Middle East that cannot be clarified through the social aspects. Such as economic liberalization and market-driven forces which permit restrained institutions to contend with the universal institutions by emerging the innovative plans to upsurge the service progress. This caused in certain nations like Saudi Arabia and Egypt suffering employment safety attrition in community region, for example an institution have privatized, rationalized, and otherwiselocked(Budhwar&Mellahi, 2006).

It is claimed thatHR Practices are inseparably associated to the workers'insights of institutional provision and that two procedures strappingly affect aworkers' obligation to the educational institution. GreatobligationHRaccomplishments upsurge the institutional efficiency by prompting situations in which workers feel supplementary tangled in accomplishment of institution's aims, and are consequently extra probable to

work tougher to support educational institution in order to attain those aims (Arthur, 1994).

The main method used in testing the connection concerning Human Resource Management and enactment has deliberated Human Resource Management for example a perfect set of implements (Delaney &Huselid, 1996), lightly considered 'Extraordinary Involvement , 'Extraordinary Performance' otherwise 'Extraordinary Commitment'. Extraordinary Commitment practicesupsurge institutional pledge through generating the settings wherever workers develop tremendously tangled in institution; hence they work tough to achieve the aims of institution (Youndt, 2000). This hints to higher productivity and lesser turnover.

High Commitment Practices has many advantages and several educational institutions know it because they return to the workers' requirements then also boost them to take the duty aimed at their professions, moreover they encourage the workers to work in means that eventually rate the institution (Combs et al., 2006).

High Commitment practices encourage the employees that they should accept upper ranks of duty for accomplishment of the objectives of an educational institution. Several academics have originated that the employee's levels of skill are increased by high commitment Human Resource Management practices, information, empowerment and motivation (D'Cruz& Noronha, 2011; Kochan& Osterman, 1994; Levine, 1995; Pfeffer, 1998). To increase motivation of employees in high involvement in educational institutions one justification is that worker is on focus of actions happening. To check the certification of this process whether it is successful or not, Human Resource units want to implement and develop the Human Resource practices that care staff to develop personality-managing and personality-programming (Lawler && Jenkins, 1992). It needs substantial asset in social investment. More practice of extraordinary commitment Human Resource practices is possibly had to great contribution or great commitment to effort performs as reported by the previous research that increases Employee Retention. Shaw et al., (1998) Similarly finds strong relationship concerning worker holding and productionin great obligation Human Resource methods.Up to now,for example renowned through the Legge (1998),greatobligationmethodhas primarily beenverifiedin the private educational institutions. HR Practices has an effect on the employee retention. HR practices promote the employee retention. Their study reveals that operativeHuman Resource Practicesmay decrease the workerturnover and also upsurge the retention in institution (MaqsoodHaider, et al., 2015).

**Employee Retention in Educational Institutions/Organization**

A supplementary exhaustive and current description of notion of Retention is 'to stop the harm of the proficient workers since exit the efficiency and productivity' (Chiboiwa, et al., 2010). The retention of the talented workers is a benefit to an institution because the staff' skills and knowledge are significant to an institution's

capability to be sparingly economical (Kyndt, et al., 2009). Though, there are several challenges in struggling to retain the competent staffs. HR managers can easily find that enticing and holding that the talent is problematic (Barney, 1991; Samuel & Chipunza, 2009). Brilliant and good workers are the talent of an institution. Retaining the brilliant/capableworkersis extremely significant aimed at lastingdevelopmentin addition tothe achievementof professional(Heathfield, 1995), howeverretention of the staff has turn into the key tricksuffering modern educational institutions.

Samuel and Chipunza (2009) focus that it is notmerely private sector,but the government sector istoofacing troublein holding the talented and trainedworkers. The leaders of the private sector state these evidences that retaining the significant employees of an institution ischallengingpartoftheir employment. Institutions are supplementary anxious about the retention of their workers as committed to leave is unsatisfactory on behalf ofthe staff and managers. Educational institutions mustendurecost ofemploying, and cost of losing, their staff; so, the institutions try to retain their present staff (Lockwood & Ansari, 1999).

Actually, this maintenance of the staff and their cherished expertise helps the institution to reserve their asset of the staff training, which reasons the lower loss of human wealth and vintages higher retaining. Given this, institutions should take the steps to hold the staff, to escape the undesirable turnover due to the low-job satisfaction, stress, insufficient benefits and insufficient working condition (Atif, et al., 2011). Some institutions use altered practices to maintain their staff, such as having benefit, development and training, competitive work environment etc. the retention of employees is the focal objective and the main anxiety for the most institutions.

**Employee Retention Schemes**

Modest technique to keep the workers is to upsurge the pleasure stages; yet it will merely operative if implemented appropriately (Denisi& Griffin, 2008). According to Mello (2010) the task lies in attempting the diverse worker requirements for example those are diverse. The programs of retention must run which report requirements of the workers that look expected to leave. Ongori (2007) maintains those approaches which reduce the degrees of turnover are related to difficulty: perhaps, turnover ensuing after ineffectual practices of assortment are not vulnerable to development.

The administration is encountered by duty of recognizing explanations why workers leave, and enchanting the counteractive exploit. The alternative approach is to consider the difficulties of retaining through leaving consultations. These deliver a balanced outlook of the workplace and management also, and locate explanations on behalf of a worker resigning, that may not have gained now arranged-successful methods of worker interactions.

Capelli (1997) classifies a numeral of retaining approaches which ponder employment fair and also estimates the new payment plans, worker differences, job reshape, social links, job customization and the employing of the workers who do not expect to leave. Proposing prospective apostates prevailing, inside job chances are alternative implement for retention (Capelli, 1997; Luecke, 2002).Supplementary elements like the qualitative endowments, job contented analysis, compensation and stipend packages, administration and organization, career counseling and development, repetitious work schedule fluctuation, improved work situations and essentials not unswervingly connected with the work, and all increase worker retention degrees.

Still additional aspects to take into contemplation are the degree of monopolization and work policies of an institution, work commitment, suitable communication, and counseling for workers who need to permission, suitable leaving interviews, shorter work weeks, flexible working hours, worker participation, turnover policies and appreciation of workers.

Worker's aim to leave or stay is the best consistent process of forecasting tangible retention. Current readingsof Human Resource Management Practicesexplicate that little turnoverrates are related to workers'rehearseof containing the worker involvement, commendably evolving the workers and concrete announcement of the hire situations.Functional turnover (means that bad performers leave, but good performers stay) can help decrease the suboptimal institutional performance (Stovel&Bontis, 2002); though, intensification in rate of the turnover may tooinfluenceon output of institution. This can end in the loss of generosity, support and associations, and can even expose the neutrality of aims of institution.

Research objective of the study was to explore the effectof HR practices on employees'retention in a private university. Worth mentioning here is operational meaning of 'human resource practices' that is defined as the means through which the human resource employees can improve the guidance of the institutional employees. Whereas, employee retention is to stop the loss of the proficient workers to enhancethe efficiency and productivity (Chiboiwa, et al., 2010).

## Methodology

This was a quantitative research conducted through survey method. A questionnaire was used to collect the data. The study was guided by the philosophy of positivist paradigm. The independent variable of the study is HR practices and dependent variable is employee retention. All the 400 faculty members of a private university of Lahore were the population of this study. Sample constituted the 100 (male and female) randomly selected faculty members.

**Instrumentation**

The purpose of the study is to find out the effectof HR Practices onemployees'retention in a private university. To achieve the aim of the study a questionnaire was used which was consisted on two sections including human resource practices and retention.The first section of the questionnaire includes the items measuring the HR practicesand was adapted from (Edgar &Geare, 2005). Second section covers the items on employees' wish to continue connected with their particular institutions.This section was adapted from the questionnaire developed by Mobley, Horner, and Hollingsworth (1978). Both parts of the questionnaire were designed to be responded on five point likert scale. Cooper and Schindler (2005) state that an investigator must ensure a pilot study of the data collection instrument before continuing through the research. An experimental or pilot test supports in recognizing difficulties in research method and data collecting methods.

A pilot study was carried out amongst research participants from target population to estimate survey questionnaire for understandability and readability. These research participants assisted to recognize the slight issues in language and grammar/spelling. The research instrument was pilot tested on 50 subjects. These respondents were selected outside the research sample from the population of the study. The reliability measured is shown in the table below.

*Table 1*

*Reliability of the Research Instrument Factors*

| Factors | Cronbach's Alpha Reliability |
|---|---|
| HR Practices | .816 |
| Retention | .859 |
| Overall | .837 |

**Analysis and Interpretation of Data**

Regression analysis was applied to find out effect of human resource practices on employees' retention. The histogram of the data displays an approximate normal distribution which is presented in Figure 1, while the P-P plot showed a linear relationship in Figure 2.

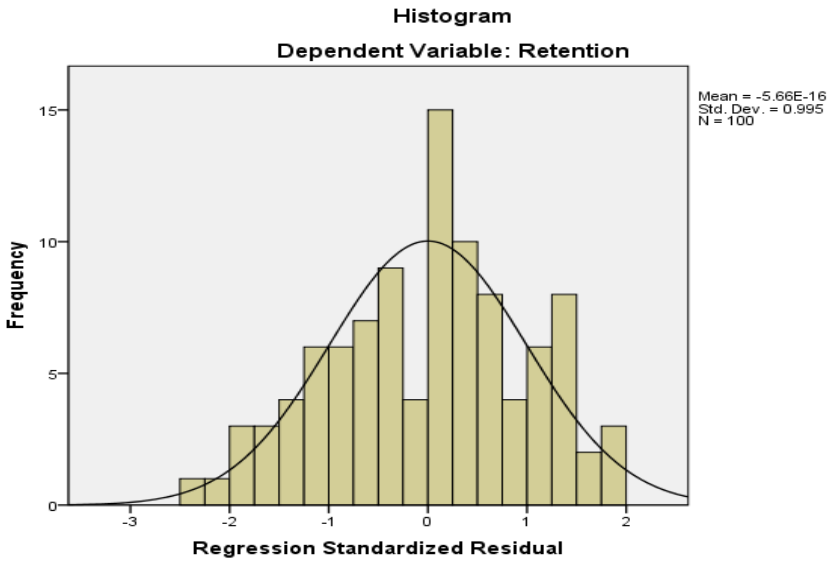


*Figure -1 Histogram of Retention (Dependent Variable)*

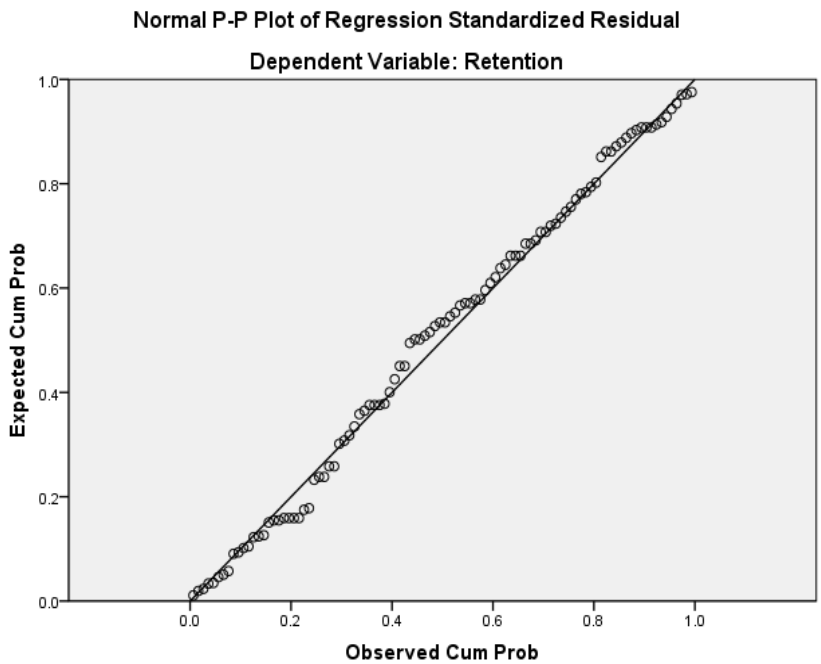


*Figure -2 Showing Linear Relationship*

**Research Question/Hypothesis**

*Is there any significant effect of HR practices on the employees' retention in a private university?* In order to address this research question, its hypothesis, test values and interpretation/inference is presented below. The ***null hypothesis*** for this research question is: *There is no effect of HR practices on employees' retention in a private university.* And the ***alternative hypothesis*** is: *There is significant effect of HR practices on employees' retention in a private university.* In order to test the hypothesis, Linear Regression Analysis was performed and results gained are presented in Tables bellow:

**Table 2**
**Relationship between HR Practices on Employee Retention in a Private University**

| *R-Square* | *Adjusted R- Square* | *df* | *F* | *Sig* |
|---|---|---|---|---|
| .110 | .101 | 1 | 12.140 | .000 |

Table 2 shows that the value of the *F-test (*F = 12.140)is significant at p<0.01 since Sig. =.000.This shows that there is statistically significant relationship between HR practices and employees' retention. These values also indicate that now linear regression analysis can be performed – as there is significant relationship between the two variables.

**Table 3**
**Effect of HR practices on Employees' Retention**

| *Variables* | *B* | *SE* | *B* | *T* | *P* |
|---|---|---|---|---|---|
| Retention | 4.593 | .286 | | 16.038 | .000 |
| HR Practices | .423 | .121 | .332 | 3.484 | .001 |

Table 3 highlights that HR practices have stronger and statistically significant effect on employees' retention because beta value is$\beta$^ = .423, t=3.484, and p<.01. The null hypothesis is rejected; hence the alternative hypothesis is accepted. This means that HR practices have significant effect on employees' retention. It can be inferred that if institutions want to retain their employees they need to make the HR practices attractive to their employees.

## Discussion

The results of the study are discussed with reference to organizational and societal culture because culture has significant influence upon conceptions and practices (Amin, 2012). With reference to the interpretations of practices, Shah (2009:5) stresses the significance of local situation by arguing that "in spite of emerging similarities of policies, structures, and legal provisions across the world [or regions], local societal structures, patterns of behaviour, cultural traditions, belief systems, and organisational

conventions influence how concepts are translated into practices". The research is done in the Pakistani context, and society is mainly Muslim and according to Shah (2009:9) "religious ideology guides the discourses and practices in all fields". Moreover, Hofstede, (1991) pointed out that high power distance and high collectiveness are the main characteristics of Pakistani societal culture. Because of these societal characteristics employees once start job in any institution, they develop their association/friendship with other colleagues and prefer to be in the same institution, although sometimes they have differences with the management and sometimes they are offered job with more salary from other institutions. This is very helpful for the institutions to retain the employees through providing environment conducive for camaraderie. Moreover, HR practices such as to retain the employees in their jobs needs to be developed and exercised keeping in view the local context and culture.

This study highlights that HR practices have significant effect on employees' retention. Keeping in view this finding, it is suggested that if institutions want to retain the employees they need to focus the non-monetary rewards more as compared to monetary rewards because, as mentioned above, Pakistani society is collectivist and employees prefer non-monetary rewards such as appreciation, acknowledgement certificates, clap for them in formal ceremonies and shoulder pat by the head (House *et al*., 2004). This will not only help to retain the employees, it will also help the institutions to get the work from employees beyond office hours without monetary rewards, enhance the employees motivation and job satisfaction - which will in return help to retain the employees. Overall, it is suggested that HR management should develop their HR practices keeping in view the local organizational setting and societal culture in order to retain the employees in the same institution.

## Conclusion

The results highlight that there is statistically significant relationship between HR practices and employees' retention. The results further point out that HR practices have significant effect on employees' retention. It can, therefore, be inferred that if institutions want to retain their employees they need to make the HR practices attractive to their employees. These findings are supported by various researchers such as Maqsood, et al. (2015). The present study which finds out the Relationship between HR practices and employee retention in a private university is an important effort in Pakistani context. Researcher believes that findings of this study would add an important facet to the existing body of knowledge in the field with reference to Pakistani organizational context. Since,the majority of the empirical studies which is related to the relationship between HR practices and employee retentionare from Western World and from United Arab Emirates.

## Recommendations

On the basis of the findings andconclusions drawn above, following suggestions have been made:

1. For understanding, interpretation and implication of the phenomenon under study, more evidence is needed through conducting studies at university level and other levels such as college and school through incorporate the qualitative approach and using multi methods of data collection from various sources involving departmental heads and HR department employees.
2. The results of the present study indicate the effect of HR practices on employee retention; it is therefore suggested that educational institutions may re-think and improve their HR practices in order to retain the valuable employees. This will not only save the institutional finance but may also enhance the performance of the institution.

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# Critical Analysis of General Science Textbooks for Inclusion of the Nature of Science Used At Elementary Level in Khyber Pakhtunkhwa

Imtiyaz Ali[*]
Nasreen Akhter[**]
Muhammad Nawaz[***]

**Abstract**

*Nature of science is a critical component of scientific literacy. Nature of science is derived from observation of the natural world and involves human prediction, imagination and creativity. Development of scientific attitude and critical thinking among learners is not possible without inclusion of nature of science in Text books at school level. This study was conducted to analyze science textbooks of elementary level taught in Khyber Pakhtunkhwa province of Pakistan for inclusion of nature of science. The analysis of books was based on validated framework of Chiappetta et al. (1991) on four themes namely; science as a body of knowledge, science as investigative nature of science, Science as a way of thinking and science as interaction of science, technology and society. Data of the study was based on evaluation of content of text books by 10 trained science teachers who had experience of teaching general science to elementary classes and expertise on content analysis. Tool of study was an evaluation sheet that required respondents to report responses about items on the basis of analysis of contents of text books. Data was analyzed calculating percentages. Results of this study indicated that all three science textbooks of grade 6$^{th}$ to 8$^{th}$ presented four themes but the theme "To investigative nature of science" had more reflection. The theme "Interaction of science, technology and society" was absolutely ignored in all three science textbooks. Therefore, the study suggested revising all three text books for well-balanced reflection of all the four themes in science textbooks.*

**Keywords:** Science textbooks, Nature of science, scientific literacy, interaction of science, technology and society

## Introduction

Nature of science is a critical component of scientific literacy. Nature of science is derived from observation of the natural world. It involves human prediction,

[*] Subject Specialist (Biology) Assesment & Evaluation Wing, Directorate of Curriculum & Teacher Education Abbottabad, KPK, Pakistan.
[**] Assistant Professor, Department of Education, The Islamia University of Bahawalpur, Pakistan, Email: drnasreenakhtar01@gmail.com, Cell 03336387807
[***] Deputy District Education Officer Haripur, Khyber Pakhtunkhwa, Pakistan

imagination and creativity (Lederman, 2007). Achievement of targets of teaching of science is impossible without offering instructional as well as assessment activities aiming to improve imagination, prediction and creativity abilities of learners. Therefore, ideal science teaching activities revolve around the circle of observation, hypothesis, experiments, analysis, conclusion and generalizations.

A textbook contains the information and activities that are necessary to achieve the desired learning outcomes (Khutorskoi, 2006). Similarly textbook is one of the key elements of any curriculum which provide the practical shape of curriculum in class room. According to Albach and Kelly, (1998) the science textbooks at school level implement curriculum in classroom by reflecting the objectives of science learning, such as understanding the nature of science and content; develop learner's scientific skills and provide information about the interrelationship of science, technology and society. Lemmer, Edwards and Rapule, (2008) explained that the textbook is developed to achieve the objectives of curriculum and also achieve students learning outcomes and this is only when the quality of textbook reflects the quality of instruction. Textbooks are written to facilitate learners to access the curriculum.

The elementary science textbooks are written within a framework and this framework reflects the importance of the nature of science that is based on the knowledge, practice, learners' needs and understanding of various concepts of science through observations, hypotheses, inferences, experiments and conclusions (National Research Centre, 2012). Science education is an important component of education for learners. There is need to provide science education at any level to all learners that is only possible with the availability of quality science textbooks (Lederman, 2008).

Textbook is only a source of potential learning for students. In teaching of science, students are expected; what they actually learn from textbooks mediated by the school context (Mesa, 2004). The knowledge represented in the science textbooks is used to prepare learners for new information and use science and technology in their daily life (Pingel, 1999). One of the important features of best science textbooks is that they organize the scientific knowledge in a well sequence, flexible and are based on facts (Olesko, 2006).

In the present era of science and technology, there is need to provide scientific knowledge by using technology but in Pakistan, science textbooks are used in schools for the provision of scientific knowledge. In this connection Reddy (2005) stated that a textbook have more value especially to poor population where the school and textbooks are the only source of learning for students. One of the important roles of a quality science textbook is to ensure uniformity, coverage, appropriate pacing and better organization of content in terms of instruction (Motshekga, 2009). A science textbook is someone different from other subjects because it is based on fact and concrete information so a good and quality science textbook should support a teacher at any level

of education (Bekiroglu, 2007). Davies, (2003) stated that a good textbook should not only support the teachers but also support the learners. According to Guzzetti (2000) science textbooks are developed in such a way that teaching by discovering and experimentation in laboratories can be possible.

Iding, Klemm, Crosby and Speitel (2002) stated that science textbooks introduce nature of science to students through cognitive processes or by comprehension nature activities. The illustrations of these textbooks are classified as knowledge acquisition, knowledge application and knowledge creation. According to Amaral and Garrison (2007), use of illustrations and developed research-based principles for the use of illustrations in science, textbooks provide opportunity to develop an inquiry based environment. These textbooks also encourage cognitive involvement, independent thinking and inquiry among learners. The science textbooks can play a valuable role in guiding learners to understand and join their learning experiences during and after laboratory activities (Bancroft, 2002).

**Background of the Study**

The role of the textbook is always important in teaching learning process. In Khyber Pakhtunkhwa province of Pakistan, development of text books is the responsibility of Peshawar textbook board but after the review of directorate of curriculum and teacher education Abbottabad (DCTE). In Pakistan, the role and development of general science textbook is considered more critical and teachers who teach science at elementary level are also unaware to understand the inclusion nature of science in general science textbooks. Some Studies on teacher understanding of the nature of science revealed that teachers have an inadequate understanding of the nature of science (Dekkers & Mnisi, 2003; Linneman, Lynch, Kurup & Bantwini, 2003). After analyzing the findings of these studies a shift in the practice of teachers can be supported through the development of general science textbooks that imitate a more balanced coverage and inclusion of the nature of science at elementary level. Furthermore there was also need to conduct this study because no such study had conducted to find out the inclusion of nature of science in general science textbooks at elementary level in Khyber Pakhtunkhwa province of Pakistan.

**Statement of the Problem**

This study focused to analyze the elementary level ($6^{th}$, $7^{th}$ and $8^{th}$ class) text books of general science being used in Khyber Pakhtunkhwa Province of Pakistan. Focus of analysis in this study was to analyze the extent to which contents of textbooks cover the themes for inclusion of nature of science. It was important to analyze the text books of general science and suggest measures to improve text books according to themes of science teaching to improve science teaching in Pakistan.

## Objectives of the Study

Following were the objectives of the study.

1. To analyze General Science text books taught at elementary level in Khyber Pakhtunkhwa province of Pakistan.
2. To compare the general science textbooks with reference to which they cover the themes for inclusion of nature of science.
3. To explore the differences between the representations of the nature of science in science textbooks for elementary level.

## Significance of the Study

This study is important for curriculum setters, course developers and text book writers. Curriculum setters will get guidelines to improve the curriculum and include required topics for inclusion of nature of sciencein the future curriculum. Course developers and text book writers will design text books of general science to introduce inclusion of nature of science that is necessary to improve science teaching at school level for achievement of objectives of science teaching in schools.

## Research Methodology

### Research Design of the Study

A content analysis of three Grades $6^{th}$ to $8^{th}$ for general science textbooks was undertaken. These textbooks were being used in government middle and high schools of Khyber Pakhtunkhwa Pakistan. These General Science Textbooks were developed according to framework given in general science curriculum, 2006. The analysis of these books was based on validated framework of Chiappetta et al. (1991). This framework was based on the four themes;

1. ***Science as a body of knowledge*:** This theme further reflects into knowledge such as the, theories and models related to science.
2. ***Investigative nature of science:*** This theme reflects the inquiry based learning and involves the student to learn the science by applying and use scientific skills such as observing, measuring, classifying, inferring, recording data and making calculations in their studies.
3. ***Science as a way of thinking:*** This theme reflects thinking, reasoning and indicating, where the students develop their science skills and apply this thinking in their daily life
4. ***Interaction of science, technology and society:*** This theme relates to the application of science and how technology helps learners to use both science and technology in their different fields of life and work for the betterment of their society.

In the analysis first the units of analysis were selected from three general science textbooks. The units of analysis included complete content/ paragraphs, activities, worked examples, figures with captions, tables with captions, charts with captions, and tidbit etc. The units were coded separately according to the nature of science categories as given in Appendix A. Examples of units of all the three textbooks that represented to the themes and categories have presented in the results section.

***Research Tool of the Study***

Tool of study was an analysis sheet (appendix- B) that was developed on the basis framework of Chiappetta et al. (1991) to find out the inclusion of nature of science on the basis of four themes (showed in table 1). The analysis sheet was also used to examine the five core content: Cellular organization; Transport and Environment, Biotechnology; Atomic structure and Chemical changes; Energy, Light and sound, electricity and heat; and Earth and space. The composition of each content area has also shown in Table 1. The analysis sheet's content and face validity was checked by the 3 experts who had experience to work in Education Assessment Center Abbottabad

***Population of the Study***

Demand of the study was to collect data from the persons who had comprehensive understanding of contents included in text books under analysis and expertise in content analysis of science text book. Trained science teachers having command on content analysis of science text books who were teaching the course to elementary level classes could perform the task in best way. Therefore, teachers of general science who were trained science teachers, had expertise in content analysis and were teaching the subject to elementary classes were decided as population of the study.

***Sample of the Study***

Demand of the study was to analyze whole text of the book. Analysis of whole text of the study was a difficult and time consuming task. Therefore, best strategy adopted in the study was to assign the task to some experienced trained teachers who were still teaching general science course to elementary classes. Therefore, sample of 10 teachers who were teaching the course and had experience of teaching general science in government schools for at least 2 years were requested to provide data of the study. Selection of sample was based on the procedure of convenient sampling because randomly selected sample was not ready to cooperate with researchers to help in data collection according to assumption of researchers according to their research experience. The expertise of sample on content analysis and science was ensured by evaluating qualification of persons selected as sample. They all had at least M.Sc. and M.Ed. degrees including experience of research.

***Data Collection Procedure***

At the start of academic year/ session, teachers who committed to provide data of the study were briefed about the theme of analysis and procedure to fill in the data sheet. They were requested to fill in the sheet (attached as appendix B) keeping in mind their analysis about the content of text books taught during the month. They were advised to record data on evaluation sheet provided to them at the end of completion of chapter/ unit after at least four careful readings of text of the book. It was also assumed that every respondent (teacher) had read the text of book at least 1 to 2 times before planning a lesson, at least once during teaching a lesson and at least once before designing formative assessment tests for classes that usually is taken at the end of finishing a chapter in schools. Therefore, every evaluator (who was involved in data collection) reviewed text book at least 4 times during a session. In case of teaching the same course 2 years they had reviewed the text books of general science for 8 times during 2 years of teaching the same course. At the time of evaluation, they reviewed text four times before filling the checklist. Total time teachers take to record and return data was 10 months. On the whole 36 sheets (12 of each 3 textbooks) were received back.

***Data Analysis Procedure***

After complete analysis of 36 chapters/ units of three textbooks by the 10 general science teachers, data was analyzed on computer. For analysis of data, whole data was added on a sheet following a coding scheme. Then applying percentage on data, results were analyzed and represented in tables.

*Table 1*
*Core content areas in textbooks*

| *Core content area* | *Topics* | | |
|---|---|---|---|
| | *6th grade* | *7th grade* | *8th grade* |
| Cellular organization, Human organ systems, reproduction Respiration | Cell organization, plant and animal cells Organism, sense organs, Photosynthesis, Respiration in plants, | Digestive system, respiratory system, Diseases of digestive and respiration system, Transport and reproduction in plants, Pollination and types of pollination | Nervous system, Excretory system, Mitosis and meiosis, |
| Transport and Environment, Biotechnology | Environment and its components, types of | Ecosystem and its components, Habitats and | DNA Replication, Applications of |

| | | | |
|---|---|---|---|
| | respiration, | changes in habitats, Food web, | Biotechnology, pollution and its types, Effect of Human activities on environment, |
| Atomic structure and chemical changes and reactions, Water and Air | Atoms and molecules, Elements and their symbols, Classification of elements, Compounds and mixtures, Air and composition of Air, Properties and uses of Gases in Air, Solution and its components, Types of solution Water as a universal solvent, | Structure of atom, Atomic number and Mass number, Isotopes and uses of isotopes, Chemical formula, Law of constant composition, Physical chemical changes, Reversible and non-reversible changes, | Chemical reactions, types of chemical reactions, Chemical equation and balance, Law of conservation of mass, Acids, Alkalis, Salts and their properties, Uses of Acids, Alkalis, Salts, Indicators and their uses, Water pressure, |
| Energy, Light and sound, , Electricity and heat and, measurement of physical quantities Forces and pressure | Energy and forms of energy. Conversion of different forms of energy, Law of conservation of energy, Renewable energy sources, Simple machine, Light and transmission of light, reflection of light, law of reflection, types of mirror, Sound and its properties, reception of sound by human ear, | Transfer of heat, Good and bad conductors, radiation of heat, Reflection of light, refractive index, dispersion of light, rainbow, Sound waves, pitch, Current, types of circuit, energy transfer by current, potential difference, ohm law, resistance, fuse, | Pressure, forces and area, Gas pressure, Atmospheric pressure, sources and effect of heat, thermal expansion, effects of expansion and contractions of solids in every , Temperature and temperature scales, Physical quantities, measurement of |

| | | | |
|---|---|---|---|
| | | | physical quantities, Instruments for measurements, Lenses, ray diagram, camera and human eye, Generating electricity, portable generator, sources of electricity, electronic systems, |
| Earth and Space | Universe and space, satellite, space history, global positioning system. | The origin of the universe, the Big bang theory, Stars, Constellations, Galaxy, Black Hole, Formation and death of stars | Instruments used in space exploration, survival in space, applications of space technology on earth, space craft |

Source: Science textbook grade 6th, 7th & 8th Peshawar textbook board (2014-2015).

## Results and Interpretation

As stated above, three textbooks of general science for grade 6th to 8th were analyzed in this study. In total, 36 units of three textbooks (12 of each) were coded to a particular theme/category. The analyzed results in terms of the four themes of the nature of science have presented in table 3 and figure 1.

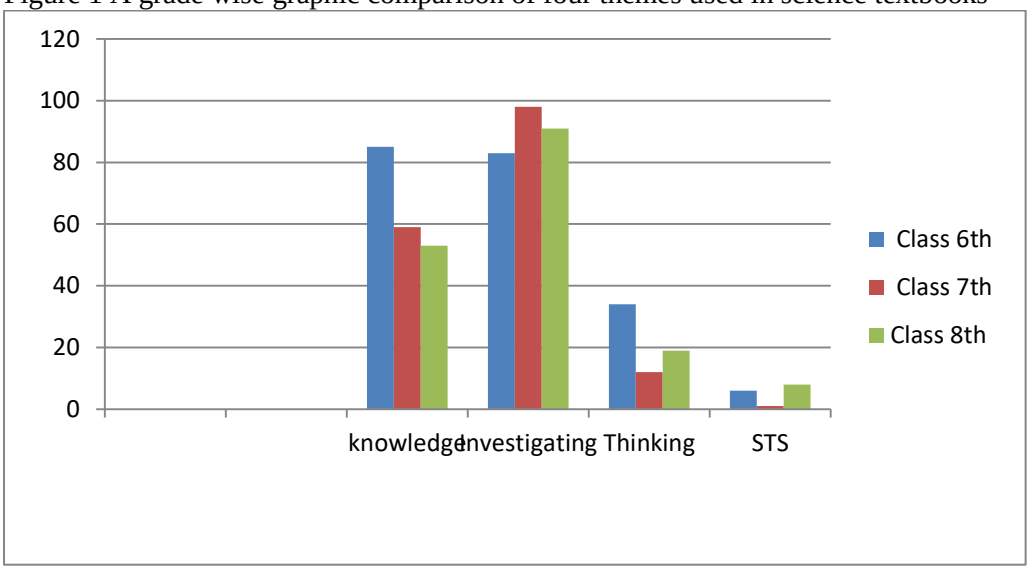
*Table 3*

*The percentage of coverage of the four themes of the nature of science in three science textbooks*

| *S. No* | *Themes* | *General Science class 6th* | *General Science class 7th* | *General Science class 8th* | *Overall %* |
|---|---|---|---|---|---|
| 1 | Science as a body of knowledge | 85 | 59 | 53 | 65.66 |
| 2 | The investigative nature of science | 83 | 98 | 91 | 90.66 |
| 3 | Science as a way of thinking | 34 | 12 | 19 | 21.66 |

| | | | | | |
|---|---|---|---|---|---|
| 4 | Interaction of science, technology and society | 6 | 1 | 8 | 5 |

Figure 1 A grade wise graphic comparison of four themes used in science textbooks




**Theme I: Science as a Body of Knowledge**

The results of the study reveal that all the three general science books represent the theme "Science as a body of Knowledge". As compared to the topics related to this theme, grade 6th science books show 85 topics in 12 units and grade 7th science books provided 59 topics in 12 units. Grade 8th science books have 53 topics related to this theme. Overall 65.66% topics of units of three books were related to this theme. This theme in all the 36 units of three books was provided through definitions, facts, concepts, laws and principles. But mostly concepts related to this theme were given just knowledge based information and explanation of the concept. The most important aspect of this theme is that in some units the factual information was given through tidbit/ do you know? The following two examples extracted from general science book grade 6th and grade 8th.

Do you know?

*Some cells divide slowly while some rapidly. Bacterium divides every 20 minutes.* (p. 6, Grade 6th)

Tidbits

*Delayed ripening tomato becomes the first GM Crops.* (P.29, Grade 8th)

Although all the three books presented this theme in 36 units in paragraphs and reflect factual information. But not provided scientific information through hypotheses, theories and models in all the sciences books of grade $6^{th}$ to $8^{th}$.

## Theme II: Investigative Nature of Science

This theme is represented in all the three books of general science from grade $6^{th}$ to $8^{th}$ with great majority (90.66%). Grade $6^{th}$ science presented this approach in 83 topics, grade $7^{th}$ science presented 98 topics and grade $8^{th}$ science presented this approach in 91 topics. This heavily presentation of this theme in all three textbooks show that this approach was selected by the authors of all the three books for scientific learning to the students and this prove that scope given to this theme in all the three science textbooks. This theme was presented in three science textbooks with the help of tables, diagrams, charts, graphic organizer, student based activities, calculation, and use of scientific observation. The positive aspect of three science textbooks in regard of this theme activities were designed according to students understanding level and material of almost all activities was selected on low cost or no cost approach. The examples of this approach can be seen in grade $6^{th}$ science textbook unit "Forces and machines" on page 98.

Activity;

> *"Go close to the flag poll of your school and observe deeply. Can you see working pulley there! Draw its diagram".*

Another example of this theme in grade $8^{th}$ science book reflect although in many units but here the example of unit "Force and Pressure" page 91 presented as below:

Activity

> *"Fill a tumbler completely with water and place this card board over its mouth. Invert the tumbler pressing the card board firmly to the rim. When the hand is removed, the cardboard will remain in position, preventing the water from running out. Discuss why this happens".*

All the activities related to this theme were given in all the three textbooks with clear instructions. The main objective of these activities is to engage the students in hand-on learning situation and to improve their concept and work with concrete objects. But, all the three science textbooks do not facilitate the development of other science processing skills such as formulating hypotheses, how to analyze data, findings of the activity and how to reach the conclusions? This theme was presented in mostly units or concepts related to chemistry and physics section of the books and was neglected in units or concepts related to biology.

The analysis of the books also reveal the nature of science was investigated in all three books with the help of activities and experiments and students were given opportunity to do practical work in confirming a given concept, law or principle that had been previously learned. Similarly these books also not provide students opportunity to investigate science through their own ideas and use internet to enhance their scientific knowledge and how things and other activities are available in other parts of the world to investigate science in better way.

**Theme III: Science as way of thinking**

The theme "Science is way of thinking" has only 21.66% presented in all three science textbooks. Thirty four (34) concepts or activities in grade 6th, 12 concepts or activities of grade 7th and 19 concepts or activities of grade 8th were related to this theme. The examples of such theme have presented in text books in the pattern of discovery or invention of some scientists as given in unit "Properties of light" in general science book for grade 6th on page 108. "*The laws of reflection were first described by Muslim Scientist Ibn-ul-Haithem".* Similarly, in same book at page 138 of unit "Space and satellite" the information about some famous astronauts was presented as follow:

For your information;

1. *Yuri Gagarin was first man first orbits the earth.*
2. *Valentina Tereshkova first woman in space.*
3. *Neil Armstrong and Edwin manned Moon landing*

The main objective of this theme is to provide information to learners about discovery, inventions and experiments presented in science. The three books also provide little material highlighted the empirical nature of science, the inductive and deductive way of teaching. In all the three science textbooks, few units related to chemistry and physics concepts are related to the empirical nature of science. The examples of this theme are presents in units. For example;

1. In grade 6th "*solution and suspension, energy and its forms, force and machines properties of light, investigating*".
2. In grade 7th, *the units "structure of atom, physical chemical changes and methods, heat, dispersion of light, waves of sound, circuits and electric current*".
3. In grade 8th the units "*chemical reactions, acids, alkalis and salts, force and pressure, measurement of physical quantities , sources and effects of heat energy, lenses and electricity in action*"

**Theme IV: Interaction of science, technology and society**

The theme "Interaction of science, technology and society" is only 5% presented in all three science textbooks. In grade 6th six concepts or activities reflect this theme, one concept or activity of grade 7th and 8 concepts or activities of grade 8th are related to this theme. The topics or activities related to this theme only present the usefulness of science and technology and contribution of diversity. The examples of such theme are presented in these textbooks in the following ways. In science book of grade 6th pages 98-102 have the topics; "*Use of simple machine (flag pulley, gears, cranes, wheel-axle and gears in bicycle"* about the usefulness of science and technology in daily life.

The grade 6th science book also presents the contribution of diversity only with one topic in the following activity.

> *Take some water from a pond. Place a drop of water on the slide and observe with naked eye and then under a microscope. Draw the diagrams of organisms you see under microscope. (Chapter 1, P.9)*

The grade 7th science did not reflect single concept about the usefulness of science and technology. This book has one topic about the contribution of diversity.

> *Activity 3.1 Understanding of asexual reproduction with example of cutting of Earthworm into two pieces p.29*

The grade 8th book reflects 7 topics related to this theme and all these 7 topics are related with the usefulness of science and technology. Some examples are given as follow:

> *Applications of Hydraulic break (Chapter 7, P.84)*
> *Generating Electricity (Chapter 12, P. 62).*

The grade 8th science book also presents the contribution of diversity with one topic in the following activity.

> *Observe your own body features as well as those of your parents, brothers and sisters. Select features of your own choice. Make a table to record your observations showing similarities and variations. (Chapter 2, P.19)*

The analysis of all the three books revealed that these books failed to present the other categories of this themes i.e. negative effects of science and technology, discussion of social issues related to science technology, careers in science and technology, social or cultural influences and science, public or peer collaboration, limitation of science and ethics in science.

The main objective of this theme for learners is to understand the interrelationship between science and society. The analysis shows that all the three science textbooks from grade 6th to 8th have not, any significant measures, to increase the learners' understanding that how science, society and technology interact with each other and their positive and negative effect on human being life. These textbooks have also neglected the most area of the theme "*careers in science and technology*". The

information related to this theme was located in the category "Usefulness of science and technology".

## Discussion

The analysis of the general science textbooks reflects that all three science textbooks grade 6th to 8th presented four themes but the analysis showed that the theme "To investigate nature of science" have more reflection as compared to other three themes. The overwhelming presentation of this theme in all the three textbooks shows that it was written to increase the scientific knowledge of the learners. This theme was presented in all the three textbooks in the form of tables, diagrams, graphics, student's activities and use of scientific observation. A comparison of these textbooks reveals that simple majority was given to the theme "Science as body of knowledge". This theme was presented in the form of definitions, facts, concepts, laws and principles. The mostly topics related to this theme were presented in form of tidbit e.g. *Delayed ripening tomato becomes the first GM Crops* (P.29, Grade 8th). There are about 200,000 varieties of animals pollinators, most of which are insects. Other pollinators may be higher animal (P.34, Grade 7th).

The analysis of these textbooks shows only minor shifts towards addressing the other themes' in the nature of science. The analysis of these books also indicates that the exercise is the only part of these books where strong focus on summative assessment is given in the form of exercise questions. The mostly questions of these exercises are developed to measure the knowledge and comprehension skills of the learners. The majority of the questions are given in the form of fill in the blanks, multiple choice questions, true false, short questions and long questions. These all questions measures only the lower order thinking (knowledge, understanding and application) and fail to measure the higher order thinking/skills (analysis, synthesis, evaluation and creating) of the learners.

The results of present study have similarity with the study reported by Blanched, Southerland, Osborne, Sampson, Annetta and Granger (2010). They reported that student's performance was better in content knowledge during their summative assessment and science textbook reflected the theme "Science as body of knowledge" in depth as compared to the other themes.

Present study also shows similarity with the results conducted by Ramnarian and Padayachee (2015). They analyzed inclusion of nature of science in South African Life science and Biology textbooks and concluded that the theme "The interaction of science, technology and society" was ignored in the textbooks.

## Conclusion and Implications

On the basis of results of the study it is concluded that all three science textbooks grade 6th to 8th presented four themes of nature of science but the analysis

showed that the theme "The investigate nature of science" have more reflection as compared to other three themes i.e. Science as a way of investigating, Science as a way of thinking and Interaction of science, technology and society. On the basis of results it is recommended that;

1. For well-balanced reflection of all the four themes in science textbooks from grade $6^{th}$ to $8^{th;}$ the units and activities may be revised.
2. The developer, writers and reviewers of these textbooks need to revisit all three textbooks and also consider the students learning outcomes of general science curriculum 2006 (taught presently in schools) and include the contents related to the most neglected theme "Interaction of science, technology and society".
3. Activities given in these textbooks may be revised to improve the learners scientific skills i.e. investigation, observation, measurement, recording and conclusion.

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## APPENDIX- A

## Analytical Framework for the Nature of Science

| S. No | Nature of science Theme | Descriptor: Nature of science: Categories |
|---|---|---|
| 1. | Science as a body of knowledge | a) Knowledge presented as facts, concepts, laws, and principles<br>b) Hypotheses, theories, and models<br>c) Factual recall of information |
| 2. | The investigative nature of science | a) Learns through the use of materials<br>b) Learns through the use of tables and charts<br>c) Makes calculations<br>d) Reasons out an answer<br>e) Participates in thought experiments<br>f) Gets information from the internet<br>g) Uses scientific observation and inference<br>h) Analyses and interprets data |
| 3. | Science as a way of thinking | a)Description of scientist discovery and experiments<br>b) Historical development of an idea<br>c) Empirical basis of science<br>d) Use of assumptions<br>e) Inductive or deductive reasoning<br>f) Cause and effect relationship<br>g) Evidence and/or proof<br>h) Presentation of scientific method(s) or problem solving<br>) Scepticism and criticism<br>j) Human imagination and creativity<br>k) Characteristics of scientists (subjectivity and bias)<br>l) Various ways of understanding the natural world |
| 4. | Interaction of science, technology and society | a) Usefulness of science and technology<br>b) Negative effects of science and technology<br>c) Discussion of social issues related to science and technology<br>d) Careers in science and technology<br>e) Contribution of diversity<br>f) Societal or cultural influences<br>g) Public or peer collaboration<br>h) Limitations of science<br>i) Ethics in science |

Source: Adopted from Chiapetta & Fillman (2007)

## APPENDIX- B

### Analysis Sheet for Investigation of Inclusion of Nature of Science in General Science Text Books for Elementary Classes

Name of Textbook: _____

Grade: _____

Unit: _____

**Dear Sir/ Madam**

Analyze each unit carefully and find out the inclusion of nature of science with the help of given four themes after taking help from the given categories describing each theme. If the content, activities, questions given in each unit are related to a specific theme then write or tick "Yes" if not available then write or tick "No".

| S.No | Nature of science Theme | Descriptor: Nature of science: Categories | Yes | No |
|---|---|---|---|---|
| 1 | Science as a body of knowledge | Knowledge presented as facts, concepts, laws, and principles | | |
| | | Hypotheses, theories, and models | | |
| | | Factual recall of information | | |
| | | Activities related to this theme | | |
| 2 | The investigative nature of science | Learns through the use of materials | | |
| | | Learns through the use of tables and charts | | |
| | | Makes calculations | | |
| | | Reasons out an answer | | |
| | | Participates in thought experiments | | |
| | | Gets information from the internet | | |
| | | Uses scientific observation and inference | | |
| | | Analyses and interprets data | | |
| 3 | Science as a way of thinking | Description of how a scientist discovered or experimented | | |
| | | Historical development of an idea | | |
| | | Empirical basis of science | | |
| | | Use of assumptions | | |
| | | Inductive or deductive reasoning | | |
| | | Cause and effect relationship | | |

| | | | | |
|---|---|---|---|---|
| | | Evidence and/or proof | | |
| | | Presentation of scientific method(s) or problem solving | | |
| | | Scepticism and criticism | | |
| | | Human imagination and creativity | | |
| | | Characteristics of scientists (subjectivity and bias) | | |
| | | Various ways of understanding the natural world | | |
| 4 | Interaction of science, technology and society | Usefulness of science and technology | | |
| | | Negative effects of science and technology | | |
| | | Discussion of social issues related to science and technology | | |
| | | Careers in science and technology | | |
| | | Contribution of diversity | | |
| | | Societal or cultural influences | | |
| | | Public or peer collaboration | | |
| | | Limitations of science | | |
| | | Ethics in science | | |

# Comparing Professional Attitude of Formal and Non-Formal Prospective Teachers: Gender Based Differences

Muhammad Riaz[*]
Muhammad Uzair-ul-Hassan[**]
Afia Khan[***]

## Abstract

*Teaching programs and courses are very essential to make the prospective teachers able to excel in academic as well as in instructions to accelerate professional attitudes. The main purpose of the study was to find out and comparing the professional attitude of formal and non-formal prospective teachers. The study was descriptive and survey was done to collect data from 102 formal prospective teachers and 140 non-formal prospective teachers from district Sargodha using convenient sampling technique. To collect data research tool named "Attitude Scale towards the Profession of Teaching" was used. Collected data revealed that attitude towards teaching profession of non-formal prospective teachers is higher than that the professional attitude of formal prospective teachers but formal and non-formal trainee teachers on gender basis statistically showed the remarkable differences in their attitudes towards teaching profession. Male trainee teachers of formal sector showed a lesser amount of positive professional attitude than the attitudes of female trainee teachers of formal and non-formal sector.*

**Key words:** Professional attitude, instructional skills, gender, prospective teachers, teaching programs.

## Introduction

In educative process educators, learners and educational purposes are considered the major components of education. Shah (2003) said that quality of teaching learning process directly depends upon quality of teacher education given to prospective teachers through different teaching programs. Similarly Riaz et. al. (2015) said that educating children is the work of only that person who is trained and has the professional attitude towards teaching. Good and professional teachers always remain popular among students. According to Rina (2010), teachers face multifold changes and professionalism enhances his/her services value. The teacher's professionalism help to

[*] Lecturer, Government Main Muhammad Nawaz Sharif Degree College Sargodha/PhD scholar, Department of Education, University of Sargodha, Sargodha.
[**] Assistant Professor, University of Sargodha, Sargodha.
[***] PhD Scholar, Department of Sociology, University of Sargodha, Sargodha.

improve competence that resultantly make teaching learning environment better. Due to teacher's professionalism the students get engaged in the teaching-learning process also. Professionalism also plays a vital role in ulterior to improve the quality of education. Hussain (2004) elaborated that competence of teachers also facilitates him/her to use the environment in and outside schools, curriculum, teaching methods and other relevant aids that definitely bring about good and healthy results. Failing this, the teaching learning process will never be improved. In this regard teachers must deal students with sagacity. Professional teachers must stimulate students, record information confidential concerning performance and learning outcomes, counsel with students. Teachers must avoid comments that are related to biases, non-professional relationship with students, and seek ways to make the teaching-learning process more better for students and institutions.

According to Hussain, Ali, Khan, Ramzan & Qadeer (2011), the teaching is science that has psychological foundations. In this connection, attitude, Skills and beliefs make a teacher effective that consequentially produce better outcomes. The teacher job is to enable him/herself skillful to engage students prolific and productive teaching learning processes to attain good outcomes. Saphier and Gower (1997b) explained that the students outcomes and achievement can be increased if teachers' professional attitude dominates in his/her personality. Skills related to communication, understanding others, and thirst to get further knowledge based on their previous experiences make teachers professional. Further, Saphier & Gower (1997a) elaborated that teachers must be able to make teaching-learning process effective. Bozdogan, Aydin, Yildirim (2007) finally concluded that gender and teacher training programmes offered can change the attitudes of prospective teachers towards teaching profession. According to Capri and Celikkaleli (2008), attitudes towards teaching profession of prospective teachers are affected due to gender. Capa and Cil (2000) concluded that gender doesn't affect attitudes towards the teaching profession. They further elaborated that female trainee teachers reflect comparatively positive attitudes than males. Similarly, teachers opting content courses related to pedagogy reflect positive attitudes. Practice teaching effectiveness depends on training. Such effectiveness can be observed during teaching-learning process in the live classrooms. Darling-Hammond (2003) explained that in such classroom knowledge and ability of teacher can be observed in snap-shot that also reflects the effective teaching which is based on better professional training. Sargent (2003) elaborated that teacher training programs must be systematic to maintain the delight among students in learning.

**Justification of the Study**

For effective teaching- learning process, teachers are considered to produce productive citizens transited from school to society. For this purpose, it is important to plan instructions in a systematic way. Effective learning can only be ensured if instructions contain differentiation in methods, strategies and techniques as per

demands of discipline and subjects. Teaching-learning process can only be made effective when teachers are trained professionally. Teachers should put on caps of teachers and must reflect professional attitude towards teaching profession. Attitude of prospective teachers towards the profession of teaching is affected as shown by some researchers, on the basis of gender, type of class, nature of training programs and socio-economic status. For example, Oral (2004) pointed out significant difference in attitudes of prospective teachers was observed based on gender who were enrolled in the department of education. Similarly, Cakir (2005) conducted a study on prospective teachers who get training to teach English language and found no significant difference in attitude. While others pointed out that nature of teacher training programs affect attitudes of prospective teachers towards teaching profession. Depending upon cited studies, researchers were curious and planned to conduct the study on professional attitudes of male and female prospective teachers of formal and non-formal sectors. In Pakistan, both formal and non-formal sectors are offering teachers' training programmes. These sectors are also providing pre-service training to future teachers. Hence, studying professional attitudes of prospective teachers could be productive to make training programmes better.

**Statement of the Problem**

This research work intends to investigate and compare the professional attitudes of formal and non-formal prospective teachers. The study further highlights the differences based on gender.

**Objectives of the Study**

1. To find out professional attitude of male and female trainee teachers of formal institutions
2. To find out professional attitude of male and female trainee teachers of non-formal institutions
3. To compare professional attitude of trainee teachers of both formal and non-formal.

**Research Questions**

Following research questions were formulated to achieve the established objectives:

1. What is the level of professional attitude of formal prospective teachers?
2. What is the level of professional attitude of non-formal prospective teachers?
3. Are there some significant differences in the attitudes of formal and non-formal trainee teachers towards teaching profession?
4. Are there some significant differences in the attitudes of female formal and non-formal trainee teachers towards teaching profession?
5. Are there some significant differences in the attitudes of male formal and non-formal trainee teachers towards teaching profession?

6. Are there some significant differences in the attitudes of female formal and male non-formal trainee teachers towards teaching profession?
7. Are there some significant differences in the attitudes of male formal and female non-formal trainee teachers towards teaching profession?

## Methodology

### Research Design

This research study was descriptive, by technique it was quantitative and data was collected through survey.

### Population

As for as population concerned for this study, all the male and female prospective teachers of B. Ed enrolled in formal and non-formal teachers' training sectors in Division Sargodha were the population.

#### *Sample and Sampling*

In the present study 102 prospective teachers from University of Sargodha and Government College for Elementary Teachers Sargodha of formal sector and 140 prospective teachers from Allama Iqbal Open University of non-formal sector, region Sargodha, B. Ed. Session (2014-15) participated. All the prospective teachers who participated in the study were selected from District Sargodha through convenient sampling technique.

#### *Research Instrument*

For data collection research instrument "Attitude Scale towards the Profession of Teaching" established by Ustuner (2006) was used to collect data from formal and non-formal prospective teachers. It was a 5 points Likert type scale having 34 items to measure the professional attitude of trainee teachers towards teaching.

#### *Validity and Reliability of Research Instrument*

As the research instrument was adopted so the validity and reliability was originally calculated by Ustuner (2006). The concurrent validity of research instrument was 0.89 and reliability coefficient Cronbach Alfa was 0.93.

## Data Analysis

After collecting data it were analyzed through SPSS software. As 242 prospective teachers participated in this research study so following table showed the breakdown of male and female prospective teachers of formal and non-formal sector.

**Table 1**
*Breakdown of formal and non-formal prospective teachers*

| *Type of Prospective Teacher* | *Female* | *Male* | *Total* |
|---|---|---|---|
| Formal | 77 | 25 | 102 |
| Non-formal | 100 | 40 | 140 |
| Total | 177 | 65 | 242 |

Table 1 showed that there were 77 female and 25 male prospective teachers from formal sector, 100 female and 40 male prospective teachers from non-formal sector in the sample.

**Are there some significant differences in the attitudes of formal and non-formal trainee teachers towards teaching profession?**
*Table 2*
*Formal and non-formal prospective teachers' mean scores*

| *Type of Prospective Teacher* | *n* | *M* | *SD* | *t* | *p* |
|---|---|---|---|---|---|
| Formal | 102 | 132.441 | 15.411 | -2.823 | 0.005 |
| Non-formal | 140 | 138.871 | 18.865 | | |

Table 2 showed that mean scores of formal and non-formal trainee teachers were 132.441, 138.871 and standard deviation of formal and non-formal trainee teachers were 15.411, 18.865 respectively. The table also showed t=-2.823, p=0.005 at p<0.05, these values indicated the significant difference in the level of formal and non-formal trainee teachers' professional attitude. It means non-formal novice teachers showed better attitude towards teaching as compare to formal novice teachers.

**Are there some significant differences in the attitudes of female formal and non-formal trainee teachers towards teaching profession?**
Table 3
*Female formal and non-formal prospective teachers' mean scores*

| *Type of Prospective Teacher* | *n* | *M* | *SD* | *t* | *p* |
|---|---|---|---|---|---|
| Formal | 77 | 132.065 | 15.687 | -4.058 | 0.000 |
| Non-formal | 100 | 141.990 | 16.465 | | |

Table No. 3 showed that mean scores of formal and non-formal trainee teachers were 132.065, 141.990 and standard deviation of formal and non-formal trainee teachers were 15.687, 16.465 respectively. The table also showed t=-4.058, p=0.000 at p<0.05, these values indicated the significant difference in the level of female formal and non-formal trainee teachers' professional attitude. It means non-formal female

novice teachers showed better attitude towards teaching as compare to formal female novice teachers.

**Are there some significant differences in the attitudes of male formal and non-formal trainee teachers towards teaching profession?**

*Table 4*

*Male formal and non-formal prospective teachers' mean scores*

| *Type of Prospective Teacher* | *n* | *M* | *SD* | *t* | *p* |
|---|---|---|---|---|---|
| Formal | 25 | 133.600 | 14.776 | 0.503 | 0.617 |
| Non-formal | 40 | 131.075 | 22.203 | | |

Table No. 4 showed that mean scores of formal and non-formal trainee teachers were 133.600, 131.075 and standard deviation of formal and non-formal trainee teachers were 14.776, 22.203 respectively. The table also showed t=0.503, p=0.617 at p<0.05, these values indicated no significant difference in the level of male formal and non-formal trainee teachers' professional attitude.

**Are there some significant differences in the attitudes of female formal and male non-formal trainee teachers towards teaching profession?**

*Table 5*

*Female formal & male non-formal prospective teachers' mean scores*

| *Type of Prospective Teacher* | *n* | *M* | *SD* | *t* | *p* |
|---|---|---|---|---|---|
| Formal | 77 | 132.065 | 15.687 | 0.280 | 0.780 |
| Non-formal | 40 | 131.075 | 22.203 | | |

Table No. 5 showed that mean scores of formal and non-formal trainee teachers were 132.065, 131.075 and standard deviation of formal and non-formal trainee teachers were 15.687, 22.203 respectively. The table also showed t=0.280, p=0.780 at p<0.05, these values indicated no significant difference in the level of female formal and male non-formal trainee teachers' professional attitude.

**Are there some significant differences in the attitudes of male formal and female non-formal trainee teachers towards teaching profession?**

*Table 6*

*Male formal & female non-formal Prospective teachers' mean scores*

| *Type of Prospective Teacher* | *n* | *M* | *SD* | *t* | *p* |
|---|---|---|---|---|---|
| Formal | 25 | 133.600 | 14.776 | -2.232 | 0.022 |
| Non-formal | 100 | 141.990 | 16.465 | | |

Table 6 showed that mean scores of formal and non-formal trainee teachers were 133.600, 141.990 and standard deviation of formal and non-formal trainee teachers were 14.776, 16.465 respectively. The table also showed t=-2.232, p=0.022 at

$p<0.05$, these values indicated significant difference in the level of male formal and female non-formal trainee teachers' professional attitude. It means non-formal female novice teachers showed better attitude towards teaching as compare to formal male novice teachers.

## Findings

On the base of data analysis following are the findings of this research study:

1. There was significant difference in their level of attitudes of formal and non-formal prospective teachers' professional attitude.
2. Significant difference was found in the level of female formal and non-formal trainee teachers' professional attitude.
3. Significant difference was found in the level of male formal and non-formal trainee teachers' professional attitude.
4. Significant difference was found in the level of female formal and male non-formal trainee teachers' professional attitude.
5. Significant difference was found in the level of male formal and female non-formal trainee teachers' professional attitude.

## Conclusion

It was concluded through data analysis that there are significant differences in the level of formal and non-formal prospective teachers' professional attitude. Non-formal novice teachers showed better attitude towards teaching as compare to formal novice teachers. On the basis of gender it was concluded that there are remarkable differences in their attitudes of female formal and non-formal trainee teachers' towards teaching i.e. non-formal female novice teachers showed better attitude towards teaching as compare to formal female novice teachers it was also found that non-formal female novice teachers showed better attitude towards teaching as compare to formal and non-formal male novice teachers.

## Discussion

Trained and skilled teachers are considered an integral component of school system of a country therefore every nation or country tries to provide best training facilities to their prospective teachers for effective teaching learning to take place. It should take into account that teachers must be trained sufficient earlier to join teaching as profession. The expectations can only be met when this would happen. Variety of professions for example, medicine pre service training is considered as necessary. Similarly, training of teachers to shape up professional attitude in them is also part and parcel of their professional life. As both the formal and non-formal sectors is providing training to their prospective teachers so this research work intended to investigate and compare attitudes towards profession of formal and non-formal trainee teachers. The study was descriptive and survey research method was used to collect data from male and female trainee teachers of B. Ed Session (2014-15) of formal and non-formal sectors. Research instrument "Attitude Scale towards the Profession of Teaching" a 5

points Likert type scale having 34 items developed by Ustuner was used to collect data from formal and non-formal prospective teachers.

During data collection process it was observed that prospective teachers of non-formal sector listened instructions given to them more carefully and attentively as compare to the prospective teachers of formal sector. It was noted through data analysis that there were significant differences in the level of formal and non-formal prospective teachers' professional attitude on gender basis i.e. non-formal female novice teachers showed better attitude towards teaching as compare to formal female novice teachers it was also found that non-formal female novice teachers showed better attitude towards teaching as compare to formal and non-formal male novice teachers. Similar results were presented by Akkaya (2009) who concluded that professional attitudes of teachers are affected by gender. Further, she explained that female prospective teachers were more successful than that of males in relation to professional attitude and academic outcomes. Moreover she also found significant difference in nature of training programmes of trainee teachers. Similarly, Bozdogan, Aydin, Yildirim (2007) also concluded that gender and teacher training programmes offered can change the attitudes of prospective teachers towards teaching profession. Same results also were found in Capri and Celikkaleli's (2008), study who also found that attitudes towards teaching profession of prospective teachers are affected due to gender.

After collecting data from prospective teachers of non-formal sector, during conversation it was observed that some of the respondents were regular teachers in government schools who were appointed as untrained teachers and they were asked to provide B. Ed. Degree within three years so according to them it is easy to get a degree from non-formal institution during job. Further it was also observed that some of the respondents were regular students at University of Sargodha in different departments and they were enrolled in non-formal institution at the same time to get a professional degree B. Ed. As they wanted to get a job as soon as possible in government schools after completion of studies so according to them this B. Ed degree will be helpful in competing with other candidates in the merit list.

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# Second Language Motivational Orientations of Undergraduate Students at a Pakistani Public Sector University

Muhammad Ajmal Khurshid [*]

## Abstract

*The study aims to examine the types of motivational orientations exhibited by students at the Pakistani universities for second language acquisition (SLA). The paper attempts to find the most influencing motivational orientation and the significant gender differences pertaining to acquire English as a second language. The quantitative data is collected through structured questionnaire from 197 students to evaluate the moderating dynamics of second language motivational orientations among undergraduate students at the University of Engineering and Technology, Lahore, Pakistan. The findings of the study indicate that the instrumental and extrinsic orientations noticeably stimulate the motivation of second language learners in Pakistani context. Besides, contrary to the western researches, this paper demonstrates that the instrumental orientation of SLA is relatively higher in male students than females. Moreover, the study presents recommendations to facilitate the acquisition of second language that contribute considerably to the field of motivational research.*

**Keywords:** Motivational orientations, SLA, gender differences, Pakistani context.

## Introduction

English is the lingua franca of the contemporary world and there is a great scope of English language not only internationally but in Pakistan correspondingly. It is the second language and the medium of instruction in almost all academic and professional fields. In Pakistan, English is not only taught as a language but rather as a compulsory subject from class one to graduation level. In addition, English serves as an official language in Pakistan and the most esteemed jobs in the country also necessitate a high level of proficiency in it. It is believed to be the emble m of power, status, authority and social gain. Though it has national and international scope, still majority of the people in Pakistan; especially students are below average in speaking and writing English.

The significance of motivation as the major learner variable in acquiring second language has been defined in many researches (Gardner and Smythe, 1979 Oxford and Shearin, 1994; Schmidt and Crookes, 1991, Cohen and Dörnyei 2002). Motivation

[*] University of Engineering and Technology, Lahore, Pakistan e-mail: ajmalkhurshid@uet.edu.pk

influences the strategies of language acquisition, frequency of communication with target language speakers and the proficiency of language (Oxford and Shearin 1994). Gardner's research confirms motivation as an influential factor in the learning of second language (1985) and he divides the motivation into two sub factors; integrative motivation and instrumental motivation. If a learner of second language has a positive attitude towards the second language community to the point that he aims to amalgamate himself into the traditions and cultural values of second language and wants to become like the speakers of second language, the L2 motivation of such a learner is integrative. On the contrary, if he is acquiring the language for the reasons of personal gains or benefits; such as to get a reasonable job, promotion in career or success in an examination, his motivation may be called instrumental (Gardner & Lambert, 1972, Gardner, 1985). Following Gardner's classification of second language motivation, Smythe, Clément and Gliksman (1976) also confirmed integrative orientation to be the most significant motivational factor in the SLA. However, in self-determination motivation approach, Deci and Ryans (1985) elaborate that if a task is carried out just for the sake of delight and gratification, it is stated as an intrinsic motivation. Intrinsically motivated learners select their task willingly and such kinds of tasks add challenge to their aptitude, and demand the use of their innovative capabilities. Whereas, those who perform language activities, not because of any internal interest, but in order to achieve an instrumental gain are extrinsically motivated.

Among the major objectives of this study, one is to find out motivational factors of undergraduate students at the University of Engineering and Technology, Lahore. Secondly, the purpose is to know the most influencing factor in motivating the SLA, which not only drives the interest of second language learners but also directs their motivation in acquiring a second language. Moreover, the researcher wants to find out whether there are any significant gender differences with respect to motivation. Through findings, an effective method may be adopted to teach a second language. The study may assist the educational strategy makers and teachers to evaluate the reasons for which learners are attracted to learn a foreign language. They can devise realistic goals and objectives and choose proper teaching methods and materials for teaching a heterogeneous class according to the motivational needs of students.

**Significance of the Study**

The current study deals with the SLA motivational orientations in Pakistani context, where English like many other countries, is taught as a second language almost in all academic institutions; whether private or public. The findings of this research will be helpful for the teachers and syllabus designers to pursue a systematic process by selecting the most suitable methodology and content to teach English effectively in a varied class; so that the students may not face any ambiguity in the acquisition of the target language. A further collaboration can be made by presenting the strategies to help learners develop their innate abilities through communication-oriented language

teaching, which can boost the learner's confidence in all four skills. By doing so, all the four motivational orientations can be stimulated, which may benefit all kind of learners.

**Research Questions**

1. What are the motivational orientations?
2. Which is the most influential motivational orientation for SLA among undergraduate students at the University of Engineering and Technology, Lahore?
3. Are there any significant gender differences among the Pakistani learners with respect to second language motivational orientations?

## Literature Review

### Motivation

Motivation is considered as a general notion and an essential condition that drives an individual to take an action in a range of situations. The empirical investigation of second language motivation in various EFL contexts worldwide have created some valuable researches that have contributed a lot to the theory of this field. Many researchers, for example, Gardner & Lysynch (1990), Graham (1984), Gardner and Lambert (1972), and Dornyei (1990) have emphasized the significance of motivation as an important language learning factor.

In English language acquisition, motivation is elaborated with respect to Gardner's (1985) Second Language Acquisition Model in socio-psychology, which stated that integrativeness and attitude are two variables that influence the learners' motivational orientations (Conttia, 2007; Qashoa, 2006). They further stated intrinsic satisfaction, extrinsic satisfaction, success and reward as different sources of motivation. Frith (1997) contrariwise called curiosity, self-efficacy, attitude, need, competence and external motivation as the essential components of motivation. Whereas, Sakai (2007) on the other hand referred that task performance, action control and appraisal are the three major motivational components. Moreover, according to Tremblay, and Masgoret (1997) there are three different scales to measure motivation: 1) attitudes towards language acquisition 2) desire to acquire language 3) motivation principally depending on attitudinal behavior are three scales to measure motivation.

Learners' personal distinctions show significant effects on the learner's general second/foreign language performance. Nagano (1995) supposed that attitude and motivation are the most influential factors in the acquisition of second language. This argument is further supported by Ushioda (2008), who argued that success in learning a second or foreign language will be impossible without these two important components. Drillings and O'Neil (1994) on the other hand stressed that the motivational variables such as effort, anxiety, curiosity, individual differences and environmental factors play a significant role in acquiring a second language, however surprisingly these variables

have been getting less than deserved attention by researchers in the field. Moreover, Hofstede (1995) was of the view that motivation varies from culture to culture and motivation theories are subject to cultural limitations. In various cultures, the attitudes and individual values have close ties with culture that visibly play significant role in learner's motivation.

Apart from these motivational factors, the success of any strategy employed by any teacher depends on, at least, three variables: the teacher, the student, and the material to be learned. (Kolesnik 1978). No single fixed strategy can motivate students. If a person has enough determination and necessary abilities coupled with personal and social motives to learn, one will be able to learn, with or without a teacher because human needs and drives are not only universal but also, more or less, innate. Kolesnik in his findings mentioned several good strategies that are aimed at facilitating the process of motivation; however, he insisted that no teacher can motivate any student unless the student has a certain degree of positive behavior and willingness to learn.

**Kinds of Motivational Orientations of Second Language Learning**

The researchers have established the following important motivational orientations to determine the attitude of an individual towards the second language acquisition.

**Instrumental and Integrative Motivation**

Gardner (1996) has linked instrumental motivation with extrinsic motivation and integrative motivation with intrinsic motivation. Instrumental motivation is related with practical worth and compensation of acquiring a second language, as learners demonstrate little or no concern for the people, who are the speakers of target language. Learners acquire language for practical purposes such as making progress in their profession etc. Integrative orientation, on the contrary, shows an earnest desire and a personal concern in people and culture demonstrated by the target community. It encourages the acquirer to interact with target language speakers out of sheer interest.

**Intrinsic and Extrinsic Motivation**

Deci and Ryan (1985) proposed another widely used and accepted model in educational psychology to understand the kinds of motivation; intrinsic and extrinsic. Intrinsically motivated learners of second language are encouraged mentally to learn a second language for their well-being and a sense of identity. They are self-motivated in acquiring a second language. However, extrinsic motivation is related more to the learner's outside world. The learners are motivated extrinsically when they have definite aims to achieve a target through acquiring a target language, and without these external rewards they consider it useless to acquire proficiency in that target language. Leaver, Erhman, and Oxford (2003) proposed that a learner who is motivated intrinsically, discovers benefit in the pleasure of language acquisition task itself and attains a feeling of competence in performing an activity which according to Bandura

(1997) is also known as self-efficacy. Besides, Walqui (2000) in his findings had shown that the success of second language learner is present in his intrinsic motivation as compared to extrinsic motivation. However, this cannot be denied that these both motivational orientations of a second language leaner may exist simultaneously.

**Gender Differences**

The language stability is significantly affected by the social factors prevalent in any society. There is a relentless battle concerning the growth and stability in any society, and English plays a key role in it. The socio-cultural situation of any country expedites female English literacy to a great degree and affects women's learning of English. English literacy, despite countless claims, is still not satisfactory in the South Asian countries particularly. Improving English literacy for women may have a substantial effect on the society at large; enlightening not only the social grounds but economical too. Cumming and Gill (1991) in their research, conducted in Vancouver, British Columbia, about socio-cultural factors facilitating females' participation in acquiring English as a second language, stated that different types of restrictions are imposed on the lives of Indo-Canadian women. For example, men control personal lives of their female partners and the women are supposed to commit to responsibilities such as child and extended family care to bring about the cultural expectations. Variables such as personal and educational background, religious constraints, family values, and socio-economic status not only effect their motivation but affect person's decision-making strategies as well. Ehrlich (1997) stated:

> The second language settings can also create gender differentiated outcomes in the second language acquisition either because the native culture or the target culture of learners creates different kinds of opportunities for or imposes different kinds of restrictions on women and men. (p. 433*)*

Similar results are reported by Goldstein (1995) regarding Portuguese immigrant women in Toronto, who felt uncomfortable attending English language classes at night and their husbands prevented them from attending the classes due to the presence of so many men in the classroom. Mohammad Reza Ahmadi's research findings (2011) pertaining to Iranian EFL male students declared that inspirations of males are more career-oriented than those of females, as males have stronger instrumental orientation to acquire English as a second language. On the other hand, with respect to females' second language motivational orientation, he stated that females have stronger integrative motivational orientation than the instrumental orientation as compared to men.

**The Role of Attitudes and Motivation in Second Language Learning**

This research is concerned with multiple aspects such as learners' expectations, attitudes, and motivations related to the second language acquisition. Naiman, Todesco,

Stern, and Frolich (1996) suggested that motivation and attitude are strong factors of success in acquiring second language. They elaborated that a proactive approach, high motivation, a positive attitude towards speakers of the language, and willingness to use the language in real communication settings are some of the various qualities of good language learners. Brown (1987) described how attitude formation develops in the early stages of one's life and is the result of environmental influences such as parents, peers, and the attitudes of other people with which one interacts on regular basis. Our present experiences and opinions, decisions, attitudes, etc. are also primarily influenced by our past experiences. Unpleasant past experiences with language and / or its speakers will tend to generate and develop attitudes that can be categorized as unfavorable. Gardner and Lambert (1972) also reported a similar research conducted in the Philippines in which researchers switched from the research of French to the research of English. They concluded that instrumentally motivated students, who received support in their homes and identified with English language culture succeeded in English language development more than those who were not instrumentally oriented. Furthermore, Spolsky (1969) supported the argument through his investigation of relationship between integrative motivation and the level of proficiency achieved that "the attitudes of students have a great effect on how well they learn". (p. 281)

## Methodology

The quantitative method is followed to investigate the motivational orientations and for the analysis of the data "Statistical Package for the Social Sciences (SPSS)" was used. The gender difference was measured using sample t-tests in inferential statistics.

### Institution and Participants

The data was collected from 197 second language learners at University of Engineering and Technology, Lahore (20 students from each departments) of both genders. The selected university has international reputation and students come to it from across Pakistan. Some international students across the world also come here to get their professional education. Therefore, it was easy for the researcher to get diversity in participants for his sample. The data was collected through structured questionnaire. The decided sample of this study was 150 students. Therefore, the questionnaire was administered on 200 students. Because of unexpected high response rate, the researcher managed to get 197 filled questionnaires back from the students and included all of them in data analysis process to attain a more realistic picture.

### Instrument

The instrument was developed by following the renowned researchers of the theory of motivation in the SLA; Ryan and Deci (2000), Christo Moskovsky and Fakieh Alrabia (2009) and Fazul-ur-Rehman, Dr. Nabi Bux Jumani and Abdul Basit (2010). The questionnaire was composed of 36 research items (see Appendix B: Questionnaire). The research items in the questionnaire have been organized respectively comprising

different number of items for each of the four motivational orientations. A Pearson correlation matrix of the 36 items of the questionnaire was run, yielding a Cronbach's Alpha Coefficient Index of Internal Consistency .83. This proves the reliability and authenticity of the questionnaire (see Appendix A: Table 1 - The Reliability of Questionnaire).

**Data Analysis**

To know the most influential motivational factor of second language acquisition, the mean values of all the factors were calculated (see Table 1: The Mean Value and Std. Deviation of the Motivational Orientations). According to the table below, the mean value of the f1 is 3.1630, which is less than 3.4, shows that the students of English/second language learning in the University of Engineering and Technology, Lahore, Pakistan are less intrinsically motivated. The mean value of the f2 is 3.8487, which is more than 3.4, indicates that the students of the second language acquisition in the UET, Lahore are more extrinsically motivated. The mean value of the f3 is 4.1396, which is also more than 3.4, demonstrates that the students of the SLA in the UET, Lahore are more instrumentally motivated. And the mean value of f4 is 3.3779, which is less than 3.4, exhibits that the students of the SLA in the UET, Lahore are less integratively motivated as compared to their extrinsic and instrumental motivation. Later, when the mean value of f2 and f3 was compared, it was found that the most influential factor of the SLA is instrumental motivation f3.

Table 1

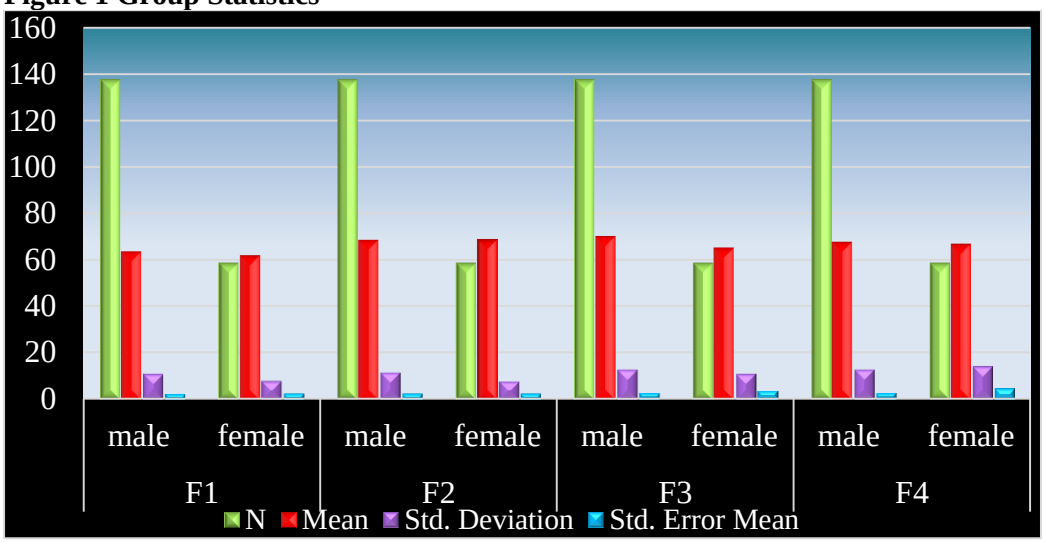
*The Mean Value and Std. Deviation of the Motivational Orientations*

| | **Mean** | **Std. Deviation** | **N** |
|---|---|---|---|
| **f1** | **3.1630** | **.50701** | **197** |
| **f2** | **3.4416** | **.52401** | **197** |
| **f3** | **4.1369** | **.64399** | **197** |
| **f4** | **3.3779** | **.65539** | **197** |

The sample t-test (see Appendix A: Table 3) indicates that the instrumental second language learning motivation of the males is significantly different from that of females. The findings conclude that there is no significant difference between males

and females regarding their intrinsic and extrinsic motivation of the SLA. However, there is a significant gender difference in instrumental motivation of the SLA, while the integrative motivation of the participants for the SLA has no effect on gender.

**Figure 1 Group Statistics**




## Interpretation

The result (see Table 1: Group Statistics) shows that the males are motivated instrumentally more than females. This may be explained easily if we look at the gender biased trends of Pakistani society. In most of the families in Pakistan, males tend to manage financial state of affairs. In order to do so, learning English has become undeniably important in Pakistan, as most of job-related tests and interviews are conducted in English language.

## Findings and Discussion

Through the research conducted for gauging the motivational orientation of the second language acquisition among the students of the University of Engineering and Technology, Lahore, the following findings are hereby presented:

### The Most Influential Motivational Orientation of the Second Language Learning

From the data analysis of this research, it is clear that there are two motivational orientations present among the second language learners. One is extrinsic motivational orientation of the second language acquisition and the second is the instrumental orientation of the second language acquisition. However, the deep analysis

of the data reveals that the most influential type of motivational orientation of the second language acquisition is instrumental. In this case, the learner acquires a second language for practical purposes such as getting a degree, job and making progress in future professional life. The students do not have any internal intention to learn this language or to interact with the native people of the target language. They are mostly encouraged by their parents, teachers, peers, friends and people around them to learn it because of the instrumental importance attached to English language in the Pakistani society.

The research findings of the present study go against the findings of Ramage's (1990), whose investigations declared that the number of intrinsically motivated students is increasing than the students whose interest to acquire a second language is for the sake of achieving other objectives. Whereas, this study on the contrary, presents that the number of extrinsically motivated students is higher as compared to those who are intrinsically motivated.

In contrast, this study approves the research findings of Zahra Vaezi (2008), who found the Iranian students' positive attitudes towards learning English, although they were motivated instrumentally. However, the present study disagrees with one of the findings of Zahra Vaezi, where she proposed that males are less motivated than females towards communication, affiliation and self-efficacy.

Walqui's (2000) research findings are also disapproved by the present research, as he stated that the success of the second language learner is present in his intrinsic motivation as compared to extrinsic motivation. The research outcomes of this investigation are however synonymous to the research findings of Schunk and Pintrich (1996). They focused on the instrumental motivational orientation and according to them, the external rewards offered to language learners can become a factor to increase or decrease intrinsic motivation.

**Instrumental Orientation of the Second Language Learning and Gender Difference**

The investigation of this study shows that the orientation of males for English language learning is highly instrumental, as they have to become the bread earners of their families and perform important social roles. The dominant orientation for the second language learning in females is extrinsic since they are encouraged and influenced most of the time by their parents, teachers, friends and the people around them to learn English.

The study is contrary to various investigations, which have been carried out by Massey (1994), Pagliaroli (1999), Netten, Riggs and Hewlett (1999), as these studies confirmed the notion that motivation of females to acquire second language is more than males. This idea is further proved by Williams Burden and Lanvers (2002), who

confirmed that females are more motivated to acquire second language than males. In another research conducted by Csizér and Dörnyei (2005b), comprising over 8000 old Hungarian students (13 and 14 years), provided the similar evidence that male students are less motivated second language learners. Whereas, the current study does not favor all the above mentioned researches and proves that males are motivated more as compared to females in learning English as a second language.

Moreover, the findings of this investigation approves Mohammad Reza Ahmadi's research findings (2011) pertaining to Iranian EFL male students, who have stronger instrumental orientation to learn English as a second language. However, the present study disapproves his research investigation with respect to female second language learning students particularly, as according to him; females have stronger integrative motivational orientation than the instrumental orientation. In this study, females are not motivated integratively to a large extent rather their extrinsic motives are higher.

On the other hand, Xiong Xin (2008) argued that the intrinsic motivation of girls is stronger than boys. However, this study shows that there is no significant difference between males and females regarding their levels of English language motivational orientations including intrinsic, extrinsic and integrative ones. Both sexes seem to be equally interested and motivated to acquire English language. However, there is only one exception in this regard, which is instrumental orientation. Males and females differ in their levels of instrumental orientation, as males are instrumentally more motivated than females.

## Conclusion

To sum up, the current study has been conducted to determine the most influential motivational orientation along with the significant gender differences among the second language undergraduate learners at a Pakistani public sector university. The study demonstrates a diverse picture than what it had been reflected from the previous internationally recognized researches of Gardner, Smythe, Clement and Gliksman (1976), which confirmed integrative orientation to be the most influencing in the second language acquisition. However, the present study states that instrumental motivation is the most important orientation to acquire second language. Another result of the study, as opposed to the previous researches, states that the instrumental motivational orientation for English language acquisition is substantially higher in male students than females, since they hold a responsibility of fulfilling the financial needs of their families. In order to get a handsome job, the acquisition of English language is substantial. At the same instant, the study reveals that females are less extrinsically motivated towards the second language acquisition, as they are less burdened economically in a Pakistani society. Furthermore, the findings of the study appear to support English language acquisition as a second language for utilitarian value rather

than as a vehicle to integrate into the mainstream culture of the English speakers. The study shows that there are issues that need to be addressed among the learners at the Pakistani universities. Importantly, therefore, the policy makers, government, higher authorities and the teachers should provide responsive and conducive second language acquisition environment to the students to enhance the motivational orientations of students of both sexes collectively according to their needs.

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## APPENDIX – A

**Table 1**
**The Reliability of the Questionnaire**

| *Reliability Statistics* | *Cronbach's Alpha* | *N of Items* |
|---|---|---|
| f1 Intrinsic Motivational Orientation | .597 | 9 |
| f2 Extrinsic Motivational Orientation | .704 | 11 |
| f3 Instrumental Motivational Orientation | .746 | 7 |
| f4 Integrative Motivational Orientation | .719 | 9 |

**f1: intrinsic, f2: extrinsic, f3: instrumental, f4: integrative**

**Table 2**
**The Group Statistics**

| *Test* | *Gender* | *N* | *Mean* | *Std. Deviation* | *Std. Error Mean* |
|---|---|---|---|---|---|
| f1 | Male | 138 | 63.816 | 10.9624 | 2.333 |
| | Female | 59 | 61.958 | 7.8196 | 2.545 |
| f2 | Male | 138 | 68.814 | 11.4822 | 2.4435 |
| | Female | 59 | 68.876 | 7.7292 | 2.5155 |
| f3 | Male | 138 | 70.228 | 12.7112 | 2.705 |
| | Female | 59 | 65.52 | 10.8456 | 3.53 |
| f4 | Male | 138 | 67.794 | 12.6998 | 2.7025 |
| | Female | 59 | 67.006 | 14.1138 | 4.5935 |

**Table 3**
**The sample t-test**

| Test | t | Df | Sig. (2-tailed) | Mean Difference | Std. Error Difference | 95% Confidence Interval of the Difference | |
|---|---|---|---|---|---|---|---|
| | | | | | | Lower | Upper |
| f1 | 1.179 | 195 | .240 | .092 | .078 | -.062 | .248 |
| f2 | -.037 | 195 | .970 | -.003 | .081 | -.164 | .158 |
| f3 | 2.483 | 195 | .014 | .235 | .094 | .048 | .422 |
| f4 | .386 | 195 | .700 | .039 | .102 | -.162 | .240 |

## APPENDIX – B

### Questionnaire

## Second Language Motivational Orientations of Undergraduate Students at A Pakistani Public Sector University

Respected Participant,

This questionnaire has designed to make a comprehensive investigation about the second language motivational orientations of undergraduate students at the University of Engineering and Technology, Lahore, Punjab, Pakistan. Your sincere opinion about these simple questions related to this topic is required. The information provided by you, will help to identify the dynamic nature of second language motivation that is very important in all second language contexts. Therefore, it is requested to respond to the questions sincerely and frankly. Your participation is voluntary and will be kept confidential. Your responses will be used only for academic purposes. Only the researcher will have access to the information you give. There are no right or wrong answers. I am interested only in your personal opinion. In front of every question, there are five options: strongly disagree (SDA), disagree (DA), neutral, agree (A) and strongly agree (SA). Please tick the option which best expresses how true the statement is about your feelings or situation.

Gender: Male -------- Female ----------

| **Statements** | **SDA** | **DA** | **Neutral** | **A** | **SA** |
|---|---|---|---|---|---|
| I have stronger tendency to speak English. | | | | | |
| I want to learn but it is difficult to learn. | | | | | |
| I feel hesitation and anxiety while speaking it. | | | | | |
| I enjoy learning it very much. | | | | | |
| Learning English is a hobby for me. | | | | | |
| Learning English is a challenge to learn | | | | | |
| I feel easy to learn it. | | | | | |
| I learn English because it attracts me. | | | | | |
| I am fond of learning it. | | | | | |
| English is important to me because it will broaden my views. | | | | | |
| I learn it because my parents, teachers want me to learn | | | | | |
| I learn it to show my abilities in social activities. | | | | | |
| Everybody should speak English | | | | | |
| I learn to add social status. | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| I learn English to go abroad | | | | | |
| I learn English as an international language. | | | | | |
| I learn English and the society encourages me | | | | | |
| I learn English and my parents encourage me. | | | | | |
| I learn English and my friends encourage me. | | | | | |
| I learn English and my teachers encourage me. | | | | | |
| I learn English to get a job. | | | | | |
| I learn English to acquire higher education. | | | | | |
| I learn English to have more opportunities in all fields of life. | | | | | |
| I learn English to impress the people. | | | | | |
| I learn English to get social dominance. | | | | | |
| I learn English because people like English speaking person. | | | | | |
| I can't make progress without learning English. | | | | | |
| I learn it to read English related books. | | | | | |
| I learn to watch English programs. | | | | | |
| I learn it to communicate with native speakers | | | | | |
| I learn English to know about culture of native speakers. | | | | | |
| I learn it to meet and speak with more and varied people. | | | | | |
| I learn it to know and understand English art and literature. | | | | | |
| I learn it to participate in the activities of other cultural groups. | | | | | |
| I learn it to watch English movies. | | | | | |
| I learn it to listen to English songs. | | | | | |

# Effect of Motivation, Willingness to Communicate (WTC), Self Perceived Communicative Competence (SPCC) and L2 Anxiety on the Frequency of Use of English as L2

Mamuna Ghani*
Syed Waseem Azhar**

## Abstract

*The use of English as L2 for communication is the main purpose behind the teaching and learning of English and the whole task of ESL teaching and learning revolves around its use for communicative purpose. This study is an effort to explore the reasons because of which some of the students seek L2 use more frequently while others avoid it. The present study is carried out to estimate the effect of motivation, willingness to communicate (WTC), self-perceived communicative competence (SPCC) and L2 anxiety (ANX) on the frequency of use of English as L2 for oral communication (FREQ). Moreover, the study aims to explore which of the motivation, WTC, SPCC and ANX has comparatively more or less effect on FREQ. 123 University students studying English at post graduate level (MA English) participated in the study. A survey questionnaire was used as a data collection tool for the study. SPSS-20.0 software was applied to find out the values of mean, standard deviation, correlation coefficient and co-efficient of regression among the variables. The results showed that within the four variables; motivation, WTC, SPCC and L2 anxiety; SPCC is found to be the first, WTC is the 2nd and motivation is the 3rd positively influencing variable that affect FREQ among post graduate students of English in Pakistan. Anxiety is found to have a weak and negative effect on FREQ.*

**Key Words**: English as Second Language (ESL), frequency of use of ESL for oral communication (FREQ), L2 anxiety (ANX), motivation, self-perceived communicative competence (SPCC), willingness to communicate (WTC)

## Introduction

The present study was designed to measure the effect of motivation, willingness to communicate (WTC), L2 anxiety (ANX) and self-perceived communicative competence (SPCC) of the ESL learners on the frequency of use ESL for oral communication (FREQ). The main objective of the study is to discover the relationship and level of effectiveness among the above mentioned five variables which influence

* Dean Faculty of Arts & Chairperson, Deptt. Of English, The Islamia University of Bahawalpur
** Ph D Research Scholar, Deptt. Of English, The Islamia University of Bahawalpur

the teaching and learning of English as L2 and its use for oral communication. This study is based on the calculated value of mean, standard deviation, correlation co-efficient and co-efficient of regression among the variables which influence the FREQ and will determine which of motivation, WTC, SPCC and Anx has comparatively more or less effect on the FREQ.

**Pakistani ESL/ EFL Context**

Coleman (2010) has mentioned following four types of educational institutions which are commonly found in Pakistan:

1. Private English medium institutions for the rich and powerful elite class
2. Private English Medium institutions for upper middle class
3. State run Urdu Medium institutions for the poor and lower middle class
4. Urdu Medium institutions for religious education known as Dini-madaris

Coleman stated that out of above mentioned four types of Pakistani educational institutions, the first type can be truly called English medium. These institutions are meant for the feudal and elite class children who can bear the expenses of these private English medium institutions. Including the second type of so-called private English medium institutions, the remaining three types of institutions are no doubt Urdu medium. Andrabi, Das, Vishwanath, and Khwaja (2009) clearly say that the second type of institutions merely bear the title of English medium institutions but the real picture shows that they have never been meant to be English medium institutions at all. As a result, the Pakistani ESL learners, cannot speak ESL proficiently especially for oral communicative purpose. Moreover, Ghani, Mahmood, and Akram (2008) have come to conclusion that in Pakistani ESL context, text based teaching of ESL is given undue importance "English language teaching has become text based in Pakistan" (p. 2). This undue emphasis on the text based teaching of ESL is a big obstacle for the successful teaching of spoken English.

**Statement of the Problem**

In the light of above mentioned arguments, ESL learners fall a prey to grammar and text based ESL teaching and learning environment. For them, the sole purpose of ESL learning is just passing the examination. According to Coleman (2010), in Pakistan, the ESL teaching and learning focus the written examination only. A lot of factors and circumstances are responsible for this failure of ESL learners in using English for oral communication. These factors can include improper system of syllabus designing, inappropriate evaluation system, lack of teaching material and proper facilities, improper teaching strategies and techniques, socio economic problems etc. The objective of this study is to focus some of the factors which are responsible for ESL learners' use of English as L2 for oral communication (FREQ). These factors are: motivation; WTC; SPCC and L2 use anxiety.

**Research Questions**

1. Does motivation affect the frequency of use of ESL for oral communication (FREQ)?
2. Does Willingness to Communicate (WCT) affect the frequency of use of ESL for oral communication (FREQ)?
3. Does self-perceived communicative competence (SPCC) affect the frequency of use of ESL for oral communication (FREQ)?
4. Does L2 anxiety affect the frequency of use of ESL for oral communication (FREQ)?
5. Which of the four factors i.e. motivation, WTC, SPCC and ANX have comparatively more or less potential to affect the FREQ?

## Review of Related Literature

### Motivation

It is difficult to define motivation in terms of a single definition because it is a concept that is very complex in its nature and composition. Gardner (2006) has termed motivation as a very "complex phenomenon with many facets" therefore it is very hard to describe it in terms of "a simple definition". This multilayered phenomenon is defined by different schools of thoughts in so many different ways. In the light of behavioristic point of view, motivation is merely an "anticipation of reward" (Brown, 2000, p.160). Cognitivists believe that motivation is the "the degree of effort" the people apply in order to achieve any specific goal or objective (Keller, 1983, p.389). According to the constructivists "social context" and "individual decisions" are more important in terms of motivation (Brown, 2000, p.161). Brown (2000) thinks that "need" is a common notion among these three schools of thought.

Skehan (1991, p.509) has described motivation in terms of four hypotheses: Firstly, the Intrinsic Hypothesis is based on the innate or inborn interest of the learner. Secondly, the Resultative Hypothesis is based on the learner's good or bad performance during a task. Thirdly, the Internal Cause Hypothesis is based on the learner's already existing motivation to accomplish any task. Fourthly, the Carrot and Stick Hypothesis is based on concept of reward or punishment as a result of the accomplishment of any task.

Gardner (1985) has described motivation in terms of its two types: Firstly, integrative motivation refers to ESL learner's desire to incorporate and fit into target L2 community. Secondly, instrumental motivation refers to some educational and professional life benefits.

### Willingness to Communicate (WTC)

Burgoon (1976) introduced the notion of Unwillingness to Communicate (UWTC) in the field of L1 language learning. Burgoon defined UWTC as a tendency to avoid oral communication by the introverts because of language anxiety. McCroskey &

Baer (1985) introduced the notion of WTC by inverting the UWTC to WTC. Then, for the first time, the notion of WTC was shifted from the realm of L1 to L2 by MacIntyre, Clément, Dörnyei, & Noels, (1998). Different language researchers have conceptualized WTC in terms of various affective variables as show in Table 1.

Table 1
*Affective variables that affect WTC as described by different language researchers*

| Researchers | Affective variables |
|---|---|
| Burgoon (1976) | Anomia, Alienation, Introversion, Self-esteem, Communication apprehension |
| Burgoon (1976) | Anomia, Alienation, Introversion, Self-esteem, Communication apprehension, Perceived competence |
| MacIntyre, Babin, & Clément, (1999) | Extroversion, Emotional stability, Self-esteem, Communication apprehension, Perceived communication competence |
| Yashima (2002) | Attitude, Language motivation, L2 competence, Self-confidence |

This trend of the linguists to describe the notion of WTC in terms of different affective variables asserted MacIntyre et al. (1998) to present Heuristic Model of WTC.

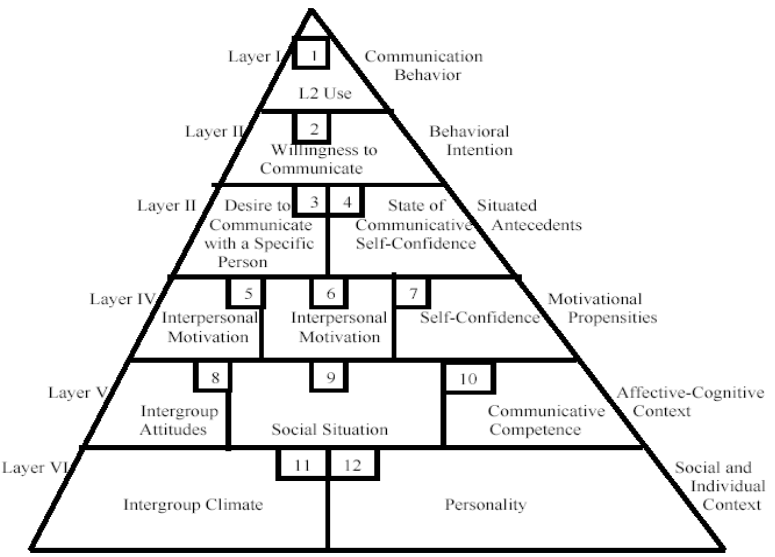



Figure 1. Heuristic Model of WTC presented by Macintyre et al. (1998)

This heuristic model of WTC is scaled in a pyramid organization with different

six layers based on different variables as shown in Figure 1.

**Self-perceived Communicative Competence (SPCC)**

SPCC can be described as a degree of confidence that an ESL learner has about his competence level which enables him to communicate in ESL context or ESL classroom. The ESL learner who has high competency level may have ability to communicate in ESL more confidently and more frequently while the ESL learner who has low competency level may be a victim of L2 anxiety (Horwitz & Young, 1991). SPCC has been defined by McCroskey (1984) as an "adequate ability to pass along or give information; the ability to make known by talking or writing" (p.261). MacIntyre (1994) argued that higher SPCC affects WTC which in turn affects the FREQ. Baker and MacIntyre (2000) concluded that SPCC is an important variable which can determine the FREQ. MacIntyre & Charos (1996) examined Gardner's Socio-educational Model (1985) and MacIntyre's WTC model (1994) and the results affirmed SPCC as a strong predictor of FREQ. SPCC is an important variable in the field of ESL learning and teaching. SPCC gives the ESL learner an awareness about his personal strengths and weaknesses that facilitates the process of ESL learning and its use for oral communication (Pintrich, 2002).

**L2 Anxiety**

Anxiety is defined as "subjective feeling of tension, apprehension, nervousness and worry" (Speilberger, 1983, p. 1). Anxiety has been divided into two types; Social anxiety and L2 anxiety. Social anxiety is associated with fear of negative evaluation, feelings of stress and uneasiness in the company of others (Schwazer, 1986). Schwazer described three dimensions of the causes of social anxiety: cognitive aspects; emotional aspects; instrumental aspects. MacIntyre et al. (1998) defines L2 anxiety as the feeling of "worry and negative emotional reaction" (p.27) which is stimulated during the L2 learning process and its actual use to accomplish any communicative task.

Scovel (1978) has described two types of L2 anxiety. Firstly, there is facilitating anxiety which works as a motivating agent and proves beneficial and helpful to accomplish any language task. Secondly, there is debilitating anxiety which refers to high amount of anxiety and it has harmful effect on the accomplishment of any language task.

**Frequency of use of English as L2 for Oral Communication (FREQ)**

L2 learners output can be estimated through the FREQ and this output serves as measurement of L2 proficiency. The FREQ is an indicator of success of ESL teaching and learning. Seliger (1977), Swain & Lapkin (1995) and Swain (1998) argued that FREQ determines the accomplishment and success of ESL teaching and learning. Ely (1986) found that language class risk taking has significantly positive effect on FREQ in ESL classroom. Hashimoto (2002) identified FREQ as an indicator of success of ESL teaching and learning. Seliger (1977) concluded that the ESL learners who interacted

more and more showed greater proficiency in terms of FREQ.

## Research Methodology

The present study falls in the domain of descriptive research. Survey questionnaire is quantitatively analysed in order to calculate the value of mean, standard deviation, correlation co-efficient and co-efficient of regression among the variables. Post graduate students of ESL studying at Pakistani universities were the population for the study. 123 university students studying English at post graduate level (MA English) at the Department of English, the Islamia University of Bahawalpur, Pakistan, were selected randomly as sample by using cluster sampling technique.

### Research Instrument

Survey questionnaire has been used for data collection for this study. This questionnaire comprised five parts and 59 items in all.

Part 1st was based on a modified brief version of Motivation Attitude Test Battery (AMTB) as mini-AMTB (A. C. Gardener, 1985). This part comprised of 11 questionnaire items which were rated on 7 point Likert scale. Many studies have used mini-AMTB successfully which shows that this scale is highly reliable e.g. Baker & MacIntyre, 2000; MacIntyre & Noles, 1996; MacIntyre & Charos, 1996.

Part 2nd was based on Willingness to Communicate Scale (modified version based on WTC scale presented by McCroskey, 1992). This part comprised of 12 questionnaire items which were rated on 7 point Likert scale. This scale has also been used by many researchers e.g. Yashima, 2002; Hashimoto, 2002.

Part 3rd measured Self-perceived Communicative Competence (SPCC) (modified version based on 12 situations presented by McCroskey, 1992). This part comprised of 12 questionnaire items which were rated on 7 point Likert scale. Part 4th calculated the level of L2 Anxiety (modified version based on Yashima, 2002). This part comprised of 12 questionnaire items which were rated on 7 point Likert scale.

Part 5th determined the Frequency of use of English as L2 for oral communication (FREQ) (modified version based on 12 situations presented by McCroskey, 1992). This part comprised of 12 questionnaire items which were rated on 7 point Likert scale.

The questionnaire was analysed on SPSS-20.0 to calculate the value of mean, standard deviation, correlation and co-efficient of regression among the variables.

### Data Analysis and Interpretation

### Variable's Descriptive Statistics

The five variables were analysed on the basis of descriptive statistics i.e. mean and standard deviation. SPSS-20.0 software was applied for data analysis. The calculated values of mean and standard deviation are interpreted qualitatively in order

to discuss the reported level of the variables discussed in the present study.

**Table 2**
**Descriptive Statistical Analysis for the Variables**

| | AMTB | WTC | SPCC | ANX | FREQ |
|---|---|---|---|---|---|
| Mean | 4.24 | 3.63 | 3.74 | 2.64 | 3.71 |
| S.D. | 0.71 | 0.90 | 0.96 | 0.99 | 1.0 |
| n | 11 | 12 | 12 | 12 | 12 |

Table 2 shows that calculated value of mean is 4.42 and standard deviation is 0.71 at AMTB (motivation) scale. It indicates that most of the ESL learners rate themselves motivated towards FREQ. The calculated value of mean is 3.63 and standard deviation is 0.90 at WTC scale. It indicates that most of the ESL learners rate themselves willing to communicate in ESL in different real life situations. The value of mean is 3.73 and standard deviation is 0.96 at SPCC. It shows that most of the respondents rate themselves competent for using ESL for the oral communication in different situations. The calculated value of mean is 2.64 and standard deviation is 0.99 at L2 anxiety scale. It demonstrates that most of the ESL learners rate themselves a bit anxious while using English for oral communication. The value of mean is 3.71 and standard deviation is 1.0 at FREQ scale. It demonstrates that most of the ESL learners rate themselves frequently using English as L2 for oral communication while speaking in different situations.

**Correlation co-efficient and Multiple Regression Analysis**

Quantitative data were analyzed to find out correlation (Pearson correlation, two-tailed) and coefficient of regression among the five variables. Then data were interpreted on the basis of value of correlation and co-efficient of regression.

**Table 3**
**Correlation Coefficient**

| | AMTB | WTC | SPCC | ANX |
|---|---|---|---|---|
| FREQ | 0.32* | 0.35* | 0.54* | -0.16* |

Pearson Correlation (two tailed) * p< .05

Table 3 presents value of correlation for the above mentioned 5 variables. Value of correlation between motivation (AMTB) and FREQ is 0.32. It shows that significant correlation is present between motivation and FREQ. The value of correlation between WTC and FREQ is 0.35. It indicates that significant correlation is present between WTC and FREQ. Value of correlation between SPCC and FREQ is 0.54 and it is also a significant correlation. Value of correlation between L2 anxiety and

FREQ is -0.16. It shows that weak but significant and negative correlation is present between ANX and FREQ.

**Table 4**
**Regression Co-efficient between Motivation and FREQ**

| | Unstandardized Coefficients | | Sig. |
|---|---|---|---|
| | B | Std. Error | Std. Error |
| Constant | 27.816 | 4.2474.247 | .000 |
| Motivation | ,384 | .095 | .000 |

The regression co-efficient between motivation and FREQ is 0.384 and the p-value is 0.000 which shows that there is a highly significant effect of motivation on the FREQ.

**Table 5**
**Regression Co-efficient between WTC and FREQ**

| | Unstandardized Coefficients | | Sig. |
|---|---|---|---|
| | B | Std. Error | Std. Error |
| Constant | 21.323 | 6.255 | .001 |
| Willingness to communicate | .498 | .132 | .000 |

The regression co-efficient between WTC and FREQ is 0.498 and the p-value is 0.000 which shows that there is a highly significant effect of WTC on the FREQ.

**Table 6**
**Regression Co-efficient between SPCC and FREQ**

| | Unstandardized Coefficients | | Sig. |
|---|---|---|---|
| | B | Std. Error | Std. Error |
| Constant | 19.824 | 3.656 | .000 |
| Self-Perceived Communicative Competence | .551 | .079 | .000 |

The regression co-efficient between SPCC and FREQ is 0.551 and the p-value is 0.000 which shows that there is a highly significant effect of SPCC on the FREQ.

**Table 7**
**Regression Co-efficient between ANX and FREQ**

| | Unstandardized Coefficients | | Sig. |
|---|---|---|---|
| | B | Std. Error | Std. Error |
| Constant | 49.769 | 3.051 | .000 |
| Anxiety | -.164 | .090 | .070 |

The regression co-efficient between ANX and FREQ is -0.164 and the p-value is .070 which shows that there is a weak but significant effect of ANX on the FREQ. Moreover there is negative effect of ANX on FREQ.

**Research Question wise Analysis**

Research question wise interpretation of data is given below:

**Research Question No.1**

Table 3 shows that significant correlation exists between motivation and FREQ and it are evident that the ESL learners who are highly motivated to learn English have potential to use English more frequently. According to Table 4, there is highly significant effect of motivation on the FREQ. It indicates that in order to increase the FREQ, the motivation level of the ESL learners should be increased.

**Research Question No. 2**

According to Table 3, significant correlation is present between WTC and FREQ. It shows that ESL learners who are more willing to communicate in ESL are also more frequent in using ESL for oral communication. Table 5 indicates that there is highly significant effect of WTC on the FREQ. It implies that WTC should be considered important in ESL classroom by the ESL teachers in order to increase the FREQ.

**Research Question No. 3**

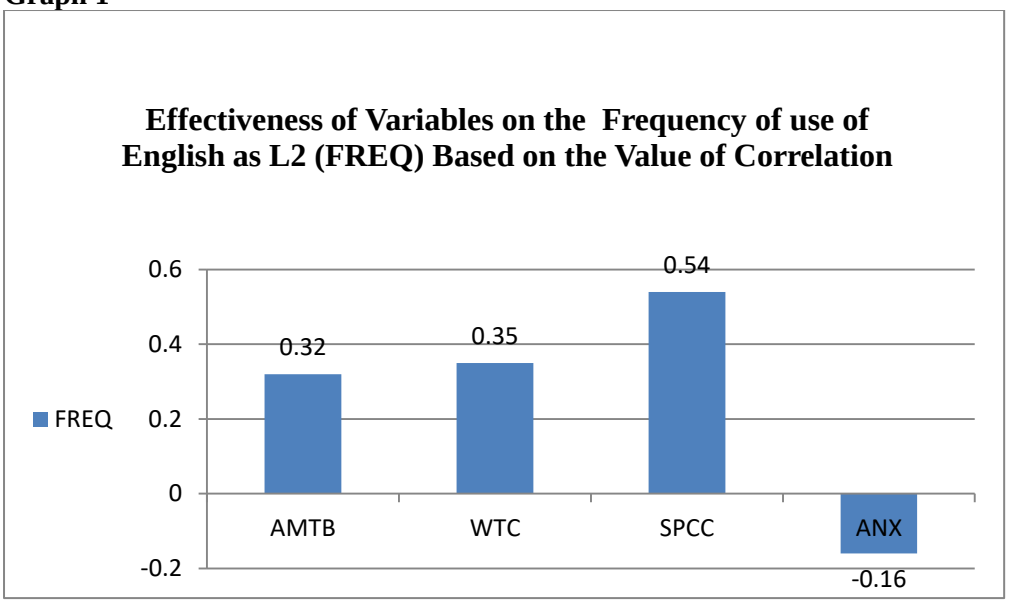
Table 3 shows that significant correlation is present between SPCC and FREQ. On the basis of value of correlation, it can be concluded that SPCC highly affects FREQ. Table 6 indicates that there is highly significant effect of SPCC on the FREQ. Therefore, ESL teachers should focus SPCC in order to increase its level which will ultimately increase FREQ.

**Research Question No. 4:**

According to Table 3, there is weak but significant and negative correlation is present between ANX and FREQ. It can be concluded that ANX has potential to affect FREQ negatively. Table 7 clearly shows that there is also a weak but significant and negative effect of ANX on the FREQ. It indicates that increased level of ANX reduces the FREQ. The efforts should be made to decrease the level of ANX among ESL

learners in order to increase the FREQ.

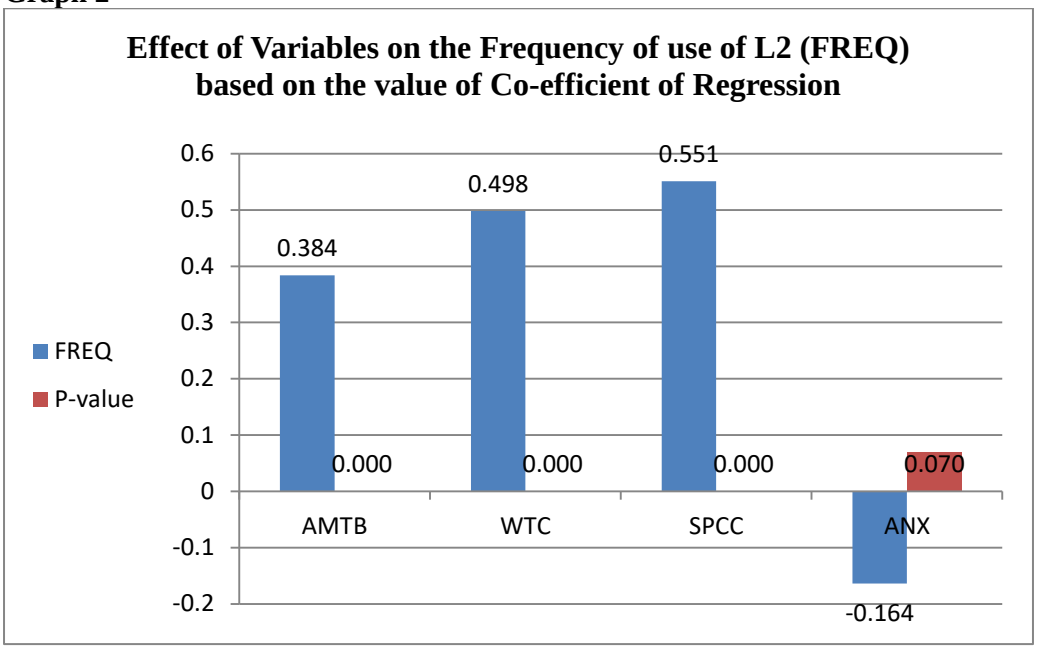
**Graph 1**




**Research Question No. 5**

Graph 1 is based on the value of correlation and it shows that SPCC is 1st, WTC is 2nd and motivation is 3rd most influencing variable that affects FREQ. On the other hand, ANX has a weak and negative effect on FREQ. The same results are shown by the regression analysis in Graph 2 which is based on the co-efficient of regression and it's P-value. These results show that out of four variables SPCC has maximum potential to affect FREQ. The other three variables are also important but SPCC should be a point of focus to increase FREQ. In order to increase the level of FREQ, the level of WTC and motivation should be enhanced and the decreased level of ANX can be helpful in increasing the FREQ.

**Graph 2**




## Findings and Discussion

The calculated value of mean shows that most of the respondents rate themselves high on the motivation, WTC, SPCC and FREQ scale still there is room for improvement on the basis of better ESL pedagogical implications. The calculated value of mean on ANX scale shows that most of the ESL learners rate themselves a bit anxious and nervous while using ESL for oral communication. L2 anxiety should be reduced to increase the FREQ. The calculated values of S.D. for motivation, WTC, SPCC, Freq and Anx indicate that the respondents rate themselves consistent in their responses yet the results are somewhat dispersed and varied. It means more concentrated results can be obtained with the help of better ESL pedagogical implications.

The results for the first research question shows that motivation has strong effect on FREQ. The results for the second research question indicate that WTC also has strong effect on FREQ. The results for third research question shows that SPCC also affects FREQ strongly. Therefore, Motivation, WTC and SPCC should be given more importance in the teaching of ESL in order to enhance FREQ. The results for the fourth research question indicates that ANX has a weak and negative effect on FREQ. Therefore the level of ANX should be reduced in order to increase FREQ.

For the fifth research question, the results indicate that SPCC is identified as the most effective variable that affects the FREQ. It is contrary to the findings of Hashimoto (2002) who found no significant path from SPCC to FREQ in Japanese ESL context but in Pakistani context significant correlation is found between SPCC and FREQ. In other words, it is found to have maximum potential to increase FREQ as affirmed by MacIntyre and Charos (1996).

WTC is identified as the second most effective variable which has strong potential to increase FREQ as suggested by Hashimoto (2002) and MacIntyre et al. (1998). It implies that in order to make ESL learners more frequent to communicate in ESL, the level of WTC should be increased.

Motivation is identified as the third most effective variable that affects FREQ. It can be concluded that motivation plays an important role in order to increase FREQ as affirmed by Hashimoto (2002). Steps should be taken to increase the motivation level of the students.

L2 anxiety has comparatively weak and negative effect on FREQ as suggested by Daly (1919) and Horwitz, Horwitz & Cope (1986). Steps should be taken to decrease the level of ANX. The results of the fifth research question point out the importance of the four variables under discussion i.e. motivation, WTC, SPCC and ANX according to the preference of the ESL learners. This order of preference determines the comparative importance of the variables that affect the FREQ.

## Conclusion

Self-perceived communicative competence (SPCC) is identified as the most effective variable that affects FREQ. Therefore, ESL teachers, syllabus designers and learners should pay more attention to increase the level of SPCC with the help of better ESL pedagogical implications.

WTC is identified as the second most effective variable that affects FREQ. The ESL learners should be provided with the encouraging and cooperative teaching of ESL as will increase the willingness to communicate (WTC) of the students.

Motivation is identified as the third most effective variable that affects FREQ. The traditional boring and dry ESL teaching should be replaced with activity based teaching of ESL that will possibly motivate the ESL learners to use ESL for oral communication. ESL teachers should take steps to motivate the ESL learners with the help of positive reinforcement.

L2 anxiety has comparatively weak and negative effect on FREQ. If ESL teacher wants to increase FREQ, he/she will have to adopt anxiety reducing techniques and strategies which can prove helpful in decreasing the level of L2 anxiety. ESL leaners should be provided with activity based cooperative and encouraging ESL class

room environment that will reduce the ANX and increase FREQ.

Oral communication is the point of focus among SPCC, WTC, FREQ and CLT (Communicative Language Teaching). It implies that CLT can be better choice as a teaching method as compare to DM (Direct Meted) and traditional GTM (Grammar Translation Method). Therefore, the syllabus of ESL should be revised on the basis of CLT and new contents should be introduced with special focus on the use of ESL for oral communication. A new set of SLO's (students learning outcome) should be framed which should have the potential to increase the SPCC.

Oral communication skills should be a point of focus for ESL evaluation and assessment system. Marks should be specified in the scheme of study of ESL for oral communication skills ranging from at least 10 to 30. It will help increasing the level of oral communication skills and FREQ.

ESL teacher's professional and training courses should include special topics based on the importance of SPCC, WTC, Motivation, ANX and FREQ. These topics should be based on the practical exercises for the use of ESL for oral communication. In this way, teacher can be equipped with better pedagogical skills and practice which can help increase the FREQ among Pakistani ESL learners.

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