RELATIONSHIP BETWEEN TEACHER EDUCATORS' ASSESSMENT LITERACY AND CLASSROOM ASSESSMENT PRACTICES WITH THEIR STUDENTS' ACADEMIC ACHIEVEMENT

Sajjad Hussain
Reg No: 112-FSS/PHDEDU/F13

**DEPARTMENT OF EDUCATION
FACULTY OF SOCIAL SCIENCES
INTERNATIONAL ISLAMIC UNIVERSITY
ISLAMABAD-PAKISTAN
2017**

Educational tests and measurements
Educational evaluation. Methodology
Teaching learning process

RELATIONSHIP BETWEEN TEACHER EDUCATORS' ASSESSMENT LITERACY AND CLASSROOM ASSESSMENT PRACTICES WITH THEIR STUDENTS' ACADEMIC ACHIEVEMENT

By

Sajjad Hussain
112-FSS/PHDEDU/F13

Submitted in partial fulfilment of the requirements for the Degree of Philosophy in

Education at the Faculty of Social Sciences, International Islamic University,

Islamabad

Supervisor	Co-Supervisor
Dr. Muhammad Munir Kayani	**Dr. Zarina Akhtar**

DEPARTMENT OF EDUCATION

FACULTY OF SOCIAL SCIENCES

INTERNATIONAL ISLAMIC UNIVERSITY

ISLAMABAD-PAKISTAN

2017

DEDICATION

To

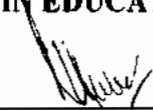**The inspired One prophet Muhammad SAW**

APPROVAL SHEET
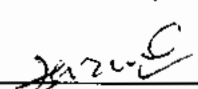
RELATIONSHIP BETWEEN TEACHER EDUCATORS' ASSESSMENT LITERACY AND CLASSROOM ASSESSMENT PRACTICES WITH THEIR STUDENTS' ACADEMIC ACHIEVEMENT
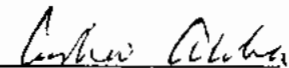
By

SAJJAD HUSSAIN
112-FSS/PHDEDU/F13

Accepted by the Department of Education, Faculty of Social Sciences,

International Islamic University, Islamabad as partial fulfilment of the requirements

for the award of degree **"DOCTOR OF PHILOSOPHY IN EDUCATION"**

Supervisor: _____
(Dr Muhammad Munir Kayani)

Co-supervisor: _____
(Dr Zarina Akhtar)

Internal Examiner: _____
(Prof. Dr. Nabi Bux Jumani)

External Examinar1: _____
(Prof. Dr. Ayesha Akbar)

External Examinar2: _____
(Prof. Dr. Muhammad Javed Iqbal)

Dated. 14-12-2017

Head, _____
Department of Education
International Islamic University
Islamabad
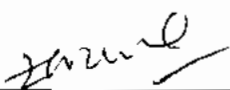
Dean, _____
Faculty of Social Sciences
International Islamic University
Islamabad

iii

SUPERVISOR CERTIFICATE

It is certified that the contents and format of the thesis titled **"Relationship of Teacher Educators' Assessment Literacy and Classroom Assessment Practices with their Students' Ac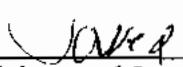ademic Achievement"** submitted by **Mr. Sajjad Hussain** registration No: **112-FSS/PHDEDU/F13** has been found satisfactory for the requirements of degree of **Doctor of Philosophy in Education.**

Date: /   /2017   Supervisor: _____

(Dr. Muhammad Munir Kayani)

Co-Supervisor: _____

(Dr. Zarina Akhtar)

ACKNOWLEGEMENTS

University of Swat, for their cordial support, feedback and consistent motivation for the completion of this intellectual work.

It would be injustice to ignore the researcher's class fellows and friends especially Mr. Itbar Khan, Rehmat Shah, Hayat Khan, and Asma Fatima, for their support that they made in the compilation and accomplishment of this study possible.

Sajjad Hussain

ABSTRACT

Assessment literacy of teacher educators is important for effective teaching learning process. It provides sound foundation for appropriate classroom practices which could contribute positively to prospective teachers academic achievements. The purpose of this study was to investigate the relationship of teacher educators' assessment literacy and classroom assessment practices with their students' academic achievement. The objectives of the study were to find out teacher educators' assessment literacy, investigate teacher educators' classroom assessment practices, find out students' academic achievement, assess the difference of male and female teacher educators on assessment literacy, and to find out the relationship of teacher educators' assessment literacy and classroom assessment practices with their students' academic achievement. The research questions and hypotheses were made which has directed the study properly. This study was quantitative, descriptive and correlational in nature; and all 409 teacher educators and 817 prospective teachers of 20 Regional Institutes of Teacher Education of Khyber Pakhtunkhwa and students of 33 Government Colleges for Elementary Teachers of Punjab constituted the population of the study. Through stratified proportionate random sampling technique, 205 of teacher educators and 205 prospective teachers were selected for data collection. The total study sample comprised 410 respondents. This study was conducted in the year spring, 2016. To investigate the sample group of the study an Assessment Literacy Test and Classroom Assessment Practices Questionnaire were adapted. These instruments were pilot tested and were used to collect data from the respondents. The collected data were analysed through Mean scores, Standard Deviation, independent sample t test, one way ANOVA and Pearson correlation techniques using Statistical Package for Social Sciences version 20 software. The results indicated that majority of teacher educators' had an average level of assessment literacy and they followed mostly traditional classroom assessment practices. Majority of teacher educators' were of the view that they had not attended any in-service training in assessment. Furthermore, a significant positive relationship was measured between assessment literacy and classroom assessment practices of teacher educators; however, there was no significant relationship among teacher educator assessment literacy, classroom assessment practices and students' academic achievement. Based on the results of the study RITEs and GCETs were recommended that a series of workshops with the assistance of teacher education departments' faculty of universities may be arranged to enhance the professional competence of teacher educators in the domain of assessment. It was also recommended that teacher educators may not confine themselves to traditional assessment practices and they may adopt alternative assessment practices in assessing students learning. Furthermore, it was recommended that the Federal Ministry of Education and Professional Training may constitute National Assessment Wing under the umbrella of National Curriculum Council for the advancement of assessment literacy and practices in the country.

TABLE OF CONTENTS

S. No	Contents	Page No

CHAPTER 2 REVIEW OF THE RELATED LITERATURE

CHAPTER 3 RESEARCH METHODOLOGY

CHAPTER 4 DATA ANALYSIS

CHAPTER 5 SUMMARY, FINDINGS, DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

LIST OF TABLES

LIST OF FIGURES

CHAPTER 1

INTRODUCTION

1.1   BACKGROUND OF THE STUDY

Assessment is a continuous and complex process. Teachers are involved in assessing students' performances for different purposes and the process is continuous throughout the academic year. Sound assessment practices require teacher's proficiency in assessment techniques. Teacher's knowledge, skills and attitude toward classroom assessment affects classroom assessment practices. Teachers and students are equally involved in the process of assessment. Teacher plans and selects the tool for assessing students' performances in a subject, and accordingly determines the criteria used for the scoring, while students are required to prepare for taking the assessment. Teachers' assessment literacy enables them to effectively assess students' performances. Teachers' assessment literacy provides base for their classroom assessment practices, as teachers need to use variety of methods in their classroom assessment (Alkharusi, Kazem, & Al-Musawi, 2011).

Teachers' assessment literacy in basic terminologies of assessment is indispensable. These basic terminologies include assessment, measurement, evaluation, types of assessment, process of assessment, qualities of assessment and its tools, fundamental principles of assessment, test's validity, reliability, credibility and its types and process involves in it. Likewise, there are certain other assessment terminologies which are also necessary for teachers like assessment for learning, assessment as learning, assessment of learning, and embedded assessment. Assessment literacy of teacher accelerates students' learning, motivates unwilling

students, enables teacher to teach student according to their needs and moulds learning experiences to assessment activities (Alkharusi, 2011a).

Assessment literacy comprised knowledge and skills educators need to identify and select, for example assessment for various purposes, such as accountability of instructional program, monitoring student's learning progress, and diagnosis of specific learning gaps in student's learning. In other words, it is a set of knowledge, beliefs, and practices about assessment that lead the teachers, administrators, policymakers and students to use assessment to improve learning and achievement. Assessment literacy is an individual's understanding of the fundamental assessment concepts and procedures deemed likely to influence educational decisions (Popham, 2011).

Furthermore, investigators have theorized that teachers require sound information of assessment for quality teaching which demands a balance between knowledge and skills in assessment practices. Teachers assess achievements of students, in order to discriminate between those who have not reached a preconceived standard of achievement (Pellegrino, 2001). For which teachers used different forms of assessment which broadly include; written, oral and practical. In written form candidates are required to write answers to certain questions, in a given time. These tests are sometimes standardized by applying them to a large number of students of the same age or grade-group for the purpose of comparative estimates of achievement and are called Scales or standardized tests or Scholastic tests (Popham, 2011; Bell & Ford, 2007).

Similarly, empirical studies in students' assessment also show that assessment and teaching are interconnected concepts and they complete each other (Abell &

2

Siegel, 2011). Classroom assessment practices of teachers facilitate students' learning and improve the quality of instruction at classroom. Stiggins (2002) on teachers' assessment literacy was of the opinion that new teachers are not provided opportunities to practice assessment techniques which not only affect the achievement of students but also affects negatively the assessment competence of teachers.

Assessment literate person is the one, who can distinguish between appropriate and inappropriate assessment tools. He/she knows what to assess, and how to assess. He/she has the skills to use assessment results for improving students' learning (Stiggins & Chappuis, 2008). Classroom assessment literacy has two-fold aims, one to enables the teacher to collect reliable information about students' achievement, and second to use that information for the enhancement of students' achievement. Furthermore, Chappuis, Stiggins, Chappuis, and Arter (2012) define assessment literate person is one that come to any assessment knowing what they are assessing, why they are doing, how best to assess the achievement of interest, how to generate sound sample of performance what can go wrong and how to prevent these problems before they occur.

Assessment literacy is essential for effective teaching learning process. It enables the teacher to collect data using appropriate assessment tools. Wrong selection of tool for measuring the performances of students can mislead the assessors. Furthermore, it weakens the motivation level of students as their performance on that tool may be weaker which make them nervous. Similarly, teachers' interpretative criteria also play a dominant role in assessment process, which give judgmental status to the results. Therefore, as a systematic process, mistake at any stage can lead to failure (Jones, 2008).

3

All the assessment practices are carried out by teachers, based on their assessment literacy. Teachers adopt assessment practices at various intervals during the instructional process. It may enable them to identify the strengths and weaknesses of self, students and of system. Instructional process and decisions about students' learning progression are based on students' assessment. Furthermore, teachers spend nearly one-third of their teaching time on assessment. It is important for teachers to utilize the time in more productive manner and therefore, teacher's competence is important (Alkharusi, 2011b).

Teacher's qualification, area of specialization, class size, students' level of performances, assessment-based training and institutional assessment environment are the factors which have significant influences on teacher's classroom assessment practices. Teacher's qualification and regular involvement in classroom assessment contribute positively into teacher's classroom assessment practices. The most influential factor that research studies have identified for the improvement of teacher's classroom assessment practices is assessment-based training. Like all professionals including advocates, surgeons, engineers and architectures, teachers also need lifelong learning in all the areas of teaching profession. In-service trainings workshops, seminars, symposiums and conferences are all the glittering opportunities of lifelong learning for teachers' professional development (Gottheiner & Siegel, 2012).

Similarly in order to bring different probable areas of improvement to forefront so as to make it easily identifiable National Professional Standards for Teachers in Pakistan (NPSTP) were developed for the professional development of teachers to meet the needs of 21st century education. There are ten standards that include; 1) subject matter knowledge, 2) knowledge of human growth and

4

development, 3) knowledge of Islamic ethical values/social life skills, 4) instructional planning and strategies, 5) assessment, 6) learning environment, 7) effective communication and proficient use of Information Communication Technologies (ICTs), 8) collaboration and partnerships 9) continuous professional development and code of conduct, and 10) Teaching of English as a Second Language/English Foreign Language (ESL/EFL). These standards provide a baseline for teachers in their professional development and for assessors in assessing teachers' effectiveness in the system (Rehman, & Baig, 2012).

The fifth standard is related to assessment of knowledge and skills of teachers. According to this standard, a teacher uses a variety of assessment practices to assess students learning and to modify instructional strategies accordingly. All the National Professional Standards for Teacher in Pakistan (NPSTP) concentrates on the knowledge and understanding of the contents, attitude towards the subject area and skills in the application of knowledge into the field. The standard of assessment demands for knowledge and understanding of various approaches and methods of assessment which could help to understand students' progress. The attitude of teachers regarding assessment and its effects on students' learning can contribute in positive feedback and communication of results to students, parents and other stakeholders. Teachers need to have skills in assessment-developing and using assessment tools such as; tests, portfolios, rubrics, interviews, observations and presentations (Panadero, & Jonsson, 2013).

1.2   RATIONALE OF THE STUDY

National Professional Standards for Teacher in Pakistan (NPSTP) concentrated on the professional development of teacher. These standards provide

criteria to teacher educators for preparing prospective teachers. Assessment literacy of teachers is fundamental for sound classroom assessment practices and for effective preparation of prospective teachers'. Therefore, classroom assessment as a subject have been introduced in Associate Degree in Education (ADE) and Bachelor in Education (B.Ed) honour programs, aimed at imparting knowledge and skills of assessment to prospective teachers.

Teacher educators educate prospective teachers, therefore the knowledge and skilfulness of teacher educators is more important. It is for this reason that this study is initiated so as to investigate if teacher educators are assessment literate? Their being literate in assessment would mean that they would be able to prepare the prospective teachers as effective classroom teachers. Apart from that, it is also important to find out if teacher educators apply their assessment skills in students' assessment within classroom which provides opportunity to prospective teachers to practice assessment in classroom settings. Research studies of Bennett (2011), Davidheiser (2013), Stiggins and Chappuis (2008) reported a significant relationship between classroom assessment practices and students' academic achievement. However, all the studies mentioned above have been mostly conducted in contexts of developed countries, that is different from Pakistani academic settings. Therefore , the current study investigated assessment literacy level and classroom assessment practices of teacher educators and its relationship with their students' academic achievement.

1.3   STATEMENT OF THE PROBLEM

Assessment literacy is indispensable for every teacher for effective assessment of students' performances and for improving outcome of the teaching learning process

6

(Lian, Yew, & Meng, 2014). It enables the teachers to carry sound assessment practices which demand for in-depth knowledge and skills of assessment (Stiggins, 2008). The superficial knowledge and low level skills of teacher educators not only affect their own classroom assessment practices but also make ill prepared the prospective teachers in the assessment of students' performance (Popham, 2011). Therefore the intent of the present study was to investigate the assessment literacy level of teacher educators, their classroom assessment practices and its relationship with their students' academic achievement.

1.4   OBJECTIVES OF THE STUDY

Based on the above mentioned research problem, following research objectives were formulated;

1. To investigate the assessment literacy of teacher educators

2. To find out the classroom assessment practices of teacher educators

3. To examine the academic achievement of prospective teachers

4. To assess the difference of male and female teacher educators on assessment literacy

5. To measure the relationship between teacher educators' assessment literacy and their classroom assessment practices

6. To measure the relationship between teacher educators' assessment literacy and their students' academic achievement

7. To investigate the relationship between teacher educators' classroom assessment practices and their students' academic achievement

7

1.5   RESEARCH QUESTIONS

The primary question of the current study was "Is there a relationship of teacher educators' assessment literacy and classroom assessment practices with their students' academic achievement?" This research question is divided into the following sub-research questions:

1. What is the level of teacher educators' assessment literacy?
2. What are the most frequently used classroom assessment practices of teacher educators?
3. What is the level of prospective teachers' academic achievement?
4. What is difference between the assessment literacy of male and female teacher educators?

1.6   HYPOTHESES OF THE STUDY

1. There is no significant relationship between assessment literacy and classroom assessment practices of teacher educators
2. There is no significant relationship between classroom assessment practices of teacher educators and students' academic achievement.
3. There is no significant relationship between teacher educators' assessment literacy and students' academic achievement.

1.7   SIGNIFICANCE OF THE STUDY

The study is important as it identified the need of teacher educators' preparation and trainings in the students' assessment, development of assessment tools and in the use of assessment results for the betterment of teaching learning process.

The study may be significant to all teachers and particularly to teacher educators. All teachers assess their students for different purposes, they assess them to know their understanding, and mastery level, to give them feedback, to enhance the effectiveness of teaching learning process and for so many other purposes, therefore they needs knowledge and skills related to assessment. The study may help in deepening the understanding of teachers regarding assessment literacy, classroom assessment practices its' different forms and its importance for teaching learning process.

The study would also be specifically beneficial for teacher educators, as they are training the prospective teachers where assessment is one of the important components of teacher education. The knowledge of assessment is a complete subject in pre-service teacher education. In teacher education (B. Ed Honours, 4 years and ADE, 2 years) programs assessment is taught to prospective teachers under the names of classroom assessment.

The study may also provide insight to the curriculum developers regarding the assessment literacy of teacher educators. Further this research also highlights their existing classroom assessment practices and may result in identifying the gaps between the pre-determined assessment practices in the teacher education curriculum and between the applied one's. It may also be beneficial to the educational planners in knowing the proficiency and skilfulness of teacher educators in the filed assessment? Furthermore, the study would be beneficial as, it has uncovered the assessment literacy/understanding of teacher educators at teacher education colleges which has not been studied by any researcher in fast.

It would also be significance for future researchers in the field of educational assessment as this study has come to certain important questions such as;

9

a. Scientific definition of assessment literacy for teacher educators, as there is separate definition of assessment for college students, school teacher and assessment expert. So, there is need of proper definition of assessment literacy for teacher educator.

b. There are assessment standards for general teachers working at school, college and university level, but where are the assessment standards for teacher educators which may be used for measuring the competence of teacher educators in assessment?

c. Is teaching experience contribute positively in the assessment literacy of teacher educators?

1.8 DELIMITATION OF THE STUDY

The study was delimited to;

1. Regional Institutes for Teacher Education (RITEs) of Khyber Pakhtunkhwa

2. Government Colleges for Elementary Teachers (GCETs) of Punjab

3. Associate Degree in Education (ADE) program

4. B. Ed Honor (4years) program

5. Prospective teachers' (Students of Education) marks in third semester 2016.

6. Cognitive domain of literacy only.

1.9 METHODOLOGY OF THE STUDY

The study was quantitative and correlational. A survey was conducted and data were collected from the respondents of the study. Post-positivist research paradigm was adopted to investigate the research problem.

1.9.1 Population of the study

All 409 teacher educators and prospective teachers 817 of B. Ed honours and ADE programs of Regional Institutes of Teacher Education of Khyber Pakhtunkhwa, and Government Colleges of Elementary Teachers of Punjab constituted the population of the study in the year of 2016.

1.9.2 Sample of the study

Through stratified proportionate random sampling techniques 50% of teacher educators and 25% of prospective teachers from the selected institutes were chosen. Total sample group of teacher educators were 205 and all the same 205 prospective teachers were selected for the sample group of the study.

1.9.3 Data Collections Instruments

Two research instruments were used in data collection from the respondents of the study. An assessment literacy test was used to measure the assessment literacy level and classroom assessment practices questionnaire were used to measure their classroom assessment practices.

1.9.4 Data Analysis

The collected data were processed into SPSS version 20 and was analysed through percentage, mean scores, standard deviation, independent sample t test, one way ANOVA and Pearson correlation.

1.10 THEORETICAL FRAMEWORK
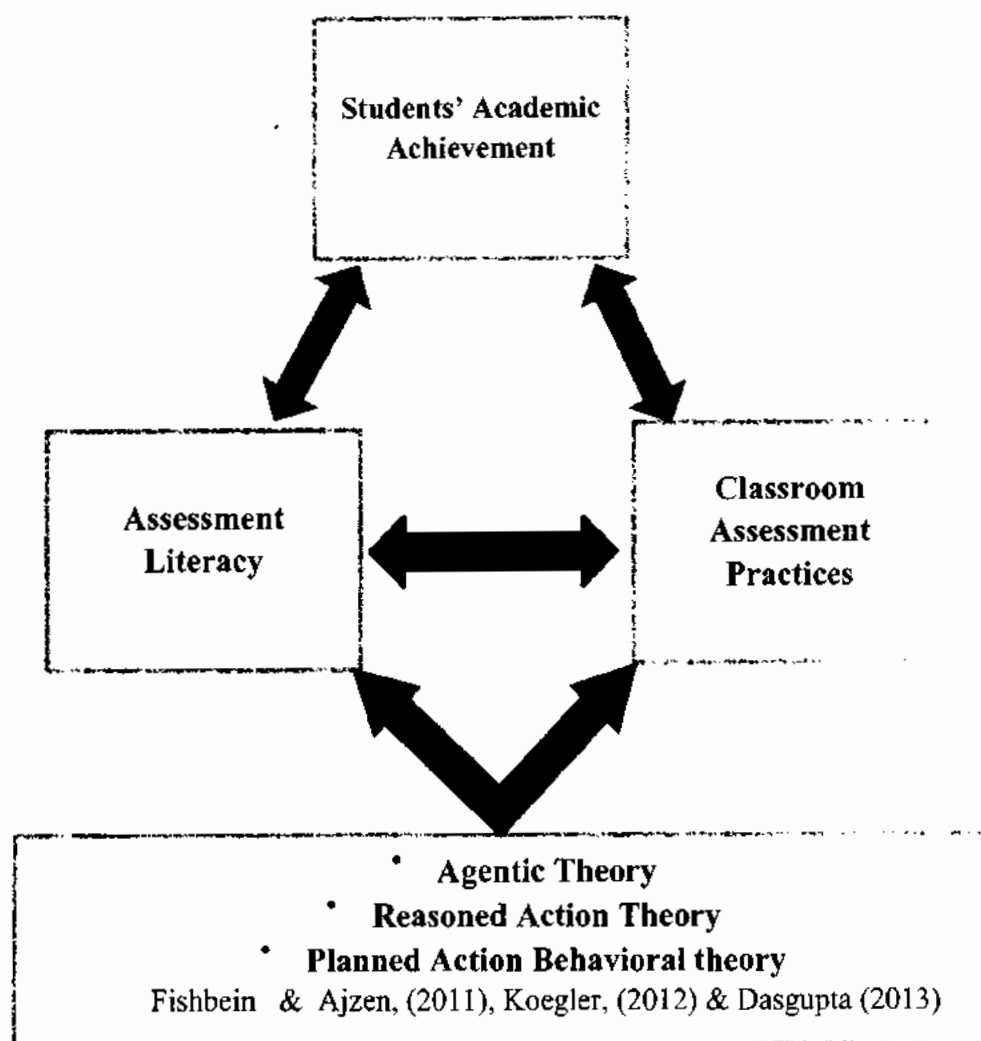
Figure 1.1 Graphical representation of the theoretical framework of the study

Theoretical framework is a structure that provides guidance to the researcher by relying on formal theory, using well established and coherent relationships of the constructs of study (Creswell, Plano Clark, & Garrett, 2008). It is crucial for doctoral studies (Iqbal, 2007) as it provides theory oriented thinking and justification of researchers' work from the selection of research work to the results communication. It nested the empirical investigation on the already developed theories in the corpus of knowledge (Grant & Osanloo, 2014).

Theoretical framework for this study rooted in theories of assessment presented by Agentic theory (Koegler, 2012), reasoned action theory and planned action behaviour theory (Fishbein, & Ajzen, 2011) which are found in Figure 1.1. It examines how assessment literacy and classroom assessment practices are related to students' academic achievement. Assessment literacy and classroom assessment practices are thought to provide direct effects on academic achievement of students. Furthermore, Agentic theorists believed that human individually control their personal behaviour. They are the strong agent of change in their behaviour and thus responsible for their own deeds and performance. Teachers as human beings can obtain assessment knowledge and skills; can make themselves assessment literate and conduct quality assessment practices in the classroom.

On the other hand, reasoned action theory and planned action behaviour hypothesized the personal traits, attitude and beliefs as important aspects of individual behaviour and strong predictors of their performance. Teacher's personal behaviour and beliefs significantly influence the classroom assessment practices and the implementation of assessment knowledge and skills. Personal beliefs and disposition reflects the individual stance about an object, process and its expected results, which is generally based on the surrounding of the individuals (social set up). In the words of Dasgupta (2013) personal beliefs influence significantly the decision without any intentions. Therefore, the personal beliefs about classroom assessment, interpretations and decision directly influence the classroom assessment practices of teacher educators.

Teaching-learning process is a dynamic aspect of education. Assessment, therefore, remains an important aspect of the formal and non-formal education as all the stakeholders want to measure the change occurring due to the learning experiences

13

to which the students are exposed (Popham, 2013). For the last two decades assessment of students learning has been noticed as an important aspect of formal education, because students' achievement has been considered as the only criteria of students' success and failure (Stiggins, & Chappuis, 2008). Furthermore, assessment results are used for the accountability of students, teachers and educational institutions. Therefore, the knowledge and skills of assessment is important for teachers and those who are involved in it (Davidheiser, 2013).

Teachers as professionals are imparted pre-service trainings aimed to prepare them for their future roles. Teachers are responsible for students' assessment apart from the teaching responsibilities, for which teacher education offers classroom assessment, measurement and evaluation to pre-service teachers. These subjects provide the basic knowledge, skills, strategies and techniques to the teachers to conduct valid and reliable· classroom assessment. Teacher educator (teacher trainers) educate the pre-service teachers, which make it even more important to ensure that they are well aware of the nature, importance of the subject matter and most of knowledge and skills in classroom assessment. Therefore, this study investigates teacher educators' assessment literacy, classroom assessment literacy and it relationship with their students' (prospective teachers) academic achievement. There are basically three variables of the study, a) assessment literacy, b) classroom assessment practices, and c) students' academic achievement which are investigated in this study.

1.10.1 Assessment Literacy

Assessment literacy is one of the most important factors for conducting the process of assessment in authentic manner (Davidheiser, 2013; Khadijeh & Amir,

2015; Popham, 2011). Research studies (Alkharusi, 2007; Perry, 2013; Stiggins, & Chappuis, 2008) revealed that teachers spend nearly 10% to 50% of their instructional time on activities that are related to assessment. To make sure that this time is used fruitfully, teachers' need to be assessment-literate so as to be able to produce reliable assessment results which are used for different purposes by different stakeholders. Assessment literate person uses assessment knowledge and skills not only to measure the effectiveness of students learning, instruction, and curriculum contents, but also for enhancing the students' learning through formative assessment practices (Beziat & Coleman, 2015).

Similarly, assessment of students learning enables the teachers to give them feedback on their work which helps the students identify their strengths and weakness (Sadler, 2010). Furthermore, the awareness and frequent usage of assessment knowledge (Alkharusi, Kazem, & Al-Musawai, 2011) helps the teacher to lead the learning process of students in the right direction. The teacher develops reliable and valid tools or selects the appropriate tool and interprets the obtained results in such a manner which are useful for all the stakeholders (Stiggins, & Chappuis, 2008). On the contrary, one who is not literate in assessment may lead to wrong conclusions which may further lead to wrong decisions and so on. Similarly, the time spent on assessment related activities may also tend to be wastage of resources and students' performance when the process, objective and relevant skills are not known.

1.10.2 Classroom Assessment Practices

Teacher's assessment literacy is a pre-requisite to their classroom assessment practices which are strongly related to students' achievement. Studies reveal that the integration of assessment in classroom instruction leads to higher gains, students'

15

motivation for learning and meta-cognitive functions positively (Black & William, 2009).

According to Brookhart (2011) there are basically two forms of assessment in classroom—the traditional and the alternative form. The traditional form of assessment tends to be more paper-pencil assessment, aimed at measuring students' rote memory and expose the students to more structured assessment experiences. On the contrary, alternative assessments are authentic, performance-based, and geared towards real life problems to measure students' critical thinking and analytical abilities. In these approaches, students are more exposed to open and performance-based assessment experiences. Teachers' in the 21st century are more inclined toward alternative instead of traditional forms of assessment.

Empirical results reveal that students who are assessed through alternative forms of assessment are more motivated for learning; they are more challenging and likely to perform actively in assessment. Whereas, those who are exposed to traditional forms have low motivational levels, are less challenging and try to avoid practical activities, resultantly influencing their overall academic achievement. The current study investigates the classroom assessment practices of teacher educators in classroom and intends to know as to what form of assessment they are practicing in the classrooms and whether it has any relationship with students' academic achievement?

1.10.3 Students' Academic Achievement

Prospective teachers' (Students of Teacher Education) performance after assessment is reflected by different grading systems such as norm referenced and criterion referenced grading. These grading systems show students' individual and group position against some pre-determined criteria or according to certain norms

16

settled after the assessment of students. Students' grades give meaning to the efforts they made in mastering the skills and knowledge of their disciplines. Students' learning outcomes are the indicator of their success or failure. Parents, teachers and other stakeholders see and understand students' skills and knowledge through their grades they have been assigned by their teachers based on their performance in examination (Mueller, Yankelewitz, & Maher, 2011).

Students' academic achievement in different research studies are reflected by the marks they have obtained on the basis of summative evaluation. Researchers have mentioned students' academic achievement with different names such as students' learning outcomes, students' performances, academic achievement and grades (Peetsma, & Van der Veen, 2013).

1.11 DEFINITIONS OF KEY TERMS

Conceptual definition of key terms is as follows;

1.11.1 Assessment

Assessment is the collection and analysis of data of students' learning according to some pre-determined objectives (Mueller, Yankelewitz, & Maher, 2011).

1.11.2 Assessment Literacy

The ability to carry students' learning assessment with appropriate tools, in a uniform manner, communicates the results to the stakeholders and care for legal/ethical consideration of assessment is called assessment literacy (Stiggins & Chappuis, 2008).

17

1.11.3 Classroom Assessment Practices

Classroom assessment practices are those which aimed at the assessment of teachers' instructional activities and students' learning progress in a specific subject at classroom level (Gottheiner & Siegel, 2012).

1.11.4 Students' Academic Achievement

The results of students obtained in the final term examination in their third semester of ADE and B. Ed Honor in Regional Institute of teacher Education (RITEs) of Khyber Pakhtunkhwa and Government College of Elementary Teachers (GCETs) of Punjab in the Fall Semester 2015.

1.12 Summary

The topic along with study objectives and research questions has been introduced. All the parameters which are; assessment literacy, classroom assessment practices and students' academic achievement have been defined along with its relevant dimensions from Pakistani teacher education context. The significance of the study revealed the beneficiaries and its importance in current and future perspectives. Furthermore, boundaries were drawn for the study, which was followed by an eagle eye overview of the methodology of the study. The methodology explains the design, population, sample group and sampling techniques, research tool and analysis tools used in the study. The researcher has also explained the theoretical framework of the study which has provided foundation to the study in hand. Next chapter deals with the relevant literature on the current topic based on empirical studies which was presented in a logical manner.

CHAPTER 2

REVIEW OF RELATED LITERATURE

This chapter presents review of empirical studies on assessment literacy, classroom assessment practices and students' academic achievement. Efforts were made to identify the gaps that exist and new dimensions available in these studies. The major headings covered in this chapter are assessment, principles of assessment, classroom assessment, classroom assessment literacy and its components, theorical foundation of assessment literacy, classroom assessment standards, classroom assessment practices, different forms of assessment and so on.

2.1   ASSESSMENT

This study investigates the relationship of teacher educators' assessment literacy, classroom assessment practices and students' academic achievement. Research dissertations on assessment literacy, scholarly papers published in research journals available for the research were utilized. Firstly, assessment literacy is the understanding of students' assessment data to do informed educational decisions as defined by Popham (2011). There are differences in the requirement and usage of assessment literacy of school teachers, test developers, university graduates, school principals and teacher educators as they need and use assessment for different purposes which demands for different dimensions of assessment literacy (Newfields, 2006). It helps in understanding of assessment data which contribute in making correct inferences (use of assessment data); it could be utilized to enhance students' academic achievement (Marzano, 2009). Standards for measuring teachers' assessment competence in students' educational assessment developed by American

Federation of Teachers and National Council in Measurement Education in 1990 provide significant baseline for not only measuring the assessment competence but help the educators to enhance their literacy based on the mentioned standards (Deluca, Lapointe-Mcewan, & Luhanga, 2016).

There are different types of assessment such as formative and summative assessment. The assessment take place at the end of the instruction or semester to measure students learning is called summative assessment while during instruction assessment aims at enhancing students' learning in class and help instructor to put into practice the instructors' assessment based outcome which are further linked with students' academic achievement in the form of increased learning outcome (Cauley & McMillan, 2010; Fulcher, 2012). Classroom assessment practices take a good proportion of teacher's instructional time which signifies its importance in teaching learning process (Alkharusi, Aldhafri, Alnabhani, & Alkalbani, 2012). These assessment practices are used by teachers at different intervals following a variety of assessment methods (tools). Linn and Miller (2008) suggest objective type, subjective and authentic assessment tools appropriate for measuring different dimensions of students learning.

Academic achievement of students represents their efforts and performances throughout their academic career at different levels. These achievement further reflect the instutional enviornment, teachers instructional quality and overall (Rivkin, Hanushek, & Kain, 2005).

2.2   ASSESSMENT AND ITS PRINCIPLES

Assessment is not a new term and is one of the major components of teaching learning process. It is a systemic process of gathering and analysing the collected data

for the purpose of sound decisions making. Tests, questionnaires, observation, portfolios, anecdotes, interviews and others are the tools used for assessment (Marzano, 2009). It is the judicious combination of various procedures to obtain information regarding students' knowledge, skills and attitude. Instruments used for assessment, consist of traditional paper pencil tests, objective type tests, critical and reflective tests; and tasks, portfolios, rubrics, classroom observation; and self-assessment reports (Marzano, 2009). Assessment integrated instruction positively contributes into students' academic achievement. Furthermore, assessment is the systemic collection of evidence for making valuable judgments to facilitate the instructional related decision-making process. According to (Linn & Miller, 2008) all assessment procedures are based on the following principles:

2.2.1 Assessment is Based on Pre-determined Objectives

It is the first principle of assessment is to determine clear purposes of assessment. What is going to be studied? For what purpose assessment is carried out? The details of all components of a program/process of which assessment is to be made, should be made clear in advance. All other procedures followed afterward are affected by this principle as it provides foundation for next steps in assessment (Marzano, 2009). In educational assessment, the clear statement of planned learning outcomes can specify and help in determining the objectives of assessment (Linn & Miller, 2008).

2.2.2 Selection of Assessment Procedure

Every assessment procedure has its own merits and demerits. Not every assessment procedure is appropriate to all sorts of assessments. The qualities of assessment instruments are also of prime importance but are of secondary level, the

21

selection of instrument depends on what is measured through it. Correct instrument for measuring behaviour, knowledge or skills in important (Brookhart, 2011). The best example in this regard is; investigating students' critical writing with Multiple Choice Questions (MCQs) instead of extended response questions will lead to invalid evidence.

2.2.3   Use Variety of Procedures for Valid Assessment

For a valid and reliable assessment, a single instrument falls short of providing comprehensive evidences. The use of multiple means could provide a comprehensive data on assessment. Assessment is a complex phenomenon which demands multiple tools for the collection of reliable and valid data, for instance MCQs and shorts answers type items could cover only the lower level learning in the hierarchy of learning (knowledge, understanding and application) while extended type items could cover the higher level learning (analysis, synthesis and evaluation). The use of multiple instruments in data collection not only covers the limitations of evidence but also captures the situations from different perspectives and provides a comprehensive view of the phenomenon (Linn & Miller, 2008).

2.2.4   Basic Understanding of the Use of Assessment Procedures

There are two main categories of assessment instruments, one is standardized instruments such as achievement tests, aptitude tests and the second is simple or low level assessment scales such as observational and self-report techniques. Not a single instrument or procedure is error-free; it is all about the extent to which the chance of error exists in measurement and assessment scales. What makes a tool standardized is the one that have reliability and validity. Therefore, efforts are needed to ensure the

psychometric properties of instrument which are indispensable (Stiggins & Chappuis, 2008).

2.3 CLASSROOM ASSESSMENT

Classroom assessment deals with the assessment of students' learning, adequacy of instructional environment and instructional practices. It got into focus after public demand of schools' accountability where school funds, teachers' salaries and other incentives were tightly linked with students' academic achievement in the USA. First, it was the United States of America where public expenditures were deemed to be accountable and high stake tests were introduced to make the process more objective and authentic. Tax payers wanted to know the products of education in term of students' performance on high stake tests conducted at state level. Similarly, parents also wanted to know their children' academic performance (Popham, 2011). Different movements throughout the world further escalated the demands for teachers' accountability and high stake tests were considered to be one of the influential means for teachers' accountability. There are evidences in research findings from assessment experts that these high stake tests are subjected to different psychometric errors (Cook & Beckman, 2006). Similarly, due to the negative influences of these tests some segments of stack holder among parents are also opposing these high stake tests (Marzano, 2009; Stiggins, 2005).

Yet another dimension of the classroom assessment is based on assessment beliefs which influence students' academic achievement. Assessment practices that take place on the belief of students' improvement leads to improve teachers' teaching and enhance students' achievement. These practices are reflected through formative assessment practices which are also called assessment for learning (Cauley &

McMillan, 2010). On the contrary, assessment for accountability produces different kinds of results and can lead to judgmental aspects of assessment. For example teacher's promotions, annual increments and their retention related decisions are taken on the basis of these assessments. These assessment practices are placed under the umbrella of summative assessment which contributes to test anxiety, negative competitions and stratification among students.

In order to further clarify the concept of yet another distinction is also important to make. Generally, students take assessment, test, and evaluation in similar meaning and use these words interchangeably, but all these words are not the same as in its true spirit, there is a significant difference among all these terms. Test which is considering a four letter word and a tool for assessment is broader. It is a tool collecting instrument which needs significant care in its construction process. A test developed in a standardized manner can guarantee that the evidence collected through it might be more authentic and reliable, while on the contrary, teacher-made tests are considered to be more exposed to psychometric errors which are responsible for weak evidences that further sensitize the need of assessment knowledge of teachers (Linn & Miller, 2008).

2.4   PURPOSES OF CLASSROOM ASSESSMENT

Students' classroom learning is measured on classroom assessments activities. It measures students' progress in the class and identifies their strengths and weaknesses. Evidence regarding the desired and current learning status of students is collecting through classroom tests, observations, students' presentations and decisions are made accordingly. According to Riaz (2008) the centeral goal of classroom assessment is to collect reliable, valid and valuable informations regarding students

performance and to modify classroom instruction to enhance students' academic achievement. It also provides evidence for the instructional, administrative and predictive (aptitude) decisions for the concerned authorities. Classroom assessment is further helpful in sharing students' progress to parents, school authorities, education departments and other stakeholders.

Linn and Miller (2008) examined the purpose of classroom tests and assessment and concluded that it covers the basic phases of teaching. Classroom assessment done at the beginning of instruction concentrates on the investigation of students' pre-required knowledge and skills for the instruction, to motivate the students for learning or for instructional activities. Already published pretest can be used for measuring students' pre-knowledge, skills and attitude and their readiness. However, teachers can also develop these pretests. Students' status on the pretest not only help the teacher in adjusting the instructional plan but can also facilitate the students in understanding their own progress. In support of the above Marzano (2009) and Riaz (2008) were of the veiw that pretest helps teachers to know the effectiveness of the instruction made throughout the session, as the difference could be measured by comparing the performance of students on pretest and posttest or achievement test.

Assessing the effectiveness of students' learning and enviornment could be assessed through formative assessment. Assessment made during the instruction provide feedback to students, ensures teacher regarding students' learning progress and also identifies the learning difficulties exists during the instruction. Tools used during formative assessment include oral question answer sessions, practice tests, unit tests, one sentence question, muddiest point and easiest point of the instruction, quizzes and other alternative tools to ensure the accomplishment of critical instructional objectives (Linn & Miller, 2008; Riaz, 2008). The results of formative

25

assessment further provide space for improvement in the instructional plan, revising the instructional strategies, motivating students and increasing students participation in the teaching learning process (Brookhart, 2011).

2.5   DEFINING ASSESSMENT LITERACY

Assessment literacy as a term was first used by Richard Stiggins in (1991). Stiggins (2002) familiarized the construct and considered to be a broad concept that comprised a wide range of assessment knowledge and skills. Generally, it is awareness and understanding of ways to decide the knowledge and practical use of learners for explaining the snapshots and conclusions of assessment to motivate students' learning. Experts like Chappuis, Newfields, Popham and Stiggins have defined assessment literacy on different perspectives. According to Popham (2011) assessment literacy is the *understanding* of *fundamental concepts and procedures* of assessment supposed to *influence educational decisions* made on the basis of evidance collected.

The first italic word in the definition *"Understnding"* delimited assessment literacy to the understanding of assessment principles, basic terminologies and procedures of assessment and does not ask for experties in assessment. The second italic *"fundemental assessment concepts and procedures"* represents understanding of basic terms and concepts of assessment generally needed for students' assessment. The knowledge and skills of test construction, estimating test psychomatric properties, test scoring and communication of assessment results to students and their parents are enough for teachers. An assessment literate doesn't need to know everything about assessment. The last italic phrase *"influence educational decesions"* shows that an

26

assessment literate person must be as knowledgeable in assessment as needed for sound assessment decisions (Popham, 2011).

Assessment literate person distingusih between sound and unsound assessment practices. He knows what assessment methods could yield relaiable evidence regarding students' performance. S/he understands the procedural approaches of assessment, is aware of negative consequences of poor assessment methods, could communicate the results effectively by adopting variety of sources and is also aware of how to improve students' performance with assessment tasks (Stiggins, 2000; 2008).

According to Chappuis, Stiggins, and Arter (2012) the well-read teacher and instructor of evaluation gain the information and awareness for evaluating the performance, knowledge, skills, proficiencies and prevents the upcoming problems. All the abilities that an assessment literate individual needs, have been listed in this definition: the basic principles of assessment, adopting suitable assessment procedures, providing adequate sample of performances, identifying assessment illegality and its prevention have been listed systematically.

The knowledge of assessment processes, basic principles, tools for assessment and confidence in discharging their responsibilities of assessing students, programs, processes and assessment procedures in itself could lead for valid and reliable results. The understanding of assessment knowledge and practice of assessment skills ensures teachers' competence in students' self and programs assessment (O'Loughlin, 2013). Above mentioned definitions are general in view which provide the overall features of assessment literate individual, irrespective of any level. Newfields (2006) has

classified assessment literacy definition from three levels that is; university students, secondary school foreign language teacher and a professional test developer.

Newfields (2006) studied assessment literacy for three different population that is university students, secondary school teachers and professional test developers. It was further explained that a single definition of assessment litercay will not be reflective as the perspectives of them are different. These different perspectives of assessment literacy do not allow assessment experts for a single representative definition of assessment literacy.

a. Students' assessment literacy is limited to know how to successfully perform on the high stake tests. Students need to know how to attempt a test and adjust themselves to classroom and commercial tests. It also enables them to identify and be competent to perform analysis of the assessment data. Following abilities for students' assessment literacy have been identified by Newfield (2006):

    i.   Understanding of measurement and assessment concepts;

    ii.   Be able to distinguish between different data sets, differences and its significance level;

    iii.   The ability to know the differences between correlation and causation; and

    iv.   The ability to analyze and interpret assessment data with simple statistical tests;

    v.   The understanding of ethical standards in assessment practices.

b. Assessment literacy of *school teachers* encompasses the above stated abilities and apart from the above they are anticipated to be capable to sort out the following:

28

i.   Can use a wide range of assessment measures representing minimal bias;

ii.   Constructing, administering and scoring tests in a specific field of expertise;

iii.   The ability to evaluate psychometric properties of a teacher made test;

iv.   Knowledge and understanding of cutoff scores in norm-reference and criterion-reference testing;

v.   Appropriate intervention when students are involved in unethical behavior during test; and

vi.   Communicate the outcomes of students' assessment on regular basis to the parents and concerned authorities.

All these aforesaid abilities are also mentioned in the criteria of the proficiency of instructors in the academic evaluation of learners (Newfields, 2006).

c. As compared to university graduate students and a secondary school teacher, *a professional test developer* needs to be more knowledgeable and skillful in assessment. In addition to the abilities mentioned above for university graduates and school teacher a professional test developer must also have the following abilities which make him/her assessment literate:

i.   Knowledge and understanding of assessment tools/test appropriate for the attainment of specific purposes;

ii.   Understanding/awareness of appropriate and inappropriate uses of different assessment tools, mean the understanding of strengths and weakness of different assessment tools;

iii.   Careful attitude towards test security and high concerns for the confidentiality of participants and performances;

29

iv.	The ability to identify poorly performed items on a test and removing their negative effects on the overall scores of the participants;

v.	The ability to identify factors not related to the targeted skills in the examinees' test performances; and,

vi.	Commitment for gradual improvement and tool validation.

The simple awareness of assessment comprises know-how of the basic constructs and methods on the part of individuals, considered likely to affect instructive, scholastic and informative judgments.

Frewer (2014) adopted a mixed method methodology for promoting and authenticating instruments for assessment literacy in teaching space relating to the teachers of language of English as a second language at higher education level in Cambodia. This empirical work aims at promoting and verifying instruments for measurement of teachers' progress in the domain of knowledge of evaluation in schools. The sample constituted one hundred and eight teachers. For deep understanding of the phenomena, six informants were interviewed. After analysis, it was found that teachers have very little awareness of the phenomena, which does not positively affect the execution of the assessment during classroom.

Gotch and French (2014) conducted a study relating a methodical and logical review of assessment literacy measures. This research study reviewed the assessment literacy measures of teachers in a systematic manner in the perspective of existing instructor assessment course of action. The researchers collected data for assessing work of teachers in assessment literacy research studies from 1991-2012. Later on, the researcher assessed the psychometric work from these measures contrary to the claims connected to score interpretation and practice. They reviewed 36 measures and found

backing for these claims were not strong. This result highlights the necessity for supplements.

Assessment literacy is an integral part of teachers and students' life. Nevertheless, previous studies have shown that classroom teachers are not prepared adequately to assess their learners (Lian, Yew, & Meng, 2014). In Suah's (2012) study which comprised 3866 teachers from primary and secondary schools revealed that most of Malaysian teachers' literacy assessment level was not satisfactory. The teachers described that they had not given suitable formal training in their undergraduate education programs and school professional development program. In this regard, four suggestions were given by Koh and Velayutham (2009) to refine teachers' assessment literacy which includes: ample opportunities of continuing professional development for teachers; daily practice is required on the part of teachers in professional development of assessment literacy; encouragement and guidance to teachers be given timely in redesigning assessment process, to produce more excellent, consistent and effective assessment result and in future. Furthermore, the reform of their assessment practices will be valuable to both teacher development and students' learning; and to plan more valuable assessment tasks to assess student's knowledge and numerous thinking skills. Teachers also need to be capable in using the assessment result to improve student's learning, identify their strong and weak points and understandings.

Popham (2011) explored Assessment Literacy Overlooked: A Teacher Educator's Confession. The focus was to reflect and guide assessment literacy in teacher education. The earlier shortfalls in teacher training in educational assessment bring to high point the necessity for teachers to get assessment literacy. Assessment literacy is nothing but a person's understanding of the basic assessment constructs and

processes considered likely to impact conclusions concerning education. It is interested for both teachers and students to increase a level of understanding because of the recent concentration on accountability through assessments. The suitable use of assessment is also an influential device for learning. It is better to expedite assessment literacy in teacher education than a brief inclusion in course. An adequate assessment course is essential for complete understanding of assessment to prospective teachers.

Based on the above discussion on assessment literacy for teacher educators, it would be the understanding of assessment concepts, procedure and practices along with teaching methodology to differentiate between sound and unsound assessment practices and teaching methodologies used for the teaching of diffferent concepts of assessment. An assessment literate teacher educator needs to understand the knowledge, expertise and practice assessment in diverse situations. Along with the abilities mentioned for university students, school teacher and professional test developers teacher educators need to know how to teach assessment skills and knowledge to prospective teachers.

2.6   IMPORTANCE OF ASSESSMENT LITERACY

Assessment literacy as a term was first used by Riched Stiggins in 1991. He attached the word assessment literacy with the understanding of the methods, principles, problems and consequences of assessment. It enables the educators to understand what to assess, how to assess and what are the good and bad effects of assessment.

Assessment literacy as an important element of teachers' professional life different researchers studied its different dimensions. Khadijeh and Amir (2015) emphasized on the importance of linguistic aspect of assessment literacy. They have

identified the need and importance of assessment literacy in the teaching learning process for teachers as well as for students. Assessment literacy helps the teacher to understand the nature of students' performance, analyse the data properly, reach to conclusions and communicate to relevant stakeholders. Illiteracy in assessment affects assessment conclusions, increase communication gaps among the stakeholders and also influence assessment decisions. Furthermore, fruitful and durable instruction is also possible in the presence of blameless and bias free assessment, while stiggins (2005) is of the opinion that classroom assessment is an important indicator of good teaching.

Newfields (2006) identified three rudimentary causes for the significance of instructors' assessment literacy. First, every educational system has the element of assessment. Al-khurusi (2007) and Popham (2009) supported this element and were of the view that teachers spend 10% to 50% instructional time on assessment relevent tasks. It is for this reason a considerable portion of school/program budget is spent on formal assessment practices. Secondly, the understanding of most of the educational literature is incomplete without assessment litercay as statistical know-how enables an individual to understand the analysis of empirical literature. It helps to understand the statistical analysis and inferences made on the bases of results. Similarly, statistical understanding is helpful in the development of teachers' research attitude. Thirdly, it enables the teachers to communicate the results of students' assessment to students, parents, colleagues, administrators and other concerns. Furthermore, it enables the teacher to self- criticize to improve his/her instruction and to enhance performance of students. It is further helpful to teachers to communicate their classroom research to the outer world in a technical and convincing manner.

According to Popham (2011) there are two reasons which make assessment literacy compulsory to pre-service teachers. Accountability in every profession is compulsory since stakeholders of each field ask for accountability. Accountablity in education is not a recent phenomenon. All the stakeholders including governmental officials, community members and parents want to know the performance of teachers as they are paid from public budget. The accountability of teachers like other profession is done on the basis of their students' performance which is the product of teachers work and most of the time is done on standardized tests. Results obtained from these tests are used for the purpose of teachers' accountability. It is another issue that there are empirical evidences that these high-stake/standardized tests' results are subjected to various measurement errors and are not effective for measuring teachers' instructional quality and students' level of academic performance, which most of the time leads to wrong decisions. Silence of educational community leads to approbation of these practices, which is because of their illiteracy in assessment. Assessment literacy makes the educational community capable to present their veiwpoints on the weaknesses of these tests. On the other hand assessment literacy also enables the teacher to prepare their students for such tests in an appropriate manner.

The second reason that makes assessment literacy compulsory for teachers is that assessment strategies have numerous forms which contribute directly to the academic achievement of students positively (Popham, 2011). Teachers' knowledge of assessment enables him to use assessment for enhancing students' academic achievement, identifies students' difficulties in learning and adjusts instructional plan accordingly. Wiliam (2006) summarized the findings of his study that theoritical and empirical research works have a solid base for the assimilation of teaching with assessment, which in turn, produce examplary strength to develop the involvement of

34

learners and to progress the outcomes of the learners grounded on attainment of knowledge. The knowledge of assessment works as a catalyst for teachers' instructional improvement and motivates students for learning and enables them to know their progress towards pre-determined goals.

Teachers used to spend more than half of their teaching time in assessment activites (Alkharusi, 2007). No teachers can start an effective lesson without assessment, as it provides base for his/her teaching. Pre-assessment in teaching enables the teachers to know the level of students' understanding, level of intertests, and learning style even, which helps the teachers in adjusting their teaching accordingly. Assessment during the instruction is indispensable for effective teaching learning process. It helps the students to know their progress towards the desired learning outcomes and facilitates the teachers in going ahead in the instruction.

2.7 NURTURING ASSESSMENT LITERACY

Critical thinking and reflective judgment are very essential to the skills for self-assessment and assessment of others. King and Kitchener (2004) describe the dissimilarity between critical thoughtfulness and deep decisions-making. It was found that critical thoughtfulness focus on inductive or deductive rationale, while deep decisions-making stress on expectations about information that create a demanding position. Critical thoughtfulness was defined as heightened thoughtfulness. By means of this statement, critical thoughtfulness requires information to collect, construe, appraise, and choose material with the aim to make up-to-date selections. For the identification of the nature, timing and manner of evaluation of the students, grave and serious thoughts are essential. Torrie and Van Buren (2008) surveyed that the prospective educators need crucial discerning aptitudes. It aims at enhancing the understanding, thinking and problem solving capabilities of learners.

Torrie and Van Buren (2008) posit that deep thinking is considered to promote the process of teaching and the intellectual development of the students. They emphasized that students require practice in evaluation on regular basis for the development of independence, self-direction and self-regulation in the field of assessment and evaluation. Similarly, it was obligatory for the teacher educators and instructors to inculcate the spirit of deep and fruitful thinking in the minds of the learners for their better future.

Ennis (2015) gave the definition of reflective thoughts that it is the most suitable way of thinking, concentrating on the decision-making about beliefs and actions on the part of the individuals. Critical thinking is the belief that good things will happen and that one's efforts will be crowned with success. It is based on optimism, hope and belief that hard work is never wasted. The role of teachers in building the confidence of students and telling them about the importance of critical thinking is also vital. The teachers encourage hard work by appreciating and rewarding those who make it. They tell students about the various ways in which they improve their score line. The critical thinkers have different aptitudes and dispositions in the preparation, design, judgment and assessment of curriculum regarding critical thinking.

Ennis (2015) branded that such type of persons uphold the consistency and applicability of their concepts, righteousness and clearness while showing their calibre, self-respect and importance of each individual. It is the job of acute thinkers that they make good decisions, draw deep conclusions, bring integration, grounded on sound information, employing strong communication, thoughtfulness, understanding and verbal proficiency.

Numerous approaches can be adopted to foster critical thinking. Learning of critical thinking needs rehearsal, and strenuous exercise away from organising to take midterm and final assessments. Torrie and Van Buren (2008) reviewed research literature regarding instruction and learning at graduate level. They noted three rudimentary tactics after reviewing the empirical literature that was used to motivate and encourage critical thinking of learners. These strategies include: discussion in classroom, open methodology to problem solving, and verbally stating broad understanding of tactics. The integration of teaching with assessment becomes the strong weapon for the development of deep thoughts.

Bruning, Schraw, and Ronning (1999) are of the opinion that for guidance of the learners regarding improving the skills of critical thinking, nested or stand-alone programs have a paramount importance. Nested programs are essential for critical thinking in specific content area while stand-alone programs are necessary for individual growing critical thinking skills. They found that teachers require practicing multiple classroom activities like classroom conversation and demonstration to aid learners for cognizance of notion, analysis of opinions and value of contesting proofs and collection of facts and figures.

Similarly, they recommended numerous schemes like instruction, support, demonstration, directed practice, inspiration, and feedback. These schemes aim to produce a classroom environment that fosters the progress of reflective judgment and activities like fruitful conversation in classroom. Reflective judgements and classroom conversations are helpful in quantifying, judging, and making decisions grounded on sound information such as pre-and post-test scores. Prospective teachers' through reflection, reproduction, and self-assessment learn assessment literacy skills.

2.8 PRE-SERVICE TEACHERS' KNOWLEDGE OF ASSESSMENT

To be knowledgeable about assessment is vital for controlling and directing teaching spaces and the assessment used to quantify student learning and development in learning. Stiggins and Chappuis (2008) contend, dynamically, that one cannot ignore teachers' dearth of proficiencies in formative assessment. Recently a study conducted in the country of Oman, icing on the cake, some of the apprehensions and incompatibilities in teacher' understanding of assessment. Alkharusi, Kazem, and Al-Musawai (2011) found that prospective teachers' understanding of assessment significantly affect their instruction and students' progress and development in learning outcomes. The attendees in the program gained much about evaluation and its different forms. Though the mean scores for various groups were frequently less than 50%, gains in knowledge can be linked with finalizing measurement courses and a teaching practicum. Alkharusi, Aldhafri, Alnabhani, and Alkalbani (2012) also noted the dearth of understanding about assessment on the part of prospective teachers, despite having rich experience in teaching. Such types of activities and opportunities are provided to new and beginning teachers to further improve the knowledge, skills, awareness and understanding of the trainees' teachers. Alkharusi, Kazem, and Al Musawai (2011) puts forward the significance in linking course content with field-based experience to make the pre-service teachers' understanding of assessment of students' learning. Pre-service teachers in university have one to two courses in which the most important concentration is on prospective teachers' assessment literacy.

Gamire and Pearson (2006) describe that there are three constituents in the assessment skill. These constituents were information about assessment, philosophical thoughts and expertise in making weighty decisions; and proficiencies in the practice

38

of content understanding for the solution of real-world problems. It is concluded that the literacy level of a person may be determined on the appropriateness of assessment, the significance of the proficiencies of meditative thinking and the competencies of the content knowledge. Picard and Liu (2007) branded that joining of the aspects of intellectual procedure provide the facilities of teaching design and evaluation plan. These parts of assessment literacy strengthen the potentials for prospective teachers to measure, assess, and develop students' learning.

Montgomery and Baker (2007) put forward that the skill of self-assessment or self-reflection is necessary for others' assessment. He further asserted that mutuality is a value of teaching self-assessment in making availability of the opportunities in which everyone is ruled on and everyone rules. Furthermore, they were of the view that systematic, ordered and directed practices are essential for the improvement of self-assessment skills. The procedures as presented by instructors are appropriate for prospective teachers. Assessment is crucial to building a student-cantered and performance-based learning atmosphere. Furthermore, assessment and responsibility have turned out to be a progressively more essential module in the display of prospects and potentials for all mentors. It was suggests that the skill to assess meaningfully the information guarantees the trustworthiness of the assessor in the instructive surroundings. The purpose of this is to get ready educators and instructors, having the knowledge and expertise of assessment and power to exhibit these know-hows to pupils, parents, administrators, and to different groups of people.

Torrie and Buren (2008) recommended cognitive psychology as specific standard of assessment literacy. The regular practice in effective assessment tools and strategies for improving assessment literacy skills of teachers may be fruitful for the information about the numerous dimensions of assessment combined with critical

thoughtfulness, philosophical decision-making abilities and subject-matter understanding. To know evaluation process and its need for prospective teachers the instructors try their best to promote the competencies of the prospective teachers.

High understanding of learning is expected in science classrooms which according to Donovan and Bransford (2005) are to be learner-oriented, knowledge-oriented, assessment- oriented, and community-oriented which is actually result-oriented. Such results consist in general attitudes, dispositions and outlooks, qualities of perseverance and application, probity or public spirit, are intangible and largely immeasurable under the conditions of summative assessment. But the skills and knowledge acquired in most of the subjects of the curriculum lend themselves to more or less exact appraisement.

2.9   CLASSROOM ASSESSMENT COMPETENCIES

Stiggins (1994) identifies six classroom assessment competencies which are necessary for classroom teachers. First, there different users of assessment such as school heads, parents, donors and program evaluators. Everyone need different assessment data which may not be covered with single assessment strategy. Therefore, adopting multiple assessment stratgies may be more productive in this sense. Secondly, understanding the assessment targets, that is what is going to be assessed? (language competence, mathematical reasoning, communication skills) this question specify the assessment process and enable to collect dependable evidence. Thirdly, to be prepared to use full range of assessment methods, an assessment literate individual needs to know what assessment method is appropirate for what sorts of assessment. Fourthly, to obtain a representative sample of students' performance by using wide rang of assessment methods in data collection. Fifthly, identifying and

controlling the factors responsible for bais in the evidences and finally, could use assessment for enhancing students' learning and motivating them for studies.

Similarly, Chappuis, Stiggins, Chappuis, and Arter (2012) studied teachers' competencies in classroom assessment and were of the view that teachers' classroom assessment competencies are based on clear purpose, targets, sound design, effective communication and students' invlovement in the classroom assessment practices. The detail description of these competencies are:

1. **Clear Purpose**: the purpose for which assessment is conducted need to be clear to all the stakeholders. In this regard they need to;

    a. be able to identify all the concerned user(s) of assessment results and also understand the nature of information they need;

    b. be knowledgeable on formative and summative assessment and also understands when and how to use it properly.

2. **Clear targets**; assessment would be based on pre-determined and clear learning targets, means that the targets must be clear to both teachers and students, they need to;

    a. be able to identify different types of learning targets;

    b. be able to convert content standards into classroom-level learning targets;

    c. be able to start instruction with clear learning targets;

    d. be able to convert the learning targets into an interesting and friendly language.

3. **Sound design**; converting learning targets into assessment tasks to collect accurate results and they need to;

    a. be able to develop/use assessments for the intended formative and summative purposes of students' assessment;

b. be able to select assessment methods to go with intended learning targets;

c. be able to select appropriate and representative sampling of students' learning;

d. be able to construct or select assessment tasks/items and scoring procedure to ensure assessment quality;

e. be able to identify and avoid chances of bias in assessment which negatively influence assessment results.

4. **Effective communication**; managing and communicating assessment results to different stakeholders and to improve students' academic achievement be able to utilize assessment information for instructional planning;

   a. be able to provide effective feedback to students (formative assessment);

   b. be able to maintain formative and summative assessment record of students properly and accurately;

   c. be able to summarize assessment information to reflect student academic achievement accurately.

   d. The inclusion of learners: as stakeholders learners must be included properly in the procedures adopted for their assessment, where the teacher need to literate students with basic information regarding their assessment.

   e. be able to understand the status of students in communicating assessment results;

   f. be able to share the achievement and expected standards with students following appropriate means;

   g. enable the students for self-assessment, self-goal setting based on their results;

h. be able to involve students in sharing their learning progress, reflecting on their achievement and identifying their weaknesses.

These competencies are indispensable for all teachers as it leads to their competencies in classroom assessment of students' learning.

2.10 FORMATIVE ASSESSMENT

Black and Wiliam (1998) define formative assessment as all the activities where teachers are invloved to make the teaching learning process more productive and to eradicate the hurdles. The term was first used by Michael Scriven who connected the word with teaching and curriculum. It was Bloom (1971) who used it in its generally accepted meaning.

Formative assessment practices have input in the gains made on summative assessment practices (Black & Wiliam, 1998). It not only adjust teacher's instruction with students' needs but also prepare the students for high-stakes standardized tests (Karim, 2015; Stiggins, 2004; Thomas, 2012). These practices at classroom are closely related with students motivation and academic achievement (Cauley & McMillan, 2010). Furthermore, these practices are also based on the beliefs of teachers which if positive, it contribute into students' progress towards the desired targets (Karim, 2015). It also helps them to realize the gray areas they need to cover through extensive efforts. Teachers believing in the power of formative assessment adopts it frequently and enhance the effectiveness of teaching learning process. Following formative assessment practices of teachers make the students valuable consumers of assessment which contribute to students' self-assessment and critical users of assessment data (Stiggins, 2004).

Formative assessment is a process of gathering students' learning evidence, giving them feedback and modifying instruction as well as learning strategies accordingly. Evidence of students' learning enables the teacher to switch to those instructional techniques and methodologies appropriate for students' learning. There are three element of formative assessment; (a) the information and expertise of learners are confirmed by proofs, (b) the form and kind of instructors' response to the learners and (c) shift in instructional and learning strategies based on assessment evidence (Stiggins, 2004).

Black and William (1998) reported after studying many empirical works that on a regular basis, steered formative assessment builds the confidence of learners for getting enhancement, when it is practiced regularly. It is summarized by the researchers the assessment for learning is an integral part of teaching space assignments and it improves the chances of improvement on tremendous scale for the learners.

Black, Harrison, Lee, Marshall, and Wiliam (2004) demarcated that formative assessment is a design first and then is a practice for the advancement of learners in the domain of knowledge. Stiggins (2004) states that one-fourth times of instructor are practised in assessment associated-works. He noted in addition that instructors require knowledge and skills of comprehensive assessment. Olson and McDonald (2004) conclude that additional validation for knowledge of evaluation for instructor that both types of assessment should be employed for the benefits of students.

Experienced teachers use formative assessment during the instructional process, although it could also be carried at the end of the session, test, or lecture, but its implementation during the instruction enables the teacher to identify students' misunderstandings and could correct through effective feedback. On-going formative

44

assessment is carried out at classroom through informal observation, posing questions to students and developing an atmosphere of dialogue (Black & Wiliam, 1998).

The effectiveness of formative assessment is based on two main factors; (a) conducive classroom environment and (b) experienced informal observation, posing correct and up to the point questions or generating an inquisitive dialogue among students or between teacher and students. These factors also contribute to students' academic motivation and achievement. Furthermore, the gains of formative assessment are for four basic reasons; (a) formative assessment is based on constructivist's learning theory adopting students'-focused approach, where students active participation is ensured which positively contributes to students, (b) follows on-going and frequent assessments that allows both teachers and students to make adjustment to meet the desired targets, (c) meaningful feedback motivate students' intrinsically which is impossible without immediate assessment, and (d) the specific rather than global nature of formative assessment enable the student and teacher to understand their current positions and the destiny they have to reach (Bekoe, Eshun, & Bordoh, 2013).

Information obtained from formative assessment is important for both teacher and student. According to Stiggins (2005) these information enable the student to understand that whether the learning is of high worth or not. If the student perceives that learning is of high importance, they make efforts and if on the contrary, they give up. It is important to share the expectations teachers have from the students attempting a test, because when students are aware of their teacher expectations they do their best to meet teachers' expectations. It is also important to share good and weak examples of work/assignment/test with students, as it develops a skill of distinguishing in between beautiful and ugly. Furthermore, model of assessment for

knowledge gains emphasize on sharing expectations, and dissemination of sample of good and weak work examples which enable the students to estimate their strengths and areas that need to be improved (Stiggins, 2008).

Black and Wiliam (2005) advocated assessment for learning but also recognized the significance of assessment of learning and the use of assessment to improve students' learning and performance. Formative and summative assessments present a substitute for testing culture which is characterized by so called objectives, such as standardized tests that focused on atomized bits of knowledge at the expense of more complex, high-order knowledge and skills (Gulikers, Bastiaens, Kirshner & Kester, 2006).

Formative and summative assessments are used to provide information on the likely performance of students and enable the students to know what are the strengths and weakness of the work (Wiliam & Thompson, 2008). Wiggins and McTighe (2007) state that if assessment happens during teaching, is a part of teaching rather than a distinct activity. It includes think-aloud, peer feedback, self-reflection, oral questioning, ungraded quizzes. Formative assessment describes the process of learning while summative assessment deals with product of learning (Wiliam & Thompson, 2008). Formative assessment influences the quality of teaching and learning and it engages learners in self-regulating learning atmosphere (Chappuis, 2004). Big idea terminology was coined as a key element of formative assessment which further explains the role of teachers, students and peers. Big idea is that evidence about students' learning used to adjust instruction to better meet students' needs that teaching is adaptive to the students' needs (Black, & Wiliam, 2009).

Table 2.1

Formative Assessment in Teaching Learning Process

Framework concerning strategies of formative assessment to teaching process		
Where the student is going	Where is student is right now	How to get there
Teacher	To clear & share student intents & standards for achievement	Managing efficient CR discussion & tasks that prompt evidence of learning	Providing feedback for onward progress
Peer	To know &share student intents & standards for assessment	To make students able as teaching resources for one another	
Student	To know &share student intents & standards for assessment	To activate students as the owners of their learning	

Adapted from Bennett (2011, p. 63)

Formative assessment and assessment for learning are interchangeably used by the researchers. A clear distinction is made by Black, Harrison, Lee, Marshal, and Wiliam (2004) between the two terms. They argued that assessment for learning is any assessment for which the priority in its designs is to serve the purpose of promoting pupils' learning, compared to an assessment design that serves to provide information to be used as feedback, by the teachers and pupils, in assessing themselves to modify the teaching (Black & Waliam, 2005).

William and Thompson (2008) observe, that assessment is formative to the extent that information from the assessment in feedback within the system and actually used to improve the performance of the system in some way. Assessment has been used initially, in deciding, collecting and making judgment about evidence relating to the goals of the learning being assessed, which makes no reference to how the information being collected and could be used (Harlen, 2005).

47

Additionally Harlen (2005) justifies modifications in assessment practices, to be used in four purposes: diagnostic, formative, summative and evaluative.

Firestone and Mayrowetz (2000) argue that summative assessment has its negative effects on teaching and classroom climate and classroom assessment practices. Assessment of achievement and standardized tests limit and negatively influence the quality of content-area instruction; make speedy teachers to narrow the curriculum taught in classroom; encourage "teaching to the tests"; push students out of the system; divert classroom teaching to a stress on low-level content and basic skills; and increase the repetition of teaching (Herrera, Murry & Cabral, 2007).

In formative assessment feedback influence students' achievement significantly, which are divided into two broad categories: Mastery goals and Performance goals-in this approach a comparison of students' abilities is done. Teacher support performance oriented goals through evaluating students' publically, rewarding high performing students and attributing success to individual's abilities. Students who prefer performance oriented goals tend to use superficial learning strategies, they demonstrate more debilitating achievement characteristics and are sometimes involved in cheating behaviour. These are the attributes related to extrinsic motivation of students, and performance oriented goals are also extrinsically motivated students. On the contrary in mastery oriented goals emphasis is given to understanding, improving, developing experimentation and collaborating. Teachers can support students' learning through evaluating progress pinpointing their mistakes and providing them opportunities for improvement. Students pursuing learning goals demonstrate various positive attributes of achievement (Nicol, & Macfarlane-Dick, 2006).

Furthermore, these are always consistent and connected well with the previous learning with new learning. Such students' like to go for more challenging learning tasks, all these are the attributes of intrinsically motivated students and students of both these types are available in each classroom. So what a teacher can do to benefit more from formative assessment to enhance students' academic motivation and achievement? Cauley and McMillan (2010) highlighted the following important practices which may well backing assessment for learning practices and its gains which includes:

1. Making availability of transparent aims based on acquisition of knowledge
2. Suggesting response about advancement towards achieving acquisition of knowledge based on clear aims
3. Pointing to learning process and getting expertise with sensible struggle
4. Boosting learners' evaluation of self-assessment
5. Assisting learners for the achievement of aims, progress and perfection

2.10.1 Making availability of transparent aims based on acquisition of knowledge

Unclear and fluctuated state of learning targets put the students into a dark room having no light. Students attempt to escape from room darkess by adopting different means to get some light, unclear learning targets compel the students to adopt outdated, compromised and unauthentic practices which has negatively influenced on their learning. Therefore, providing clear learning targets and sharing of teachers expectations are necessary for successful knowledge gains. The exchange and discussion over good and bad samples of work and continuous feedback make the students capable to know what they are learning, it enables them to set goals and to

assess him/herself in comparison to the teachers' expectations. Furthermore, it enables the students to formulate realistic and attainable objectives which leads them towards mastery goals instead of performance goals.

2.10.2 Suggesting response about advancement towards achieving acquisition of knowledge based on clear aims

Response and reaction aid to motivate students for further efforts. An effective feedback concentrates on students understanding, developing critical and creative learning skills and use students' mistakes as learning opportunities. Struggling students need more immedaite and specific feedback than average and intelligent students. Quick-and-quiet feedback aimed at adopting corrective and preventive approaches enhance students' learning outcomes and leads the students towards mastery goals. As an example, when after the lecture a teacher give classwork to students and check the students' work and let them correct where they need to be, through asking questions, giving clues and reminding the success criteria, all these activites in quick-and-quiet feedback motivate students intrinscially which contribute into students' learning skills and success. On the contrary, normative feedback concentrates on comparing students' abilities and leads towards grading, which develop a sense of competition among students externally and enhance performance based achievement of students.

Furthermore, normative feedback promotes hierarchy of abilities, social comparison (ego aspect) anxiety and groups stereotypes among students, which may hinder the targets of formative assessment. It motivates students for collaboration in learning which is compared to predetermined standards, and thus enhance students learning outcomes. Stiggins (2005) viewed, that when assessment for learning is used

50

properly, it escalate students' thurst for and increase success expectations. Offering students' quick-and-quiet and task related comments and feedback enable the students to meet the learning targets.

2.10.3 Pointing to knowledge gaining process and getting expertise with sensible struggle

Attributing successes are the sources to learners allotted, to elucidate their achievement. Formative assessment practices concentrate on students' abilities, efforts and luck. Students' self-efforts is the most influential attribution among the above mentioned as it increases their confidence, therefore, teacher may realize this factor while giving feedback to students. Sometimes teachers feedback also influence students attitude negatively, expressing disappointment for students' failure often demotivates students for studies which need to be avoided, praising student whose efforts are not up to the level also make the students lazzy, it is therefore necessary that moderate level feedback with special emphasis on efforts should be adopted (Stiggins, 2005).

2.10.4 Boosting learners' skills of self-assessment

Students self-assessment is a new apporach in formative assessment practices. It is not limited to checking students' answers with correct answers, but it is an approach where students think reflectively on their own thinking process and also try to identify the strategies that could further improve their work. It contains on three steps, self –monitoring thinking over their own work, identifying the weak areas (self-assessment) and adopting measures that could enhance their learning and understanding. Teachers' could instil the skills of self-evaluation in students through asking queries. For example, what do you think about this matter? How can you use

these resources for achieving reliable information? What are the areas where you need concentrate to improve your understanding? What other strategies are available to adopt for enhancing your learning and the understanding of the subject? Individual efforts along with peer assessment strategies provide the opportunity for students to enhance the learning and assessment skills (Stiggins, 2005).

2.10.5 Assisting learners for the achievement of assessment goals

Students' progress towards their determined learning targets leads them towards self-actualization. Effective feedback, enables the students to set attainable goals in the light of different standards for their own uplift in terms of learning. Students' progress towards the success further enhance their confidence on their self-efficacy which is the corner stone for students success (Nicol, & Macfarlane-Dick, 2006).

When formative assessment is accompanied by learners' involvement in the procedure of the development and implementation, then it seems more near to teaching as compared to assessment (Eckhout, Davis, Mickelson, & Goodburn, 2005). Students' involvement in formative assessment not only measure learners' learning but also motivates students for learning (Chappuis, 2004). In formative assessment, students and peers play a significant role in assessment process (Wiliam & Thompson, 2008).

Similarly, quantification of formative assessment is another important dimension. Herrera, Murry, and Cabral (2012) assert that teacher's expertise in quantification of the score has a paramount importance in accurate assessment. They use rubrics, checklists and questionnaire for the achievement of numerical

representation. Wiggins and McTighe (2007) define rubric as an instrument which has a base of high standards of assessment, including inflexible levels of quantification and explanations of the features of all items. Herrera, Murry, and Cabral (2012) found that rubrics are very necessary for focussing on targeted goal, criteria. They abridge the key points in developing rubrics as: defining the preferred targets, making available activities for the enhancement of knowledge and skills of students in classroom, improving the performance capabilities of the students, and expressing the needs and importance of rubric for higher achievements of students. Besides rubrics, checklists and questionnaire are developed to make out information, expertise and proficiencies to perform task. Herrera, Murry, and Cabral (2012) accept as true that research tools like survey and work sheet minimize the redundancies and arrange for information about learners' previous knowledge and what the learners bring into the classroom. But such assessments are not immune to bias (Herrera, Murry, & Cabral, 2012). It is concluded that learners' involvement in assessment procedure reduces students' anxiety and other concerns (Wiliam & Thompson, 2008).

2.11 SUMMATIVE ASSESSMENT

There is considerable evidence that summative assessment conducted by external agencies exercise a profound influence on the material of instruction in educational institutions, on the methods of teaching specific subjects, and consequently on the students' mode of thinking, studying and even writing (Baartman, Bastiaens, Kirschner, & Vleuten, 2007). The fact is that summative assessment tends to become ends in it, instead of serving as means to determine students' attainment. Teachers and students come to believe that the chief purpose of study is to pass tests rather than to gain knowledge and insight, power and

53

appreciation. The value of a subject or topic is judged with reference to its possibilities in assessment and not by its intrinsic worth (Wissehr & Siegel, 2008).

Furthermore, assessment practices made at the end of the semester concentrates on measuring the extent to which the desired learning targets have been achieved. Students' performances are measured against some pre-determined standards. These assessment practices are called summative assessment practices and it ends at certification, promotion, retention or demotion on the basis of the evidence collected through tools (test, observation sheet, performance, portfolio and projects) of assessement (Riaz, 2008; Linn & Miller, 2008; Brookhart, 2011).

In teacher education institutions prospective teachers are taught the requirements of summative assessment being confined to knowledge of facts and teachers adopt methods and strategies designed to fill their students' minds with facts which they can easily disgorge at the summative assessment. Training in originality and independence of thought, correctness of judgment or reasoning, responsiveness to noble ideas and sentiments: and creating aesthetics sense they cease to be the aims of the teacher's efforts, for they are not judged by the traditional assessment. Simply summative assessment mostly concentrates on cramming and rote memorization of students (Wissehr & Siegel, 2008).

The study conducted by Siegel and Wissehr (2009) found that prospective teachers were made familiar with high quality of assessment in theory which is based only on memory and cramming. Being mainly concerned with the testing of certain academic achievement in the form of literacy and scientific knowledge, in which memory plays a large part, traditional assessment fail to appraise those qualities of mind and character which are the finest fruits of true education. Nor do they test those qualities and abilities that are required for success in life and are, in some ways

revealed in educational life itself. They do not test the power of independent thinking, the qualities of perseverance and application, of sympathy and co-operation, responsiveness to beauty and nobility, probity and public spirit. These are the qualities which a true scheme of education should evoke and foster these abilities; but they lie wholly in the realm of the unknown and cannot be tested by the traditional forms of assessment.

2.12 ASSESSMENT STANDARDS FOR TEACHERS

Accountability of teachers and schools, high stake-testing and technological advancement have emphasized for more assessment practices in educational matters (Perry, 2013). It was a portion of educational psychology taught to teachers in pre-service training programs in which they attend few sessions on assessment and its fundamental concepts. There was no separate subject of classroom assessment or educational assessment in the teacher preparation programs. Teachers were ill-prepared to spend one-third of their instructional time in classroom assessment practices. In the advent of twentieth and twenty 21st century these emerging trends in education sensitized the need of assessment qualified teachers as they consume a considerable amount of time and energy in classroom assessment (Alkharusi, 2011; Brookhart, 2011; Stiggins, 2008).

Assessment literacy is the base for teachers' competence in classroom assessment (Alkharusi, Aldhafri, Alnabhani, & Alkalbani, 2012). Assessment experts in different organizations and federations have framed different standards for measuring competency of teachers in students' assessment. The American Federation of Teachers (AFT) and National Council of Measurement in Education (NCME) and National Education Association (NEA) have identified seven basic standards for

assessment competency; those who satisfy these standards are declared as competent in students' assessment (AFT, NCME, & NEA, 1990).

These standards are time-honoured and reviewed by the educational forums of United States of America as cited by (Brookhart, 2011). The short details of these standards are as follows;

2.12.1 Selection of Appropriate Assessment Method

Teachers made numerous decisions in their teaching process. At every movement they need an appropriate assessment method which is used for the instructional decisions. The selection of an appropriate assessment method could help the teacher in making reliable decisions in the instructional process. Teacher needs to be aware of the evaluating criteria of the selected assessment methods which are indispensable for sound assessment data (Gottheiner & Siegel, 2012).

The knowledge of different alternative assessment methods could enable the teacher to adopt a suitable method of assessment. There are various methods which could be used for various purposes. The use of a wrong assessment method could lead to wrong data and ultimately could lead to wrong decisions. There are certain pre-requisites of the selection of each assessment method and each method have different strengths and weakness. Teacher who have the knowledge and skills of selecting appropriate method for assessing have conceptual and applicable knowledge relevant with that particular method (Alkharusi, Aldhafri, Alnabhani, & Alkalbani, 2012).

2.12.2 Developing Assessment Methods

Teachers adopt external assessment tools for some specific assessment but most of the time they need self-developed assessment tools for students' assessment. Classroom assessment is dependent on teacher assessment literacy; it is imperfect without teacher's knowledge of assessment. Teachers, who can develop a sound

56

assessment tool following the principles of sound assessment and have conceptual understanding of tool development, could satisfy this standard in assessment literacy.

After developing sound assessment tool, it is also essential for teachers that they have necessary knowledge about the scoring and evaluating process of the tool. The analysis of collected data through assessment tool enables the teacher to use it for the instructional purpose, for students' motivation and for communication to parents and other stakeholders. Since, most of the instructors do not have access to evaluation specialist. Therefore, they need to be skilful in analysis of data (Newfields, 2006).

2.12.3 Skills in managing, calculating and understanding the results of both external and internal assessment tools

The selection and development of assessment tool is not the end for the assessment competency of teachers. Test administration is also important for teacher to know how to administer a test in an appropriate manner. It strongly affects the performance of students on the test.

Gotch (2012) explained that scoring the performance on assessment need more conscious approach that teacher need to adopt. The ability to score external and self-made test in a justified manner needs the understanding of test nature and purpose of test. The presentation of test scores reflects different purposes. The use of descriptive statistics which include central tendencies, percentile, deciles, and percentage depends on the purpose of assessment and reflects it in the scoring of assessment tools. Test interpretation requires knowledge of objectives, what method was adopted and it also includes the contextual information which facilitates the decisions made on the basis of test. Decisions made on the basis of such assessment are more durable and authentic.

2.12.4 The application of results for making judgments about learners, instruction, set of courses and institute as a whole

There is need of conceptual knowledge and skills to use assessment results for various instructional, curricular and academic decisions. Teachers, head of the institutions, and curriculum developers use assessment data for their own purposes which ultimately contribute towards improvement of students' learning (Alkharusi, Aldhafri, Alnabhani, & Alkalbani, 2012; Gotch, 2012).

2.12.5 Developing Grading Procedures

Students' performance on assessment is graded by teachers which indicate student's performance in assessment. It also explains teacher's view point about students' performance. Teachers meeting this standard have the conceptual knowledge and skills of devising, implementing and organizing grading for students' performance. Students' assignment, classroom participation, presentation, quizzes and class tests are graded by the teachers in a way that not only understand students their performance but also enable the teacher to articulate students' performance at the end of the session in an easy and understandable manner (Alkharusi, Aldhafri, Alnabhani, & Alkalbani, 2012). The standards reduce the errors and misconceptions in grading students' scores.

2.12.6 Communicating Students' Results to Different Stakeholders

Communicating students' results is a routine practice of teachers. Teachers communicate students' results to all the stakeholders which include students, parents, and heads of the institutions, other educators and colleagues. The proper communication of results is important as all the stakeholders have different perspectives and they take their own meanings from students' results. Therefore, the conceptual knowledge and skills of students' results communication is essential that

58

all the stakeholders could take equal benefits and could not misuse and misinterpret it (Perry, 2013).

2.12.7 Ethical Considerations in Students' Assessment

To have reliable and valid data through assessment, it is important for teacher to know about the authenticity of the assessment method used for students' assessment. Teachers must also be aware of illegal practices, misuse of assessment data, factors that affect assessment procedure and could address these issues in a meaningful manner. Teachers satisfying this standard have the knowledge of ethics, need and use in assessment. Right of confidentiality, right and access to information, right to ask for guidance, if any and other facilitative measures, adopted and needed in assessment process (Jones, 2008).

Torrie and Buren (2008) studied the topic concerning learners and program evaluation which is the base of learners' evaluation in the light of assessment literacy. The purpose of this research work was to explore assessment literacy and review plans for developing the phenomena. It is viewed that evaluation is a central construct of instruction mechanism for the acquisition of knowledge. The general criteria create the requirement and demand for instructors, possessing assessment literacy, even though efficient teaching requires competency, skills and knowledge on the part of learners and program assessment. The main areas of assessment literacy are nature of assessment, repetition of assessment, time of assessment, objectives of assessment and preparation of learners to undergo assessment. Therefore, teachers and teacher educators are required to go through assessment training and knowledge. Heritage (2007) stressed the need of assessment literacy and indicated that instructors know that with the sound knowledge of assessment, better teaching is possible.

Magnusson, Wilson, Zdravkovic, Xin Zhou, and Westjohn, (2008) designed the frame work for the development of assessment literacy. This framework is comprised on assessment purposes, what to assess, assessment strategies, and assessment interpretation. As a result it works together in practice and yield good results.
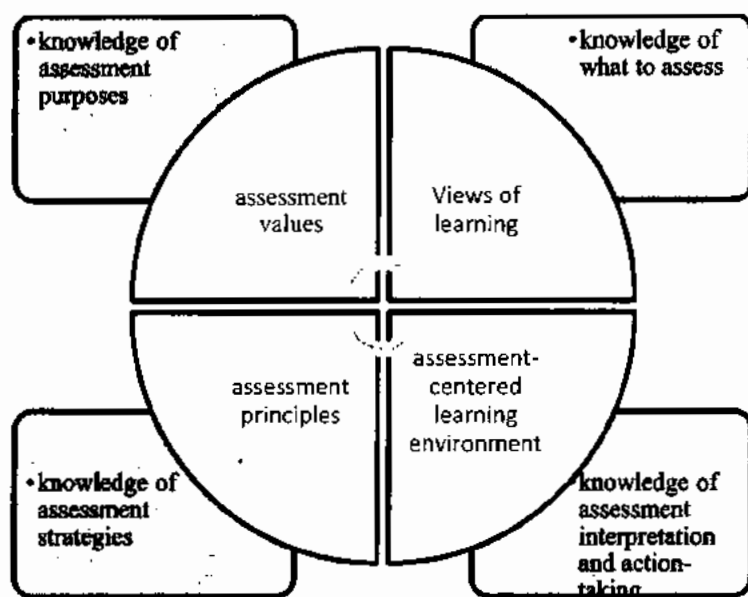
Fig. 2.1 Abell and Siegel (2011) model for science teacher assessment literacy

Smith, Worsfold, Davies, Fisher, and McPhail, (2013) investigated the research topic that dealt with the knowledge and understanding of learners on evaluation. The researchers investigated the effect of assessment literacy intervention on students' learning outcomes. Assessment literacy was first defined and then progressed and justification of knowledge of evaluation and quantification tool was reported. Quasi-experimental design was used for quantification of the influence of knowledge of evaluation. The sample of the study was 369 students taken from two campuses of a public university in Queensland, Australia. Convenience sampling

technique was adopted for selection of sample. The study was experimental in nature. It was found that knowledge of evaluation and assessment positively affects the achievement of learners. The skills of the learners played a large role. The first year teachers faced the problem how to empower learners that they are the part of the programs and build their confidence to consider themselves responsible for their own learning (Nicol, 2009) and to become self-regulated leaners, they are in need of mediating their work, finding the merits, diagnosing the flaws and adopting the means for improving it (Nicol, 2009; Sadler, 2009). Judgement comprises assessing the pertinence of their responses to assessment tasks and whether they have done what they were required to do (Sadler, 2010). It also involves them to review how good their reply was in relation to the pertinent academic achievement standards (Sadler, 2009).

Similarly, McGee and Colby (2014) investigated the topic, related with effects of assessment course on the knowledge of assessment of the prospective teachers. The study aimed at finding out the influence of assessment on teachers candidates understanding of assessment. The study was experimental in nature. 190 prospective instructors participated in this study. Data were gathered during 2012 to 2013 academic year. Data gathered from a pre and post-test were then analysed to conclude if there was a significant positive variance in prospective teachers' assessment literacy. Prospective teachers signed up in an assessment course and were asked to fill the questionnaire at the start and at the end of the semester; the questionnaire was made by Mertler and Campbell (2005). The purpose of the tool was to measure joint discernments linked to assessment and included items related to allocating positions and distributing the grades (Mertler & Campbell, 2005). The tool contained five parameters. The total number of questions was 35. The study constituted one hundred

and ninety sample size. Data were gathered and analysed by mean, standard deviation and t test. It was found from the results of the study that significant changes were observed between pre-test and post-test in all parameters. The seven areas were; choosing methods, communicating results, ethical assessment, grading, scoring, and sound design and using results. The results of pre-test revealed a low level of understanding while after the assessment course respondents were showed significant progress in the understanding of the above mentioned areas of assessment literacy.

Yamtim and Wangwanich (2014) investigated the topic, relating knowledge of elementary teachers on students' assessment. The aim of the study was to investigate the stages of understanding formative assessment of elementary instructors and suggest a developmental approach for refining the knowledge of assessment of elementary teachers. It included bringing awareness and enhancing instructors understanding on students' assessment. The study reveals the science teachers need knowledge of assessment and that their practical exposure is less that needs to be more extensive aim to make them prepared. The study was carried out through mix method methodology. The sample of the study was 19 primary school teachers taken from Wat Phai Rong Wua School with the ratio of 78.95 % female and 21.05 % were male. The data were collected through Classroom Assessment Literacy Questionnaire (Mertler, 2003) and through interviews from 8 teachers (6 female and 2 were male) who took part in a focus group interview. It was found that classroom assessment literacy of most of the teachers is at low level. The approaches for refining the classroom assessment literacy of primary school teachers should stress cooperative learning and teamwork, with well-informed and learned individuals performing as mentors or trainers who offer guidance during teaching workshop.

Similarly, according to Wiliam (2006), the progression of learners in learning is subject to the quality of teachers. The reason behind this is that teachers make the decisions about teaching and assessment to check whether the learners have learned as expected. Such decision-making is linked to three vital components which are curriculum, instructional design, and assessment, each of which plays a key role in the teacher's decision-making process. Decision-making may not be operative enough if any of the components is misplaced, above the entire assessment component (Thomas, Allman, & Beech, 2004). Assessment is beneficial for both instructors and learners in a number of ways: it produces data that can be used to expand the appropriateness of teacher's teaching. It empowers instructors to monitor students' learning throughout the year and to improve students' learning before summative assessment. It provides date for teachers to make decision in choosing teaching methods that are appropriate for each group of learners, students can use assessment data and feedback to expand their knowledge and understanding, students have opportunities to advance their self-assessment ability and reflect assessment as part of the learning process. It provides assistance to learners make decisions about how they can get knowledge and skills, and enables and assist them to prepare for national examinations, particularly when the format of classroom assessment is analogous to the format of the national examination (Thomas, Allman, & Beech, 2004).

Classroom assessment produces significant data for teachers concerning students' knowledge and understanding, which leads to further progress and perfection of teachers' teaching and reconsideration of curriculum content to effectively meet the students' requirements, empowering them to learn proficiently and successfully. Thus, classroom assessment is a significant method for mounting the quality of students. Teachers who have adequate background knowledge about

assessment are able to assimilate testing into learning and to practice an instructional format that is appropriate for learners (Volante & Fazio, 2007).

Classroom assessment mastery is required information and ability to collect data about learners' achievement. Similarly the data is for professional employment of evaluation procedure and results to improve undergraduates' attainment (Chappuis, Stiggins, Chappuis, & Arter, 2012). Progress of instructors' classroom assessment literateness is vital for the development of qualitative information and teaching. Teachers want to constantly improve their abilities in assessment; the reason is that instructors spend less time on assessment related activities (Stiggins, 2004).

Volante and Fazio (2007) studied the topic, relating to the mastery of evaluation of prospective teachers and its' effects on the reformation of teachers' education and training. This study aimed at examining the evaluation survey of elementary prospective teachers. The sample of the study was 69 primary teacher candidates with a ratio of 83% female and 17% male. Convenience sampling technique was used. The study was survey in nature. Questionnaire was used with four close-ended and five open-ended items for data collection. Data of four closed-ended items were analysed through mean, SD, ANOVA. Constant comparison method (CCM) which was developed by (Bogdan & Biklen, 2003) was used for the analysis of open-ended items. This finding advocates several of the reservations for teacher's candidates. It was also noted the knowledge of assessment has a large part in the development and improvement of beginning teachers. Most of the prospective teachers suggested comprehensive drives for evaluation and only a marginal number of respondents stated formative purposes. Most of prospective teachers (nearly three-quarters) employed primarily summative evaluation in place of formative and self-evaluation. They preferred observational techniques and personal communication.

The prospective teachers have a tendency to level their requirement in the mastery of assessment knowledge and skills. The findings made significant effects for teacher education improvement.

Beziat and Coleman (2015) investigated the research topic "Classroom Assessment Literacy: Evaluating Pre-Service Teachers". The major objectives of the study were to measure and monitor pre-service teachers' knowledge and application of assessment literacy of standards-based classroom assessment strategies and regulate programs to encounter deficiencies. The study is quantitative in nature and longitudinal survey research methodology was applied. The sample was taken from pre-service teachers. The sample size was 49 and Pre-test and post-test was adopted to investigate all the participants. Teacher assessment literacy questionnaire by Plake and Impara (1993) was employed to measure the understanding of prospective teachers. Results of the study revealed that pre-service teachers show deficiency in assessment literacy, in spite of completing the desired program for evaluation. Better preparation of prospective teachers for classroom assessment will contribute positively students' learning. At present, the findings revealed no positive improvement in students' assessment. The construction and arrangement of material for evaluation criteria in the classes of prospective teachers is one of the major issues (DeLuca & Bellara, 2013).

Assessment mastery in classes of prospective teachers is an integral part of teaching for it observes the development, growth and advancement of learners in understanding the required material. It is demanded by the existing system of education that instructors must understand the know-hows of assessment and its different forms. Particularly, they must have the capabilities of test construction, application and execution of accurate and consistent assessment procedure during

65

teaching to quantify students' learning and measure the effectiveness of their teaching. Also, teachers must have the capacity to coordinate with learners, learners' parents for the better adjustment of instruction. Timely assessment plays a large part in the achievement of teaching goals. Regardless of a stress being put on classroom assessment for the past 30 years, evidence suggests dearth in understanding formative assessment on the part of instructors (Beziat & Coleman, 2015).

Ogan-Bekiroglu and Suzuk (2014) find that if equal access to education is necessary, teachers require maximizing learning, which commands that they employ wide-ranging assessment implementation in the classroom to quantify student growth. Identifying the influence, assessment literacy has strong positive effect on teaching and learning process. Conversely, DeLuca and Bellara (2013) observed a possible misalignment of pre-service programs to standards as a contributing factor to low assessment skill among teachers.

Similarly, Khadijeh and Amir (2015) investigated the topic relating to significance of the understanding of evaluation on the part of teachers. The study aimed to ascertain the relationship between teaching and assessment literacy. The qualitative methodology was adopted and documents were explored and analysed. The findings showed that there is a positive association between teaching and assessment.

From the perspective of the studies conducted above it could be safely concluded that students' assessment is one of the most imperative responsibilities of educators, trainers, instructors and coaches as a strong link exist between teaching and assessment as recorded in the above mentioned researches. Therefore, it is necessary for the teachers to get know-hows about assessment and evaluation and to link these constructs with teaching. Assessment is essential as it helps in the identification,

analysis and implementation of data on the achievement of learners to promote instruction. It is very imperative for the instructors to get expertise in the assessment for the purpose of improving learners' knowledge (Khadijeh & Amir, 2015).

Teacher is one of the most significant factor which influences learning of students (Khadijeh & Amir, 2015). The vital responsibility of classroom teachers is the assessment of students' performance along with their instructional responsibilities because abundantly it impacts all activities of instructors (Mertler, 2009). The understanding of the basic principles of assessment is very necessary for teachers to perform sound assessment practice, containing terminology, the development and practice of assessment methodologies and techniques, acquaintance with standards of quality in assessment and acquaintance with alternative to out-of-date measurements of learning.

Fulcher (2012) considers that language assessment literacy has three basic components: skills, knowledge, and principles as described in the following chart:
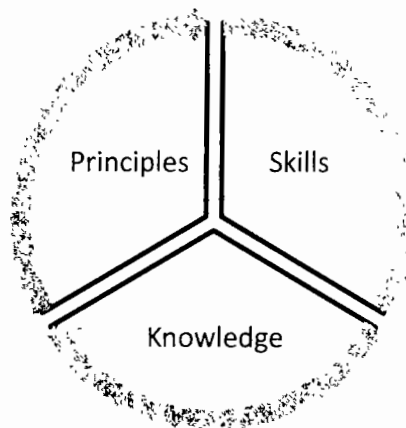
Figure 2.2 **Gikandi, Morrow, and Davis, (2011)** *model/elements of assessment literacy*

He further argues that assessment is tri-dimensional, based on information, expertise and capabilities. This information is important to plan, improve, uphold or gauge large-scale standardized and/or classroom based tests. The second one is the

association with test processes, and understanding of principles and concepts that monitor and hold up practice, comprising moral code and codes of practice. And the last one is the skill to place knowledge, skills, processes, principles and concepts within broader historical, social, political and philosophical frameworks in order to comprehend why practices have arisen as they have, and to assess the role and influence of testing on society, institutions, and individuals.
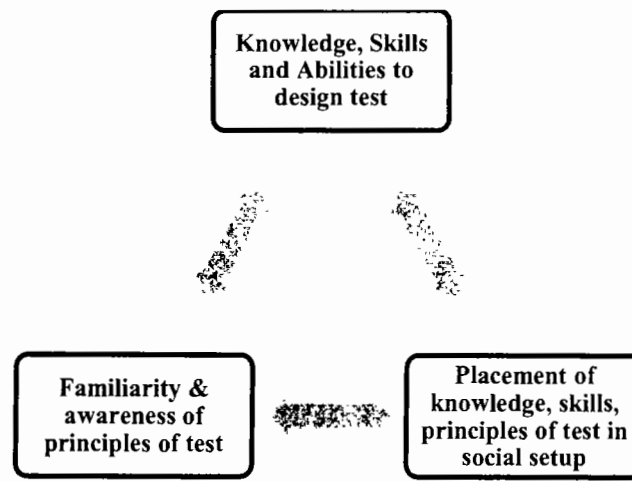
Figure 2.3 Fulcher (2012) model of assessment literacy

Abell and Siegel (2011) and Gottheiner and Siegel (2012) offered a model linking mastery of assessment. The rudimentary features of this model are assessment of information attained, main philosophies of assessment, and four zones of understanding which are: understanding of assessment drives, understanding of assessment approaches, understanding of assessment clarification and decision-making, and understanding of what to assess.
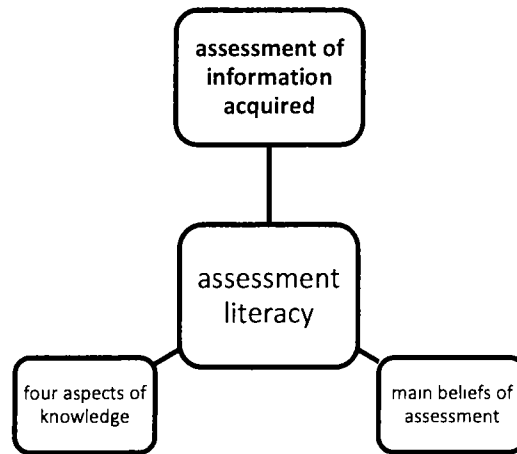
Figure 2.4 Gottheiner and Siegel (2012) model of Assessment Literacy

Lian, Yew, and Meng (2014) explored the topic "Enhancing Malaysian Teachers' Assessment Literacy". The main objective was to highlight pragmatic proposition concerning the information and goals of instructor' mastery of assessment knowledge and skills, furthermore, accuracy, consistency, clarity, objectivity and implementation of assessment information are the key goals. It is revealed by the findings of the study to replace old methods of assessment by alternate approaches of evaluation like formative and self-assessment techniques. Similarly, it was identified that assessment literates are able to recognize the variances between sound and unsound assessment.

2.13 VALIDITY OF ASSESSMENT

Validity is one of the most important considerations in assessment. It deals with the accuracy, authenticity and correctness of the processes and methods of assessment. An assessment is considered valid if it measures what it intend to measure (Cook, & Beckman, 2006).

Publically, it is highly in discussion that most of the times assessment lacks validity. The questions set do not always touch the essentials of the subjects, which the students may be expected to have mastered. The low reliability necessarily

involves low validity, the converse is not true. In other words it is said, whenever agreement between different measurements is low, it can be safely said that assessment is bad; but when the measurements agree, it cannot always be said that assessment is good. For, both measurements might test the same thing but that aspect might not be the one it is desired to test (Cook & Beckman, 2006).

Similarly, the questions in the test often deal with the trivial details or matters of subsidiary importance. Sometimes questions are accurately worded and students miss the point of the question, even though they have the necessary knowledge to answer it. There are a number of extraneous factors that influence the performance of the students and affect the reliability and validity of assessment. For instance, in answer of essay type, the students' rate of writing and their capacity to resist exhaustion, tiredness, weariness and fatigue are measured as much as his knowledge of the subject, if not more so. There is also the question of the student's temperament, which vitiates, deteriorates, damages and even destroys the validity of assessment to a large extent. Some really able students are bad examinees; they become nervous and fatigued and fail to do justice to them. A highly intelligent student is upset by an unsatisfactory attempt to answer the first answer he chooses, and continues blundering in the rest of the test/paper (Cook & Beckman, 2006).

On the other hand, there are some students of ordinary ability who, under the excitement of assessment are stimulated to do better than usual. Some are even logical and attractive presenters in their answers. There are also accidents and temporary indispositions which affect performance at assessment, particularly, reliability and validity, which is difficult to estimate statistically (Cook & Beckman, 2006).

Popham (2006) argues that reliability and validity are two side of a coin. Both reliability and validity have their own values in the domain of assessment. It is very

necessary for teachers to know reliability, validity and its forms for true measurement of students' achievement (McMillan, 2008). Suah, and Ong (2012) is of the opinion that several tests are weakly constructed and fruitlessly executed.

2.14 RELIABILITY OF ASSESSMENT

Reliability of a test is mean the degree to which scores made in a test at one time agree with scores made by some students in a similar test at another time. It is the extent of self-correlation or self-agreement. A reliability coefficient of .90 or above is an index of the high reliability of a test or assessment. The reliability of an assessment as an instrument of educational measurement depends largely upon how full a sample of the whole is included in the test (Cook & Beckman, 2006).

On the contrary, Popham (2009) posits that traditional mechanism of tests and assessment must be replaced by performance-based assessment as it increases the expertise and understanding of learners and makes strong the teaching learning process. He also introduces inter-rater reliability and intra-rater reliability.

2.15 TRANSPARENCY OF ASSESSMENT

Race (2009) argues that transparency of assessment is the clarity of objectives and lucidity of the knowledge of the students. There must be agreement between assessment criteria and predetermined objectives which enhance students learning. James, Black, McCormick, Pedder, and William (2006) argue that understanding of assessment and its techniques for implementation increase the autonomy and acquisition of awareness. School teachers met the problem and misunderstanding to know the tenacity and constructs of formative assessment. They viewed formative assessment as an assessment practice that aim at preparing learners for public examinations. Race (2014) emphasizes that the proposed learning outcome to be assessed and assessment standards should have no concealed plans. Learners should

71

not be trained with guesses that what their teachers think and test. Assessment should link closely to the proposed learning outcomes as stated in text books and syllabus records. As well, the contacts between proposed learning outcomes and the assessment standards should be plainly perceived by learners themselves as well as by others.

2.16 FAIRNESS OF ASSESSMENT

Fairness of assessment means the provision of equal opportunities to all learners irrespective of diverse backgrounds. Gender, ethnic and status discrimination must be overlooked in this regard for the better performance of their knowledge and expertise being assessed (Race, 2014).

2.17 USING ASSESSMENT INFORMATION

Assessment information can be applied in helping learners in learning, pursuing their development towards significant learning outcome, providing information to parents and administration department, or running class properly. Generally assessment information practices can be grouped into summative and formative assessment (Stiggins, 2007). Both have their importance in classroom and in education, teachers' understanding of both particularly formative assessments is still too slight that need to be further enhance. Therefore, it is needed to enlarge their understanding of its role that should play to maximize learners' success while minimize side effects for learners. A key purpose of assessment for learning is to detect areas that may require development, do the judgments about the quality of learners' performances that can be used to figure out and develop the competence and skill of learners.

Similarly, formative assessment is not used only as an instrument to students' learning growth and to ascertain teaching efficiency but also has allow teachers to

"rethink" and then "re-deliver" the instruction and content, to find out that their students are on the right way; and to assess knowledge and expertise of learners before summative assessment. Conversely, teachers frequently worry about the completion of course within prescribed time, so they are making lame excuses for not taking formative assessment (Aidarwati & Abdul, 2013).

Guskey (2008) recommended formative assessment is an indispensable part of the instruction process for learning. Teachers can practice assessments information intelligently to improve the students' learning outcomes. It is important to follow assessments principles with superior remedial teaching, and ensure the second chances for the students' improve their skills and knowledge.

2.18 ASSESSMENT PRACTICES

Matovu and Zubairi (2014) investigated the topic "Factors Influencing Assessment Practices among University Academic personnel: A Multiple Regression Analysis". This study examined how factors such as academic levels, type of university, specialisation, class size, and assessment-based training influence the assessment practices of the academic personnel in universities. The study was quantitative in nature and was conducted in Uganda. The sample of the study was three hundred and twenty one 321 university academic personnel randomly selected from four universities. The sample of academic personnel was selected from two public and two private universities in reflection of their academic levels (Teaching assistants, assistant lecturers, lecturers, associate professors, and professors) and specialisations (Arts, human sciences, sciences, and education).

The data were collected through an Assessment Practice Inventory Modified questionnaire Matovu, & Madziah Zubairi, (2014) which has 13 demographic

73

questions and 50 items on the Likert scale was used to gather the data for the study. The 50 items on the Likert scale (*1 = not-at-all-skilled, 2 = a-little-skilled, 3 = some-what-skilled, 4 = skilled, 5 = highly-skilled*) gathered information about the academic personnel assessment practices while the 13 demographic questions identified the academic personnel and also acted as the predictor variables in the study. According to the results of the Cronbach alpha coefficients the reliability of the Assessment Practice Inventory Modified was .967, which indicated that it was an excellent instrument in measuring assessment practices among university academic personnel (Tavakol & Dennick, 2011). Data were analysed by multiple regression analysis. Five predictors- Academic levels, type of the university, specialisation, class size, and assessment-based training were found to be significant of the university academic personnel's assessment practices. It can be drawn from the findings of this study that the academic personnel who have high academic levels and have carried out assessment-based training have higher assessment practices than those who have not advanced academically and have not taken assessment-based trainings yet. In the light of the revealed results, it is recommended that universities may raise the academic levels of the personnel and provide assessment-based training to enhance their competencies and skills in assessing learners.

Five factors were counted in the multiple regression models as predictor variables to the assessment practices of the academic personnel. Among the incorporated five predictor variables in the model, only two variables were statistically significant; academic levels and assessment-based training. These findings are analogous to those which discovered that assessment practices of teachers are predicted by their academic levels and the assessment training they had achieved (Khalid, Irshad, & Mahmood, 2012; Noordin & Jusoff, 2009). The results of multiple

74

regressions disclose that academic levels contribute more to the academic personnel's assessment practices than assessment-based training but, all are significant predictors. These results support the findings of the study which underlined that the higher the academic qualification, the higher the assessment practices and teaching skills (Susuwele-Banda, 2005).

Assessment-based training has also been recognized to be a significant predictor of the assessment practices of the university academic personnel. This finding confirms that assessment-based training enhance assessment practices of academic personnel (Susuwele-Banda, 2005). The training programmes embarked on by the university academic personnel would assist them to progress their assessment proficiencies and expertise (Zhang & Burry- Stock, 2003). Similar to the above mentioned, the findings of this study also conformed the importance of assessment training in the assessment practices of the academicians It can be noted from the results of this study that assessment-based training carried out by the academic personnel is pertinent to their practice, and if not embarked on, it can have impact the way they assess learners.

According to Tindal and Haladyna (2002) they stated that academic personnel who are lacking sufficient assessment expertise are not predictable to efficiently assess the students they teach. If they tend to assess successfully, then, their main ambition of assessing focuses on the learning outcomes rather than refining the learning process. It is determined that if academic personnel have deficiency of proper assessment-based training in the numerous assessment components such as designing, administering, interpreting, and applying the results acquired from the assessments they are predictable to have poor assessment practices (Sayed, Kanjee, & Rao, 2014). The finding of this study show controversy with findings of Koloi-Keaikitse and

Marchant (2012) who expressed that there are variances in the assessment practices of academic personnel according to their class size and subject area or specialisation. These results might be dissimilar from those of this study because the study was conducted in schools while the current study has been completed on academic personnel in universities.

Further, from the findings of this study it can be recommended that universities should make available assessment-based training to their academic personnel to make sure that they have appropriate assessment practices to assess their learners as successfully (Duncan & Noonan, 2007; Masole, 2011). This is for the reason that studies have stated that most of the academic personnel in educational institutions have insufficient capabilities and abilities in evaluating learners. Assessment-based training programmes at university level would help these academic personnel to make stronger their proficiencies and expertise in designing and practicing rubrics, become improved in planning and constructing tests, make progress on their grading expertise, be able to standardise tests, and take to mean assessment results applicably. This would also benefit the learners to take delight in fair assessments as they would be evaluated satisfactorily by the academic personnel (Koloi-Keaikitse & Marchant, 2012). It can be determined that universities ought to upkeep their academic personnel to increase their academic levels and also profit them with assessment-based training programmes. This is for the reason that academic levels and assessment-based training in this study have been found to be significant predictors of academic personnel's assessment practices (Matovu & Zubairi, 2014).

Assessment is a rational and consistent methodology of collecting data about academic development and advancement of the learners in order to enhance the

knowledge gains of learners and to ensure the progress (Ewell, Paulson, & Kinzie, 2011; Prasad, Singh, Kaynia, & Lindholm, 2009). Students' knowledge gains can be made clear by assessment and it also shows performance as answerability points in the process of knowledge gains (Phamotse, Nenty, & Odili, 2011). In learners' assessment process, teachers employ several tactics to know the essence of learners' knowledge gains regarding what is expected in curriculum (Timperley, Wilson, Barrar, & Fung, 2008). Students are assessed individually or collectively by either assessments of learning or assessment for learning; by standardised or informal assessments to be responsible for proof about the learning, individual learners' progress, institutional performance, and programmes to the educators, learners, officers, and other education interested parties (Mundia, 2010).

There is an incessant communication and contact between academic personnel and assessments that grants benefits to those who are involved for a long time in instruction, having rich experience and strong educational position and having good assessment practices. But other studies have underlined that academic levels do not affect academic personnel's assessment practices. This accentuates a gap of convincing research about assessment practices among university academic personnel according to their educational levels (Masole, 2011).

Factors like subject area or qualification of academic personnel affects efficiency in assessment and elucidates a lot of in the assessment practices of academic personnel (Duncan & Noonan, 2007). Conversely, Susuwele-Banda (2005) underlined that academic personnel's areas of speciality did not contribute to the assessment practices of academic personnel. Koloi-Keaikitse and Marchant (2012) describes that there are variances in assessment practices of the academic workforce in the light of their gaining expertise in diverse areas while Duncan and Noonan

77

(2007) differ that there is no existence of differences between academic personnel and assessment practices. Variances have been observed between assessment practices and academic personnel in the specialities of science and arts subjects.

Class size strongly influences assessment practices of academic personnel (Duncan & Noonan, 2007; Koloi-Keaikitse & Marchant, 2012; Susuwele-Banda, 2005). Studies conducted in the domain of assessment highpoint that the natural surroundings of class size affects the method by which the academic personnel evaluate their learners (Gibbs & Simpson, 2004; Masole, 2011). Crowded classes are considered a peril to assessment quality by teachers and create misbehaviours, misdemeanours and delinquencies in learners. It has been shown by many empirical studies conducted in the field of assessment that teacher have recognized the assessment of the large classes produce poor assessment of students and teachers are not satisfied with assessment in crowd classes in which they are giving instruction (Masole, 2011). The minimization of class size positively can develop assessment and knowledge gains of leaners (Susuwele-Banda, 2005). The reasons behind are that teachers poorly employ assessment tools and material in crowded classes, granting only guessing marks to the learners, dearth of focus while checking papers, personal liking and disliking, negativity of the examiners, fatigue, time mismanagement, inappropriateness of the instruments for assessment, and deficiency of resources (Masole, 2011).

Small size classes strongly influence assessment practices and learners' performance and classes small in size can easily be handled in assessments (Jones, 2008; Masole, 2011). In circumstances where the classes are too large, they should be condensed to smaller classes which university teacher can handle efficiently and successfully while assessing learners (Bennel & Molwane, 2008; Susuwele- Banda,

2005). This would give teachers and particularly university teachers place and opportunities to grace their presence with students and scholars in isolation during the instruction process and also, to satisfactorily assess and grade their performance during the assessment procedure (McMillan, 2008). On the contrary, it is mentioned by some studies that there is a negative relationship between class size and assessment practices (Duncan & Noonan, 2007). The controverting finding on whether class size impacts academic personnel's assessment practices or not, highlights lack of grounded studies on the relationship between class size and assessment practices.

Quality of assessment training accomplished in assessing students has a paramount importance in effective assessment of learners by the academic personnel in any learning institutes (Zhang & Burry-Stock, 2003). Educational institutions can armed their academic personnel with desired assessment competencies, skills, knowledge and understanding in the assessment area with learners by the provision of diverse types of training programs (Duncan & Noonan, 2007). Empirical studies that have been carried out in assessment-based training have emphasized that training have effects on the academic personnel's assessment practices (Masole, 2011; Phamotse, Nenty, & Odili, 2011). It was also noted in different studies that academic personnel's knowledge and understanding of good assessment know-hows and proficiencies make them as the suitable and ample in assessing students (Zhang & Burry-Stock, 2003). On the contrary, students' assessment without appropriate knowledge, skills, and competencies is like an academic suicide in a learning atmosphere as critical academic decisions are taken on learners without desired expertise (Popham, 2009). The analysis of assessment studies underlined that most of the academic workforce in institutes have insufficient proficiencies and expertise in assessing students' performances (Phamotse, Nenty, & Odili, 2011).

Research studies have illustrated that academic personnel with assessment-based training has improved assessment practices than those who have not embarked on any assessment-based training (Masole, 2011). University teachers who are not proficient in acceptable aptitudes and talents in assessing students have the tendency of poor assessment practices (Stiggins, 2002). In universities where most of the academic personnel received training in their careers assessment-based training is non-compulsory, while in other universities they do not have such training for both learners and teachers. This shows that assessment-based trainings in such institutions are not in use and its absence is not considered an issue of importance (Phamotse, Nenty, & Odili, 2011), although it is known and understood fact that assessments are unavoidable in the learning process. Moreover it is of great significance that academic personnel be equipped with suitable proficiencies and expertise in evaluating learners so that they may be able to plan, manage,, and share the results gained from the assessments (Koloi-Keaikitse & Marchant, 2012). Similarly in different assessment related studies, educationists have supported assessment-based training to the academic staffs to make progress in their assessment practices. This would help the academic personnel to evaluate learners in the classrooms (Guskey, 2003; Stiggins, 2002).

Mussawy (2009) explored the research thesis "Assessment Practice: Students' and Teachers' Perceptions of Classroom Assessment". The study aims at to explore the assessment practices in the light of teachers and students' perceptions of classroom assessment. The study was mixed methods in nature. Both interview and questionnaire were used to gather and analyse data. Students' perceptions of assessment questionnaire (SPAQ) were administered to collect quantitative data from 203 students of social science, natural science and language departments. Interviews

were conducted for gathering of qualitative data from 13 faculty members and 28 students. SPAQ has high reliability of Cronbach Alpha 0.89. It was found that there were variances in students' perceptions of classroom assessment across three departments. The study showed that students' perceptions about classroom assessment were significantly positive. Qualitative data analysis showed that students were less happy with existing assessment practices.

2.19 STUDENTS' INVOLVEMENT IN ASSESSMENT ACTIVITIES

The concept of learning by doing and students' centered approach in teaching learning process make it compulsory to involve students actively in the process. It enables the students to practice the learnt things. According to Herrera, Murry and Cabral (2012) contend that students' are encouraged for participation in classroom activities and are told to employ their *"cognitive development, academic knowledge, and language skills to read, comprehend, synthesize, analyse, compare, contrast, relate, articulate, write, evaluate and more" (p.23)*. Furthermore, confidence building is helpful to provide a sound base for assessment that contributes into student's learning.

Students can be involved in both types of assessment but traditionally in such and such assessment they are not involved and the quote. Stiggins and Chappuis (2004) agreed that in traditional forms of assessment, students are observed to be passive partners while in formative assessment; they are active learners and become the master of their own learning. The leaners are provided opportunities for self-progress, assessing their own work, assessing peers' work and collaborate their teachers in developing standards and norms for their tasks. Furthermore, they

81

elucidated, that students involved assessment means that students learn to use assessment information to manage their own learning. The involvements of students in the assessment procedure decreases the burden of work for the teachers as well as consider learners an active members of the process and recognize them responsible for their own improvement (Mussawy, 2009).

2.20 DIFFERENT METHODS OF ASSESSMENT

Formative Assessment and Its Different Forms and Shapes
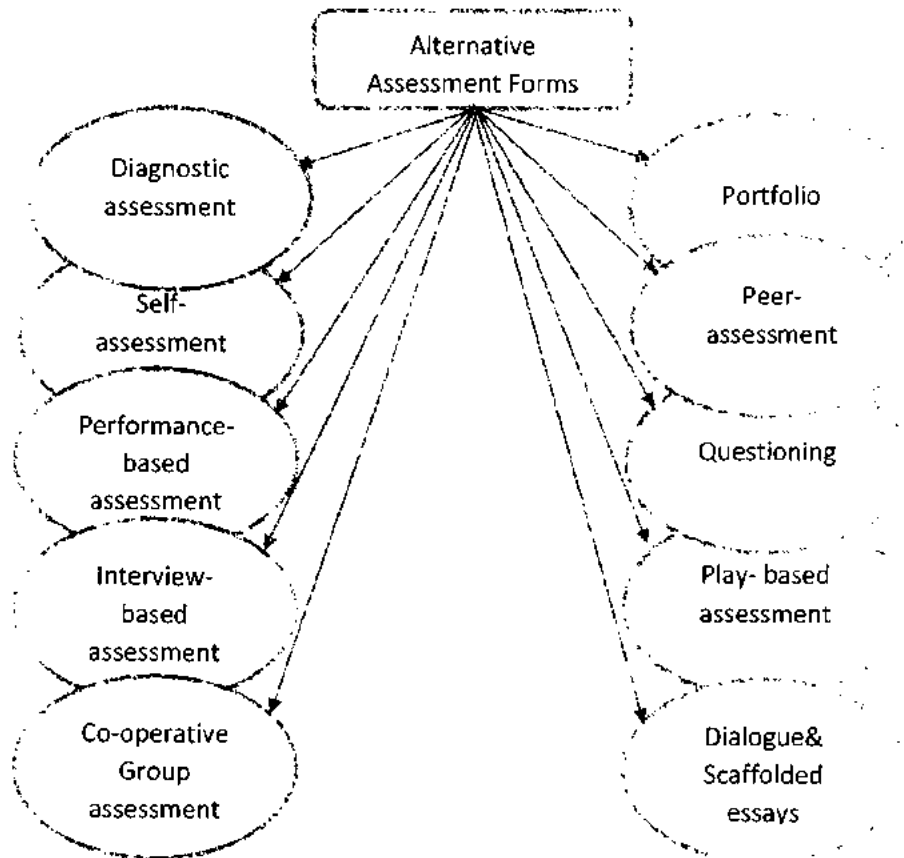
Figure 2.5 Different forms of alternative assessment

Students 'performance can be assessed together with traditional papers and pencil tests, extended responses (essays), performance of authentic task, teachers' observation and students self-report (Wiliam & Thompson, 2008). There is a shift in

assessment practices from traditional to more innovative assessment tools. Similarly to the shift from summative to formative and assessment embedded instructions. The alignment of assessment with the process of teaching learning has a positive effect on students' learning and their motivation.

Similarly, different alternative assessment techniques that help out the students and teaching in teaching learning process are also important to mention. Among these portfolio is one of the most effective and commonly used alternative assessment methods. It is collecting meaningful performance of learners that show their struggles, advancement and level of comprehension over a period of time (Wiliam & Thompson, 2008). Portfolio does not take snapshots like traditional forms of assessment but function like a photo album containing a variety of photos taken at different times and different contexts (Wiggins & McTighe, 2007). Portfolio is something that shows how student rated him/herself on the process and product (Mastery of learning) included and the evidences of how those products met the established criteria (Herrera, Murry, & Cabral, 2012).

Portfolios are regarded the best substitute of traditional forms of assessment as they incorporate the viewpoints of learners and instructors about learning and assessment. Another importance of portfolio is that it provides longitudinal observation of the advancement of learner as well as show incremental gains in competences, knowledge, understanding, skills, expertise, abilities, capabilities proficiencies, aptitudes, talents and know-hows. In portfolio the teachers regularly give learners tasks like writing samples, reflections, drawings, reading logs, self-evaluation, and progress notes, audio-visual clips, which highlight students' learning position and further show their progress. Portfolios are also reliable because they are focused around classroom activities; in maximum cases, they reflect in-process

adaptations to instructional methods and assessment and they assess learning outcomes in order to motivate learners (Herrera, Murry, & Cabral, 2012).

Self-assessment is a crucial for students' self-confidence and learning. Students attempt to learn the standards for high-quality performance and they experience eagerness to apply those standards when they are involved in self-assessment practices (Herrera, Murry, & Cabral, 2012). However, Black and William (1998) remain anxious about learners' readiness to self-assessment or peer-assessment. They presented that when students get a clear picture of the result or purpose, *"they become more committed and more effective as learners: their own assessment become an objective discussion with their teachers and with one another"* (p.7). Nonetheless, there is agreement among educators, by which they acknowledge the value of self-assessment and peer-assessment which aid learners to improve their learning (Suurtamm, Koch, & Arden, 2010). Using rubrics is considered the best source of self-assessment. It is important to consider the important question while designing rubric for self-assessment. These questions include: *"where am I trying to go? Where am I now? ; and how do I close the gap"* (Stiggins, & Chappuis, 2004, p. 43). It provides the opportunities to learners to think and reflect to the degree that they have made headway.

Similarly, peer-assessment is also as valuable as self-assessment. It expedites chances for learners to recognize directed learning goals (Bekoe, Eshun, & Bordoh, 2013). In peer-assessment learners frequently evaluate other learners' work in comparison to the standard established by the teacher or by both learners and teachers. It involves learners in discussion with their class fellows, presenting comments on each other's task rather than one way feedback system from teacher to learners. For the enrichment and productive use of peer-assessment, Black and William (1998)

84

recommended that learners may be trained to assess their peers meaningfully with the purpose of enhancing learning. It was identified that during peer-assessment learners compare other learners' work to the putative standards, which help the learners to ensure their learning progress.

Likewise, performance-based assessment is snapshots of students' learning in time, which provide a longer exposure with panoramic lens, or real time video (Espinosa, 2015). The notion that knowledge is constructed in learning procedure and that a learner distinguishes knowledge rival himself/herself, rather than receiving knowledge from others, stirs the idea of performance-based assessment. This form of assessment provides both knowledge construction and knowledge application to new situations. It slots in authentic work that require high level of thinking and application of expertise.

Questioning means the process of asking different types of queries during assessment for learning in order to know the understanding of students and to further improve their knowledge. Black, Harrison, Lee, Marshal, and William (2004) build the confidence of teachers to develop more efficient quizzes and facilitate the atmosphere where students apply analytical thinking and arrange for their own answers to the questions. Furthermore, three themes should be kept in mind while questioning that is- framing questions, waiting time and follow-up. Formative questions are very important for removing misconceptions and developing students' thinking ability during discussion.

Interview-based assessment is another shape of alternative assessment in which students' data are collected about their knowledge, involvements, skills, practices, understanding, know-hows, experiences, interests, happiness, wellbeing,

family background, educational background, thoughts, feelings, judgments, consideration, beliefs, accomplishments and undertakings. Interviews vary from highly structured to informal conversation between teacher and student. Unstructured detailed interviews with learners assist teachers to adapt the lesson according to the information collected from learners. Through these types of interviews, teacher realized that *"linguistic differences can interfere with the development of deeper connections with students"* (Herrera, Murry, & Cabral, 2012, p. 36).

Similarly, co-operative group assessment is also known as team work and it varies according to the context. Recently team work concept is increasing among educators and it is considered better than individual flight. Herrera, Murry, and Cabral (2012) note that *"collaborative or group activities often culminate in projects or experiments that may or may not require oral or written reporting"* (p.38). Planning for team assessment needs teachers to think about both the individuals groups and the involved process (Slavin, 2006).

Likewise, dialogue, journals and scaffolded essays is the other name of accommodative assessment. It takes various forms like dialogue journals which requires writing from students on certain topics or stories; scaffolded essays- the simplification of complex essays questions into multiple choice items/questions. An objectives type test is very useful for students as it covers the whole course. In association with other procedures of authentic evaluation, teachers collect valuable evidence about students' information increased through accommodated and supported home tasks. The aim is only to improve performance of students (Black & Wiliam, 2005; Herrera, Murry, & Cabral, 2012).

Dhinda, Omar, and Waldrip (2007) piloted a study to measure the validity of SPAQ, to measure students' perceptions on assessment, and to gauge variances founded on gender, grade and ethnicity in students' perceptions. It was noted that Students Perceptions Assessment Questionnaire (SPAQ) as research tool was suitable for evaluating learners' discernments on five evaluation parameters-agreement with premeditated information acquisition, evaluation of practical information, learners' discussion on evaluation, clarity in evaluation and adjustment of learners' multiplicity in the mechanism of evaluation and assessment. One thousand and twenty eight students constituted the sample of the study, comprising 58% female and 42% male.

The study was conducted in Brunei Darussalam, so the sample of the study comprised students from other races in different percentages. Then simple random sampling techniques were used to select 14 classes out of 43 science classes. Interview with teachers and observation in classes were conducted to triangulate the objectivity of the quantitative data. As assessment tools, tests and assignments were used for analysis of test-papers, homework and classwork, observation technique was used. The research instrument was used for the collection of data from respondents. It was summarized that most of the learners got most of the knowledge and skills about assessment. Conversely, mean values for some parameters were low and resultantly they acquired little knowledge and understanding of assessment. Furthermore, it was found that Malay learners performed better than Chinese students, suggesting that in comparison with two groups, Chinese students understood what is imparted, communicated and what is evaluated.

Similarly, Waldrip, Fisher, and Dorman (2009) investigated the topic related with practical application of assessment process in classroom on the part of students' outlooks. The study aimed at to know the ability of the students to state the elements

of classroom assessment. The sample of the study was 320 students of grade 8, 9, and 10 from sixteen sections. Stratified sampling techniques were used for selection of sample from Queensland metropolitan and rural schools in Australia. Questionnaire of 24 items was used to collect data from the respondents. RUMM (Rasch Unidimensional Measurement Model) was used for the analysis of the data. The first questionnaire was of 30 items, of which six were dropped because of difficulty. The researchers estimated those difficulties, the learners revealed in confirming the items of the research tool. The results of the study showed that significant difference was found in the ability of the students to tell the components of assessment in teaching and learning process.

Likewise, another study which was conducted by Dochy, Segers, Van Den Bossche, and Struyven (2005) examined association of assessment with learners' approaches towards acquisition of information. The study aimed at to investigate relationship between students' perceptions about assessment, assessment design, assessment presentation and technique; and learners' approaches to acquisition of understanding and information. The study was conducted by studying network and education records- Education research and innovation centre, PsyhoINFO and Network of science between 1980 and 2002. The hypothesis of the study was that there is a positive relationship between assessment and acquisition of knowledge. It was argued that students' experience of assessment decides the method in which the learners approach learning in future and a learner ponders about acquisition of information that regulates the method he/she handles assessment task. Two independent variables (learners' perceptions about assessment and assessment format and method) and one dependent variable (students' approaches to learning) were identified in the study. It was hypothesized that educators have a significant effect on

88

learners; attitude to knowledge acquisition but the conclusions of the study remained unsuccessful in the provision of the sufficient evidence to leaners about best possible learning approach. The findings of the study further showed that the perceptions of the learners about evaluation have a significant relationship with their methods of acquisition of knowledge. The study explored conventional assessment methods and alternative assessment methods. It was found that objective type tests are liked more by students than subjective type tests in conventional assessment practice. The findings further showed that learners with strong ability of knowledge acquisition and less worry of test prefer subject-type test and vice versa. Besides, it is showed by the results that girls like subjective type tests as compared to boys. It was argued that essay type test appeals to deeper approach to learning as compared to multiple choice test. Strong relationship was found between the perceptions of learners about tool appropriateness and their preferences. Poor and unsuitable assessment discourages students while good and appropriate assessment encourages students' learning abilities. Learners like objective type test in comparison to subjective type test. If assessment has links with authentic test, represents a suitable demand, builds confidence of learners in the practical application of knowledge in real-life situations. It will desire to improve a range of expertise and is understood to have a long-lasting influence on students as well as on learning process.

In the contrary, Kwok (2008) investigated the problem relating learners' observations of peer assessment and instructors' role during conference conversation. The purpose of the study was to find out the effect of peer assessment on conference conversation at higher education level. The sample of the study was 19 undergraduates participating in course titles "English for Academic Purposes". The study was conducted through mixed method research design. The study concentrated

89

on learners' responses as assessors and assessees. It was noted by the researcher that learners who participated as test taker considered the comments and feedback reasonable. These test takers perceived the seminar discussion useful in connection with significance of cooperation, self-knowing, and self-assurance. The participants shared their rich experiences, social competence, good decision-making power, and ways of thinking, unity and continuity; progress and development; and attentiveness to others. Nonetheless, it was found that some learners viewed themselves improved themselves in peer assessment as compared to teachers.

Similarly, Gulikers, Bastiaens, Kirschner, and Kester (2006) investigated the study linking with assessment, authenticity of assessment and perceptions of learners about assessment and evaluation, students' approaches to study, acquisition of knowledge and learning outcomes. The sample constituted one hundred and eighteen senior students, randomly selected from training schools. The research instruments were interviews and survey. Using a twenty items questionnaire, the data were collected. Pearson correlation was used for analysing data to find out relationship among various variables. The results reveal that significant relationship exist among the variables.

Koloi-Keaikitse (2012) conducted a study concerning assessment practices in teaching space. It was a survey type investigation. The study aimed at ascertaining the sensitivities and close observations of instructors about formative assessment. Six hundred and ninety one teachers were randomly selected from elementary and secondary schools. The research instrument was applied to collect data from the concerned respondents. After the analysis of data it was found that there are variances between theoretical and actual skills of assessment on the part of teachers. The results further showed that teachers were not satisfied from the training given to them and

needed further trainings in the realm of assessment. It was also noted that elementary teachers were better than secondary school teachers in assessment area. It was also found that trainings increase the skills of prospective teachers in assessment. The study further revealed that teachers can improve the critical thinking of the learners through classroom assessment practices. It was recommended that teachers may be provided trainings regarding assessment to get more expertise in assessment practices as it is the need of their professional life.

2.21 CLASSROOM ASSESSMENT PRACTICES

The terminology of CAP (classroom assessment practices) includes wide-ranging issues starting from the beliefs, thinking and outlooks of teachers, to the significance and value teachers gave to their learners' assessment, their sensitivities about the provision of trainings in the field of assessment, the designing and construction of test, granting grades and actual administration of the results of evaluation (Popham, 2009; Reynolds, Livingstone, & Wilson, 2009). Students' assessment has a paramount importance for the decisions which are made on the basis of practicing instructions. The philosophical underpinning is due to the abilities of teachers who know their students, understand their point of views and then make comparison of their results with the assessment criteria (McMillan, 2008).

Although, it is evident from previous research studies that during classroom assessment practices, the teachers face many problems and issues. The first problem is the lack of knowledge of assessment and evaluation on the part of teachers. The base of assessment on the part of educators and teachers is very poor in the initial stages because they have less or probably no experience in the field of students assessment (Stiggins, 2005), lack of training facilities in assessment (Koloi-Keaikitse & Marchant, 2013) and even teachers failure to involve students in assessment practices

91

because they do not understand how to follow the basic rules and regulations for better students assessment.

It is the duty of the teachers and educators to use different tactics and assessment practices for the assessing the knowledge, understanding and scholarship of students and to check whether they have achieved the desired targets or not. Teachers keep themselves busy in the practices and activities of assessment and take most of the time in imparting and scrutinizing the understanding of the students in the class and out of class. Teachers know how to control classes, how to overcome the situations and how to manage the heavy classes. They repeat their evaluation practices to get positive responses from their students. Therefore, it is clear that the role of classroom assessment practices in the judgment of students' knowledge and understanding is not hidden. It was concluded that the wheel of education system runs through teachers as they are the architects in real sense. The different activities, teaching practices and assessment practices in classroom make the education system strong (Nenty, Adedoyin, Odili, & Major, 2007).

In simple words, knowingly or otherwise, sources of knowledge in minds of the teachers are very important. Furthermore, their training in assessment practices and its practical implementation in classroom situation is also important, as it procedures are based on the evaluation of knowledge, and comprehension of the students learning. All the activities like development of thoughts, use of assessment methodology, judging the performance of the students, and interpretation of the results of the learners are significant. These activities relating to assessment practices address the needs of the students, highlight the answerability and responsibility; and bring improvement in the system of education as a whole. The knowledge of assessment practices on the part of teachers investigated the problems of students and

improved the teaching methodology to meet the lurking needs of the students (McMillan, 2001).

Formative evaluation is an integral part of instruction. The role of teachers cannot be hidden. Therefore, the knowledge, skills and competencies of teachers play a crucial role in the evaluation of the students. Students are prepared for great change by teachers. It is very necessary to get knowledge about the teaching methodologies and assessment practices of the teachers in classroom. Some researchers are of the opinion that there is an important role which is played by formative assessment. The teacher is controlling the class, therefore, it is must for teachers to know the basics of assessment and advanced assessment techniques (Nitko, 2001; Reynolds, Livingston, & Willson, 2009).

Teachers must be given training to improve their assessment techniques and make them able to make decisions regarding students' betterment and institutional advancement (McMillan, 2005).

Similarly, teachers use different practices for the achievement of their objectives but sometimes they feel constraints. They use their knowledge to bring motivation among students through assessment practices and to bring improvement in their teaching and instruction. For the last three decades, different studies have been conducted by different researchers regarding classroom assessment practices. It is investigated that there is a deficiency of required knowledge among teachers about assessment. It was also found that there is an intense need of strong foundation regarding assessment practices. It was also found that there is a lack of consistency in the use of classroom assessment practices on the part of the teachers (Koloi-Keaikitse, 2012).

More attention is given to standardised test but less is focused on formative assessment. Test developers take more interest in standardised test as compared to classroom assessment practices. According to Ohlsen (2007) high stakes are backed by policy makers as they evaluate students' abilities and institutional performance in the light of their views in spite of grave uncertainties regarding formative assessment.

Likewise, Thomas and Barksdale-Ladd (2000) contend that teachers may provide feedback in time for the glorification of students' abilities, take test and consider it a part of students' tasks, avoid rigidity in evaluation practices, arrange such type of activities which ensure the improvement of teaching practices and apply multifaceted strategies for the assessment of students' abilities.

Similarly, according to Vandeyar and Killen (2003) accuracy, consistency, objectivity, refinement and relevance are the key characteristics of classroom assessment practices. The capability of the characteristics make the teachers able to develop a sound framework for assessment, they make sound decisions on the basis of results achieved from tests, otherwise the lack of knowledge of the assessment pillars spoil the whole broth. There is similarity in the achievement orientation and expertise, so it is argued that they should be treated alike (Pintrich & Schunk, 2002).

But Meece, Anderman, and Anderman (2006) have different point of view and are of the view that expertise could be observed as a person's abilities to get expertise in skills, try to gain something new and get sound knowledge about contents. When someone gets expertise, he gets self-improvement. In contrast performance is observed as normative criterion where individual' abilities are compared with other individuals. Therefore, it is encouraged all the times as it produces the spirit of competition among the students. Some researchers are of the opinion that mastery orientation brings the achievement of constructive goals. Koloi-Keaikitse (2012)

assessed the perception of learners that what is the relation of classroom in institutional environment with the motivation of students toward higher learning and with the engagement of students in different activities while attaining knowledge and other expertise. It was also found that interaction between students and teachers bring positive changes. In contrast, some researchers have observed that the perceptions of students about teacher performance and promotion (in reality no promotion) were related to students' motivational changes negatively.

According to Kaplan, Gheen, and Midgley (2002) that emphasis on expertise and achievement of aims in class is related to the behaviour of the students acquired during learning. It was augmented which indicated that disruptive attitudes of students in the classroom are due to the structure of the goals. Lower disruptive behaviour reports were linked to individual expertise goal. Contrastingly, there are higher reports of disruptive attitude due to individual achievement approach. Disruptive behaviour of students is characterized by feelings of worthlessness, guilt, sadness, helplessness and hopelessness. Later on, it becomes persistent and severe. Then, students might face trouble sleeping, eating disorders, withdrawal and inactivity, self-punishment and loss of pleasure. Disruptive behaviours are always overlooked in children is because children are not always able to express how they feel. Most of the children, due to the positive attitude of the teachers and their mastery in the domain of assessment practices, can successfully climb the mountain of emotional and psychological obstacles that lie in their paths; there are some who find themselves overwhelmed and full of stress. With the help of teachers, school counsellors, parents and other caring adults, the severity of disruptive behaviour cannot only be evaluated, but plans can be made to improve his/her well-being and ability to fully engage life.

Meece, Anderman, and Anderman (2006) described learners who watch the institutional environment and focus on grade competition and societal comparison of talent were frequently inclined to achievement orientation but those who focus on novel proficiencies and accept challenging situations; they frequently inclined to mastery orientation. Both these classroom construction aims give information about teaching and evaluation and can affect behaviour and attitude as well as the acquisition of knowledge of the students.

McDonald, Flint, Rubie-Davies, Peterson, Watson, and Garrett (2016) argued that expertise orientation was a forecaster of the efficacy of teacher for the engagement of learners and for the management of classroom. Additionally, there was a relation between the context of institution and the attributes of teacher. It was found that male students were related to performance orientation. It was also found from the results of the study that those teachers who have adopted goal orientation, they can have strong effects on their classroom practices which in turn influence students' performance.

2.22 TEACHER-MADE CLASSROOM ASSESSMENT AND ITS ROLE

It is clear that assessment collects data and it also judge the knowledge, information, scholarship, understanding, abilities, capabilities, skills, proficiencies and talents of the students (Marriot & Lau, 2008). There are five perspectives in observing students through assessment to judge their abilities. The first domain is why to assess students and what is the purpose of the assessment, why results are expected from assessment and why assessments are conducted? The second domain is what to evaluate and what kind of students or employees are tested; what is seeking out in students? The third parameter is how to assess either by formative or summative methods. There are many strategies and methods to evaluate students but which one is

the most suitable and how to apply that method? The fourth pillar of assessment is how to do interpretation? It means how to make the sense of something and to make clearer the mathematical presentation of the students by converting into words to make inform the people like parents, students, society and high authorities. We make observation or using other tools for data collection and then analysing that data and reporting to others. The last dimension of assessment is how to make response.

Likewise, different appropriate means are used for the expression of the responses to whatever has been assessed and it is communicated to parents, students and other stakeholders (Miller, Linn, & Gronlund, 2012). The above discussed dimensions are very important for classroom assessment practices.

There are countless strategies and methods that the teachers practically apply for the evaluation of students. The teachers adopt formative assessment to get information about students' abilities. They use different means and diverse forms of classroom assessment practices for getting true and reliable information and then to make sound and acceptable judgements regarding students' academic achievement (Cavanagh, Waldrip, Romanoski, Dorman, & Fisher, 2005). Different methods are used by teachers in controlling the situations of formative assessment. They know how to assess the students' abilities, how to know the frequencies of these practices and how to and when to provide feedback to students timely. McMillan (2008) argued that students' evaluation in classroom is very difficult because it needs a lot of expertise on the part of teacher to get more accurate and reliable and authentic information of their students and to make comparison of their actions with evaluation.

2.23 THE ROLE OF STANDARDIZED ASSESSMENTS

These assessments help to promote the capacity to select the outstanding and important points from among a crowd of unimportant ones and to do this in the

97

minimum of time by NRT (norm-referenced test) or CRT (criterion referenced test). These assessments are a severe penalty for waste of time and encourage punctuality and careful use of time. The practical administrations of these tests are general but the way of interpretation of these tests is specific. There are commercial developers or the government agencies administer these kinds of test and aim at providing NRT interpretation (McMillan, 2008; Reynolds, Livingstone, & Wilson, 2009). These tests are held to test the students' ability, to check up the work they have done during the term, to judge what progress they have made and to see whether they have been utilizing or wasting their time. Students' know that if they keep on neglecting their books, they will be exposed in the assessment. They are aware that their results will be sent to guardians/parents who will hold them responsible if their results are not satisfactory. They also know that if they fail they will have to face humiliation. All these things combine to urge student to hard work. Assessments are, therefore, a drive spur and an incentive to work. If there are no assessments, the merits of various students could not be judged, nor would the majority of the students take any interest in their studies. The test developers establish a same criterion for all students and they want to measure the performance of the students and to bring improvement in the evaluation process of the whole education system.

Further, assessment of these kinds demands an ability to use words well. There is strong difference in the presentation of two assesses/examinees, who have assimilated the stuff, the student who succeeds is the one who can express himself/herself to the point in effective way than those who has merely borrowed other people's phrases. Such types of tests are the sources of promotion to higher level. The information gained from these tests are used for vital decision-making like selection of the candidates, placement of the candidates and informing the higher

authorities, policy makers and educational experts. It is also used for future prediction, encouraging students and teachers; and developing curriculum, teaching and methods of evaluation to improve the level of students (Goertz & Duffy, 2003).

2.24 CRITERION REFERENCED TESTING PRACTICES

Criterion referenced testing is clearly defined and delimited domain of learning task. Students' performance is compared with clearly defined learning tasks in criterion referenced test. It is interpretation of the score of students which compared to the criteria of performance. For example, Ahmad can state Newton's 2nd Law of motion is a criterion referenced interpretation. Students are expected to get knowledge and information about a special task in proposed curriculum (Waugh & Gronlund, 2012; McMillan, 2008). These types of tests evaluate the performance of individuals in connection to some standard which has already been fixed by authorities. The achievement of the students are compared with some criteria rather than individuals as done in norm referenced test wherein the tests are made to compare the performance of students with the other students. The significance of criterion referenced test is more fruitful than norm referenced test. The teacher's role is more emphasized in CRT practices which make certain that student are gaining according to the pre-established objectives without showing any relation or connection to variances. When assessment is conducted among students, the whole focus is drawn toward the performance of students for the achievement of the objectives. There is no comparison of the performance of students with other students but the comparison is made only with criteria to find out that what the students have got according to the standard. It is argued that criterion referenced test is variable as compared to norm referenced test when it is based on the interpretation.

Koloi-Keaikitse and Marchant (2013) posits the face validity is not the base of speciality between Criterion-referenced test and norm-referenced test. However, there are other reasons for the distinction between Criterion-referenced test and norm-referenced tests. The aims of the of assessment tasks are- what is the generalization of these assessment tasks, how results are obtained from these assessment tasks, and what is the standard of the construction of the assessment tasks?. These assessment practices enable the teachers to know about students' abilities and inabilities, their positivity and negativity toward studies in the light of set criteria and then aligning the results of these assessment tasks with the predetermined instructional objectives and comparing the knowledge gain of students with CRT practices.

2.25 GRADING PRACTICES

The grading system is a part of assessment practices. The context, purpose, plan dimension and variation of assessment practices could be considered while administering assessment as they are beneficial for both students and teachers (Koloi-Keaikitse, 2012).

MacMillan and Nash (2000) posit that grading system is multi-dimensional. It involves assessment results, teachers' beliefs and aims achievement on the part of both teachers and students. Response and feedback to all concerned is the soul of grading practices as it is the most important component of assessment. It reflects the perception and life ambition of students. It is based on fairness; therefore, it has ethical influences on students and teachers. It is a legal or illegal system, depending on the measures taken by teachers. It shows consistency, effectiveness, similarity and appropriateness (McMillan, 2008; Reynolds, Livingston, & Willson, 2009). Sadler (2010) contends that feedback is really a guidance which show the way to students for getting expertise in the contents. But it is very difficult component of teaching to

provide quality feedback to student as the system is full of shortcomings (Koloi-Keaikitse, & Marchant, 2013). Feedback could be effective, relevant, motivational, specific, clear, and focused on student's performance (Gibbs & Simpson, 2004). Issues of judgment, communication, and character development of students could be considered in the exploration of grading practices. Zoeckler (2007) was of the opinion that teachers have the knowledge of achievement and non-achievement dimensions. The grading system considers the reality, trust, value, ethical and mental concentration of students as these are issues of grading. It was found in the study that the beliefs and values of teachers affect the feedback and grading of students. It was also found that morality of teachers even hidden but has a paramount importance in assessment practices.

Teachers desired to implement decision regarding grading practices affects engagement, motivation and knowledge of students. It was found that grading is necessary for knowing individual differences of students. According to Lekoko and Koloi (2007), there is a correlation between feedback of teachers and perception of students' grading awarded by teachers. It was found that inconsistency is existed between the comments of teachers and grades of students. It was recommended that teachers could be provided training in the domain of assessment to improve the grading practices of teachers for the effective and fruitful feedback.

Wormeli (2006) posits that assessment and feedback are the most significant means for students to know their answerability in the performance. He stressed the importance of teachers' feedback, for the improvement of grading students. It was recommended that teachers may fully support students during assessment practices. McMillan (2008) stated that teachers apply multiple factors during assessment and grading practices. It was found in his study that grading of students work is strongly

101

influenced by academic achievement. The application of non-achievement factors is discouraged while application of achievement factor is encouraged (Popham, 2009). Grades interpretation shows more clarity in the application of achievement factors but there is a touch of impossibility in validity and reliability of assessment grounded on non-achievement factors (Koloi-Keaikitse & Marchant, 2013). The application of non-achievement factors has strong influence on low achiever learners who may stress more value over mastery of subject matter and skill acquisition. Stiggins (2004) has the same views about assessment practices and results should be given to all achievers- lowest and highest. Teachers apply assessment information to admit the needs of students' understanding. According to Stiggins (2004) as teachers diagnose student needs, design and implement teaching interventions, evaluate student work, and assign grades, they need continuous access to evidence of student learning arising from high-quality classroom assessment practices.

Similarly, selection of assessment methods, development of assessment tools, and administration of assessment instruments, gradation, analysis and interpretation of assessment tools, decision-making, feedback and observation of ethical standards are essential for teachers. Teachers must have rudimentary statistical competencies (Guskey, 2003). Sound decision-making is very important for planning classroom assessment practices, keeping in mind aim of assessment, contents for construction, teaching objectives, and types of assessment, number of items in assessment and gradation of students' responses. Furthermore, it was stated that construction of test without planning is like making building without map. Stiggins view is that teachers require more guidance to be more competent in rudimentary test planning and construction (Reynolds, Livingston, & Willson, 2009).

Campbell and Evans (2000) evaluated assessment practices and found that teachers have no knowledge of table of specification as it is very necessary for linking teaching objectives with test items. To know problems of students, assessment information and assessment practices are very necessary. Students are guided and teaching methods are improved for summative evaluation (Waugh & Gronlund, 2009; Popham, 2006).

Shavelson, Ayala, Ruiz-Primo, Brandon, Furtak, Young, and Tomita (2008) were of the opinion that knowledge of the contents, determination of the objectives and critical points, establishment of development guidelines and development of assessments are very essential for implementation of classroom assessment practices.

Stiggins (2000) has presented the same view about classroom assessment practices and stated that application of table of specification, listing teaching objectives, plan for test construction and comparison of objectives with assessment task are very important .for classroom assessment practices. The application of teaching methods, assessment techniques and knowledge of these is vital for teachers to make consistent, valid, achievable, measurable and learners-centred assessment to improve the learning of students in classroom assessment practices (Waugh & Gronlund, 2012; McMillan, 2005; Reynolds, Livingston, & Willson, 2009).

Furthermore, the believers of the old forms of assessment say that subjective test improve the creativity, knowledge and skills of the students which are based on grading practices as it covers higher portion of subject-contents. On the contrary, some researchers stated that traditional forms of assessment do not match with real-life situations. The merits of both traditional and alternative forms of assessment are adopted for the evaluation and improvement of learning through classroom assessment practices (Segers & Dochy, 2001). New methods of assessment are

emerging and still in embryonic stage and need further improvement (Hargreaves, Earl, & Schmidt, 2002).

2.26 TEACHER BELIEFS ABOUT CLASSROOM ASSESSMENT PRACTICES

Teacher belief is a complex term. Different definitions were presented by different researchers. Some linked it with knowledge, values, principles and attitudes, some related it to behaviour and practices, and some others say that it cannot be easily defined because of its complex and multi-dimensional nature (Mansour, 2009). McMillan and Nash (2000) discussed with teachers about beliefs, principles, values, aim of classroom assessment practices and grading practices. It was found that teachers' beliefs and values are not directly related with measurement. McDonald, et al, (2016) posit that teachers' beliefs have paramount importance in affecting the attitude and behaviour and in improving learning of students. McMillan (2005) and Popham (2008) state that understanding of teacher beliefs can lead to better ways of knowledge of their classroom practices. According to some researchers teacher beliefs have strong relation with the perception of teachers and affect the concepts that make contribution to judgment, attitude and classroom assessment practices (Mansour, 2009).

Laconically, the role of teachers' beliefs is evident in instruction and learning due to classroom assessment practices. Assessment practice shows variation and no permanency while testing students' abilities (McMillan, 2008). Classroom assessment practices improve the mental aspect of teaching and improving learning within a limited span of time. Realist teachers believes in the application of norm referenced test (Tillema, Leenknecht, & Segers, 2011). The teachers believe in the employment of alternative assessment practices that identify and evaluate competencies of the

104

students beyond their classroom environment (Haladyna, Downing & Rodriguez, 2002). Contextual teachers believe in the application of criterion referenced test (Tzuriel, 2000). Relativist teachers believe in the employment of developmental theories in assessment practices. Different ways are used in the assessment of students as the development stages are different (Schunk, 2008; Steinberg, 2008).

There is a strong relationship between training in the domain of assessment and classroom assessment practices. In this regard assessment methods are constructed, adopted and criticized. If the prospective teachers are unable to validate the tool and bring accurate results, it doesn't mean that they are not knowledgeable (Campbell & Evans, 2000). Classroom assessment practices have their own importance. Therefore, it is compulsory to train the teachers in assessment related training by providing in-service training. Therefore, the provisions of proper instruments for the creation of classroom assessment environment are very essential. These things promote the academic achievement of students. These are very helpful in keeping records, in improving communication and further advancing the assessment methods and strategies to further enhance the performance of students (Stiggins, 2004).

2.27 RELATING ASSESSMENT PRACTICES TO TEACHER CHARACTERISTICS

According to Zhang and Burry-Stock (2003) assessment is to make judgment about educational quality. It monitors learning progress in formative assessment. Maximum performance test are used to determine individuals' abilities. Performance test are the tests that involve the construction of certain patterns or solving problems in terms of concrete materials. There are different responsibilities on the shoulders of the teacher while applying classroom assessment practices. They show different views

as compared to Adams and Hsu (1998 cited in Koloi-Keaikitse, & Marchant, 2012) and Stiggins and Conklin (1992 cited in Koloi-Keaikitse, & Marchant, 2012) who argued that there are different attributes of teachers and they have different elucidations for different results in classroom assessment practices. They further indicated that teaching experience of teachers, their subject command, their pedagogical content knowledge and their higher qualification influence classroom assessment practices. They further stated that highly educated teachers adopt objective type assessment and those teachers who have received trainings in the field of assessment; they discern higher proficiencies in classroom assessment practices.

2.28. INFORMATION COMMUNICATION TECHNOLOGIES (ICTS) IN ASSESSMENT

ICTs have been used in assessment related activities at classroom, local, national and at international level. It enable the teacher to design authentic and performance based assessment tasks, administered assessment tools in more flexible and easy manner, store the developed assessment tasks, give instant feedback to the students and score the performances of students in a standardized manner. Geoffrey (2011) identified technologies used in assessment activities such as; computer, laptops, smart phones, iPads and other electronic gaming devices. These devices can be used in designing assessment tasks, delivering lectures, recording and giving feedback to students on their performances. Unlike to the traditional mechanism of assessment which is limited to text ICTs assisted assessment in a more rich and diversified manner which apart from the text include; picture, sound, animations, audios and videos that make assessment more authentic and performance based.

Life-long learning, learning anywhere and everywhere, learning at the door step of students and learning according to the mental level of students are all the

106

concepts which have been become a reality because of information communication technologies. These technologies have changed the traditional distance education which has certain challenges in the quality of delivery, with ICT virtual and E-learning makes it more student-cantered, flexible and according to the needs of students. In traditional distance education students were sent books and study materials and they were supposed to study by themselves and if they face any problem they visited their concerned tutor. Furthermore, they have specific timing of examination, tutoring classes and supportive classes which is much or less structuralized as formal system of education, but with the emergence of ICTs a more flexible system of learning comes forth, where learner can learning according to his/her desired timing, and they are not support to go to any tutor centre but online video lectures are enough for the assistance of their learning.

From the historical perspectives Computer Based Assessment (CBA) was in used from the last twenty years which has been now replaced by New Generation re-inventions of software, Apps and devices which helps to integrate technologies into assessment tasks and make it more performance-based and authentic relevant to real life situations. The technological advancements have made automatic scoring of text and speeches which have reduced the time and money expenditures. Furthermore, these advancements have positively contributed in learning-environments which provide space for embedding assessment in a more complex and behavioural dimensions of learning competencies. The best example in this regard is learning analytics (Redecker, 2013).

Furthermore, Redecker (2013) reviewed the work of Bennett (2010), Bunderson (1989) and Martin (2008) and presented the progress made and targets

achieved in assessment with the integration of ICT. The graphical presentation of the trends and development has been presented as follow;
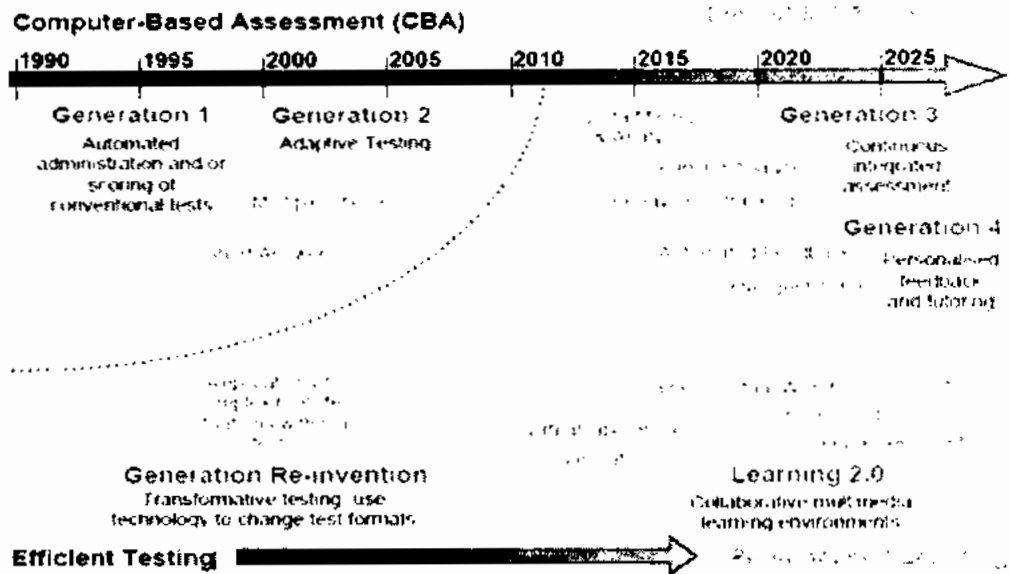
Figure 3: Overview of developments and trends in technology-enhanced assessment
Source: Elaborated by the author on the basis of Bunderson (1989), Martin (2008) and Bennett (2010)

These innovations have transformed CBA to Embedded assessments where assessment tasks are integrated into learning process. In some other words CBA was separated from teaching and learning but through embedded assessment mechanism assessment became the part and parcel of teaching learning process.

2.29 SUMMARY

This chapter reveals the most significant research work on assessment literacy, classroom assessment practices and its relationship with students' academic achievement. Different assessment standards, competence indicators, significance, principles and purposes of assessment, assessment practices and different qualities of assessment tools and assessment procedures have been discussed in detail. Research reports, periodicals, journal papers, online resources, master and PhD dissertations have been reviewed and presented in a logical sequence.

Keeping in view the above literature, assessment literacy has been proved as an important component of teacher education. The work done internationally signifies its value. Experts from Canada, United States of America (USA), New Zealand, Cambodia, Malaysia and Oman reflected that through scientific mechanism assessment literacy of teacher could be enhanced. Assessment literacy standards developed by National Council for Measurement Education (NCME) and American Federation of Teachers (AFT) have been identified a base for developing assessment literacy among prospective teachers through pre-service teacher education, in-service teacher training and workshops. One of the most important attribute of these standards is that these have been used in most of the developed countries for teachers' certification and licencing which shows experts confidence in it.

Furthermore, different demands of stakeholders from the perspective of students' assessment make the study of Newfield (2006) very important, where he discussed assessment literacy differently for college graduates, school teacher and professional assessment expert, who has left a question that what will be assessment literacy for teacher educator? As teacher educator is expected to be expert in students' assessment as well as in its teaching to the perspective teachers. Therefore, it is important to investigate the effective teaching methodologies for teaching students' assessment. Furthermore, with the emergence of new concepts in assessment such as; assessment for learning, assessment as learning, individualized assessment, self-assessment and peer assessment have make it compulsory to update assessment literacy standards as well as its definition also needs re-formation.

Similarly, on classroom assessment practices traditional paper pencil tests and summative approaches of assessment were found in practices. Alternative assessment practices such as portfolio, use of rubrics, electronic assessment, authentic, and

performance based assessment and active use of ICT in classroom assessment were absent and there is dire need to concentrate on these alternative assessment practices at primary, secondary and tertiary level which aim at students' centred assessments. There are also limited studies on the psychometric properties of assessment tools (validity, reliability, practicability) which are important in enhancing the confidence of stakeholders on assessment results.

Furthermore, as researcher was gone through many research studies, it helped him in designing the research methodology of current study. Furthermore, the researchers took assistance in research design, selection of sampling techniques, data collection and analysis tools of the current study which are presented in next chapter.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 INTRODUCTION

This chapter addresses research design, rationale, and the methodology of the study along with justification of the selected design. Similarly, the population of the study is described along with the sample group of the study. The instruments used for the investigation of the research problem are discussed in details. Pilot study is described along with the reliability of the research instruments which is followed by a description of the data collection process and ethical measures considered in the study.

3.2 RESEARCH DESIGN

It is important to explain research design first before selecting a research design for the study (Mertens, 2010). A research design is a master plan which answers the question of how the research is to be conducted and how all major phases of research will be completed? It describes the nature and sequence of the processes and procedures such as; how research question or hypotheses will be formulated and tested, data collection will be made. It helps to provide evidence to answer the research questions and test the formulated hypotheses. In other words, it is like the architectural outlines, which bring together different architectural components to build a building (Thomas, 2010). It is a careful activity aiming at maximizing the authenticity, effectiveness and timely completion of work in-hand (Creswell, 2014).

Researchers adopt different research designs to plan their studies, as all studies are not of the same nature therefore, there are different research designs enabling the

researchers to plan their studies. Basically there are three basic research designs-quantitative, qualitative and mixed-method research designs. Researchers select the one which suits their study and satisfies the demands and nature of their studies (Creswell, 2014; Griffee, 2012).

Quantitative research studies concentrate on numerical description of problems, testing of research hypotheses, and confirmation of cause and effects relationships, contains on standardized format of data collection, statistical analysis of data, objective nature of the researcher, and has the potentials of generalization to population (Creswell, 2014). There are different types of quantitative research designs where every design is tailored according to the context of the research (Mertens, 2010). Survey research is one of the most popular type of quantitative research design which is also considered the most powerful and useful design in studying human characteristics such as beliefs, knowledge, skills, potentials, attitude and their behaviours (Gay, Mills, & Airasain, 2009).

In qualitative research designs the researchers is comparatively more subjective in nature and demands for in-depth and contextual orientation of research problems. It is believed that when a problem is not clear, predetermined instrument is unable to use, and when multiple realities are believed by a researchers, qualitative research designs enable the researcher to architect the study on the lines of qualitative research designs (Thomas, 2010). Furthermore, qualitative research design is not a simple one and is further divided in different designs which help the researcher to lead their studies accordingly (Creswell, 2014).

Sometime researchers face difficulties in designing their study as the demand of the study are different and varied which can neither be satisfied through

quantitative research designs nor on qualitative research designs. They need a mixture of both. Therefore, they adopt mix-method research designs which help the researcher to verify and back one type of data (quantitative) on the second type of data (qualitative) and vice versa. Mix-method research designs are further divided into different categories (Creswell, 2014).

The nature of this particular study was quantitative where relationship of teacher educators' assessment literacy, classroom assessment practices and their students' academic achievements were investigated. All the evidences for assessment literacy, classroom assessment practices and students' academic achievement were in numerical form. The researcher has collected the data and analysed statistically, the findings were generalized the results to the population of the study.

3.2.1 Rationale of Selecting Quantitative Research Design

The research questions of current study are descriptive and demand for quantitative survey research design. The collected data were analysed quantitatively and appropriate generalizations were made. Quantitative survey research is satisfying the needs of the study, as the research intends to investigate the assessment literacy of teacher educators'. The results of test used for assessment literacy were quantified along with the responses on the classroom assessment questionnaire and the academic achievements of students. Similarly, sampling procedures adopted in the study, data collection through an inventory and use of questionnaire, statistical analysis of the collected data and its conclusion also demands for quantitative survey research design of the study. Furthermore, the study was intended to generalize the results of the study to the population that is; to all the teacher educators of RITEs and GCETs. All these factors demand quantitative research design which was adopted by the researcher.

3.3 RESEARCH METHODOLOGY

A linear approach was adopted to conduct the study. The study was quantitative and survey was conducted to investigate the assessment literacy of teacher educators of RITEs and GCETs selected from two provinces of Pakistan (Khyber Pakhtunkhwa and Punjab). Research questions/hypotheses were framed and responses on the data, collected from the respondents of the study through two research instruments. An assessment literacy test developed by Stiggins and Chappius (2014) and Classroom Assessment Practices Questionnaire developed and used by Alkharusi (2007) were adapted for the study. Major changes were made in Assessment literacy test while classroom assessment practices questionnaire was used with minor changes with the consent of the supervisor and co-supervisor of the researcher.

Data from the respondents of the study were collected on both the instruments. The survey comprised 205 teachers' educator of the selected institutions of the study. The academic achievement of students (Prospective teachers) of 3rd semester and the data obtained from the questionnaire were analysed separately as well as were correlated. The results were displayed in the 4th chapter of the study and conclusions were drawn based on the results of the study and were presented in chapter five.

3.4 POPULATION OF THE STUDY

Teacher education in Pakistan is carried out by different institutes and colleges at district, provincial and federal level. After phasing out all one year teacher education programs by the Higher Education Commission (HEC) of Pakistan, the departments/institutes of education in universities offer Associate Degree in education (ADE) (two years); B. Ed honors (four years) elementary and secondary programs,

Master in education (two years), M. Phil in Education with different specialities, and PhD education programs. Private colleges of education who are affiliated with different universities offering ADE and B. Ed (1.5 years, three semesters after Master) and Master in Education programs. Similarly, in every provincial capital there is Provincial Institute of Teacher Education (PITEs) which supervise the teacher education programs in the concerned province. To satisfy the need of teachers at school level the Provincial governments have established further teacher education institutes for the pre-service as well as in-service education of teachers in the province.

In 2002 the government of Khyber Pakhtunkhwa established Regional Institutes of Teacher Education (RITE) at each district level aiming to satisfy the demands and supply of teachers to school at district level. These institutes are currently offering ADE, Drawing Master (DM) and Physical Education (PET) Teacher programs, these institutes are working under Directorate of Curriculum and Teacher Education, PITE Khyber Pakhtunkhwa and Provincial Ministry of Education.

In Punjab such institutes are working with the name of Government Colleges of Elementary Teachers (GCETs) aiming to satiate the education of prospective teachers. These colleges are working under the umbrella of Directorate of Staff Development (DSD) of Punjab. All the teacher educators in these colleges, institutes and departments are preparing the future teaching staff for school teaching. All these institutes are different from management perspectives, from the perspectives of teacher educators' academics, grades and other specifications of their concerned institutions. Similarly, these institutions offer different programs of teacher education following different types of courses description and examination patterns. Furthermore, the reforms made by government in the form of National Accreditation

Teacher Education (NACTE) to accredit teacher education programs to ensure quality teacher education, National Professional Standards for Teachers in Pakistan, where efforts were made to enhance the competence level of teachers. Similarly, the introduction of B. Ed honours (four year) and ADE (two years) programs and the developed curriculum for these programs are the efforts to bring teacher education to a standardized form.

This study investigates teacher educators' assessment literacy, classroom assessment practices and their students' academic achievements. Keeping in view the diversity in teacher educational institutions the researcher has delimited the population of the study to teacher educators (instructors) and prospective teachers of Regional Institutes for Teacher Education of Khyber Pakhtunkhwa (RITEs) and Government Colleges for Elementary Teachers (GCETs) of Punjab. In 2014, there were 119 instructors in 20 RITEs and 384 prospective teachers in ADE program (DCTE, 2014). According to DSD, in 2015, there were 290 instructors in thirty three Government Colleges Elementary Teachers (GCETs) of Punjab and 433 prospective teachers enrolled in B. Ed honours (DSD, 2015). As a whole, the population of the study comprised 409 teacher educators (instructors) and 817 prospective teachers of RITEs and GCETs in Khyber Pakhtunkhwa and Punjab.

The reason behind the selection of this population is the similar nature of the institutional general features (RITEs and GCETs). The teacher educators of these institutions are homogenous in terms of service grades, qualification, experience, and the criteria against which they are appointed. Provincial public service commission of both provinces made appointments of these teacher educators and the programs they offer. Furthermore, the curriculum followed by these institutions is also same for the

116

students which demands same expertise, knowledge and skills from teacher educators of these institutions.

3.5 SAMPLE

The population of the study was scattered on two provinces of the country. Thirty three 33 Government Colleges for Elementary Teachers and twenty 20 Regional Institutes of Teacher Education were included in the population of the study. It was difficult for the researcher to investigate all the population due to time and resources constraints. There was short time span for the completion of the study and visiting all the institutions demanded extensive traveling which was not manageable for the researcher. Therefore, the researcher selected a representative sample from the population through stratified proportionate random sampling techniques.

As almost all quantitative studies adopt probability sampling techniques due to large population; the selected sample group is also large as compared to the sample of the qualitative studies, keeping in view these circumstances stratified proportionate random sampling technique from probability sampling techniques was adopted to select the sample group of the study. The lists of teacher educators obtained from DSD and DCTE were used for the process of stratified proportionate random sampling.

In first phase, 10 Regional Institutes of Teacher Education from Khyber Pakhtunkhwa and 15 Government Colleges of Elementary Teachers from Punjab were selected. After the selection of the institutes the respondents were also selected randomly from these institutions. Furthermore, the sample group of the study comprised fifty percent 50% of teacher educators from GECTs and RITEs and twenty five percent 25% of prospective teachers studying in GECTs and RITEs enrolled in

ADE and B.Ed honours programs. Gay, Mills, and Airasain (2009) discussing appropriateness of sample group sizewere of the view that, when the population is upto 500 a representative sample will be 50% and if it is upto 1500, then 20% of the population can provide a representative sample group for the study. Therefore the sample group comprised 25% prospective teachers (students) and 50% teacher educators (instructors) from RITEs and GCETs. A total sample of 410 respondents were selected for the study from all colleges and institutes of teacher education from Khyber Pakhtunkhwa and Punjab.

Table 3.1

Sample Group from RITEs and GCETs of Khyber Pakhtunkhwa and Punjab

Population	Sample
1. Teacher educators (Instructors) in RITEs 119 (N = 119)	1. Teacher educators from RITE on 50%, n = 60
2. Teacher educators (Instructors) in GCETs 290 (N = 290)	2. Teacher educators from GCETs on 50%, n = 145
3. Total N, 119+290 = 409	3. Total n, 60+145 = 205
4. Prospective teachers in RITEs enrolled in ADE/B.Ed honor 384 (N = 384)	4. Prospective teachers from RITEs enrolled in ADE/B.Ed Honor on 25%, n = 97
5. Prospective teachers in GCETs enrolled in ADE/B.Ed honor 433 (N = 433)	5. Prospective teachers from GCETs enrolled in ADE/B.Ed Honor on 25%, n = 108
6. Total N, 384+433 = 817	6. Total n, 97+108 = 205

7. Total teacher educators +	7. Total teacher educators +
prospective teachers	prospective teachers
N, 409+817 =1226	n, 205+205 = 410

Four hundred and nine 409 teacher educators from Khyber Pakhtunkhwa RITEs and GCETs of Punjab constituted the population of the study from which a sample of 205 teacher educators was drawn through stratified proportionate random sampling which is 50% of the total population. Twenty five percentages of total 817 that is 205 prospective teachers enrolled in ADE/B. Ed honour constituted the sample of the study. Thus, the sample group comprised 410 individuals consisting of 205 teacher educators and 205 prospective teachers in the year 2016.

3.6 DATA COLLECTION TOOLS

Data collection is the most important feature of empirical studies; it supports the results and helps the researcher to generalize the results to the population. This process is laborious and demands hard work, enthusiasm and dedication. To collect the data from the sample group, two research instruments were used in this study. For measuring the assessment literacy level of teacher educators, an Assessment Literacy Test (ALT) developed and used by Stiggins' and Chappuis (2014) in the Oregon State-wide (USA) assessment literacy project sponsored by State Education Department of Oregon was adopted. Originally, the test comprised sixty four items which includes; six open-ended items, twenty items were multiple choice and thirty eight dichotomous items. Changes made in the test during the initial phase and after the pilot study were discussed with the author and permission was taken through email (Appendix F).

Changes were made in the test to ensure the cultural, contextual and situational compatibility of the test. These changes in the test were made for two times, first, the number of items was increased to eighty one from sixty four and second changes after the first pilot study of the instruments. These changes include change in the nature of items that is; open-ended questions were changed into close-ended questions. Question number 1, 2, 3, 14 and 40 were transformed into closed-ended items. Question 1 and 2 were divided into seven, 3 into four, 14 into three and 40 into three close-ended items. However, questions number 5, 6, 8, 12, 27, and 29 were excluded from actual test. Question 9 was changed from "make a paragraph" to "design a science lab", the options of dichotomous items were changed from sound and unsound to appropriate and inappropriate. However, the options of items which were changed from open-ended to close-ended were assigned according to the nature of items.

The ALT was divided into seven components which were; 1) Purpose of Formative Assessment, 2) Clear Learning Outcomes, 3) Designing Students' Assessment, 4) Assessing Achievement Goals, 5) Adopting MCQs, Observation, Question Answer during the classroom Instruction, 6) Communication of Assessment Results, 7) Feedback, Grading students' performances and nature of Students' scores Obtained in examination. All these components vary from the perspective of number of items. Both, original and revised tests have been attached in the appendices (Appendix B & C)

Teacher educators' classroom assessment practices were investigated through Classroom Assessment Practices Questionnaire (CAPQ) developed and used by Alkharusi (2007) in his PhD dissertation. The questionnaire was adapted for the study which comprised forty three 43 Likert type items. There were 6 basic components in

the questionnaire, these components were 1) type of assessment, 2) Assessment revision, 3) Communicating assessment, 4) Assessment standards and criteria, 5) Student-involved assessment, 6) Non-achievement-based grading factors. The items on the questionnaire reflected the frequency of assessment practices teachers used in their classrooms and option were from (Rarely=1) to (always 5). After pilot study the number of items was decreased to 31 items, where five components of classroom assessment practices remained unchanged. These components were include, 1) assessment methods (assess my students through), 2) communicating assessment, 3) assessment standards and criteria, 4) students' involved assessment and 5) Non-achievement based grading factors. Both, original and revised questionnaires have been attached (see Appendix D & E). After changes in the questionnaire it was communicated to the author and permission was taken through email (Appendix G).

Third semester marks of prospective teachers were used as the academic achievement of students. All the obtained marks of prospective teachers were taken from the RITEs and GCETs principal's office. The rational of third semester marks was that they have spent time with those teacher educators and they were exposed to the classroom assessment practices by those teacher educators, therefore, the assessment literacy level and classroom assessment practices of teacher educators have been influenced the academic achievement of prospective teachers.

3.7 PILOT STUDY

Pilot study is crucial part of all empirical studies, aimed at the assessment of the feasibility and soundness of the methods and procedures of the study (Hazzi & Maldaon, 2015). It enables the researcher to know the effectiveness of the instruments and their contextual compatibility, language use in the instrument(s), and respondents

understanding about research instrument(s). Similarly, the reliability of the instrument(s) enables the researcher to measure the consistency of the data obtained with the instrument(s) which facilitate the researcher in the generalization of the results to the population of the study (Leon, Davis, & Kraemer, 2011). Scientifically there are controversies among experts on the sample size for pilot study; however, Baker (1994) considered 10 to 20% of the actual sample group of the study as appropriate sample for pilot study. The participants of this pilot study were 40 teacher educators which were 13% of the actual sample group of the study and were considered appropriate sample size for pilot study.

The pilot study was conducted in two Regional Institutes of Teacher Education of Khyber Pakhtunkhwa and two Government Colleges for Elementary Teachers of Punjab. Both these instruments were slightly changed; particularly in assessment literacy test all the open-ended items were converted into close-ended before the pilot study while no changes were made in the questionnaire of classroom assessment practices. These changes were made on the recommendation of the experts from GCETs, and RITEs, supervisor and co-supervisor and were administered to the participants of pilot study.

3.7.1 Reliability of the Instruments

The data collected from pilot study were placed into SPSS version 20 to measure the reliability of the instruments. Through Kuder Richardson (KR20) the overall reliability coefficient was calculated which was r = .595. However, there were seventeen 17 items on likert scale pattern (Strongly agreed=4, agree=3, disagreed=2, and strongly disagreed=1) the reliability co-efficient was calculated through Cronbach Alpha which was α = .341 whereas the remaining 64 items were dichotomous in

nature and through KR20 its reliability coefficient was calculated which was .534. Overall, there were eighty one 81 items on the instrument covering all components of the assessment literacy.

The reliability coefficient for classroom assessment practices questionnaire was measured through Cronbach Alpha which was α = .77. There were forty three 43 items on the questionnaire on Likert scale pattern (Never = 1, Rarely = 2, Sometimes = 3, often = 4, and Always = 5). This questionnaire was adopted from the PhD dissertation of Alkharusi (2007) where he calculated α = .74 in his study. Below table illustrated the tabulated summary of reliability coefficient of the instruments.

Table 3.2

Reliability Coefficient Scores on First Pilot Test

Instruments	Cronbach's Alpha	KR20/ N of items
Likert scale items	.341	17
Dichotomous items	.534	64
Assessment Literacy	.595	81
Classroom Assessment Practices	.772	42

The reliability coefficient for Classroom Assessment Test was low; furthermore, experts recommended to reduce the items and change the option on the close-ended items, the likert scale items were transformed into dichotomous items. After the pilot study the test was reduced to sixty two items. Nineteen items were deleted from the questionnaire. In pilot study all the experts opined for the reduction of the items. Assessment literacy test have many open-ended items which were converted into close-ended items with the consultation of the supervisor and other experts.

123

After the incorporation of the recommended changes the scales were once again pilot tested on the same group where four respondents didn't participate for their personal reasons, resultantly thirty six 36 respondents participated in the second pilot test of the instruments. Below table illustrated the tabulated summary of reliability of the instruments.

Table 3.3

Reliability Coefficient Scores on Second Pilot Test

Instruments	Cronbach's KR20/ Alpha	N of items
Assessment Literacy Test	.696	62
Classroom Assessment Practices Questionnaire	.849	31

The results of second pilot test reveals the reliability coefficient of assessment literacy r = .696 which shows improvement as compared to the results of first pilot study. This reliability coefficient is acceptable on the criteria provided by Griffee (2012) who was of the opinion that the acceptablity of instrument(s) is based on the following standard criteria in social science; that is if the alpha value is;

α =0.3 or below is threshold

α =0.5 or higher is adequate

α =0.7 and above is high

There were 62 items in assessment literacy test which were divided into seven components all these components were different from each other from the perspectives of items. The component-wise reliability is presented in the following table;

Table 3.4

Assessment Literacy Test Component-wise Reliability

S. No	Components	R	No of items
1	Purpose of Formative Assessment	.597	07
2	Clear Learning Outcomes	.626	12
3	Designing Students' Assessment	.737	08
4	Assessing Achievement Goals	.581	04
5	Adopting MCQs, Observation, Question Answer during the classroom Instruction	.641	12
6	Communication of Assessment Results	.732	08
7	Feedback, Grading students' performances and nature of Students' scores	.592	11

The reliability of all components is adequate. Furthermore, the sample group of the pilot study was homogenous, their qualification, teaching experience, and training in assessment were similar up to a great extent. Similarly, the nature of the institutions where the selected sample group teacher educators work was also same along with the subject and their professional qualifications.

The overall reliability coefficient of classroom assessment practices was .849 which indicates that this questionnaire is appropriate for data collection and it has the capacity to provide reliable data. There were 31 items which was divided into five components, the reliability co-efficient of all components reflected an acceptable level. The details of component-wise reliability co-efficient were given in the following table;

Table 3.5

Classroom Assessment Practices Component-wise Reliability

S. No	Components	Cronbach Alpha	No of items
1	Types of assessment	.627	7
2	Communication of assessment	.636	9
3	Assessment standards and criteria	.645	5
4	Student-involved assessment	.741	4
5	Non-achievement-based grading factors	.888	6

Keeping in view all the above discussion the reliability cofficient $= 0.696$ of *Assessment Literacy Test* (ALT) is adequate and $\alpha = 0.849$ of Classroom Assessment Practices Questionnaire (CAPQ) revealed higher level reliability of the questionnaire. Resultantly, both the instruments were used for data collection of the study.

3.7.2 Validity of the Instruments

Validity of research instrument is an important consideration for the authenticity of the evidence collected through it. An instrument is valid if exactly measure what is supposed to measure (Popham, 2009). There are different kinds of instruments validity among all those one is content validity, which is estimated with expert opinion and matching of the items with the contents for which it supposed to measure.

Assessment literacy test and classroom assessment practices questionnaire were discussed and consulted with seven experts in classroom assessment and measurement. The experts critically analysed these scales from language, relevance, local context and the objectives of the study. These experts studied the instruments

126

and recommended changes in the format, contents and on number of items of the instruments.

All the recommended changes in the format (that is converting open-ended items into close-ended items) changes in options from good and poor match to sound and unsound and appropriate and inappropriate, rephrasing some items and the removal of some items were made in the instrument of the study.

3.8 DATA COLLECTION PROCESS

Data collection process was started in the last week of April, 2016 after the pilot testing and finalization of research instruments. It was stopped due to summer vacations in June, July and August and was resumed in the third week of September, 2016 which was completed in the end of November, 2016.

Data were first collected from the Regional Institutes of Teacher Education of Khyber Pakhtunkhwa. Data collection process was not an easy task and different problems were faced by the researcher-there is no research culture in these institutions and sample group (teacher educators) were very reluctant in giving data. The researcher was granted permission from the head (Principal) of the Institute/College through mobile and formal consent to allow the teacher educators to participate in the survey. Twelve respondents in three Regional Institutes of Teacher Education refused to respond to the instruments and to participate in the survey. These respondents were replaced with other respondents and the desired target sample group was completed.

3.9 DATA ANALYSIS

All the collected data were placed into SPSS version 20 licensed and were analysed through descriptive and inferential statistics. All the demographic

information of the respondents; which includes sex-wise description, academic and professional qualification, and in-service assessment training were analysed through simple percentage. In addition, to measure the differences of male and female respondents' academic and professional qualification and in-service training in assessment at RITEs and GCETs, independent sample t test and ANOVA were used.

The assessment literacy scores of the respondents were analysed through mean scores, and standards deviation. Similarly, responses on Classroom Assessment Practice Questionnaire were also analysed through mean scores, and standards deviation.

Furthermore, students' academic achievement were analysed through percentage, mean scores and standards deviation. However, Pearson correlations were applied on the data to measure the correlation between teacher educators assessment literacy and classroom assessment practice, between teacher educators classroom practices and their students' academic achievement and teacher educators assessment literacy and their students' academic achievement.

3.9.1 Scoring Procedure of the Instruments

Assessment literacy test scoring was made according to the correct and incorrect answer. Correct answer was given one (1) mark and incorrect answer was given zero (0) mark. There were thirty one 31 items in classroom assessment practices questionnaire, as it was a Likert scale the respondents were given options that how frequently they used these practices in classroom assessment of students. Each item was scored as 5 = Always, 4 = Often, 3 = Sometimes, 2 = rarely and 1 = Never. There is no negative item in the questionnaire therefore, no inverse scoring was made. Three separate scores were obtained from data that is; one from teacher educators'

assessment literacy test, second from teacher educators' classroom assessment practices and third from students' third semester results.

3.10 ETHICAL CONSIDERATIONS

Research ethics is the most important aspect of research studies which needs to be satisfied by the researcher as he/she is responsible and ethically bound to take care of these measures. To ensure the ethical considerations during literature review the researcher properly cited the scholars and experts from actual sources, acknowledged the contributions of different research scholars who contributed from different perspectives that is- research dissertations, assessment standards developed by different organizations, conceptual and empirical papers. Similarly, during data collection process the respondents of the study were provided all basic information regarding the study, to enable them to understand the background of the study and to participate in a linear approach. They were informed about the risks and benefits they will face while participating in the study (Appendix-A). They were also asked for permission and consent for their voluntary participation in the study and were not influenced by any other illegal means. Furthermore, they were informed that their information would only be used for research purposes and would not be used for any other commercial purposes and would not be shared with anyone except of the researcher supervisor and co-supervisor if needed.

To measure the relationship between assessment literacy of teacher educators, classroom assessment practices and their students' academic achievement were calculated through Pearson r. The level of significance used for testing null hypotheses of the study was 0.05.

3.11 SUMMARY

Summarizing the chapter, it includes the research methodology, research philosophy, and research paradigm and research design. Furthermore, population of the study, sample group following sampling techniques, data collection instruments, its validity and reliability through pilot testing, data collection process and scoring procedures of the instrument. However, the analysis of data present in next chapter.

CHAPTER 4

DATA ANALYSIS

This chapter deals with the analysis and interpretation of the collected data from the respondents of the study. The data were collected to answer research questions and to reach the desired target as discussed in the objectives of the study. Assessment literacy test and classroom assessment practices questionnaire were used as research instruments to collect the data from the respondents.

The collected data were placed into SPSS version 20. There were seven components of assessment literacy which include; 1) Purpose of Formative Assessment, 2) Clear Learning Outcomes, 3) Designing Students' Assessment, 4) Assessing Achievement Goals, 5) Adopting MCQs, Observation, Question, 6) Communication of Assessment Results and 7) Feedback, Grading students' performances and nature of Students' scores. Furthermore, there were five components of classroom assessment practices. Which were include; 1) Types of assessment, 2) Communication of assessment, 3) Assessment standards and criteria, 4) Student-involved assessment and 5) Non-achievement-based grading factors. All these components results were presented below;

Mean score criteria for interpretation

Range			Frequency
5.00	to	4.51	Always
4.50	to	3.51	Often
3.50	to	2.51	Sometimes
2.50	to	1.51	Rarely
1.50	to	1.00	Never

The above table shows the criteria for explanation of mean scores ranges for classroom assessment practices. The responses of the respondents were explained in the light of the above explanation

Correlation ranges from weak to strong

Range of Correlation Value	Nature of Correlation
-1.0 to -0.7	Strong negative association
-0.7 to -0.3	Weak negative association
-0.3 to +0.3	Little or no association.
+0.3 to +0.7	Weak positive association.
+0.7 to +1.0	Strong positive association

(Simon, 2008)

The above table shows the ranges for explanation of correlation co-efficient values obtained for measuring the relationships between the variables in this chapter.

Table 4.1

Gender-wise description of the respondents

	Frequency	Percent	Valid Percent	Cumulative Percent
Male	131	63.9	63.9	63.9
Female	74	36.1	36.1	100.0
Total	205	100.0	100.0	

Table 4.1 shows the gender-wise description of the respondents. There are 131 male and 74 female respondents in the sample group of the study. Male respondents are 64% while females are 36% of the total sample group from which the data were collected.

The gender inequality among the respondents of the study is due to the fact that in terms of numbers institutes are the same but there is less number of females teachers employed in female RITEs as compared to that of male institutes. Therefore, to conclude this gender-wise description reflects the actual population of male and females.

133

Table 4.2

Gender-wise differences of assessment literacy level

Gender	N	Mean	Std. D	Df	M.D	t	Sig
Male	131	35.12	5.35				
				203	-.572	-.815	.416
Female	74	35.71	4.96				

The above table 4.2 shows the mean scores of male and female respondents of the study. The mean score of male respondents on assessment literacy test is 35.129 and female respondents have mean score of 35. 702. The mean differences between the male and female respondents are -.5729 which is not significant as shown by the t value -.815 and sig value .416. Based on the results, the question formulated in the start was answered as; there is no significant difference in the assessment literacy of male and female teacher educators.

Based on the result it is concluded that male and female have same assessment literacy level and there are no significant differences between male and female assessment literacy scores.

Table 4.3

Academic Qualification of the respondents

	Frequency	Percent	Valid Percent	Cumulative Percent
Masters	164	80.0	80.0	80.0
MS/M.PHIL	36	17.6	17.6	97.6
PhD	5	2.4	2.4	100.0
Total	205	100.0	100.0	

Table 4.3 illustrates the academic qualification of the respondents of the study, where 80% respondents have Master qualification, 18% have M.S/M.Phil qualification and only 2.4% respondents were PhD doctors which is lowest in figures about academic qualification of the respondents.

Majority of the respondents in these colleges and institutions are senior teacher educators where majority of them have master level qualification as compared to university and other institutions teacher educators. Another reason for low PhD is that majority of PhD degree holders like to work at university level instead of college level.

135

Table 4.4

Respondents' differences from their academic qualification

Academic Qualification	N	Mean	Std. D	b/w Groups	Within Groups	Df	F	Sig
Masters	164	35.29	4.85					
MS/M. Phil	36	36.05	4.5	96.32	4659.45	203	3.08	.127
PhD	5	31.4	5.36					

The above table 4.4 illustrates assessment literacy levels of respondents having different academic qualifications. The mean score of Masters 35.29, MS / M. Phil 36.05 and PhDs have 31.4. The standard deviations of all the respondents show variations but the variations among PhD respondents are higher than the other two types of academic qualification holders. Furthermore, among these five PhDs two respondents were from chemistry one from mathematics and two were from Education. The differences between the groups (96.32) and within the groups (4659.45) are not significant as reflected by the f value (3.08) and sig value (.127). Based on the above description of the results, it is concluded that nearly all the respondents having different academic qualification have same assessment literacy except of PhD doctors who have low assessment literacy as compare to Masters and MS / M. Phil graduates.

Based on the results, it is concluded that there are no significant differences of among teacher educators having different academic qualifications.

Table 4.5

Professional Qualification of the respondents

	Frequency	Percent	Valid Percent	Cumulative Percent
B.Ed	18	8.8	8.8	8.8
B.Ed &M.Ed	153	74.6	74.6	83.4
Others	34	16.6	16.6	100.0
Total	205	100.0	100.0	

The above table 4.5 shows the professional qualifications of the respondents which shows that 75% of respondents have B.Ed and M.Ed qualification. Only (9%) respondents were found having B. Ed and 17% respondents have other professional qualifications besides their academic qualifications.

Overall, the table reveals that majority of the respondents have Master of education degrees as their academic qualification.

Table 4.6

Respondents' differences from their Professional qualification

Pro-Qualification	N	Mean	Std. D	b/w Groups	Within Groups	Df	F	Sig
B. Ed	18	35.28	2.05					
M. Ed	153	36.25	5.08	17.54	4738.77	203	.374	.688
Others	34	35.21	4.72					

The above table 4.6 shows the professional qualification of the respondents of the study and their assessment literacy level. The mean scores of B. Ed degree holders are 35.28, M. Ed degree holders have 36.25 and other professional qualification holders have 35.21. The variations between the groups (17.54) and with the groups (4738.77), and f value (.374) all these variations are not significant as shown by the sig level .688. Based on results it is concluded that there is no significant difference from assessment literacy perspectives among professional degree holders.

The results reveal that there are no significant differences in assessment literacy scores of teacher educators from the perspectives of their professional qualifications.

Table 4.7

Teaching Experience of the respondents

	Frequency	Percent	Valid Percent	Cumulative Percent
1 TO 5	27	13.2	13.2	13.2
6 TO 10	38	18.5	18.5	31.7
11 TO 15	30	14.6	14.6	46.3
16 TO 20	33	16.1	16.1	62.4
21 and above	77	37.6	37.6	100.0
Total	205	100.0	100.0	

Table 4.7 exhibits the professional experiences of the respondents of the study. Majority 38% of the respondents have more than 21 and above years' experience which shows that majority of the respondents are well experienced in teacher education. Next to that 18.5% of the respondents have 6 to 10 years teaching experience. Similarly, 16% of the respondents have teaching experience ranging from 16 to 20 years, 15% have 11 to 15 years teaching experiences while only 13% of the respondents were fresh who have 1 to 5 years teaching experience.

In nutshell, majority of the respondents have extensive teaching experience as teacher educators in the selected teacher education institutes and colleges.

Table 4.8

Respondents' differences from the teaching experiences perspectives

Teaching experience	N	Mean	Std. D	b/w Groups	Within Groups	Df	F	Sig
1 to 5	27	34.88	5.28					
6 to 10	38	34.28	4.16					
11 to 15	30	35.13	4.96	109.27	4646.50	203	1.176	.323
16 to 20	33	35.06	4.99					
21 plus	77	36.21	4.82					

The above table 4.8 shows the mean difference exists among the respondents of the study having different lengths of teaching experiences. The mean scores of those teacher educators have 1 to 5 years and 6 to 10 years teaching experience are (34.88 and 34.28), those teacher educators who have 11 to 15 and 16 to 20 years teaching experiences (35.13 and 35.06) and 36.21 mean score was recorded for teacher educators having more than 21 years teaching experience. The variation between the groups (109.27) and within the groups (4646.50), f value is 1.176 and sig value is .323.

The results confirm that there are no significant differences among the above mentioned teaching experience groups.

Table 4.9

Training in Assessment of the respondents

	Frequency	Percent	Valid Percent	Cumulative Percent
Not at all	167	81.5	81.5	81.5
One to four weeks	24	11.7	11.7	93.2
More than four weeks	14	6.8	6.8	100.0
Total	205	100.0	100.0	

Table 4.9 reflects training in assessment of respondents of the study in their professional career. Majority (81.7%) of the respondents were of the view that they have not attended any training in assessment throughout their professional life. Twenty four respondents which are (12%) of the total respondents of the study were of the opinion that they have attended training in assessment and duration of those trainings were between one to four weeks, while only (7%) of the respondents have attended training in assessment, duration of which was more than four weeks, which reflects the negligence of trainings in assessment for teacher educators in the selected institutes and colleges of teacher education, besides its overwhelming importance and frequent uses in teaching learning process in general and in teacher education in particular. It is crucial as the prospective teachers are supposed to be more prepared in students' assessment and they need to be more knowledgeable and skilful in assessment.

Table 4.10

Respondents' differences from the perspectives of training in assessment

Teaching experience	N	Mean	Std. D	b/w Groups	Within Groups	Df	F	Sig
Not at all	167	34.96	4.73					
1 To 4 Weeks	24	37.58	5.02	149.22	4606.54	203	3.272	.040
Above 4 Weeks	14	35.92	4.79					

The above table 4.10 shows the mean difference exists among the respondents of the study having different lengths of in-service training in assessment. The mean scores of those teacher educators who haven't gone through any assessment training have a mean score 34.96, those have one to four weeks training in assessment have 37.58 mean score and the mean score (35.92) of those who have more than four weeks training in assessment. The variation between the groups (149.22) and within the groups (4606.54), f value is 3.272 and sig value is .040.

To conclude there are significant differences among the trained and untrained teacher educators assessment literacy levels.

Research Objective No 1: to investigate assessment literacy of teacher educators

Assessment literacy test was divided into seven parts and every part represents a specific domain of assessment literacy. These parts include: Purpose of Assessment, Clear Learning Outcomes, Designing Assessment, Assessing Achievement Goals, Adopting Multiple Choice Questions/Classroom Observation/Question Answer during the classroom Instruction, Communication of Assessment Results, Feedback, Grading students' performance and nature of Students' scores Obtained in examination.

Table 4.11

Assessment Literacy Component 1 "Purposes of assessment"

Statements	N	Minimum	Maximum	Mean	Std. Deviation
1. Using assessment results to modify instruction				.9902	.09853
2. Using students' self-assessment practices				.8146	.38955
3. Students also set goals for learning				.2244	.41820
4. Communication of results to students				.2293	.42139
5. Assessments must focused on learning outcomes				.9366	.24430
6. Assessment task must assess general learning outcomes				.3171	.46648
7. Assessed content is aligned to the taught content				.8585	.34935
Cumulative results	205	1.00	7.00	4.3707	.83966

Table 4.11 explains the first component of assessment literacy on the purposes of assessment. There were seven statements in this component reflecting teacher educators' assessment literacy on formative assessment. The mean scores on item1, 2, 5 and 7 (.9902, .8146, .9366 and .8585) was higher and shows that the respondents have higher literacy on the purposes of assessment that is assessment results are used to modify instruction, assessment is used for students' self-assessment practices and Assessments must focused on learning outcomes, while on remaining 3, 4, and 6 items the

mean scores (.2244, .2293, and .3493) of the respondents reflect that respondents have low literacy, which includes that students set achievement goals on the basis of assessment results, students may be communicated assessment results properly and assessment tasks must also assess general learning outcomes. The cumulative mean score of the teacher educators on the purposes of formative assessment is 4.3707 which reflect an average level literacy and understanding of teacher educators.

Table 4.12

Assessment Literacy Component 2 "Clear learning outcomes"

Statements	N	Minimum	Maximum	Mean	Std. Deviation
1. CLO improves assessment method				.9561	.20538
2. CLO assists students in understanding the learning expectations				.9073	.29070
3. CLO helps in planning assessment				.8390	.36841
4. CLO helps to achieve intended learning outcomes				.8829	.32229
5. Read aloud with fluency				.5415	.49950
6. Identify properties of circles				.2829	.45152
7. Design a science laboratory				.4244	.49546
8. Describe the periodic table				.4829	.50093
9. Speak a foreign language				.5707	.49618
10. Distinguish fact from opinion				.7122	.45385
11. Students would be able to apply Eric Erickson's Theory of moral development.				.7659	.42450
12. Students would be able to understand educational concepts taught.				.3561	.48002
13. Students can draw a digram while describing a scientific concept.				.8146	.38955
Cumulative results	205	3.00	12.00	8.5366	2.07574

Table 4.12 shows the item-wise and overall performance of teacher educators on the second component of assessment literacy "Clear Learning outcomes (CLO)". Item 1, 2, 3, 4 and 13 represented higher mean scores on the table (.9561, .9073, .8390, .8829 and .8146) that is clear learning outcomes are effective for enhancing the effectiveness, assisting students in understanding learning expectations, planning assessment and in achieving learning outcomes. On the other hands the mean scores

145

(.2829 and .3561) of item 5 and 12 represent low level understanding of teacher educators on the clear learning outcomes and learning objective in assessment literacy.

However, item 4, 6, 7 and 8 the mean scores (.5415, .4244, .4829 and .5707) represent an average level understanding of teacher educators. Statements were provided and respondents were asked that which domain is represented by knowledge, reasoning performance skills and product. The overall mean score 8.5366 of teacher educators on the second component of assessment literacy represents above than average performance.

Table 4.13

Assessment Literacy Component 3 "Designing assessment"

Statements	N	Minimum	Maximum	Mean	Std. Deviation
1. Selected response/short answer: multiple-choice,true/false, matching , fill in the blanks				.9317	.25286
2. Essay/ Extended Written Response (EWR)				.8000	.40098
3. Performance assessment: assessment based on observation and judgment				.2634	.74022
4. Personal communication: asking questions in class, conducting individual students' conference and interview,conducting class discussions and conducting oral exams				.7805	.41493
5. Selected response/short answer: multiple-choice, true/false matching , fill-in-bank				.3659	.48285
6. Essay/Extended Written Response (EWR)				.7415	.43890
7. Performance assessment: assessment based on observation and judgment				.6585	.47536
8. Personal communication: asking questions in class, individual students' conference and interviews, class discussions, oral exams, reviewing jounals or logs				.3220	.46837
Cumulative results	205	2.00	13.00	4.8634	1.22909

Table 4.13 shows the performance of teacher educators on third component of assessment literacy "designing assessment". The mean scores of item 1, 2, 4 and 6 (.9317, .8000, .7805 and .7415) shows higher performance of teacher educators, which reflects that they know how to assess students' mastery of content knowledge. Furthermore, they were proficient in different methods of assessment for assessing contents knowledge. The remaining four items of the component, where the means scores (.2634, .3659, and .3220) shows low understanding of teacher educators that is

147

how to assess students' mastery of ability to create a product and its appropriate method of assessment. The mean score shows that teacher educators don't know about the appropriate method of assessment to assess students' ability of mastery to create a product. The overall mean score (4.8634) also represent low performance of teacher educators on the designing of assessment and the selection of the appropriate methods of assessment which is the third component of assessment literacy.

To conclude majority of the respondents do not understanding how to design assessment and what type of assessment practice is required to be adopted for measuring different type of students' learning.

Table 4.14

Assessment Literacy Component 4 "Assessing Achievement Goals"

Statements	N	Minimum	Maximum	Mean	Std. Deviation
1. Giving an oral presentation in class				.7756	.41820
2. Dividing with one-digit divisors				.3659	.48285
3. Assuming and playing out a dramatic role				.7415	.43890
4. Using subject and object pronouns correctly				.5220	.50074
Cumulative results	205	1.00	4.00	2.4049	1.16188

Table 4.14 reveals the fourth component of assessment literacy "assessing achievement goals". There are four items in which the mean scores of two items (.7756, .7415) shows that the respondents of the study have performed above than average level. On one the performance is average (.5220) and one it is below the average (.3659). The overall mean score 2.404 of teacher educators on this component of assessment literacy which shows that teacher educators have average level of understanding on assessing the achievement goals of students at different level.

To conclude, majority of teacher educators have problems in assessing achievement goals designed for students, which also indicate that teacher educator need further understanding of assessment of achievement goals of students.

149

Table 4.15

Assessment Literacy Component 5 "Approach in MCQs, observations, and question answering"

Statements	N	Minimum	Maximum	Mean	Std. Deviation
1. Make all multiple-choice questions which have the same number of responses				.2829	.45152
2. Keep reading level low unless assessing reading proficiencies of students				.5463	.49907
3. Limit use of "all of above" and "none of above" options				.6537	.47697
4. Always use a 1 to 4 scale from below basic to exceed standard when assessing work				.2049	.40460
5. Assess students best piece of work				.3610	.48146
6. Students should be provided the criteria by which responses will be judged.				.8537	.35431
7. Take into account student ability and effort when assigning scores.				.3024	.46044
8. Focus on broad question to encourage divergent thinking				.1902	.39345
9. When someone fails to respond, wait 2-3 seconds before calling on another student.				.2146	.41157
10. Call on non-volunteers sometimes				.7268	.44668
11. Call on the respondent and then ask the question				.4634	.49988
12. Ask students to paraphrase each other' question and answer				.6927	.46251
Cumulative results	205	2.00	8.00	5.4927	1.33071

Table 4.15 shows the results of teacher educators' performance on the fifth component of assessment literacy "using MCQs, Observations and questions answers during the classroom instruction". There are five items on which teacher educators have low mean scores (.2829, .2049, .3610, .3024, .1902) which reflects that teacher

educators are unaware about the appropriate use of MCQs, use of rating scale, assessing students best work, students' ability and efforts; and ineffective use of questions during the instruction. There are three items (2, 3 and 12) on which they have average level understanding as shown by their mean scores (.5463, .6537, .6927) which reflects the use of reading elements in assessment, the use of non-involve options (all of the above/none of the above) and involving students in phrasing each other questions during the instruction.

On the contrary, there are only 2 items i.e. no 6 and 10 where teacher educators reflected higher literacy as shown by their mean scores (.8537, .7268) teacher educators have correctly pointed out that students should be provided criteria on which their performances are evaluated, furthermore, calling on non-volunteers is also important in assessing students understanding during classroom instruction.

The cumulative mean score, (5.4927) of the respondents' shows that respondents performed above than average on this component of assessment literacy.

In nutshell, teacher educators failed to understand the appropriate use of different assessment tools used for different situations as shown by their cumulative mean score.

Table 4.16

Assessment Literacy Component 6 "Communication of assessment results"

Statements	N	Minimum	Maximum	Mean	Std. Deviation
1. Providing only descriptive feedback on practice work				.4732	.50050
2. Giving students a small amount of corrective feedback at a time				.6732	.47020
3. Using feedback to emphasize strengths in students work				.8878	.31638
4. Using feedback to point out what students need to work on				.8195	.38553
5. The students discuss their result at home with parent				.8780	.32803
6. Discussing strengths and limitations of standardized tests.				.6341	.48285
7. Parents give suggestions for the improvement of students learning.				.8390	.36841
8. Using information about student learning from parents to help plan instruction				.8537	.35431
Cumulative results	205	2.00	8.00	6.0585	1.28204

Table 4.16 reveals the performance of teacher educators on the sixth component of assessment literacy "communication of assessment results". Except of item 1 (.4732) all mean scores represent high performance of teacher educators. Teacher educators understand how to communicate assessment results to different stakeholders following appropriate means and methods for the communication of assessment results. The overall mean score 6.0585 also shows that teacher educators have high literacy in this component of assessment literacy.

To conclude, teacher educators are highly literate in communicating assessment results to students, parents, heads of the institutions and other

stakeholders. Furthermore, they know the suitable methods of communicating assessment results.

Table 4.17

Assessment Literacy Component 7 "Feedback, grading and students' score"

Statements	N	Minimum	Maximum	Mean	Std. Deviation
1. B+. Good Work				.3073	.46251
2. Your work is consistently above average.				.3805	.48670
3. You keep eye contact with the audience in your entire presentation				.6049	.49007
4. Deducting points from a student's work because he/she is usually late to classes				.5171	.50093
5. Inviting students to assign their own grades				.6341	.48285
6. Weighing assessments differently in assigning grades				.5805	.49469
7. The student earned a score like that of a fourth grader in the norm group				.2146	.41157
8. The examinee got 13 out of 16 items correct				.1707	.37720
9. The student outscored 75% of the norm group in examination				.8049	.39726
10. The student earned a score like that of a fourth grader in the norm group				.2634	.47370
Cumulative results	205	2.00	8.00	4.4780	1.29318

Table 4.17 shows the mean scores of teacher educators' performance on the last standards of assessment literacy "feedback, grading and students' scores". There are ten items in this component, in which the mean scores of item 1, 2, 7, 8, and 10 (.3073, .3805, .2146, .1707, and .2634) are low, which shows that teacher educators have no significant understanding of descriptive feedback, transforming students performances factors into grading and nature of scores obtained from assessment

153

results. On item 3, 4, 5, and 6 the mean scores of teacher educators are of average level (.6049, .5171, .6341 and .5805) which shows that they have average level of understanding on grading students properly. Furthermore, teacher educators were of the view that students may be involved in grading their own performances.

The cumulative mean scores of this component is 4.478 which reflects an average level assessment literacy of teacher educators in giving feedback, grading students' performance, and the understanding of the nature of students' scores and its relevant explanation.

Table 4.18

Assessment Literacy of teacher Educators

	N	Minimum	Maximum	Mean	Std. Deviation
Assessment literacy	205	24.00	49.00	36.2049	4.73172

Table 4.18 shows the overall assessment literacy of teacher educators in RITEs of Khyber Pakhtunkhwa and GCETs of Punjab. The total No of sample was 205 where the minimum score was 24 and the maximum was 49. The mean score of the table (36.2049) shows that teacher educators have above average level assessment literacy. The mean score reflects the performance of teacher educators on all the seven components of assessment literacy. Furthermore, it is important to mention that the identified low performance on different components of assessment literacy needs improvement as they are the change agent in teacher education.

In nutshell, the first research question when answered indicates that teacher educators have average level assessment literacy as measured by assessment literacy test from the respondents of the study.

Research Objective No 2: To find out the classroom assessment practices of teacher educators

Table 4.19

Classroom Assessment Practices "Assessment methods"

S #	Statements	Mean	Std. Deviation
1. I adopt true-false test items		2.4659	1.03080
2. I adopt multiple-choice test items		3.5902	.91174
3. I adopt short-answer questions		3.8195	.97096
4. I adopt extended short answer questions		3.5512	.92012
5. I adopt oral exams		3.2829	.98913
6. I adopt essay questions (one paragraph)		3.1951	1.03421
7. I adopt structured performance assessment		3.2390	1.03205
Cumulative results		23.4439	3.95477

Table 4.19 illustrates that how much majority of teacher educators frequently adopt different classroom assessment methods in their classroom assessment practices. The results show that teacher educators adopt true/false assessment method rarely as shown by the mean score (2.465). On the contrary, the mean scores of item 5, 6 and 7 (3.282, 3.195 and 3.239) which represent oral exams, essay questions and structured performance assessment represents that majority of teacher educators use these assessment methods alternatively in the assessment of their students.

While the mean scores (3.5902, 3.8195 and 3.5512) of item 2, 3, 4 which represent the use of MCQs, short answer questions and extended short answer questions in classroom shows that teacher educators use these types of assessment methods at classroom most frequently as it comes in the category of "Often". However the respondents' standard deviation scores represent dispersion in item 1, 6 and 7 which shows that respondents were scattered in the responses.

156

To conclude the most frequently and often used methods of teacher educators in their classroom assessment practices are: MCQs, short answer questions and extended short answer questions.

Table 4.20

Classroom Assessment Practices "Assessment communication practices"

S #	Statements	Mean	Std. Deviation
8. Informing students about the purpose of assessment prior to its administration		3.4049	1.30871
9. Providing oral assessment feedback to each Student		3.4829	.93198
10.Providing written assessment feedback to each student		3.6439	1.16528
11.Informing every student about his or her strengths in the assessment		3.9561	1.02087
12.Providing students with suggestions of ways to improve their performance in science		3.9415	.89469
13.Protecting students' confidentiality with regard to assessment results		3.5805	1.11567
14.Praising high achieving students in front of the whole class		3.9171	1.07007
15.Criticizing low achieving students in front of the whole class		2.1463	1.30160
16.Returning assignments and tests to students with marks/comments or errors		3.8878	1.15134
Cumulative results		31.9610	5.47530

Table 4.20 illustrates the assessment communication practices of teacher educators. The mean scores (3.6439, 3.9561, 3.9415, 3.5805, 3.9171 and 3.8878) of item 10, 11,12,13,14 and 16 that comprised written feedback to students on their writings, informing students about their strengths and weakness, helping them in enhancing their academic performance, ensuring students' assessment results

158

confidentiality, praising high achiever students and returning students work with proper comments; shows that majority of teacher educators often do practice these practices at their classrooms.

Whereas, the mean scores (3.4049, and 3.4829) of item 8 and 9 comprised communicating the purposes of assessment to students, and providing oral feedback to each student shows that they do practice these activities only sometimes in the classroom.

However, on item 15 the mean score was 2.1463 which show that teacher educators rarely criticize the low achievers in front of the class.

In nutshell, teacher educators' are careful about students' assessment results confidentiality, informing them about assessment purposes and giving them proper written and oral feedback which reflects the highly valuable assessment practices at classroom level. Furthermore, it is important to mention that teacher praise students' good performance in front of their class fellows and pinpoint their strengths, weakness to them in their academic works and return their assignments and classroom test with proper comments and feedback.

Table 4.21

Classroom Assessment Practices "Standards and criteria in assessment"

S #	Statements	Mean	Std. Deviation
17. Constructing a model answer for scoring essay questions		3.2000	1.11320
18. Informing students in advance how grades are to be assigned		3.5024	1.29715
19. Using zeros in calculating grades for work not completed		2.6634	1.25201
20. Defining a rating scale for performance criteria in advance		3.4500	1.15611
21. Communicating performance assessment criteria to students in advance		3.7512	1.08083
Cumulative results		16.5659	4.06224

Table 4.21 shows the responses of teacher educators on the standards and criteria used in students' assessment. There are five items in this component, item 18 and 21 having mean scores for reflecting that teacher educators often inform the students in advance that how their work will be graded and also communicate to them the criteria on which they will be graded.

While the mean scores (3.2000, 2.6634 and 3.4500) of item 17, 19 and 20 shows that the respondents were agreed that they sometimes practice these activities. These three items comprised on constructing a model answer paper to score the essay type questions in the paper, use of zero for work not done and use of rating scale for assessing the performance of students.

However, the standard deviations of all items show that the respondents of the study were not on the same page in their responses on the scale.

Based on the above explanation it is concluded that teacher educators do share assessment and grading criteria with students regularly in advance and that they only sometime develop model answer papers and rating students' performance with rating scales.

Table 4.22

Classroom Assessment Practices "Students involvement in assessment"

S #	Statements	Mean	Std. Deviation
22. Engaging students in using grading criteria to evaluate strong and weak samples of class work		3.1415	.93646
23. Providing students opportunities to write test questions based on their understanding of the instructional objectives		3.0927	1.09643
24. Allowing students to choose assessment activities they want to work in the class		3.1707	1.09595
25. Providing students with systematic ways to monitor their learning progress		3.7415	1.15745
Cumulative results		13.1463	3.33697

Table 4.22 shows teacher educators' responses that how frequently they are involving their students in assessment activities at classroom level. The mean score (3.7415) of item 25 shows that teacher educators often involve students in monitoring the learning progress.

On the other hand, item 22, 23 and 24 mean scores (3.1415, 3.0927 and 3.1707) shows teacher educators sometime give opportunity to students to be engaged in using standard grading criteria when evaluating the strengths and weakness of students works, in writing questions for assessment and in making choice in assessment activities. The standard deviation scores illustrated that the responses of the respondents were scattered.

To conclude teacher educators do not involve students in assessment activities and they only discuss different techniques to monitor their own learning progress. Students are sometimes involved in identifying the strengths and weakness based on grading criteria.

Table 4.23

Classroom Assessment Practices "Non-achievement factors In grading"

S #	Statements	Mean	Std. Deviation
26.Incorporating student's behaviour in the classroom in the calculation of grades		2.6780	1.28099
27.Incorporating student's class attendance in the calculation of grades		3.1707	1.35586
28.Incorporating student's interest in learning the subject in the calculation of grades		2.8829	1.41973
29.Incorporating student's class participation in the calculation of grades		3.2195	1.41269
30.Comparing student's performance with other students in determining student's grade		3.1659	1.31798
31.Incorporating student's neatness of work in the calculation of grades		3.2439	1.19600
Cumulative results		18.3610	5.54363

Table 4.23 exhibits teacher educators' practices in non-achievement factors while grading students' performance in the class. The mean scores of all items shows that teacher educators believed that they sometimes considered students' classroom behaviour, classroom attendance, interest in learning the subject, class participation and work neatness in grading their students' performance. Similarly, teacher educators were also in favour of comparing students' performance with other students' performance while grading them.

To conclude teacher educators take into consideration students' non-achievement factors such as: classroom behaviour, attendance and participation while grading students' overall academic performance.

All the above five tables reflect major classroom assessment practices of teacher educator in teacher education. The most frequently used assessment methods of teacher educators were: Multiple Choice Questions (MCQs), short answer questions and extended answer questions. Similarly, in communicating assessment teacher educators frequently practice written feedback to students on their writings, informing them about their strengths and weakness, helping them in enhancing their academic performance, ensuring students' assessment results confidentiality, praising high achievers and returning students work with proper comments.

Likewise, in following assessment criteria and proper standards, teacher educators frequently inform the students by the mechanism through which their work will be graded in advance and that they do communicate the criteria used for the assessment of students work.

However, on the matter of involving students in assessment activities majority of teacher educators agreed that they only involved students in monitoring their own learning progress not in other assessment activities which are deemed necessary for prospective teachers. And lastly, on non-achievement factors, majority of teacher educators also agree that they sometimes take into consideration students' non-achievement factors in their grading such as: classroom behaviour, attendance and participation.

Research Objective No 3: To examine the academic achievement of prospective teachers.

Table 4.24

Prospective teachers' academic achievement

Marks ranges	N	Percentage	Mean	Std. Deviation
205 to 300	31	15		
301 to 360	65	32	355.8488	53.76275
361 and 480	105	51		
481 and above	04	.66		

Table 4.24 shows the academic achievement of prospective teachers in their 3rd semesters. 15% students couldn't achieve 50% marks and they remained in the range of 34 to 50%, 32% students obtained up to 60% marks and their range was from 50 to 60%, and 105 students' scores falls into the range of 60 to 80% marks while only 4 (.66%) could obtained above than 80% marks in their semester examination. The overall mean score (355.84) reflects an average level achievement in the semester.

In conclusion, the academic achievement of prospective teacher was of an average level, majority of prospective teacher fall in the category of the above average level performance.

Research Objective No 5: To measure the relationship between Teacher educators' assessment literacy and classroom assessment practices

Table 4.25

Correlation between assessment literacy and classroom assessment practices

		Assessment practices	Assessment literacy
Assessment practices	Pearson Correlation	1	.309**
	Sig. (2-tailed)		.000
	N	205	205

** Correlation is significant at the 0.01 level (2-tailed).

Table 4.25 shows the correlation between teacher educators' assessment literacy and their classroom assessment practices. The Pearson value is r =.309 which is significant at .000 which shows that there is significant positive correlation between teacher educators' assessment literacy and their classroom assessment practices. Based on the results, the null hypothesis was rejected as there is significant relationship between assessment literacy and classroom assessment practices of teacher educators. According to the criteria of Pearson correlation the above correlation is weak but it is highly significant as the sign value is less than .05.

To conclude teacher educators' assessment literacy has significant relationship with their classroom assessment practices they carried out at classroom level.

Research Objective No 6: To measure the relationship between classroom assessment practices of teacher educators and students' academic achievement

Table 4.26

Correlation between classroom assessment practices and students' academic achievement

		Assessment practices	Students marks
	Pearson Correlation	1	-.053
Assessment practices	Sig. (2-tailed)		.447
	N	205	205

** Correlation is significant at the 0.01 level (2-tailed).

Table 4.26 illustrates the correlation between teacher educators' classroom assessment practices and their students' academic achievement. The Pearson correlation value is r= -.053 shows no significant correlation between teacher educators' classroom assessment practices and their students' academic achievement which is not significant as the sign value is greater than .05. Based on the results, the null hypothesis was accepted as there is no significant relationship between classroom assessment practices of teacher educators and their students' academic achievement. Furthermore, it shows that teacher educators' classroom assessment practices have no significant relationship with the academic achievement of their students.

Based on the above results, objective No 5 was investigated which was to investigate the relationship between classroom assessment practices of teacher educators with prospective teachers' academic achievement, the results shows that there is no significant relationship between teacher classroom assessment practices and their students' academic achievement.

167

Research objectives No 7: To investigate the relationship between teacher educators' assessment literacy and prospective teachers' academic achievement

Table 4.27

Correlation between assessment literacy and academic achievement

		Assessment literacy	Students marks
	Pearson Correlation	1	-.133
Assessment literacy	Sig. (2-tailed)		.057
	N	205	205

**. Correlation is significant at the 0.01 level (2-tailed).

Table 2.27 shows the correlation between teacher educators' assessment literacy and their students' academic achievement. The Pearson correlation value is -.133 which shows negative correlation between teacher educators' assessment literacy and their students' academic achievement, this correlation is not significant at .057 as the sign level is higher than .05. Based on the results the null hypothesis was accepted.

It indicates that teacher educators' assessment literacy has no significant relationship with their students' academic achievement.

This correlation also indicates that the achievements of students of those teacher educators who have higher assessment literacy are more reliable and accurate. This inverse correlation reflects that higher assessment literacy of teacher educators contribute into more accurate and reliable academic achievement of students.

Based on the results objective No 5 "to investigate the relationship between teacher educators' assessment literacy and their students' academic achievement"

revealed that there is no significant relationship between teacher educators assessment literacy with their students' academic achievement.

4.28 Summary

This chapter revealed the demographical information of the respondents, results of assessment literacy test, students' academic achievement and its relationship with students' academic achievement. All the tables were interpreted accordingly. The results of the collected data from the respondents of the study reflected that there are no significant differences in assessment literacy of male and female teacher educators. Majority of the respondents have average level assessment literacy and most of the respondents follow traditional assessment tools in students' assessment. The low assessment literacy in designing assessment tools is because of lack of refresher courses, in-service trainings, inconsistency in government policies towards teacher education and lack of relevant facilities for online and self-learning. There were institutions where internet and computer lab facilities were not available.

CHAPTER 5

SUMMARY FINDINGS, CONCLUSIONS, AND
RECOMMENDATIONS

This chapter is comprised summary, findings, conclusion and recommendations based on the results of the study.

5.1 SUMMARY

The study focused on investigation of the relationship of teacher educators' assessment literacy and classroom assessment practices with their students' academic achievements. The objectives of the study were to; investigate the assessment literacy of teacher educators, find out the classroom assessment practices of teacher educators, find out the academic achievement of prospective teachers, measure the relationship between teacher educators' assessment literacy and their classroom assessment practices, measure the relationship between teacher educators' assessment literacy and their students' academic achievement and investigate the relationship between teacher educators' classroom assessment practices and their students' academic achievement. The main research question of the study was "Is there a relationship of teacher educators' assessment literacy and classroom assessment practices with their students' academic achievement?"

The study was quantitative correlational in nature and survey was conducted to investigate the respondents responses on the research problems. The population of the study included all four hundred and ten 410 teacher educators and eight hundred and seventeen 817 students of ADE and B. Ed Hons of Regional Institutes of Teacher Education (RITEs) of Khyber Pakhtunkhwa and Government Colleges of Elementary

Teachers (GCETs) of Punjab. Through stratified proportionate stratified random sampling techniques two hundred and five teacher educators and two hundred and five students of the selected institutes were selected of the sample group of the study.

To investigate the research problem the data were collected from the selected sample group through an Assessment Literacy Test (ALT) and Classroom Assessment Practices Questionnaire (CAPQ). Both the instruments were pilot tested and changes were made accordingly. The collected data were scored and were placed into SPSS for analysis.

The collected data were analysed through percentage, mean scores, standard deviation, independent sample t test, one way ANOVA and Pearson correlation.

5.2 FINDINGS

Following findings were extracted from the results of the study;

(a) Demographic Information

1. The respondents of the study were 131 (64%) male and 74 (36%) female teacher educators. (table 4.1)

2. The question was answered as there was no significant difference between the assessment literacy levels of male and female respondents of the study. (table 4.2)

3. From academic qualification perspectives there were 164 (80%) M. Ed and B.Ed, 36 (18%) M.S / M. Phil and five (2.4%) PhD in the respondents of the study. (table 4.3)

4. The mean scores from academic qualification of Master degree holder respondents have (35.29), MS / M. Phil (36.05) and PhDs have (31.4) mean scores on assessment literacy test. (table 4.4)

171

5. Results show that (75%) of respondents have B.Ed and M.Ed qualification. Only (9%) respondents were found having B. Ed and (17%) respondents have other professional qualifications besides their academic qualifications. (table 4.5)

6. The mean scores of B. Ed degree holders are (35.28), M. Ed degree holders have (36.25) and other professional qualification holders have (35.21). The variations between the groups (17.54) and within the groups (4738.77), and f value (.374) all these variations are not significant as shown by the sig level .688. (table 4.6)

7. From teaching experience perspective majority 77 (37.6%) of the respondents were experienced teacher educators having more than twenty years teaching experience. (table 4.7)

8. The mean scores of those teacher educators who have 1 to 5 years and 6 to 10 years teaching experience are (34.88 and 34.28), those teacher educators who have 11 to 15 and 16 to 20 years teaching experiences (35.13 and 35.06) while 36.21 mean score was recorded for teacher educators having more than 21 years teaching experience. (table 4.8)

9. From teacher educators training in classroom assessment majority 167 (81.5%) respondents were found having no training in assessment. (table 4.9)

10. The mean scores of those teacher educators who have not gone through any assessment training was (34.96), those have one to four weeks training in assessment was (37.58) and the mean score (35.92) of those who have more than four weeks training in assessment. The variation between the groups (149.22) and within the groups (4606.54), f value is (3.272) and sig value is

172

.040 which shows that there are significant differences among the trained and untrained teacher educators assessment literacy level. (table 4.10)

(b) Assessment Literacy of Teacher educators

1. The cumulative mean score (4.37) (Minimum =1.00, Maximum = 7.00) shows that teacher educators have average level assessment literacy in understanding the purposes of assessment. (table 4.11)

2. The mean score (8.53) shows (Minimum = 3.00, Maximum = 12.00) that teacher educators have above average level literacy on designing learning outcomes. (Table. 4.12)

3. The cumulative mean score (4.8634) (Minimum = 2.00, Maximum = 12.00) shows that teacher educator have low literacy and understanding on designing assessment which is the third component of assessment literacy. (table 4.13)

4. The cumulative mean score (2.404) (Minimum = 1.00, Maximum = 4.00) of teacher educators on assessing the achievement goals which is the component of assessment literacy shows that teacher educators have average level of understanding on assessing the achievement goals of students at different level. (table 4.14)

5. The cumulative mean score (5.4927) (Minimum = 2.00, Maximum = 8.00) shows that teacher educators have good command in the selection of appropriate format of testing (MCQs, Observation and question answering). (table 4.15)

6. The cumulative mean score (6.0585) (Minimum = 2.00, Maximum = 8.00) shows that the respondents have high literacy in communicating assessment results following appropriate mechanism. (table 4.16)

173

7. The overall mean score (4.478) (Minimum = 2.00, Maximum = 8.00) reflects average level assessment literacy of teacher educators in giving feedback to students at classroom, grading their performance, understanding the nature of students' scores and its relevant explanations. (table 4.17)

8. The mean score of teacher educators' assessment literacy was (36.20) which shows that teacher educators have good understanding of assessment and its different components, the maximum mean score assessment literacy was (49.00) and the minimum mean score was (24.00). (table 4.18)

(c) Classroom Assessment Practices of Teacher educators

1. Teacher educators rarely use true/false format of assessment as reflected by the mean score (2.469) while the mean scores (3.282, 3.195 and 3.239) of oral exams, essay questions and structured performance assessment represents that teacher educators use sometimes these assessment methods in the assessment of their students at classroom. (table 4.19)

2. Similarly, the mean scores (3.5902, 3.8195 and 3.5512) on the use of MCQs, short answer questions and extended short answer questions methods of assessment teacher educators were found that they often use these methods (the response marked is often). (Table 4.19)

3. The mean scores (3.6439, 3.9561, 3.9415, 3.5805, 3.9171 and 3.8878) of written feedback to students, informing students about their strengths and weakness, helping them in enhancing their academic performance, ensuring students' assessment results confidentiality, praising high achiever students and returning students' work with proper comments shows that teacher educator often practice these practices at their classrooms. (table 4.20)

174

4. The mean scores (3.4049, and 3.4829) of communicating the purposes of assessment to students, and providing oral feedback to each student shows that teacher educators are in practice of using these activities only sometimes. (table 4.20)

5. The mean score was (2.1463) which shows teacher educators rarely criticize the low achievers in front of the class. (table 4.20)

6. The mean scores (3.5024 and 3.7512) show that teacher educator follow proper mechanisms in grading students' performance. On the contrary, the mean scores (3.2000, 2.6634 and 3.4500) of teacher educators on constructing a model answer paper to score the essay type questions in the paper, use of zero for work not done and use of rating scale for assessing performance of students show that they only sometimes practice these practices. (table 4.21)

7. The mean score (3.7415) on involving students in monitoring their learning progress shows that teacher educators are often found to be involving students in monitoring their learning progress. Furthermore, the mean scores (3.1415, 3.0927 and 3.1707) show that teacher educators sometime give opportunity to students to be engaged in using standard grading criteria when evaluating the strengths and weakness of students' works, in writing questions for assessment and in making choice in assessment activities. (table 4.22)

8. The mean scores (2.6780, 3.17, 2.8829, 3.2195 and 3.2439) on non-achievement factors such as; students' behavior, class participation, interest in learning and work neatness in students' grading show that teacher educators sometimes consider these factors while grading students' performance. (table 4.23)

(d) Prospective Teachers Academic Achievement

1. The overall mean score (355.84) shows that prospective teacher's performance was better and they obtained above than average level. (table 4.24)

(e) Relationship of teacher educators assessment literacy, classroom assessment practices and students' academic achievement

1. According to Pearson value r= .309 which is significant at .000 shows that there is significant relationship between teacher educators' assessment literacy and their classroom assessment practices, based on the finding the null hypothesis was rejected. (table 4.25)

2. According to Pearson value r= -.053 which is not significant at .05 shows that there is no significant relationship between teacher educators' assessment practices and their academic achievement based on the finding the null hypothesis was accepted. (table 4.26)

3. According to Pearson value r= -.133 which shows negative correlation between teacher educators' assessment literacy and their students' academic achievement, this correlation is not significant as the sign value .057 is higher than .05, based on the finding the null hypothesis was accepted. (table 4.27)

5.3 DISCUSSIONS

5.3.1 Assessment Literacy of Teacher Educator

The study results showed that teacher educators have an average level of understanding on different aspects of classroom assessment including formative and summative assessment. These results are supported by the study of Riaz (2008) where he mentioned that teachers adopt formative assessment practices to enhance students learning competencies towards higher attainments. This result is also supported by the

176

work of Linn and Miller (2008) where they were of the opinion that the basic purpose of classroom assessment is to enhance the effective teaching in classroom. On the contrary, these results are not in confirmity of the results of Suah (2012) where he studied primary school teachers and found that teachers have low level of assessment literacy. Furthermore, the results of this study is important as it reflects the assessment literacy of teacher educators and not of general teachers at different levels (Elementary, Secondary or university) of education.

Teacher educators were found good in clarifying learning outcomes for students and for classroom assessment. These results are supported by the empirical studies of Torrie and Van Buren (2008) where they posit that deep thinking is considered to promote the process of teaching and intellectual development of the students. They emphasized that students need practice in assessment on regular basis for the development of independence, self-direction and self-regulation in the field of assessment. Furthermore, Ennis (2015) opined that reflective thoughts is suitable way of thinking, concentrating on the decision-making about beliefs and actions on the part of the individuals which is a learning target for students. On the contrary to the findings of Ennis (2015) the results of this study reflected that discussing learning outcomes positively contribute into teachers' assessment practices which on one hand is a catalyst for students' centered assessment beliefs and on the other hand improves assessment knowledge of teacher educators and prospective teachers.

The results showed that teacher educators did not understand how to design assessment and what type of assessment methods and procedures are required to be adopted for measuring different type of students' learning. These results were supported by the studies of Wissehr and Siegel (2008-2009). In their first study it was found that summative assessment being confined to knowledge of facts, teachers

177

adopt methods and strategies designed to cram their students' minds with facts only. However in their second study it was shown that teachers were theoretically strong but practically weak in students' assessment. Similarly, Popham (2011) also supported by sharing his own professional experiences that designing assessment was difficult for him in the initial phase of his teaching and he confess his failure in the assessment of students. The confession is made in one of his articles "Assessment literacy overlooked: a teacher educators' confession".

The results of current study also shows that teacher educators have problems in assessing achievement goals designed for students, which also means that teacher educators need further understanding on assessment of achievement goals. Stiggins (2002) backed and posit that teachers are facing problems in transforming learning goals into assessment tasks to motivate students for learning which is an important consideration in assessment goals. Gotch and French (2014) investigated assessment literacy of teachers and revealed the teachers' are required to be exposed to assessment training as they have low literacy in assessment in general and particularly in designing assessment goals and assessment as learning. The designing of assessment integrated instruction is the weak area of teachers where intensive trainings are compulsory.

Teacher educators were found highly literate in communicating assessment results to students, parents, head of the institutions and other stakeholders. Furthermore, they were found well versed in suitable methods of communicating assessment results, these results are supported by the research work of (Stiggins, 2008) as teachers adopted appropriate methods of assessment results communication. Similarly, the study conducted by Chappuis, Stiggins, Chappuis, and Arter (2012) revealed that students' assessment results are used by different stakehoders such as:

178

students, teachers, parents, school administration and other stakehoders and teachers communicate these results according to the demand of the stakeholders.

The results revealed that teacher educators have average level assessment literacy in giving feedback, grading students' performance, and on the understanding of the nature of students' scores and its relevant explanations. Blatt (2005) study strongly supports the results and was of view that teachers' feedback to students accelerates students' academic achievement. Furthermore, the studies of Gibbs and Simpson (2004) and Rogers (2001) revealed that feedback could be effective, relevant, motivational, specific, clear, and focused on student's performance. Issues of judgment, communication, and character development of students could be considered in the exploration of grading practices. Similarly, Zoeckler (2007) was of the opinion that teachers have the knowledge of achievement and non-achievement dimensions. The grading system considers the reality, trust, value, ethical and mental concentration of the students as these are issues of grading.

The results also revealed that the assessment literacy of teacher educators is of average level. The respondents were found weak on designing assessment methods and procedures. The results of this study found better as compared to the results of the study of Frewer (2014) which shows that teachers have very little awareness of the assessment, which does not positively contribute to execution assessment during classroom. Similarly, the results of Alkharusi, Kazem, and Al Musawai (2011) also support that teachers' understanding of assessment significantly affect their instruction and students' progress and development in learning outcomes and if they have low understanding of assessment it will not positively contribute towards students' learning.

5.3.2 Classroom Assessment Practices

Majority of teacher educators frequently use MCQs, short answer questions and extended short answer questions methods of assessment in their classrooms. All these are traditional methods of assessment which are adopted by the majority of teacher educators. The results are supported by (McMillan, 2008) who was of the opinion that traditional methods of assessment are easy in execution and marking; and therefore, majority of teacher prefer to use these methods in the assessment of their students learning. Furthermore, the results of Alkharusi, Aldhafri, Alnabhani, and Alkalbani, (2012) also confirmed that teachers use traditional forms of assessment during students' assessment.

Teacher educators were found to be practicing care and caution in assessment ethics and also in ensuring students assessment results confidentiality. Furthermore, they were of the opinion that they give regular written and oral feedback to their students on their assignment and other academic works. These results were supported by the study of (Jones, 2008) which concludes that teachers have the knowledge of assessment ethics and majority of them are aware of different rights- right of confidentiality, right of access to information, right to ask for guidance, if any and other facilitative measures adopted and needed in assessment process. Montgomery and Baker (2007) also conducted study on students' feedback and its different types and concluded that teachers know about feedback its effects on the academic achievement of students but mostly they do not practice it. These results are in contrary to the current study as it was concluded that teacher educators do practically give written and oral feedback to students, which enable the prospective teachers to

understand and practically follow the same practices while practicing teaching profession in future.

The results of this study show that teacher educators do share assessment and grading criteria with students in advance regularly and that they only sometime develop model answer papers and practice rating students' performance with rating scales. The study of Race (2009) approves this conclusion and argues that transparency of assessment is the clarity of objectives and lucidity of the knowledge of the students. There must be agreement between assessment criteria and pre-determined objectives which enhance students learning. Additionally, Sadler (2005) results also backed the results who posit that assessment criteria should be made a foundation for students' judgmental quality to make them able to enhance their performance in an intelligent manner.

The results of this study shows that teacher educators praise students good performance in front of their class fellows and pinpoint their strengths, weakness to them in their academic works such as assignment, projects, presentations and terminal papers and return their assignments and classroom test with proper comments and feedback. The study of Ennis (2015) favours these results by arguing that majority of teachers encourage hardworking students by appreciating and rewarding them. They tell students about the various ways in which they improve their academic achievement. In addition, the empirical work of Dhinda, Omar, and Waldrip (2007) also found that examining students perceptions of assessment motivates learners to develop a reliable and genuine approach that *"rewards genuine effort and in depth learning rather than measuring luck"* (p.1262).

The findings of the study reveal that teacher educators do not involve students in assessment activities and teacher educators only discuss different techniques to monitor prospective teachers learning progress. Students are sometimes involved in identifying the strengths and weakness based on some grading criteria. These findings were rejected by the research results of the studies of Chappuis and Stiggins (2004), Wiliam and Thompson (2008). Their findings show that learners' involvement in assessment procedures contributes positively to the skills and knowledge of assessment. Furthermore, prospective teacher are supposed to be more involved as to make them prepare for their future assessment roles in teaching. In teacher education every activity the prospective teacher is supposed to be involved as to understand the purposes, process, strengths, drawbacks, and alternates which make the competent in professional skills learning.

Teacher educators take into consideration students' non-achievement factors such as classroom behaviour, attendance and participation while grading students' overall academic performance. On the contrary the studies of Setlhomo Koloi-Keaikitse (2012) Popham (2009) rendered that these practices were discouraged and that non-achievement factors may not be considered in students grading and they also suggested that the only factor of achievement may be take into considerations. This is debatable as if the criteria have been discussed in advance with students than it can be counted but principally non-achievement factors are not takes into consideration while grading students' performances as these grades represents the mastery of the learning outcomes of the concerned subject.

The results of this study indicate that teacher educators' assessment literacy has a significant positive relationship with their classroom assessment practices. Furthermore, the assessment literacy positively contributes into the classroom

182

assessment practices of teacher educator. The results of Cauley and McMillan (2010) confirmed the association of teacher educators assessment litercay and their classroom assessment practices. Similarly the results are confirmed by the study of (Bell 2007; Abell & Siegel, 2011) where it was revealed that teacher's knowledge of formative and summative assessment has strong impact on their classroom assessment practices.

The findings of this study revealed that there is no significant relationship between teacher educators' classroom assessment practices and the academic achievement of their students. Furthermore, conclusions also revealed that there is no significant relationship of teacher educators' assessment literacy, classroom assessment practices and their students' academic achievement. These conclusions are not confirmed by the results of Beziat and Coleman (2015) as their results revealed that teacher assessment literacy has significant relationship with the academic achievement and their own classroom assessment practices. Furthermore, the study of Stiggins (2008) revealed that majority of teachers have theoretical knowledge of assessment but in practices they are not practicing it in the classroom.

5.4 CONCLUSIONS

After findings and discussions following are the conclusions of the study;

1. The results illustrátes that teacher educators have no in-service training on assessment. Furthermore, a very small number of the respondents were of the opinion that they attended some training but those of very short duration on assessment; significant differences among trained and untrained teacher educators have been found. It was found that trained teacher educators have high assessment literacy level as compared to untrained teacher educators. To conclude classroom assessment is an integral part of teaching learning process

where in-service training is the need of teacher educators and majority of the respondents are lacking these trainings in assessment.

2. The assessment literacy of GCETs' teacher educators is higher than the assessment literacy of RITEs teacher educators as shown by the t values in analysis of results. It may because of the efforts of DSD through in-service trainings of teacher educators of GCETs. Furthermore, from gender-wise results it was concluded that there are no significant differences of male and female teacher educators on assessment literacy test scores as shown by their mean scores.

3. The results of the study show that teacher educators understand different purposes of assessment and their understanding is of average level. On the basis of findings it was concluded that teacher educators have average level literacy on the purposes of assessment which is the first component of assessment literacy. These teacher educators do assess students' performances for different purposes and that's why they understand different purpose of assessment.

4. On the basis of cumulative mean score of teacher educators on clear learning outcomes which is the second component of assessment literacy it was concluded that teacher educators have above than average literacy not higher.

5. On the basis of findings, it was concluded that teacher educators did not understand how to design assessment and what type of assessment practices and procedures are required to be adopted for measuring different type of students' learning.

6. Based on the results of the study, it was concluded that teacher educators have problems in assessing achievement goals designed for students, which also

184

shows that teacher educator need further understanding on the assessment of achievement goals.

7. Findings of the study reveals that teacher educators failed to understand the appropriate use of different assessment tools used for different situations as shown by their cumulative mean score.

8. Similarly, based on the findings it was concluded that teacher educators are highly literate in communicating assessment results to students, parents, head of the institutions and other stakeholders. Furthermore, they know the suitable methods of communicating assessment results.

9. Based on the cumulative mean scores it was concluded that teacher educators have average level assessment literacy in give feedback, grading students' performance, and on the understanding of the nature of students' scores and its relevant explanations. They know how to give feedback to students on their work which may have positive effects on the academic achievement of students.

10. Based on the results of all seven components of assessment literacy of teacher educators, it was found that teacher educators have average level assessment literacy except of designing assessment methods and procedures.

11. Based on the results of the study, it was concluded that teacher educators frequently use MCQs, short answer questions and extended short answer questions methods of assessment in their classrooms.

12. It was concluded that majority of teacher educators' are careful for confidentiality of students' assessment results, informing them about assessment purposes and giving them proper written and oral feedback which reflects highly valuable assessment practices at classroom level. Furthermore,

it is important to mention that teacher praise students' good performance in front of their class fellows and pinpoint their strengths, weakness to them in their academic works and return their assignments and classroom test with proper comments and feedback.

13. It was concluded that teacher educators share assessment and grading criteria with students regularly in advance and that they only sometime develop model answer papers for rating students' performance with rating scales.

14. It was concluded that teacher educators don't involve students in assessment activities and they only discuss different techniques to monitor their own learning progress. Students are sometimes involved in identifying the strengths and weakness based on some grading criteria.

15. It was concluded that teacher educators take into consideration students' non-achievement factors such as; classroom behavior, attendance and participation while grading students' overall academic performance.

16. It was also concluded after data analysis that teacher educators' assessment literacy has a significant positive relationship with their classroom assessment practices. Furthermore, the assessment literacy positively contributes towards the classroom assessment practices of teacher educators.

17. It was found as yielded by collected data, that teacher educators' classroom assessment practices has no significant relationship with the academic achievement of their students. Furthermore, data analysis also showed that classroom assessment practices has no direct association with the academic achievement of students.

18. The data analysis further revealed that teacher educators' assessment literacy has no association with the academic achievement of their students.

5.5 RECOMMENDATIONS

On the basis of study findings, conclusions and discussions following recommendations were made;

1. Majority of teacher educators have an average level of assessment literacy which is not up to the mark as revealed in conclusion no 5. Furthermore, it was revealed by the study that teacher educators have no in-service training in assessment throughout their professional career. Therefore, it is recommended that a series of workshops with the help of teacher education departments of Universities, sponsored by the Directorate of Staff Development (DSD) and Directorate of Curriculum and Teacher Education (DCTE) may be arranged to enhance knowledge and skills of teacher educators in assessment.

2. Teacher educators were found unable to select appropriate design of assessment for assessing different types of students' learning as reflected in conclusion no 7. Therefore, it is recommended that along with in-service trainings and workshops lectures may also be designed for teachers of teacher education institutions on assessment designs and its related factors. Furthermore, there are different online resources available free of cost and restricted online resources may be purchased for teacher education institutions and colleges so that they could enhance their assessment knowledge through self-directed learning by utilizing these materials.

3. Every assessment method has its own limitations; therefore, it is crucial to practice different assessment methods in classroom assessment according to the demands of the situations as reflected by conclusion no 13. Therefore, it is recommended for teacher educators that they may not limit themselves to the

traditional assessment methods and may also take into consideration the alternative assessment methods like portfolio assessment.

4. Teacher educators' of GCETs and RITEs rarely involve their students in designing of assessment activities. They are only involved in monitoring their own learning progress as reflected by conclusion no 16. While it is important for the students of education to be involved in designing assessment activities so that they could obtain exposure which will positively contribute towards developing their assessment skills. Therefore, it is recommended for teacher educators to involve their students in assessment activities by evaluating their deficiencies by them. Similarly, it is also recommended that students may be provided hands-on practices in paper setting, designing assessment criteria, grading students' performance, and alternative assessment practices.

5. Teacher educators were of the opinion that they take into account non-achievement factors while grading students' performance as revealed in conclusion no 17. Based on the conclusion, it is recommended that non-achievement factors may not be considered while grading students' performance. For this, a training workshop for teacher educator is recommended on grading students' performance. Such workshops and training may also be arranged by PhD approved HEC supervisors through HEC research grants. Furthermore, a cyclic biannual training design would be more appropriate if DSD and DCTE may plan for teacher educators.

6. Assessment is an important component of teaching learning process, it is recommended that Ministry of Federal Education and Professional Trainings may constitute a National Assessment Wing (NAW) under the umbrella of National Curriculum Council (NCC) which will not only help to work for the

promotion of assessment knowledge and skills in the country but will also be in align with the curriculum as assessment and curriculum are inter-related. It is also recommended that on the pattern of assessment standards designed by American Federation of Teachers and National Council for Measurement Education there must also be developed assessment standards for teachers in Pakistan, which could help the teachers in enhancing their assessment skills or their knowledge and skills of assessment may be evaluated on the basis of those assessment standards.

7. It is also recommended that teacher educators may be trained in emerging software to integrate ICT in assessment practices and to instant feedback to students, such as use of mobile App (tracker) for instant feedback at classroom, electronic portfolio for self and peer assessment and use of SPSS in analysis of data.

5.6 RECOMMENDATIONS FOR FUTURE RESEARCHERS

Future researchers in the field of educational assessment and measurement are recommended that they may work on the following areas;

1. For future researchers, it is recommended that they may investigate the same research problem with qualitative, mixed method research design.

2. It is recommended that for the future research that they may investigate the impact of assessment literacy of teacher educators on the assessment literacy of prospective teachers.

3. Similarly, it is also important to investigate that whether teacher teaching experience have any positive contribution in learning assessment skills and enhancement of assessment knowledge or not? And that whether teacher'

discipline (social science / natural science) have any relationship with classroom assessment literacy?

4. Further it is recommended for future researcher to reconfirm the findings of this study with a larger sample group.

REFERENCES

Abdi, A. (2014). The effect of inquiry-based learning method on students' academic achievement in science course. *Universal journal of educational Research*, *2*(1), 37-41.

Abell, S. K. (2008). Twenty years later: Does pedagogical content knowledge remain a useful idea?. *International Journal of Science Education*, *30*(10), 1405-1416.

Abell, S. K., & Siegel, M. A. (2011). Assessment literacy: What science teachers need to know and be able to do. In *The professional knowledge base of science teaching* (pp. 205-221). Springer Netherlands.

Aidarwati, M. B., & Abdul, G. A. (2013). A comparative analysis of primary and secondary school teachers in the implementation of school-based assessment. *Malaysian Journal of Research*, *1*(1), 28-36.

Alkharusi, H. (2011a). A Logistic Regression Model Predicting Assessment Literacy Among In-Service Teachers. *Journal of Theory and Practice in Education* , 2 (7), 280-291.

Alkharusi, H. (2011b). An Analysis of the Internal and External Structure of the Teacher Assessment Literacy Questionnaire. *The International Journal Of Learning* , *18* (1), 515-518.

Alkharusi, H., Aldhafri, S., Alnabhani, H., & Alkalbani, M. (2012). Educational Assessment Attitudes, Competence, Knowledge, and Practices: An Exploratory Study of Muscat Teachers in the Sultanate of Oman. *Journal of Education and Learning* , *1* (2), 217-223.

Alkharusi, H., Kazem, A., & Al-Musawi, A. (2011). Knowledge, skills, and attitudes of preservice and inservice teachers in educational measurement. *Asia-Pacific Journal of Teacher Education* , *39*, 113-123.

Alkharusi, H. (2007). *Effects of teachers 'assessment practices on ninth grade students 'perceptions of classroom assessment environment and achievement*

goal orientations in Muscat science classrooms in the sultanate of oman (Doctoral dissertation, Kent State University).

Alkharusi, H. (2008). Effects of classroom assessment practices on students' achievement goals. *Educational Assessment, 13*(4), 243-266.

Alkharusi, H., Aldhafri, S., Alnabhani, H., & Alkalbani, M. (2012). Educational Assessment Attitudes, Competence, Knowledge, And Practices: An Exploratory Study Of Muscat Teachers In The Sultanate Of Oman. *Journal Of Education And Learning, 1*(2), 217-223.

American Federation of Teachers, National Council on Measurement in Education, & National Education Association (AFT, NCME, & NEA). (1990). Standards for teacher competence in educational assessment of students. Washington, DC: National Council on Measurement in Education.

Baartman, L. K., Bastiaens, T. J., Kirschner, P. A., & van der Vleuten, C. P. (2007). Evaluating assessment quality in competence-based education: A qualitative comparison of two frameworks. *Educational Research Review, 2*(2), 114-129.

Baker, T. L. (1994). *Doing Soical Research.* California State: Mcgraw-Hill, United State Of America.

Bekoe, S. O., Eshun, I., & Bordoh, A. (2013). Formative assessment techniques tutors use to assess teacher-trainees' learning in Social Studies in Colleges of Education in Ghana. *Research on Humanities and Social Sciences, 3*(4), 20-30.

Bell, B. S., & Ford , J. K. (2007). Reactions To Skill Assessment: The Forgotten Factor In Explaining Motivation To Learn. *Human Resource Development Quarterly, 8*(1), 33-62.

Bennell, P. A. U. L., & Molwane, A. (2008). Teacher Supply and Demand for Primary and Secondary Schools in Botswana.

Bennett, R. E. (2011). Formative Assessment: A Critical Review. *Assessment In Education: Principles, Policy & Practice, 18*(1), 5-25.

Beziat, T. L., & Coleman, B. K. (2015). Classroom Assessment Literacy: Evaluating Pre-Service Teachers. *The Researcher, 27*(1), 25-30.

Black, P., & Wiliam,. D. (2009). Developing the theory of formative assessment. *Educational Assessment, Evaluation and Accountability (formerly: Journal of Personnel Evaluation in Education), 21*(1), 5.

Black, P., & Wiliam, D. (1998). Assessment And Classroom Learning. *Assessment In Education: Principles, Policy & Practice, 5*(1), 1-69.

Black, P., Harrison, C., Lee, C., Marshall, B., & Wiliam, D. (2004). Working Inside The Black Box: Assessment For Learning In The Classroom. *Phi Delta Kappan, 86*(1), 8-21.

Black, P., & Wiliam, D. (2005). Lessons from around the world: How policies, politics and cultures constrain and afford assessment practices. *Curriculum Journal, 16*(2), 249-261.

Bloom, B. S. (1971). Handbook on formative and summative evaluation of student learning.

Bogdan, R. C., & Biklen, S. N. (2003). *Qualitative Research for Education* (4th ed.). Toronto: Allyn & Bacon.

Bradford, B. S., & Ford, J. K. (N.D.). Reactions To Skill Assessment: The Forgotten Factor In Explaining Motivation To Learn.

Brookhart, S. M. (2011). *Educational Assessment Knowledge And Skills For Teachers.* Gold Rush Avenue, Helena: Educational Measurement: Issues And Practice.

Bruning, R. H., Schraw, G. J., & Ronning, R. R. (1999). *Cognitive psychology and instruction.* Prentice-Hall, Inc., One Lake Street, Upper Saddle River, NJ 07458.

Campbell, C., & Evans, J. A. (2000). Investigation of preservice teachers' classroom assessment practices during student teaching. *The Journal of Educational Research, 93*(6), 350-355.

Cauley, K. M., & Mcmillan, J. H. (2010). Formative Assessment Techniques To Support Student Motivation And Achievement. *Heldref Publications* , 1-6.

Cavanagh, R., Waldrip, B., Romanoski, J., Dorman, J., & Fisher, D. (2005). Measuring student perceptions of classroom assessment. In *annual meeting of the Australian Association for Research in Education, Parramatta, Australia.*

Chappuis, S. (2004). *Assessment for learning: An action guide for school leaders.* Assessment Training Institute.

Chappuis, J., Stiggins, R., Chappuis, S., & Arter, J. (2012). *Classroom assessment for student learning.* Upper Saddle River, NJ: Pearson Education.

Cook, D. A., & Beckman, T. J. (2006). Current concepts in validity and reliability for psychometric instruments: theory and application. *The American journal of medicine, 119*(2), 166-e7.

Craig, M. A., & Campbell, C. (2005). Measuring Teachers' Knowledge And Application Of Classroom Assessment Concepts; Development Of The Assessment Literacy Inventory. *Annual Meeting Of The American Educational Research Association, Montreal, Quebec, Canada* (Pp. 2-21). Quebec: American Educational Research Association.

Creswell, J. W. (2014). *Research Design: Qualitative, Quantitative, And Mixed Methods Approaches* (4th Edition Ed.). Thousand Oaks, California: Sage.

Creswell, J. W., Plano Clark, V. L., & Garrett, A. L. (2008). Methodological issues in conducting mixed methods research designs. *Advances in mixed methods research,* 66-83.

Crisp, G. (2011). Teacher's Handbook on e-Assessment. Transforming Assessment-An ALTC Fellowship Activity, 18.

Dasgupta, N. (2013). Implicit attitudes and beliefs adapt to situations: A decade of research on the malleability of implicit prejudice, stereotypes, and the self-concept. *Advances in experimental social psychology, 47,* 233-279.

194

Davidheiser, S. A. (2013). *Identifying areas for high school teacher development: A study of assessment literacy in the Central Bucks School District* (Doctoral dissertation, Drexel University).

Delandshere, G. (2002). Assessment as inquiry. *Teachers College Record, 104*(7), 1461-1484.

Deluca, C., Lapointe-Mcewan, D., & Luhanga, U. (2016). Teacher Assessment Literacy: A Review Of International Standards And Measures. *Educational Assessment Evaluation Access (Springer), 28,* 251-272.

DeLuca, C., & Bellara, A. (2013). The current state of assessment education: Aligning policy, standards, and teacher education curriculum. *Journal of Teacher Education, 64*(4), 356-372.

Dhindsa, H. S., Omar, K., & Waldrip, B. (2007). Upper secondary Bruneian science students' perceptions of assessment. *International Journal of Science Education, 29*(10), 1261-1280.

Directorate of Curriculum & Teacher Education. (2014). *Admissions in Regional Institutes for Teacher education in Khyber Pakhtunkhwa under DCTE.* Abbatabad: DCTE.

Directorate of Staff Development. (2015). *Admission Detail List of Punjan Government Colleges for Elementary Teachers.* Lahore: DSD.

Dochy, F., Segers, M., Van Den Bossche, P., & Struyven, K. (2005). Students' perceptions of a problem-based learning environment. *Learning environments research, 8*(1), 41-66.

Duncan, C. R., & Noonan, B. (2007). Factors affecting teachers' grading and assessment practices. *Alberta Journal of Educational Research, 53*(1), 1.

Dunn, K. E., & Mulvenon, S. W. (2009). A Critical Review Of Research On Formative Assessment:The Limited Scientific Evidence Of The Impact Of Formative. *Practical Assessment Reseach And Evaluation, 14*(7), 1-11.

Eckhout, T., Davis,S.,Mickelson, k., & Goodburn, A. (2005). *A method for providing assessment training to in-service and pre-service teachers.* Paper presented at the annual meeting of the Southwestern Educational Research Association, New Orleans, LA.

Ennis, R. H. (2015). Critical thinking: A streamlined conception. In *The Palgrave handbook of critical thinking in higher education* (pp. 31-47). Palgrave Macmillan US.

Espinosa, L. F. (2015). Effective use of performance-based assessments to identify English knowledge and skills of EFL students in Ecuador. *Theory and Practice in Language Studies, 5*(12), 2441.

Ewell, P., Paulson, K., & Kinzie, J. (2011). Down and In: Assessment Practices at the Program Level. *National Institute for Learning Outcomes Assessment.*

Firestone, W. A., & Mayrowetz, D. (2000). Rethinking" High Stakes": Lessons from the United States and England and Wales. *Teachers College Record, 102*(4), 724-49.

Fishbein, M., & Ajzen, I. (2011). *Predicting and changing behavior: The reasoned action approach.* Taylor & Francis.

Frewer, T. (2014). Diversity and 'Development': The Challenges of Education in Cambodia. In *Language, Education and Nation-building* (pp. 45-67). Palgrave Macmillan UK.

Fulcher, G. (2012). Assessment literacy for the language classroom. *Language Assessment Quarterly, 9*(2), 113-132.

Gamire, E., & Pearson, G. (2006). *Tech tally: Approaches to assessing technological literacy.* Island Press.

Gay, L. R., Mills, G. E., & Airasain, P. (2009). *Educational Research Competencies For Analysis And Application.* Columbus: Pearson Merrill Prentice Hall.

Gibbs, G., & Simpson, C. (2004). Does your assessment support your students' learning. *Journal of Teaching and Learning in Higher Education, 1*(1), 3-31.

Gikandi, J. W., Morrow, D., & Davis, N. E. (2011). Online formative assessment in higher education: A review of the literature. *Computers & education, 57*(4), 2333-2351.

Goertz, M., & Duffy, M. (2003). Mapping the landscape of high-stakes testing and accountability programs. *Theory into practice, 42*(1), 4-11.

Gotch, C. M. (2012). An investigation of teacher educational measurement literacy (Doctoral dissertation, Washington State University).

Gotch, C. M., & French, B. F. (2014). A Systematic Review Of Assessment Literacy Measures. *Educational Measurement Issues And Practices, 33*(2), 14-18.

Gottheiner, D. M., & Siegel, M. A. (2012). Experienced Middle School Science Teachers' Assessment Literacy: Investigating Knowledge Of Students' Conceptions In Genetics And Ways To Shape Instruction. *Journal Of Science Teacher Education (Springer)*, 531-557.

Grant, C., & Osanloo, A. (2014). Understanding, Selecting And Integrating A Theoritical Framework In Dissertation Research: Creating The "Blue Print" For Your Hounse. *Administrative Issue Journal: Connecting Education, Practice And Research, 9*(2), 12-26.

Griffee, D. T. (2012). *An Introduction To Second Language Research Methods Design And Data* (1st Edition Ed.). California, United States Of America: Tesl-Ej Publications.

Gulikers, J. T., Bastiaens, T. J., Kirschner, P. A., & Kester, L. (2006). Relations between student perceptions of assessment authenticity, study approaches and learning outcome. *Studies in educational evaluation, 32*(4), 381-400.

Guskey, T. R. (2003). Analyzing lists of the characteristics of effective professional development to promote visionary leadership. *NASSP bulletin, 87*(637), 4-20.

Guskey, T. R. (2008). *Practical solutions for serious problems in standards-based grading*. Corwin Press.

Haladyna, T. M., Downing, S. M., & Rodriguez, M. C. (2002). A review of multiple-choice item-writing guidelines for classroom assessment. *Applied measurement in education*, *15*(3), 309-333.

Hameed-Ur-Rehman, B. M., & BAIG, M. A. (2012). Teachers' opinion/perception about the National professional standards for teachers (npst-2009) in Pakistan. *Interdisciplinary Journal of Contemporary Research in Business [serial online]*, 262-277.

Hargreaves, A., Earl, L., & Schmidt, M. (2002). Perspectives on alternative assessment reform. *American Educational Research Journal*, *39*(1), 69-95.

Harlen, W. (2005). Teachers' summative practices and assessment for learning - tensions and synergies. *The Curriculum Journal, 16,* (2), 207-223. http://dx.doi.org/10.1080/09585170500136093

Hart, C. (1998). *Doing A Literature Review: Releasing The Social Science Research Imaginations.* London: Sage.

Hazzi, O. A., & Maldaon, I. S. (2015). A Pilot Study: Vital Methodological Issues. *Business: Theory And Practice*, 53-62.

Henderson, K. A. (2011). Post-positivism and the pragmatics of leisure research. *Leisure Sciences*, *33*(4), 341-346.

Heritage, M. (2007). Formative Assessment: What Do Teachers Need To Know And Do? *Phi Delta Kappan, 89*(2).

Herrera, S. G., Murry, K. G., & Cabral, R. M. (2012). *Assessment accommodations for classroom teachers of culturally and linguistically diverse students.* Pearson Higher Ed.

Impara, J. C., Plake, B. S., & Fager, J. J. (1993). Teachers' assessment background and attitudes toward testing. *Theory into practice*, *32*(2), 113-117.

Iqbal, J. (2007). Learning From A Doctoral Research Project: Structure And Content Of A Research Proposal. *The Electronic Journal Of Business Research Methods, 5*(1), 11-20.

James, M., Black, P., McCormick, R., Pedder, D., & Wiliam, D. (2006). Learning how to learn, in classrooms, schools and networks: Aims, design and analysis. *Research Papers in Education, 21*(02), 101-118.

Jones, H. T. (2008). *Assissment:A Practical Guide For Secondary Teachers.* London : Continuum International Publishing Group The Tower Building 11 York Road London Sei 7nx.

Kaplan, A., Gheen, M., & Midgley, C. (2002). Classroom goal structure and student disruptive behaviour. *British journal of educational psychology, 72*(2), 191-211.

Karim, B. H. (2015). The Impact Of Teachers' Beliefs And Perceptions About Formative Assessment In The University Esl Class. *International Journal Of Humanities Social Sciences And Education (Ijhsse), 2*(15), 108-115.

Khadijeh, B., & Amir, R. (2015). Importance Of Teachers' Assessment Literacy. *International Journal Of English Language Education, 3*(1), 139-145.

Khalid, S., Irshad, M. Z., & Mahmood, B. (2012). Job satisfaction among academic staff: A comparative analysis between public and private sector universities of Punjab, Pakistan. *International Journal of Business and Management, 7*(1), 126-136.

King, P. M., & Kitchener, K. S. (2004). Judgment model: Twenty years of research on epistemic cognition. *Personal epistemology: The psychology of beliefs about knowledge and knowing, 37.*

Koegler, H. H. (2012). Agency and the Other: On the intersubjective roots of self-identity. *New ideas in psychology, 30*(1), 47-64.

Koh, K. H., & Velayutham, R. L. (2009). Improving teachers' assessment literacy in Singapore schools: An analysis of teachers' assessment tasks and student work.

Koloi-Keaikitse, S. (2012). *Classroom assessment practices: A survey of Botswana primary and secondary school teachers* (Doctoral dissertation, BALL STATE UNIVERSITY).

Koloi-Keaikitse, S., & Marchant, G. J. (2013). Teacher Characteristics and Beliefs about Classroom Assessment in Botswana. *National Teacher Education Journal, 6*(1) 73-83.

Kubiszyn, T., & Borich, G. (2003). *Educational Testing And Measurment Classroom Application And Practice* (Seventh Ed.). United States America: John Wiley & Sons Inc.

Kwok, L. (2008). Students' perception of peer evaluation and teachers' role in seminar discussions. *Electronic journal of foreign language teaching, 5*(1), 84-97.

Lekoko, R. N., & Koloi, S. (2007). Qualms in marking university students' assignment by teaching staff: Does correlation of student's expectations and teacher's feedback matter. *Journal of Business, Management and Training, BIAC, 4*, 34-45.

Leon, A. C., Davis, L. L., & Kraemer, H. C. (2011). The Role And Interpretation Of Pilot Studies In Clinical Research. *Journal Of Psychiatric Research, 45*(5), 626–629.

Lian, L. H., Yew, W. T., & Meng, C. C. (2014). Enhancing Malaysian teachers' assessment literacy. *International Education Studies, 7*(10), 74.

Linn, R. L., & Miller, M. (2008). *Measurement And Assessment In Teaching* (Ninth Ed.). New Delhi, India: Pearson Education.

Magnusson, P., Wilson, R. T., Zdravkovic, S., Xin Zhou, J., & Westjohn, S. A. (2008). Breaking through the cultural clutter: a comparative assessment of multiple cultural and institutional frameworks. *International Marketing Review, 25*(2), 183-201.

Mansour, N. (2009). Science teachers' beliefs and practices: Issues, implications and research agenda. *International Journal of Environmental and Science Education*, *4*(1), 25-48.

Marzano, R. J. (2009). *Formative Assessment & Standard-Based Grading; The Classroom Strategies Series.* New York: Marzano Research Laboratory Solution Tree.

Marriott, P., & Lau, A. (2008). The use of on-line summative assessment in an undergraduate financial accounting course. *Journal of Accounting Education*, *26*(2), 73-90.

Masole, T. M. (2011). *Enhancing the quality of performance assessment in agriculture in Botswana schools* (Doctoral dissertation).

Matovu, M., & Madziah Zubairi, A. (2014). Self-perceived assessment competencies and practices among university lecturers. *Journal of Applied Research in Higher Education*, *6*(2), 269-284.

Matovu, M., & Zubairi, A. M. (2014, April 11). Factors Influencing Assessment Practices Among University Academic Staff: A Multiple Regression Analysis. *Mevlana International Journal Of Education, 4*(1), 176-188.

McDonald, L., Flint, A., Rubie-Davies, C. M., Peterson, E. R., Watson, P., & Garrett, L. (2016). Teaching high-expectation strategies to teachers through an intervention process. Professional Development in Education, 42(2), 290-307.

McGee, J., & Colby, S. (2014). Impact of an assessment course on teacher candidates' assessment literacy. *Action in Teacher Education*, *36*(5-6), 522-532.

McMillan, J. H. (2001). Secondary teachers' classroom assessment and grading practices. *Educational Measurement: Issues and Practice*, *20*(1), 20-32.

McMillan, J. H. (2003). Understanding and improving teachers' classroom assessment decision making: Implications for theory and practice. *Educational Measurement: Issues and Practice*, *22*(4), 34-43.

McMillan, J. H. (2008). *Assessment essentials for standards-based education*. Corwin Press.

Meece, J. L., Anderman, E. M., & Anderman, L. H. (2006). Classroom goal structure, student motivation, and academic achievement. *Annu. Rev. Psychol.*, *57*, 487-503.

Mertens, D. M. (2010). *Research And Evaluation In Education And Psychology, Integrating Diversity With Quantitative And Qualitative And Mixed Methods* (3rd Ed.). California: Sage Publications, Incoporation.

Mertler, C. A. (2003). Pre-service Versus In-service Teachers' Assessment Literacy: Does Classroom Experience Make a Difference?.

Mertler, C. A. (2009). A Systematic Approach to Transforming the Art of Teaching Into the Science of Teaching: Developing a D-DIDM Mindset. *Mid-Western Educational Researcher*, *22*(1).

Mertler, C. A., & Campbell, C. (2005). Measuring Teachers' Knowledge & Application of Classroom Assessment Concepts: Development of the. *Online Submission*.

Miller, M. D., Linn, R. L., & Gronlund, N. E. (2012). *Measurement and assessment in teaching*. Pearson Higher Ed.

Montgomery, J. L., & Baker, W. (2007). Teacher-written feedback: Student perceptions, teacher self-assessment, and actual teacher performance. *Journal of Second Language Writing*, *16*(2), 82-99.

Morrison, J. A., & Lederman, N. G. (2003). Science Teachers' Diagnosis And Understanding Of Students' Preconceptions. *Science Education, 87*(6), 849-867.

Mueller, M., Yankelewitz, D., & Maher, C. (2011). Sense making as motivation in doing mathematics: Results from two studies. *The Mathematics Educator, 20*(2), 33-43.

Mundia, L. (2010). Implementation of SPN21 curriculum in Brunei Darussalam: A review of selected implications on school assessment reforms. *International Education Studies*, *3*(2), 119.

Mussawy, S. J. (2009). *Assessment Practices: Student' Perceptions Of Classroom Assessment*. Graduate School, Center For International Education (Cie) Department Of Education, Policy, Research, And Administration (Epra).

Nenty, H. J., Adedoyin, O. O., Odili, J. N., & Major, T. E. (2007). Primary Teacher's Perceptions of Classroom Assessment Practices as Means of Providing Quality Primary/basic Education by Botswana and Nigeria. *Educational Research and Reviews*, *2*(4), 74.

Newfields, T. (2006, May). Teacher development and assessment literacy. In *Authentic Communication: Proceedings of the 5th Annual JALT Pan-SIG Conference* (pp. 48-73).

Nicol, D. (2009). Assessment for learner self-regulation: enhancing achievement in the first year using learning technologies. *Assessment & Evaluation in Higher Education*, *34*(3), 335-352.

Nicol, D. J., & Macfarlane-Dick, D. (2006). Formative assessment and self-regulated learning: A model and seven principles of good feedback practice. *Studies in higher education*, *31*(2), 199-218.

Nitko, A. J. (2001). *Educational assessment of students*. Prentice-Hall, Inc., PO Box 11071, Des Moines, IA 50336-1071.

Noordin, F., & Jusoff, K. (2009). Levels of job satisfaction amongst Malaysian academic staff. *Asian Social Science*, *5*(5), 122.

Ogan-Bekiroglu, F., & Suzuk, E. (2014). Pre-service teachers' assessment literacy and its implementation into practice. *Curriculum Journal*, *25*(3), 344-371.

Ohlsen, M. T. (2007). Classroom assessment practices of secondary school members of NCTM. *American Secondary Education*, 4-14.

O'loughlin, K. (2013). Developing The Assessment Literacy Of University Proficiency Test Users. *Language Testing, 30*(3), 363-380.

Olson, B. L., & McDonald, J. L. (2004). Influence of online formative assessment upon student learning in biomedical science courses. *Journal of Dental Education, 68*(6), 656-659.

Ostermann, M., & Hyatt, J. M. (2016). Is something better than nothing? The effect of short terms of mandatory parole supervision. *Justice Quarterly, 33*(5), 785-810.

Panadero, E., & Jonsson, A. (2013). The use of scoring rubrics for formative assessment purposes revisited: A review. *Educational Research Review, 9*, 129-144.

Peetsma, T., & Van der Veen, I. (2013). Avoidance-oriented students' development in motivation for maths, self-regulated learning behaviour and achievement: A person-centred study in the lowest level of secondary education. *Educational Psychology, 33*, 828-848. doi:10.1080/01443410.2013.802885

Pellegrino, J., Chudowsky, N., & Glaser, R. (2001). *Knowing what students know: The Science and Design of Educational Assessment.* Washington DC: National Academy Press.

Perry, M. L. (2013). *Teacher And Principal Assessment Literacy.* Phd Dissertation, The University Of Montana, Department Of Educational Leadership And Human Sciences.

Phamotse, I. T., Nenty, H. J., & Odili, J. N. (2011). Training and availability of skills for sustenance of standard in classroom assessment practices among Lesotho teachers. *International Journal of Scientific Research in Education, 4*(3), 190-201.

Phillips, D. C. (2004, April). Is mixed methods research an epistemological oxymoron. In *annual meeting of the American Educational Research Association, San Diego, CA.*

Picard, R. W., & Liu, K. K. (2007). Relative subjective count and assessment of interruptive technologies applied to mobile monitoring of stress. *International Journal of Human-Computer Studies*, *65*(4), 361-375.

Pintrich, P. R. (2002). The role of metacognitive knowledge in learning, teaching, and assessing. *Theory into practice*, *41*(4), 219-225.

Plake, B. S., Impara, J. C., & Fager, J. J. (1993). Assessment competencies of teachers: A national survey. *Educational Measurement: Issues and Practice*, *12*(4), 10-12.

Platts, M. (2016). *Reference, truth and reality: essays on the philosophy of language*. Routledge.

Popham, W. J. (2006). *Assessment for educational leaders*. Pearson/Allyn and Bacon.

Popham, W. J. (2009). Assessment literacy for teachers: Faddish or fundamental? *Theory Into Practice*, *48*, 4-11. http://dx.doi.org/10.1080/00405840802577536

Popham, W. J. (2011). Assessment Literacy Overlooked: A Teacher Educator's Confession. *Ther Teacher Educator*, 265-273.

Popham, W. J. (2013). Tough Teacher Evaluation and Formative Assessment: Oil and Water?. *Voices from the Middle*, *21*(2), 10.

Prasad, J. S. R., Singh, Y., Kaynia, A. M., & Lindholm, C. (2009). Socioeconomic clustering in seismic risk assessment of urban housing stock. *Earthquake Spectra*, *25*(3), 619-641.

P.Mean Website, (2008). http://www.pmean.com/definitions/correlation.htm accessed on 12-12-2016

Race, P. (2009). *Designing assessment to improve Physical Sciences learning*. Hull: Higher Education Academy.

Race, P. (2014). *The lecturer's toolkit: a practical guide to assessment, learning and teaching*. Routledge.

Randolph, J. J. (2009). A Guide To Writing The Dissertation Literature Review. *Practical Assessment, Research And Evaluation, 14*(13), 1-13.

Redecker, C. (2013). The use of ICT for the assessment of key competences. Joint Research Centre of the European Commission Scientific and Policy Report.

Reynolds, C. R., Livingston, R. B., & Willson, V. (2009). Measurement and assessment in education . Columbus, OH: Merrill.

Riaz, M. N. (2008). Test Construction: Development and Standardization of Psychological Tests in Pakistan. *Islamabad: HEC*.

Rivkin, S. G., Hanushek, E. A., & Kain, J. F. (2005). Teachers, schools, and academic achievement. *Econometrica, 73*(2), 417-458.

Sadler, D. R. (2005). Interpretations of criteria-based assessment and grading in higher education. *Assessment & Evaluation in Higher Education, 30*(2), 175-194.

Sadler, D. R. (2009). Transforming holistic assessment and grading into a vehicle for complex learning. In *Assessment, learning and judgement in higher education* (pp. 1-19). Springer Netherlands.

Sadler, D. R. (2010). Beyond feedback: Developing student capability in complex appraisal. *Assessment & Evaluation in Higher Education, 35*(5), 535-550.

Sayed, Y., Kanjee, A., & Rao, N. (2014). Assessment of and for Learning. In *Learning and education in developing countries: Research and policy for the post-2015 UN Development Goals* (pp. 91-109). Palgrave Macmillan US.

Schunk, D. H. (2008). Metacognition, self-regulation, and self-regulated learning: Research recommendations. *Educational psychology review, 20*(4), 463-467.

Segers, M., & Dochy, F. (2001). New assessment forms in problem-based learning: the value-added of the students' perspective. *Studies in higher education, 26*(3), 327-343.

Shavelson, R. J., Young, D. B., Ayala, C. C., Brandon, P. R., Furtak, E. M., Ruiz-Primo, M. A., ... & Yin, Y. (2008). On the impact of curriculum-embedded formative assessment on learning: A collaboration between curriculum and assessment developers. *Applied Measurement in Education, 21*(4), 295-314.

Siegel, M. A., Wissehr, C., & Halverson, K. (2008). Sounds like success: A framework for equitable assessment. *The Science Teacher, 75*(3), 43–46.

Siegel, M. A., & Wissehr, C. (2009). *Assessment of all learners: Developing expertise in equitable assessment with preservice teachers.* Paper presented at the annual meeting of the American Educational Research Association, April, San Diego

Simon, S. (2008). What is a correlation? (Pearson correlation). accessed from http://www.pmean.com/definitions/correlation.htm on 09-12-2016.

Slavin, R. E., & Davis, N. (2006). Educational psychology: Theory and practice.

Smith, C. D., Worsfold, K., Davies, L., Fisher, R., & McPhail, R. (2013). Assessment literacy and student learning: the case for explicitly developing students 'assessment literacy'. *Assessment & Evaluation in Higher Education, 38*(1), 44-60.

Steinberg, C. (2008). Assessment as an" emotional practice". *English Teaching, 7*(3), 42.

Stiggins, R. J. (1994). *Student-centered classroom assessment.* New York: Merrill.

Stiggins, R. J. (2000). Classroom assessment: A history of neglect, a future of immense potential. In *annual meeting of the American Educational Research Association.*

Stiggins, R. J. (2002). Assessment crisis: The absence of assessment for learning. *Phi Delta Kappan, 83*(10), 758-765.

Stiggins, R. J. (2004). New assessment beliefs for a new school mission. *Phi Delta Kappan, 86*(1), 22-27.

Stiggins, R. J. (2005). From Formative Assessment To Assessment For Learning: A Path To Success In Standards-Based Schools. *Phi Delta Kappan, 87*(4), 324-328.

Stiggins, R. J. (2007). Assessment through the student's eyes. *Educational Leadership, 64*(8), 22.

Stiggins, R. J., Arter, J. A., Chappuis, J., & Chappuis, S. (2004). *Classroom assessment for student learning: doing it right--using it well*. Assessment Training Institute.

Stiggins, R. J, & Chappuis, J. (2008). Using student-involved classroom assessment to close achievement gaps. *Theory Into Practice, 1*(44), 11-18.

Stiggins', R. J., & Chappuis, J. (2014). *Stiggins/chappuis test of Classroom Assessment Literacy and Answer Key*. Oregon, United States of America: Oregon Statewide Assessment Literacy Project Adaptation, a Collaborative effort of COSA, OEA, Oregon DOE and ATI .

Suah, S. L., & Ong, S. L. (2012). Investigating assessment practices of in-service teachers. *International Online Journal of Educational Sciences, 4*(1), 91-106.

Susuwele-Banda, W. J. (2005). *Classroom Assessment in Malawi: Teachersâ Perceptions and Practices in Mathematics* (Doctoral dissertation, Virginia Tech).

Suurtamm, C., Koch, M., & Arden, A. (2010). Teachers' assessment practices in mathematics: Classrooms in the context of reform. *Assessment in Education: Principles, Policy & Practice, 17*(4), 399-417.

Tao, N. (2014). *Development and Validation of Classroom Assessment Literacy Scales: English as a Foreign Language (EFL) Instructors in a Cambodian Higher Education Setting* (Doctoral dissertation, Victoria University).

Tavakol, M., & Dennick, R. (2011). Making sense of Cronbach's alpha. *International journal of medical education, 2*, 53.

Thomas, K. S. (1962). *The Structure Of Scientific Revolutions.* Chicago: University Of Chicago Press.

Thomas, J., Allman, C., & Beech, M. (2004). Assessment for the diverse classroom: A handbook for teachers. Tallahassee, FL: Florida Department of Education, Bureau of Exceptional Education and Student Services.

Thomas, M. (2012). Teachers' Beliefs About Classroom Assessment And Their Selection Of Classroom Assessment Strategies. *Journal Of Research And Reflections In Education, 6*(2), 104-115.

Thomas, P. Y. (2010). *Towards Developing A Web-Based Blended Learning Environment At The University Of Botswana.* University Of South Africa, Department Of Education. Pretoria: University Of South Africa (Unisa).

Thomas, K. F., & Barksdale-Ladd, M. A. (2000). Metacognitive processes: Teaching strategies in literacy education courses. *Reading psychology, 21*(1), 67-84.

Tillema, H., Leenknecht, M., & Segers, M. (2011). Assessing assessment quality: Criteria for quality assurance in design of (peer) assessment for learning--a review of research studies. *Studies in Educational Evaluation, 37*(1), 25-34.

Timperley, H., Wilson, A., Barrar, H., & Fung, I. (2008). Teacher professional learning and development.

Tindal, G. (2002). Large-scale assessments for all students: Issues and options. *Large-scale assessment programs for all students*, 1-24.

Tindal, G., & Haladyna, T.M. (2002). *Large-Scale assessment programs for all students - validity, technical adequacy and implementation.* New Jersey: Lawrence Erlbaum Associates Publishers Inc.

Torrie , M. C., & Buren , J. B. (2008). Student And Program Assessment: Assessment Literacy, The Basis For Students Assessment. *Journal Of Family Consumer Sciences Education, (3)*26, 36-49.

Trotter, E. (2006). Student perceptions of continuous summative assessment. *Assessment & Evaluation in Higher Education, 31*(5), 505-521.

Tzuriel, D. (2000). Dynamic assessment of young children: Educational and intervention perspectives. *Educational Psychology Review*, *12*(4), 385-435.

Vandeyar, S., & Killen, R. (2003). Has curriculum reform in South Africa really changed assessment practices, and what promise does the revised National Curriculum Statement hold?. *Perspectives in Education*, *21*(1), 119-134.

Volante, L., & Fazio, X. (2007). Exploring teacher candidates 'assessment literacy: implications for teacher education reform and professional development. *Canadian Journal of Education*, *30*(3), 749.

Wiliam, D., & Thompson, M. (2008). Integrating assessment with learning: What will it take to make it work? In C. A. Dwyer (Ed.). *The future of assessment: Shaping teaching and learning.* (pp. 53-82). New York: Lawrence Erlbaum Associates.

Yamtim, V., & Wongwanich, S. (2014). A study of classroom assessment literacy of primary school teachers. *Procedia-Social and Behavioral Sciences*, *116*, 2998-3004.

Yilmaz-Tuzun, O., & Topcu, M. S. (2008). Relationships Among Preservice Science Teachers' Epistemological Beliefs, Epistemological World Views, And Self-Efficacy Beliefs. *International Journal Of Science Education, 30*(1), 65-85.

Yu, C. H. (2003). Misconceived relationships between logical positivism and quantitative research. In *Research Methods Forum [On-line]. Retrieved September* (Vol. 2, No. 2004, pp. 33620-7750).

Waldrip, B. G., Fisher, D. L., & Dorman, J. (2009). Identifying exemplary science teachers through their students' perceptions of the assessment process. *Research in Science & Technological Education*, *27*(1), 117-129.

Waugh, C. K., & Gronlund, N. E. (2012). *Assessment of student achievement.* Pearson Higher Ed.

Wiggins, G., & McTighe, J. (2007). Schooling by design. *Alexandria, VA: ASCD, 163*.

Wiliam, D. (2006). Formative assessment: Getting the focus right. *Educational assessment, 11*(3-4), 283-289.

Wissehr, C., & Siegel, M. A. (2008). Unlocking assessment secrets: What are preservice teachers' views of assessment? Paper presented at the annual meeting of the Associations for Science Teacher Education, January, St. Louis.

Wormeli, R. (2006). Accountability: Teaching through assessment and feedback, not grading. *American Secondary Education*, 14-27.

Zhang, Z., & Burry-Stock, J. A. (2003). Classroom assessment practices and teachers' self-perceived assessment skills. *Applied Measurement in Education, 16*(4), 323-342.

Zoeckler, L. G. (2007). Moral aspects of grading: A study of high school English teachers' perceptions. *American Secondary Education*, 83-102.

APPENDIX A

INFORMATION SHEET AND CONSENT FORM

Dear Teacher Educator,

Assalam-o-Alaikum!

This document contains relevant information regarding the study titled "Relationship between teacher educators' assessment literacy and classroom assessment practices with their students' academic achievement".

The persons supervising this study are; Dr. Muhammad Munir Kayani, Assistant professor and Dr. Zarina Akhtar, Assistant professor Department of Education, International Islamic University Islamabad, Pakistan. This document describes the terms and conditions for consenting to participate in this study.

Description of Study

The study is descriptive in nature. Teacher educators' assessment literacy and their classroom assessment practices will be investigated which will be correlated with the academic achievement of students. The population of the study includes all the four hundred and ten teacher educators of Teacher educators of Regional Institutes of Teacher Education (RITEs) of Khyber Pakhtunkhwa and Government College of Elementary Teachers (GCETs) of Punjab.

Data from the respondents of the study will be collected through two research instruments. One instrument will be used to investigate the assessment literacy and the second will be used to find out the classroom assessment practices of teacher educators. The obtained scores of students in 3rd semester will be used as the academic achievement of students. The obtain data will be analyzed through Mean Scores, Std Deviation and Pearson simple correlation.

Risks and Benefits

There are no foreseeable risks involved in participating in this study. However, a slight disturbance may arise in participants' daily routines activities for a brief period of time. The researcher would make every effort to minimize this risk. The study has the potential of benefiting the research participants regarding assessment literacy, its main concept and major classroom assessment practices.

Conditions of Participation

Participation in the study is voluntary. Furthermore, the participants reserve the right to withdraw or to refuse to participate in the study without presenting any justification.

212

Confidentiality

To ensure confidentiality, findings will be presented in the form of research report with no identifying information about research participants. Confidentiality of the research participants and the selected institutes and colleges will be maintained by using pseudonyms in place of real names. The data will not be shared with anyone except the researcher's supervisor and co supervisor.

[   ] I consent to be investigated according to the details given above.
[   ] I don't consent to be investigated
[   ] Other condition (s) on investigation

_____

_____

_____

Contact for queries about the study

Participant (s) may contact following for any queries about the study.

Researcher's contact information	Supervisor contact information	Co-supervisor contact information
Sajjad Hussain, PhD Scholar	Dr. Muhammad Munir Kayani	Dr. Zarina Akhtar
Department of Education,	Assistant Professor,	Assistant Professor,
International Islamic University,	Department of Education	Department of Education
Islamabad, Pakistan	International Islamic University,	International Islamic University,
Cell No: 0315-9753953	Islamabad, Pakistan	Islamabad, Pakistan
Email id: sajjadhussain@uswat.edu.pk	Email drmunirkayani@yahoo.com	Email id:zarina.akhtar@iiu.edu.pk

APPENDIX B

Original Assessment Literacy Test

This test/questionnaire is designed for research purposes and all the information retained will be kept confidential. Please open to share your opinion regarding the statements made in the questionnaires.

Key1:Clear Purpose

1. List four formative assessement practices that research reviews suggest lead to improved student achievement. (4 points)

    • _____

    • _____

    • _____

    • _____

2. A school district wants to develop interim assessments to be used formatively by teacher and students. List at least four characteristics of assessments that are essential to effective formative use. (4 points)

    • _____

    • _____

    • _____

    • _____

Key2: Clear Targets

3. Describe at least two reasons why is it important to classify learning by type. (2 points)

    • _____

    • _____

    • _____

    • _____

Which learing type is represented by each of the following sample learning targets?

S #	Statement	Knowledge	Reasoning	Perfromance Skills	Product
04	Read aloud with fluency	◯	◯	◯	◯
05	Compare different forms of govt	◯	◯	◯	◯

214

06	Write a story	○	○	○	○
07	Identify properties of circles	○	○	○	○
08	Use a table saw safely	○	○	○	○
09	Make a graph	○	○	○	○
10	Describe the periodic table	○	○	○	○
11	Speak a foreign language	○	○	○	○
12	Tune an engine	○	○	○	○
13	Distingues fact from opinion	○	○	○	○

14. Select a learing target that you would be unclear to students as written. Write it down, then rewrite it in lauguage that students would understand. Aslo specify that grade level. (2 points)

Key 3: Sound Design

To assess students mastery of content knowledge, which assessment method (s) is/are appropriate to use to get accurate results?

S #	Statement	Poor match	Good match
15	Selected response/short answer: multiple-choice,true/false	○	○
16	Essay/ extended written response	○	○
17	Performance assessment: assessment based on observation and judgment	○	○
18	Personal communication: asking question in calss, conducting individual students conferences and interviews,conducting class discussions, and conducting oral exams	○	○

To assess student mastery of the ability to create a product, which assessment method(s)is/ are appropriate to use to get accurate results?

S #	Statement	Poor match	Good match
19	Select response/short answer: multiple-choice, true/false matching , fill-in-bank, short answer	○	○
20	Essay/extended written response	○	○
21	Performance assessment: assessment base on observation and judgment	○	○
22	Personal communication: asking questions in class, individual student conference and interviews, class discussions, oral exams, reviewing jounals or logs	○	○

For the classroom achievement goals below, specify which method(s) you shold use to assess students achievement accurately. Mark all that apply.

S #	Statement	Selected response/ short answers	Essay/EER	Performance	Personal communication
23	Giving an oral presentation In class				
24	Dividing with one-digit divisors				
25	Assuming and playing out a dramatic role				
26	Using subject and object pronoums correctly				

27.Expain what a test plan is and give three reasons why a test plan is necessary for sound assessment desing (5 points)

_____

_____

_____

_____

_____

Which of the following represents sound advice when using selected response assessments (e.g. multiple choice, true-false, fill in the blanks, short answer)?

S#	Statement	Sound	Un-sound
28	Make all multiple-choice question have the same number		

S#	Statement		
	of presonses		
29	Phrase the items as a question.		
30	Keep reading level low unless assessing reading proficiencies		
31	Limit use of "all of the above" "none of the above" question options		

This of the following represents sound advice when conducting performance assessment (i.e., assessment based on observation and judgment)

S#	Statement	Sound	Un-sound
32	Always use a 1-4 scale (below basic to exceeds standard) when assessing work		
33	Use only example of strong work		
34	When presented with a performance task, students should be reminded of the criteria by which responses will be judged.		
35	Take into account student ability and effort when assigning scores.		

Which of the following represents sound advice when gathering evidence of learning via question and answers during instruction?

S#	Statements	Sound	Un-sound
36	Focus on broad question to encourage divergent thinking.		
37	When someone fails to respond, wait 2-3 seconds before calling on another student.		
38	Call on non-volunteers sometimes.		
39	Call on the respondent and then ask the question		
40	Ask students to paraphrase each other' question and answers		

Key4: Effective Communication

Label each of the following communication practices with students as sound or unsound

S#	Statements	Sound	Un-sound
41	Providing only descriptive feedback on practice work		
42	Giving students a small amount of corrective feedback at a time		
43	Using feedback to emphasize strengths in students work		
44	Using feedback to point out what students need to work on		

Identify the statements that you believe to be example of descriptive feedback.

S#	Statements	Sound	Un-sound
45	B+. Good Work		
46	Table 3 is ready for lunch. You are sitting down and you are quiet.		
47	Your work is consistently above average.		
48	You mainained eye contact with the audience througout your entire prsentation		

49. Give two examples of statements that fit the characteristics of effective feedback

    (4 points)

    • _____

    • _____

    • _____

    • _____

Label each of the following communication practices with parents as sound or unsound

S#	Statements	Sound	Un-sound
50	Having students conduct conferences at home with parents		
51	Discussing strengths and limitations of standardized tests.		
52	Inviting students to parent-teacher conferences		
53	Using information about student learning from parents to help plan instruction		

Label the following report card grading practices as sound or unsound

S#	Statements	Sound	Un-sound
54	Deducting points form a student's work because it is late		
55	Inviting students to assign their own grades		
56	Weighting assessments differently in assigning grades		
57	Factoring students efforts into grades		
58	Deducing points for absences from class		

For the examples below, specify which kind of test score it represents,

S#	Statements	Raw Score	Percentage	Percentile	None of these
59	The student earned a score like that of a fourth grader in the norm group				
60	The examinee got 13 out of 16 items correct				
61	The student outscored 75% of norm group examination				

For the example below, specify which kind of test score it represents

S#	Statements	Norm referenced	Criterion reference	Neither of these
62	Percentile			
63	Grade-equivalent			
64	Number of standard mastered			

APPENDIX C

Revised Assessment Literacy Test

Respondent demographic Information

Name (optional) _____ Gender (Male / Female) _____

Academic Qualification _____ Professional Qualification _____

Teaching Experience in Years _____ ___

Training if any in assessment (duration) _____ _____

Kindly √ against the suitable options

Component 1 "Purpose of Assessment"

1. Which of the following formative assessment practices lead to improved students' achievement? Please tick all that apply.

Formative assessment practices	Improve student's achievement	Doesn't improve student's achievement
1. Using assessment results to modify instruction		
2. Using students' self-assessment practices		
3. Students also set goals for learning		
4. Communication of results to students		

2. Directorate of Teacher education intends to develop formative assessments which are to be used by teacher educators and prospective teachers. Which of the following precautions are appropriate or inappropriate? Tick all that apply.

Precautions in formative assessment	Appropriate	Inappropriate
5. These assessments must focused on learning outcomes		
6. Assessment task must assess general learning outcomes		
7. Assessed content is aligned to the taught content		

Component 2 "Clear Learning Outcomes"

3. Learning outcomes are classified by type to satisfy different aspects of assessment. Which of the following benefits are associated with Classifying Learning outcomes (CLO) by type? Please tick all that apply.

Benefits of CLO	Yes/No
1. CLO improves assessment method	
2. CLO assists students in understanding the learning expectations	
3. CLO helps in planning assessment	
4. CLO helps to achieve intended learning outcomes	

Which learning domain is represented by each of the following learning targets?

Statement	Knowledge	Reasoning	Performance skills	Product
5. Read aloud with fluency				
6. Identify properties of circles				
7. Design a science laboratory				
8. Describe the periodic table				
9. Speak a foreign language				
10. Distinguish fact from opinion				

10. Identify the following learning targets as'clear,' or 'not clear.'

Learning target	Clear	Not clear
11. Students would be able to apply Eric Erickson's Theory of moral development.		
12. Students would be able to understand educational concepts taught.		
13. Students can draw a digram while describing a scientific concept.		

Component 3 "Sound Design for Students' Assessment"

To assess students' mastery of **content knowledge** which assessment method (s) is/are appropriate to obtain accurate results?

Assessment Methods	Appropriate	Inappropriate
1. Selected response/short answer: multiple-choice,true/false, matching , fill in the blanks		
2. Essay/ Extended Written Response (EWR)		
3. Performance assessment: assessment based on observation and judgment		
4. Personal communication: asking questions in class, conducting individual students' conference and interview,conducting class discussions and conducting oral exams		

To assess students' mastery of ability to **create a product**, which assessment method(s) is/ are appropriate to use to get accurate results?

Assessment Methods	Appropriate	Inappropriate
5. Selected response/short answer: multiple-choice, true/false matching , fill-in-bank		
6. Essay/Extended Written Response (EWR)		

7. Performance assessment: assessment based on observation and judgment		
8. Personal communication: asking questions in class, individual students' conference and interviews, class discussions, oral exams, reviewing jounals or logs		

Component 4 "Assessing Achievement Goals"

For the classroom achievement goals given below, specify which method(s) you would use to assess students' achievement accurately. Mark all that apply.

Classroom Achievement Goals	Selected response	Essay/EWR	Performance	Personal communication
1. Giving an oral presentation in class				
2. Dividing with one-digit divisors				
3. Assuming and playing out a dramatic role				
4. Using subject and object pronouns correctly				

Comoponent 5 "Approach in MCQs, observations, and question answering"

Which of the following represent an appropriate or inappropriate advice when using selected response items (e.g. multiple choice,true-false)?

Statement	Appropriate	Inappropriate
1. Make all multiple-choice questions which have the same number of responses		
2. Keep reading level low unless assessing reading proficiencies of students		
3. Limit use of "all of above" and "none of above" options		

Which of the following represents appropriate or inappropriate advice when conducting performance assessment i.e., assessment based on observation and judgment

Statement	Appropriate	Inappropriate
4. Always use a 1 to 4 scale from below basic to exceed standard when assessing work		
5. Assess students best piece of work		
6. Students should be provided the criteria by which responses will be judged.		
7. Take into account student ability and effort when assigning scores.		

Which of the following represent an appropriate or inappropriate advice when gathering evidence of learning via question and answers during instruction?

Statement	Appropriate	Inappropriate
8. Focus on broad question to encourage divergent thinking		
9. When someone fails to respond, wait 2-3 seconds before calling on another student.		
10. Call on non-volunteers sometimes		
11. Call on the respondent and then ask the question		
12. Ask students to paraphrase each other' question and answer		

Component 6 "Effective Communication Practices"

Label each of the following communication practices with students as appropriate or inappropriate

Statement	Appropriate	Inappropriate
1. Providing only descriptive feedback on practice work		
2. Giving students a small amount of corrective feedback at a time		
3. Using feedback to emphasize strengths in students work		
4. Using feedback to point out what students need to work on		

Label each of the following communication practices with parents as appropriate or inappropriate

Communication Practices	Appropriate	Inappropriate
5. The students discuss their result at home with parent		
6. Discussing strengths and limitations of standardized tests.		
7. Parents give suggestions for the improvement of students learning.		
8. Using information about student learning from parents to help plan instruction		

Component 7 "Feedback, grading and students' score"

Identify the statements that you believe to be examples of descriptive feedback.

Statement	Descriptive	Not
1. B+. Good Work		
2. Your work is consistently above average.		
3. You keep eye contact with the audience in your entire presentation		

Label the following report card grading practices as appropriate or inappropriate

Statement	Appropriate	Inappropriate
4. Deducting points from a student's work because he/she is usually late to classes		
5. Inviting students to assign their own grades		
6. Weighing assessments differently in assigning grades		
7. Factoring students efforts into grades		

For the examples below, specify which kind of test score it represents,

Statement	Raw Score	Percentage	Percentile	None of these
8. The student earned a score like that of a fourth grader in the norm group				
9. The examinee got 13 out of 16 items correct				
10. The student outscored 75% of the norm group in examination				

APPENDIX D

Original Classroom Assessment Practices Questionnaire

Please provide the appropriate information for each of the following questions.

1. How many years of teaching experience do you have? ------------------ Years.
2. What is your gender? --------- Male. --------- Female.
3. What is your educational qualification?
   --------- A bachelor in education. --------- An educational diploma holder.

Read the following statements and rate in the areas where you consider the best.

S. No	Type of assessment	Never	Rarely	Sometime	Often	Always
1	True-false test items.	1	2	3	4	5
2	Multiple-choice test items.	1	2	3	4	5
3	Matching test items.	1	2	3	4	5
4	Completion test items (i.e., fill in the blanks).	1	2	3	4	5
5	Short-answer questions (e.g., word, phrase, label, formula).	1	2	3	4	5
6	Extended short answer questions (e.g., one sentence to three sentences).	1	2	3	4	5
7	Oral exams.	1	2	3	4	5
8	Essay questions (i.e., one paragraph or more).	1	2	3	4	5
9	Research paper (i.e., one full page or more that involves finding resources).	1	2	3	4	5
10	Models (e.g., inventions, applying theory to something tangible).	1	2	3	4	5
11	Unstructured performance assessment (rating students' performance without present criteria).	1	2	3	4	5
12	Structured performance assessment (rating students' performance with present criteria).	1	2	3	4	5
B	Assessment revision	Never	Rarely	Sometime	Often	Always
13	Using a table of specifications to plan assessments.	1	2	3	4	5
14	Calculating central tendency measures (e.g., mean, mode, median) to describe test scores.	1	2	3	4	5
15	Calculating variability measures (e.g., range, standard deviation, variance) to describe test	1	2	3	4	5

	scores.					
16	Conducting item analysis (e.g., item difficulty, item discrimination) for the tests.	1	2	3	4	5
17	Calculating a reliability coefficient for test scores.	1	2	3	4	5
18	Verifying content validity of the test.	1	2	3	4	5
C	**Communicating assessment**	Never	Rarely	Sometime	Often	Always
19	Informing students about the purpose of assessment prior to its administration.	1	2	3	4	5
20	Providing oral assessment feedback to each student.	1	2	3	4	5
21	Providing written assessment feedback to each student.	1	2	3	4	5
22	Informing every student about his or her strengths in the assessment.	1	2	3	4	5
23	Providing students with suggestions of ways to improve their performance in science.	1	2	3	4	5
24	Protecting students' confidentiality with regard to assessment results.	1	2	3	4	5
25	Praising high achieving students in front of the whole class.	1	2	3	4	5
26	Criticizing low achieving students in front of the whole class.	1	2	3	4	5
27	Returning assignments and tests to students in a way that keeps individual student scores private.	1	2	3	4	5
D	**Assessment standards and criteria**	Never	Rarely	Sometime	Often	Always
28	Constructing a model answer for scoring essay questions.	1	2	3	4	5
29	Informing students in advance how grades are to be assigned.	1	2	3	4	5
30	Using zeros in calculating grades for work not completed.	1	2	3	4	5
31	Defining a rating scale for performance criteria in advance.	1	2	3	4	5
32	Communicating performance assessment criteria to students in advance.	1	2	3	4	5

E	Student-involved assessment	Never	Rarely	Sometime	Often	Always
33	Engaging students in using grading criteria to evaluate strong and weak samples of class work.	1	2	3	4	5
34	Providing students opportunities to write test questions based on their understanding of the instructional objectives.	1	2	3	4	5
35	Allowing students to choose assessment activities they want to work in the class.	1	2	3	4	5
36	Providing students with systematic ways to monitor their learning progress.	1	2	3	4	5
F	Non-achievement-based grading factors	Never	Rarely	Sometime	Often	Always
37	Incorporating student's behaviour in the classroom in the calculation of grades.	1	2	3	4	5
39	Incorporating student's class attendance in the calculation of grades.	1	2	3	4	5
40	Incorporating student's interest in learning the subject in the calculation of grades.	1	2	3	4	5
41	Incorporating student's class participation in the calculation of grades.	1	2	3	4	5
42	Comparing student's performance with other students in determining student's grade.	1	2	3	4	5
43	Incorporating student's neatness of work in the calculation of grades.	1	2	3	4	5

Thank you for your participation

APPENDIX E

Revised Classroom Assessment Practices Questionnaire

Respondent demographic Information

Name (optional) _____ Gender (Male / Female) _____

Academic Qualification _____ Professional Qualification _____

Teaching Experience in Years _____

Training if any in assessment (duration) _____

Note: There is no pass fail on this instrument please read the following statements and

rate as you practice in your classrooms. Kindly √ against the suitable options

S #	Statements	Never	Rarely	Sometimes	Often	Always
(a) I assess my students through						
1.	True-false test items.					
2.	Multiple-choice test items.					
3.	Short-answer questions (e.g., word, phrase, label, formula).					
4.	Extended short answer questions (e.g., one sentence to three sentences).					
5.	Oral exams.					
6.	Essay questions (i.e., one paragraph or more).					
7.	Structured performance assessment (rating students' performance with present criteria).					
(b) Communicating assessment						
8.	Informing students about the purpose of assessment prior to its administration.					

9.	Providing oral assessment feedback to each student.					
10	Providing written assessment feedback to each student.					
11	Informing every student about his or her strengths in the assessment.					
12	Providing students with suggestions of ways to improve their performance in science.					
13	Protecting students' confidentiality with regard to assessment results.					
14	Praising high achieving students in front of the whole class.					
15	Criticizing low achieving students in front of the whole class.					
16	Returning assignments and tests to students with marks/comments or errors.					
(c)	**Assessment standards and criteria**					
17	Constructing a model answer for scoring essay questions.					
18	Informing students in advance how grades are to be assigned.					
19	Using zeros in calculating grades for work not completed.					
20	Defining a rating scale for performance criteria in advance.					
21	Communicating performance assessment criteria to students in advance.					

(d) Student-involved assessment						
22	Engaging students in using grading criteria to evaluate strong and weak samples of class work.					
23	Providing students opportunities to write test questions based on their understanding of the instructional objectives.					
24	Allowing students to choose assessment activities they want to work in the class.					
25	Providing students with systematic ways to monitor their learning progress.					
(e) Non-achievement-based grading factors						
26	Incorporating student's behaviour in the classroom in the calculation of grades.					
27	Incorporating student's class attendance in the calculation of grades.					
28	Incorporating student's interest in learning the subject in the calculation of grades.					
29	Incorporating student's class participation in the calculation of grades.					
30	Comparing student's performance with other students in determining student's grade.					
31	Incorporating student's neatness of work in the calculation of grades.					

Thanks for your cooperation

APPENDIX F

Permission for Assessment Literacy Test

GM i

Sajjad Husaain <sajjadhussain@uswat.edu.pk>

Assessment Literacy Test

Rick Stiggins <rickstiggins@gmail.com>
To: Sajjad Hussain <sajjadhussain@uswat.edu.pk>

Mon Feb 20 2017 at 12:23 AM

Professor Hussain;

Your have my permission to use the Assessment of Classroom Assessment Literacy in your research project. I hope you will share the results with me when your work is completed.

Rick Stiggins
Assessment Consultant
Lake Oswego OR
503-857-7659
URL: rickstiggins.com

APPENDIX G

Permission Classroom Assessment Practices Questionnaire

GM i

Sajjad Hussain <sajjadhussain@uswat.edu.pk>

Permission Letter

Hussein AL-Khorusi <hussein5@squ.edu.om>
To: Sajjad Hussain <sajjadhussain@uswat.edu.pk>

Wed, Feb 22, 2017 at 12:08 AM

Dear Sajjad

You have my permission to use the Classroom Assessment Practices Questionnaire

Regarding the studies on classroom assessment, please specify which one of them

Regards

Hussain Al Alkhorusi, Ph.D

Dean of Admissions and Registration

Associate Professor of Measurement and Evaluation

Sultan Qaboos University

P.O. Box 31, P.C. 123 Alkhod

Sultanate of Oman

Tel: +968 24141810

Fax: +968 24413994

From: Sajjad Hussain [sajjadhussain@uswat.edu.pk]
Sent: Sunday, February 19, 2017 5:26 PM
To: Hussain AL-Khorusi
Subject: Permission Letter

APPENDIX H

Departmental Permission Letter

Respected Sir/Madam,

<u>Through Proper Channel</u>

The undersigned is a PhD Scholar of Department of Education, International Islamic University Islamabad, Pakistan and working on the *"Relationship of teacher educators' assessment literacy and classroom assessment practices with their students' academic achievement".* The research will focus to investigate teacher educators' assessment literacy and classroom assessment practices and its relationship with the academic achievement of prospective teachers enrolled in Regional Institutes of Teacher Education (RITEs) of Khyber Pakhtunkhwa (KP) and Government College of Elementary Teachers (GCETs) of Punjab. Teacher educators of RITEs from (KP) and GCETs of Punjab constituted the population of the study, data will collected from the population.

The study will be significant in identifying teacher educators' strengths and weakness in assessment literacy and prevailing classroom assessment practices. The collected data will be kept confidential and will only be used for research purpose. There is nothing to harm the respondents physically or psychologically.

Keeping in view the above mentioned significance and ethical requirement of the study, your kind honor is requested to issue a formal permission letter for data collection from the respondents working under your kind supervision.

Thanks in anticipation.

PhD Scholar
Sajjad Hussain,
Department of Education
International Islamic University,
Islamabad, Pakistan

Supervisor
Dr. Muhammad Munir Kayani
Chairman Department of Education
International Islamic University, Islamabad
Pakistan