THE PRACTICE OF ASSESSMENT FOR LEARNING AND CONSTRUCTIVE ALIGNMENT IN INDONESIAN HIGHER EDUCATION INSTITUTIONS

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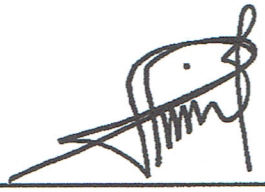

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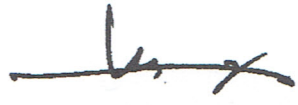

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THE PRACTICE OF ASSESSMENT FOR LEARNING AND CONSTRUCTIVE ALIGNMENT IN INDONESIAN HIGHER EDUCATION INSTITUTIONS

ERWIN AKIB

A thesis submitted in fulfilment of the
requirements for the award of the degree of
Doctor of Philosophy (Measurement and Evaluation)

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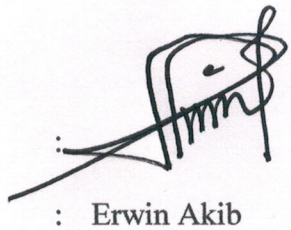
I declare that this thesis entitled "*The Practice of Assessment for Learning and Constructive Alignment in Indonesian Higher Education Institutions* " is the result of my own research except as cited in the references. The thesis has not been accepted for any degree and is not concurrently submitted in the candidature of any other degree.

Signature : 

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DEDICATION

This work is sincerely dedicated to my beloved wife Arie Martuty, S.Si., M.Pd., and my daughter Ariqah Nabilah Putri Erwin. I would like to record a special thanks and appreciation to beloved parents, Muhammad Akib Tahang and Hamiah H. Nusu and my mother in law, Hj. Marwah Marzoeki and to my father in law, Drs. K.H. Siradjuddin who always pray for me.

ACKNOWLEDGMENT

In the name of Allah, The Most Gracious, The Most Merciful

All praise would only be bestowed to Allah SWT for His blessing and liberality that this thesis finally completed. On this particular occasion, I would like to extend my deepest appreciation to a number of people whose admission, permission, and assistance contribute significantly to the completion of this thesis. I would like to present my deep appreciation to the Governor of Sulawesi Selatan, who has given me the permission and granted a three-year scholarship to conduct this study, which I believe would provide a significant contribution to the development of education in my beloved country, in particular Sulawesi Selatan. I wish to express my sincere appreciation to my supervisor, Prof. Dato' Dr. Mohamed Najib bin Abdul Ghafar for his invaluable time, guidance, and helpful advice that enabled me to successfully complete this study. I would like to also thank all of the university staff, including the School of Graduate Studies, Faculty of Education, Sultanah Zanariah Library, and other not possible to mention here one by one for their academic, professional, and administrative assistance. I would like to say many thanks to all my brothers and sisters, Hasniati Akib, S.Pd., Prof. Dr. H. Irwan Akib, M.Pd., Hisbullah Akib, SE., Hikmawati, S.Sos., Hasnani Akib, S.Pd., M.Pd., Tasrif Akib, S.Pd., M.Pd., Achmadi AP, Dra. Hj. Najmah Ma'ruf, Hasana Hisbullah, Muh. Yusran, S.Pd., M.Pd., Asdiana Fausiah, S.Pd., who always supports and praying for me. Finally, yet importantly, I would like to note a special gratitude to the Rector of Muhammadiyah University of Makassar, who have given me the permission to take the study and provided my study leave, and motivation to undertake this program. This thesis may have some limitations. Any positive inputs and criticism are welcome.

Indeed, all things We created with predestination
(Q.S. al-Qamar: 49)

ABSTRACT

The assessment practice in Indonesian Higher Education presently uses the traditional methods, which are assessment of learning and assessment as learning. However, the new perspective on assessment proposes that it should include the process of learning called Assessment for Learning (AfL) and this assessment can be enhanced through the Constructive Alignment (CA) method. Based on input from experts in AfL and CA, the study developed the constructs of AfL, namely (i) sharing learning objectives, (ii) helping pupils to know and recognize the standard, (iii) peer and self-assessment, (iv) providing feedback, (v) promoting confidence, and (vi) involving in reviewing and reflecting, whereas constructs for CA were (i) learning outcomes, (ii) syllabus, (iii) students learning times, (iv) assessment task, and (v) teaching and learning activities The main objective of this study was to determine the correlation between AfL and CA. The respondents of this study were 454 lecturers of 11 Universities selected through multistage cluster sampling method. This study used explanatory sequential design, a combination of quantitative and qualitative method. Quantitative data were obtained using questionnaires followed by qualitative data collection using interviews. The qualitative data were used to explain the quantitative data results. Quantitative data were analyzed using ANOVA, chi-square and SEM. The validity and reliability of the instruments were determined using the Rasch Model. The findings showed that there was a high-level practice of AfL and CA, among the lecturers. In addition, there was a strong significant correlation between AfL and CA, with the value of $r = 0.8936$, $p<0.000$. Research findings showed that there were no significant differences between AfL and CA based on gender, academic qualifications, and departments. Based on the findings, a model of AfL and CA by lecturers was proposed to increase the quality of assessment in the teaching and learning provision of higher education institutions in Indonesia.

ABSTRAK

Amalan penilaian dalam Pendidikan Tinggi Indonesia pada masa kini menggunakan kaedah tradisional, iaitu penilaian pembelajaran dan penilaian sebagai pembelajaran. Walau bagaimanapun, perspektif baru kepada penilaian mencadangkan ia sepatutnya mengandungi proses pembelajaran yang dikenali sebagai Penilaian untuk Pembelajaran (AfL) dan penilaian ini boleh dipertingkatkan melalui kaedah Penjajaran Konstruktif (CA). Berdasarkan input daripada pakar dalam AfL dan CA, kajian ini membangunkan konstruk AfL, iaitu (i) objektif perkongsian pembelajaran (ii) membantu murid-murid untuk mengetahui dan mengiktiraf standard, (iii) rakan sebaya dan penilaian kendiri, (iv) memberikan maklum balas, (v) menggalakkan keyakinan, dan (vi) terlibat dalam penyemakan dan pemikiran, manakala konstruk untuk CA terdiri daripada (i) hasil pembelajaran, (ii) sukatan pelajaran, (iii) jam pembelajaran pelajar, (iv) tugasan penilaian, dan (v) aktiviti pengajaran dan pembelajaran. Objektif utama kajian ini adalah untuk menentukan korelasi antara AfL dan CA. Responden kajian terdiri daripada 454 pensyarah dari 11 Universiti yang dipilih melalui kaedah persampelan kelompok berbilang. Kajian ini menggunakan reka bentuk penerangan berurutan, gabungan kaedah kuantitatif dan kualitatif. Data kuantitatif telah diperoleh dengan menggunakan soal selidik yang diikuti dengan pengumpulan data kualitatif menggunakan temu bual. Data kualitatif telah digunakan untuk menjelaskan keputusan data kuantitatif. Data kuantitatif dianalisis menggunakan ANOVA, *chi-square* dan SEM. Kesahan dan kebolehpercayaan instrumen ditentukan menggunakan *Rasch Model*. Dapatan kajian menunjukkan bahawa terdapat satu amalan peringkat tertinggi AfL dan CA, antara pensyarah. Di samping itu, terdapat hubungan signifikan yang kuat antara AfL dan CA, dengan nilai r = 0,8936, $p<0.000$. Dapatan kajian menunjukkan bahawa tidak terdapat perbezaan yang signifikan di antara AfL dan CA berdasarkan jantina, kelayakan akademik, dan jabatan. Berdasarkan kepada dapatan kajian, model AfL dan CA oleh pensyarah telah dicadangkan untuk meningkatkan kualiti penilaian dalam pengajaran dan pembelajaran yang peruntukan di institusi pendidikan tinggi di Indonesia.

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LIST OF ABBREVIATIONS

AaL	-	Assessment as Learning
AFL	-	Assessment for Learning
AoL	-	Assessment of Learning
AFLQ	-	Assessment for Learning Questionnaire
ARG	-	Assessment Research Group
AT	-	Assessment Tasks
BSNP	-	*Badan Standar Nasional Pendidikan*
DGHE	-	Directorat General of Higher Education
CA	-	Constructive Alignment
CAQ	-	Constructive Alignment Questionnaire
CFA	-	Confirmatory Factor Analysis
CR	-	Critical Ratio
HP	-	Helping Pupils
IRR	-	Involving in Reviewing and Reflecting
IRT	-	Items Response Theory
ITTE	-	Institute of Teacher Training and Education
LAC	-	Latin America and the Caribbean
LO	-	Learning Outcomes
PC	-	Promoting Confidence
PF	-	Providing Feedback
PSA	-	Peer and Self-Assessment
RM	-	Rasch Model
SEM	-	Structural Equation Model
SLO	-	Sharing Learning Objectives
SLT	-	Student Learning Times
SPSS	-	Statistical Package for Social Science
Syl	-	Syllabus

TLA	-	Teaching and Learning Activities
UNESCO	-	United Nations Educational, Scientific and Cultural Organization

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CHAPTER 1

INTRODUCTION

1.1 Introduction

Education is a fundamental human right, equip youth and adults with the power to reflect and gain prosperity. Education in the third country grows rapidly to provide practical skills that used for workers in various occupations. Education perceived as a central means to achieve sustainable development for two main reasons. First, education for all helps to achieve basic literacy worldwide, as referred to by agenda 21th as the first and foremost means to narrow social gaps, and to achieve a reasonable quality of life. Second, dimensions of humans' learning, and include cognitive, affective and behavioral aspects (UNESCO, 1977, 1992). The activities performed in any country's education system, the physical and mental growth systematically organized by individuals for a better quality of life, Mohamad Najib (2004).

Law No 20 of 2003 (National Education System Indonesia) stated that education was defined as a planned effort to construct a learning environment and educational process. Students can actively develop their potential for religious, spiritual levels, consciousness, personalities, and intelligent. Indonesia as a developing country had similar education problems as other countries. Wan-Hua (2007) said that the challenges ahead for higher education included improving the efficiency of students, overcoming the moral and social values, tackling educational injustices social, and gender issues, cultural diversities and protection of environment.

Furthermore, Segrera (2010) stated that the universities in Latin America, the Caribbean (LAC), and around the world faced one of the most challenging era in their history. Traditional universities values still occured i.e. autonomy, academic freedom, research, student employment, assessment, but it should be considered in the context of new global norms. The objectives of higher education were to support the development and expansion of their commitment to the broad challenges of academic discipline.

In this era, globalization combines economic and cultural change. On one hand, globalization entails the formation of worldwide markets operating in real time in common financial systems, and unprecedented levels of foreign direct investment and cross-border mobility of production. On the other hand, it rests on the first world-wide systems of communications, information, knowledge and culture, tending towards a single world community as Marshall McLuhan (1964) predicted: 1) Continuously extending networks based on travel, mobile phones, broad-band Internet and other information and communications technologies (ICTs), are creating new forms of inter-subjective human association, of unprecedented scale and flexibility; spanning cities and nations with varied cultures and levels of economic development; 2) and enable the complex data transfers essential to knowledge-intensive production. It is the processes of communications and information, where the economic and cultural aspects are drawn together, that above all constitute what is new about globalization; and inclusion/exclusion in relation to ICT networks and knowledge have become key dividing line in shaping relations of power and inequality (Castells, 2000; Giddens, 2001).

Synchronously, they promote ethical achievement, which applies to the public and professional standards and global diversity (University of Wollongong, 2003). If the process of teaching and learning in the institution was to reflect a noble goal, the subjects and their evaluation procedures should developed for this purpose. Understanding student diversity must build into the process making sense of the culture and the issues of 'readiness' for their programs.

In the process of teaching and learning, teachers or lecturers focused on teaching process itself, but how their students' performance measure. Reynolds, *et al.*, (2010) stated that the assessment was a systematic process to gather information that can be used to draw conclusions about its people or objects. Mohd. Najib (2011) explained that assessment was a systematic procedure that involved the collection, analysis and translation of evidence that students achieved according to the teaching purposes.

There were number of authors reporting a negative impact of assessment on learning and teaching (Frederiksen, 1984; Ridgway & Schoenfeld, 1994; Dochy & McDowell, 1997). This indicated that assessment has a significant impact on teaching and learning.

1.2 Background of the Study

The quality of education improvement in Indonesia was to be at part with other countries. It was to improve the societies' knowledge through a better learning process. Numerous studies had showed that the quality of Indonesian students were low. The international surveys of educational institutions, TIMSS and PIRLS, 2011 did not show a significant improvement of students' ability (Kompas, 2012).

In the context of Indonesia, with a very diverse educational progress between regions, learning outcomes assessment system can be used to give an overview of standardization needed as part of the quality improvement effort. The United States of America also implemented strict standards to address the educational weakness of various test comprising between many countries. Issues of availability, afford ability, equality, quality and relevance of education are a concern of then Ministry of Education and Culture (MoEC) as well as international organizations, such as the Asian Development Bank and the Organization for Economic Co-operation and Development (OECD). The 1996-2005 third plan by the Directorate General of Higher Education (DGHE) launched a "new paradigm" based upon five pillars of

reform—autonomy, quality, accountability, accreditation, and evaluation (Koning and Maassen 2012). The DGHE long-term strategy of 2003-2010 highlighted again autonomy and quality along with access and equity. The 12/2012 Higher Education Act also covers key elements such as institutional autonomy, equitable access, quality assurance system, as well as strengthening of vocational education and training (Moeliodihardjo 2014).

Various efforts had made by the government to improve the quality of education, such as implementing new policies, developing the curriculum development, educational facilities and infrastructure, educational tuition assistance, improving the quality of educational management, the quality and welfare of teachers and staff. However, many efforts had satisfactory results. The National Education Standards assigned to assist the Minister in developing, monitoring, and controlling national education standards. The assessment done by teachers was an ongoing process to monitor the process and progress of the student's achievement and improve the effectiveness of learning activities. The quality of learning can be seen from the results of the assessment. (Mardapi, 2008).

The current practiced still had problems. The educational assessment resulted from academic inabilities in carrying out the process of teacher assessment. Teachers did not understand in-depth evaluations. Most teachers did not have a formal educational background in special education assessment. At many colleges and institutions of educators and staff education, educational assessment was only available through a few courses only. It was not surprising that some teachers used the same test regularly. Some teachers used the test that cannot guarantee standards and tests that used tend to be the same from year to year (Supranata, 2004).

There are two main types of assessment in education, which is summative and formative (Scriven, 1967 & Bloom, Hastings & Madaus, 1971). Stiggins and Chappuis (2005) defined summative assessment of test results taken after the task was completed and formative assessment was carried out through the process. Murphy (2006) said that the increase of knowledge related to the use of formative assessment in schools. In higher education, was still at an early stage to understand

how effective this approach can use for assessment in different fields in the curriculum.

The concept that the assessment can support learning is not a new idea. It was remarkable that they convoluted were in order to speak of the origin of ideas, skills, or practice on others who do not realize that the effort is no guarantee of success, and effective instruction assessment is required, and changed (Wiliam, 2011). In other words, assessment for learning is potential, because the talented students present their actions and make decisions about future actions.

It was necessary to have a deliberate practice developed by teachers and ease of use to find the right answers for their student's specification (Santos & Pinto, 2006). However, students' feedback of five years thinks as fragments of their learning process, students of eight years old have good-looking far more responsive than what is true or false. The students who usually used a summative assessment tend to value the written feedback to improve their scores, lowering the value of the benefit of their learning (Stobard, 2007).

Formative assessment presented information that can lead to constructive development of better student learning. Students play an important role in communicating the evidence of their own learning to those who need it (Stiggins and Chappuis, 2005), including teachers, administrators, parents and guardians. When it is systematically practice in routine manner within and between classes, it had been associated with a profound increase in student achievement, particularly for students' work (Black and Wiliam, 1998; Bloom, 1984; Meisels, Atkins-Burnett, Xue, and Bickel, 2003; Rodriguez, 2004). Recent research in primary and secondary schools focused on assessment methodologies, also how they can be used to enhance the quality of learning and teaching. Such research has led to the promotion of assessment for learning (AfL) as opposed to assessment of learning (Assessment Reform Group 2002). Their research evidence clearly indicated that in school-based, classroom contexts, AfL promoted effective learning, raising levels of attainment and enhancing the quality of teaching (Black *et.al*. 2003).

Assessment is a powerful tool to inform and support student learning. In this case, the concept of Assessment for Learning (AfL) has been introduced to compensate for the majority of the attention paid to the 'Assessment of Learning', or assessment of the performance, in the classroom and school (Black & William, 1998a; Crooks, 2001; Stiggins, 2005). In past decades, several models had proposed which integrated summative tests in the learning process by means of formative evaluation (Scriven, 2002) or formal feedback (Boud, 2000). Assessment has become a critical link between curriculum, teaching and learning (National Council of Teachers of Mathematics, 1995).

Assessment for learning can used to promote learning by offering students the opportunity to assess their own work and progress by learning feedback for a variety of teacher-made tests and performance tasks such as student portfolios. Shift from rote learning and memorizing the contents of the core subjects to control over-order thinking skills and self-management skills, such as learning to learn also were encouraged by the need for the 21st century knowledge, skills and competencies (Koenig, 2011). Therefore, in the process of teaching and learning, teachers and students should align their practices with the knowledge.

1.3 Problem Statement

Indonesia as developing country as a country needs to stand out with others. Indonesia has experienced a decline in valuation in education from 58 to 62 in 130 other countries (Paulo, 2008). With this, we can see that education in Indonesia is still very worrying. The quality of education in Indonesia has not been so good. According to the Education for All Global Monitoring Report 2012 released by UNESCO, education Indonesia is ranked 64th for worldwide education than 120 countries. Data Education Development Index (EDI), in 2011, Indonesia was rank 69th out of 127 countries.

The government needs to improve the quality of education in an effort to create one of the opening of the 1945 Constitution mandates, the life of the nation. Government should remedy the national education system for the purpose of national education was to develop the potential of students who will be faithful and devoted to God, noble, healthy, knowledgeable, capable, creative, independent, and become citizens of a democratic and responsible (Act No. 20 of 2003 Article 3 of the Vienna Sanjaya, 2010: 65) can be achieved. Both the poor education cannot be separate from the curriculum, which is a tool to achieve the goal of education (Dakir, 2010: 1).

Strategic priorities for education, whether under the Ministry of Education and Culture (MOEC) or the Ministry of Religious Affairs (MORA), were set within the framework of the overall national plans. Education was the second priority after public sector reform, in the 2010-2014 National Medium-Term Development Plan. The MOEC's Strategic Plan for 2010-2014 has five missions, which served as the basis of all educational programs, were:

1. Improve availability of education services
2. Improve affordability of education services
3. Improve the quality and relevance of education services
4. Improve equality in obtaining education services
5. Improve the assurance/guarantee of obtaining education services.

The curriculum should reflect the need for a stronger link to society and industry, and theoretical studies should supplement and supported by their interplay with practical studies and an orientation towards application. The problems with traditional approaches to assessment were well-documented (Boud & Falchikov, 2006 & 2005; Falchikov, 2004; Sluijsmans, Dochy & Moerkerke, 1998). Based on an extensive review of the literature, Falchikov (2004) reported that traditional assessment is more likely to produce passive learners and reduce motivation, tends to be associated with surface approaches to learning. Sluijsmans, Dochy and Moerkerke (1998) have also suggested that traditional assessment of student achievement as a summative activity carried out at the end of a process of learning is losing momentum, and they identified several alternative approaches to assessment

including: (i) self-assessment; (ii) peer assessment and peer evaluation; (iii) self and peer-assessment and (iv) self and peer-assessment related to coassessment.

There is a flourishing literature, much of which is found in Assessment & Evaluation in Higher Education, exploring assessment practices that have positive effects on learning (e.g. Woodward's (1998) work on reflection in the context of journals and portfolios), and in recent years there has been considerable interest in the notion of constructive alignment (Biggs, 2003). That is, the components in the teaching system, particularly the methods used and the assessment task were closely aligned to the learning activities assumed in the intended outcomes. There have also been important initiatives that look at the long-term consequences of university courses, including assessment, on subsequent learning in professional practice (Mentkowski, 2000).

The traditional practice of assessment that was only as learning and assessment of learning, so that constructive alignment is assumed to be used to improve the quality of learning and teaching based on the concept of Assessment for Learning (AfL). Therefore, this study is to explore the Assessment for Learning and Constructive Alignment practices and to investigate the relationship between Assessment for Learning and Constructive Alignment in the process of teaching and learning.

1.4 Research Objectives

The objectives of this study are to:

i. Identify the practice of Assessment for Learning in Indonesian higher education based on respondents' demography.
ii. Identify the practice of Constructive Alignment based on respondents' demography.

iii. Study the relationship between Assessment for Learning and Constructive Alignment at the university.

1.5 Research Questions

This study consists of three main research questions based on the research objectives. Research questions were answers using descriptive and inferential analysis. The following questions were:

i. What is the assessment for learning practice in Indonesia in terms of?

   a. Sharing learning objective
   b. Helping pupils to know and recognize the standard
   c. Peer and Self-assessment
   d. Providing Feedback
   e. Promoting Confidence
   f. Involving in reviewing and reflecting

   Based on respondents' demography

ii. What is the constructive alignment profile in terms of the following?

   a. Teaching and learning activities
   b. Learning outcomes
   c. Assessment tasks
   d. Syllabus
   e. Learning times

   Based on the demography

iii. Is there any significant relationship between assessment for learning and constructive alignment?

1.6 Research Hypotheses

In view of objectives of the research above, there are two main null hypotheses as follows:

i. Ho_1: There is no significant relationship between Assessment for Learning (AfL) and Constructive Alignment (CA).
ii. Ho_2: There is no significant relationship between Assessment for Learning (AfL) and Constructive Alignment (CA) on the demographic factors.
    a. Ho_{21} : There is no significant correlation between AfL and CA based on Gender
    b. Ho_{22}: There is no significant correlation between AfL and CA based on Age
    c. Ho_{23}: There is no significant correlation between AfL and CA based on teaching experiences.
    d. Ho_{31} : There is no significant different between AfL and CA based on Gender
    e. Ho_{32} : There is no significant different between AfL and CA based on Academic Qualification
    f. Ho_{33} : There is no significant different between AfL and CA based on department

1.7 Significance of the Study

This study expected was to provide significant benefits to the development of higher education in Indonesia, in terms of students' comprehension in learning and teaching process by assessment for learning usage. The importance of the study of the assessment for learning using constructive alignment of higher education in Indonesia was aimed at strengthening the assessment system for the university, so that it can improve the quality of teaching and learning. This situation has a close relationship with Indonesia's higher education vision in improving the quality of learning and teaching process and product or graduations.

Assessment is an integral part in the development of knowledge. It has a huge role in giving value to the learning and teaching process at every level of education. That is why this study contributes to the existing knowledge in several ways. First, it enriches the field of assessment for learning in the context of teacher education. Since most of the existing literature comes from the West, it will be interesting to see if and how the ideas work in different cultures. Second, it fills gaps in research on assessment for learning. Third, it provides research on the teaching and learning process. Finally, it also fills research gaps in the assessment field.

An alternative assessment practice will provide prospective teachers with the concept of assessment for learning. Thus, the lecturers or educators and students will had the opportunity to reflect on their learning.

1.8 Theoretical Framework

Theoretical framework forming concepts, terms, definitions, models and theories form the basis and orientation of the discipline that studies were conduct. It is a guide for determining the orientation of research to do. In addition, the study assessment for learning using constructive alignment was carry out in higher education. Any empirical research evidence for the effectiveness of formative assessment practices is both widespread and pervasive (documented in the research review by Natriello, 1987; Crooks, 1988; Kluger & DeNisi, 1996: Black & Wiliam, 1988a & Brookhart, 2005).

Biggs (2003) used the term constructivism in the field of cognitive psychology on what students need to do to create knowledge. Biggs acknowledges to the basic components and constructive alignment on Cohen's assessment of the idea of teaching behaviorism alignment (Biggs, 2002a; Tyler, 1949; Cohen, 1987). Harlen (2007b) discussed that learning in an educational context. Although the details of the process of learning were different, learning in all subjects was a progressive development of understanding, where experience linked with existing knowledge.

In this constructivist view of learning, development and understanding, involve the construction of knowledge by students (Harlen & James, 1997). It provided the foundation for an active participation of students in the classrooms where assessment for learning practiced. Teaching based was on certain assumptions about how people learn. The two main perspectives were on the identified learning and constructivist behaviorists. In the early 19th century theory of learning was growing rapidly and contributing many psychological theories of learning behavior which was originally developed earlier by Russian psychologist Ivan Pavlov (in the 1900s) with a theory known as classical conditioning (conditioning classic) then behavioral learning theory developed by some psychologists, such as Edward Thorndike, BF Skinner and Gestalt.

Behavioristic learning theory based was on the assumption that the outcomes can measured and observed. Repetition and practice were used, so that the desired behavior may become habits. Result from the application of this theory was the formation of the desired behavior, where assessment was based on the observed behavior. The application of behavioristic theories on learning activities depended on several things, such as learning objectives, the nature of things, the characteristics of students, media and available learning facilities. Knowledge was neatly arranged, so learning was to acquire knowledge and teaching was to transfer knowledge.

Learning goal according to this theory focused on the increase of knowledge. Learning as mimetic activities required students to express their knowledge learned in the form of reports, quizzes, or tests. In the case of assessment, the emphasis on behavioristic theory was formulated passive reaction, separate skills separately and often use of paper and pencil test. Assessment of learning outcomes requires the correct answer. This theory emphasizes the assessment of the ability of individual students.

The most important thing in learning according to this theory is the existence of practice and repetition. The weakness of this theory was that to learn just happens automatically to ignore happiness and personal determination (Ivan Petrovich Pavlov, 1849-1939). The essence of Pavlov's classical conditioning was a neutral

stimulus association with the stimulus and response before conditioning or naturally. Slavin (1994) stated that the history of constructivism in education was born from the ideas of Piaget and Vygotsky. Both emphasized it cognitive development occured only if the concept had understood before processed by the imbalance in understanding new information.

According to Anderson (in Slavin, 1994) a constructivist's view of individuals considered building knowledge continuously to absorb and accommodate new information. Knowledge was a human construction, a person who studied science means learning to build knowledge; learning was an active process of acquiring knowledge. Epistemology as the foundation of that was the nature and scope of knowledge. Constructivism has emerged as a pillar:

i. Knowledge was not passively accumulated, but rather, the outcome of active cognizing by the individual;
ii. Cognition was an adaptive process that functions to make an individual's cognition and behavior were more viable in a particular environment or object;
iii. Cognition organizes and makes sense of a person's experience, and not a process to give an accurate picture of reality and;
iv. Knowing has roots in the construction, both of the biological / neurological and social interaction, culture, and language-based (Garrison, 1998; Gergen, 1995; von Glaserfeld, 1984).

Thus, constructivism emphasizes that the active role-played by the private students in building their knowledge, the priority of social and individual experience in the learning process, and the realization that the knowledge achieved by the student may vary in accuracy as a representation of reality. Furthermore, Biggs (2007) stated that students used their own activities to build their knowledge or other products. James, *et al*., (2007) stated that cognitive constructivist approach focused on the mental models that students used were when responding to new information or problems. Then, learning always involved analysis and alteration of any new

information. Acceptance of new knowledge was depended on the knowledge and understanding available.

Constructivist approach in teaching and learning based was on a tradition of research (Perkins, 1991; Paris & Byrnes, 1989). Constructivism roots may trace back to a little-known Latin treatise, De antiquissima Italorum Sapientia, written in 1710 by Giambattista Vico (as cited in von Glasersfeld, 1991). Vico suggests that knowledge is knowing what the something made, and find out how they are connected. Therefore, constructive alignment, which proposed by Biggs and Tang (2007) mentioned three main elements such (i) learning objectives, (ii) teaching and learning activities, and (iii) assessment task. In supporting the three elements, implicitly Biggs and Tang (2007) also added two elements of constructive alignment, syllabus and students' learning times. Moreover, Shuell (1986) stated that what the student did not actually does more important things in determining what was learn than what the lecturer did. Therefore, both behaviorism and constructivism used in this study (Figure 1.1).

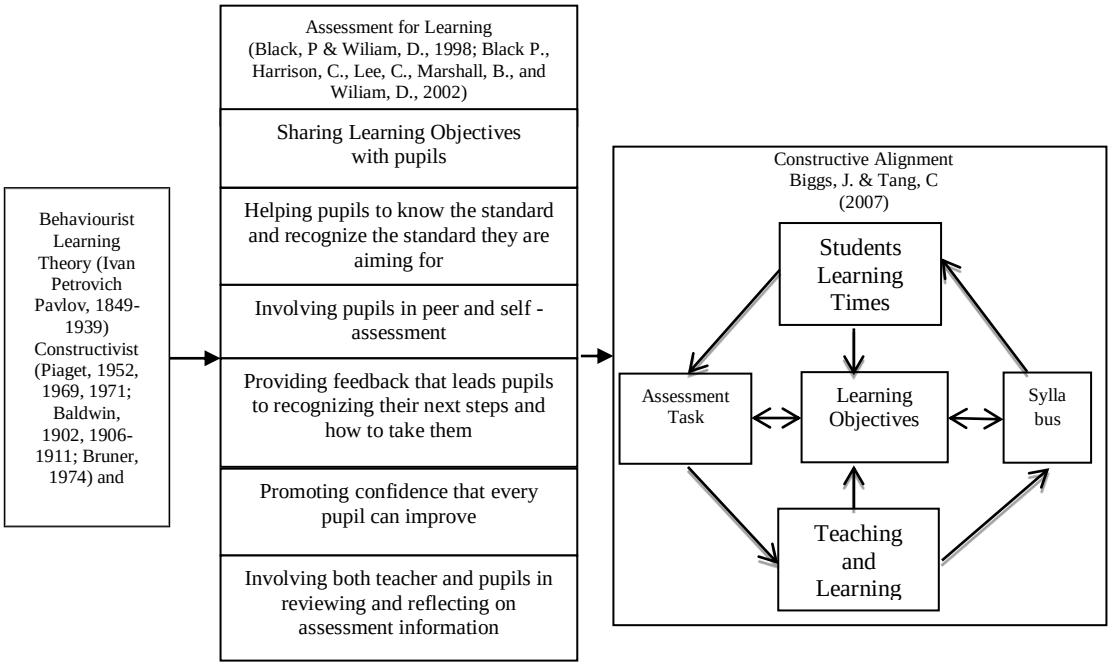

Figure 1.1 Theoretical Frameworks

1.9 Conceptual Framework

The functions of assessment cannot be separate from the purpose of self-assessment. It can focus on teaching strategies by defining learning "behavior" (Davies and Wavering; 1999; Evans 1999). It also provides feedback to the students about their deficits in learning, and has the potential to help to extending students (Hattie and Jaeger; 1998).

The main key to ensuring success in achieving the purposes of assessment was alignment the processes of teaching and learning. There should be a clear definition of the learning objectives, and desired outcomes (Evans, 1999). The objectives must align with assessment and students need in order for them to focus on their achievements. Based on the problem statement and the objectives of this study, a conceptual framework for this study proposed below (figure 1.2).

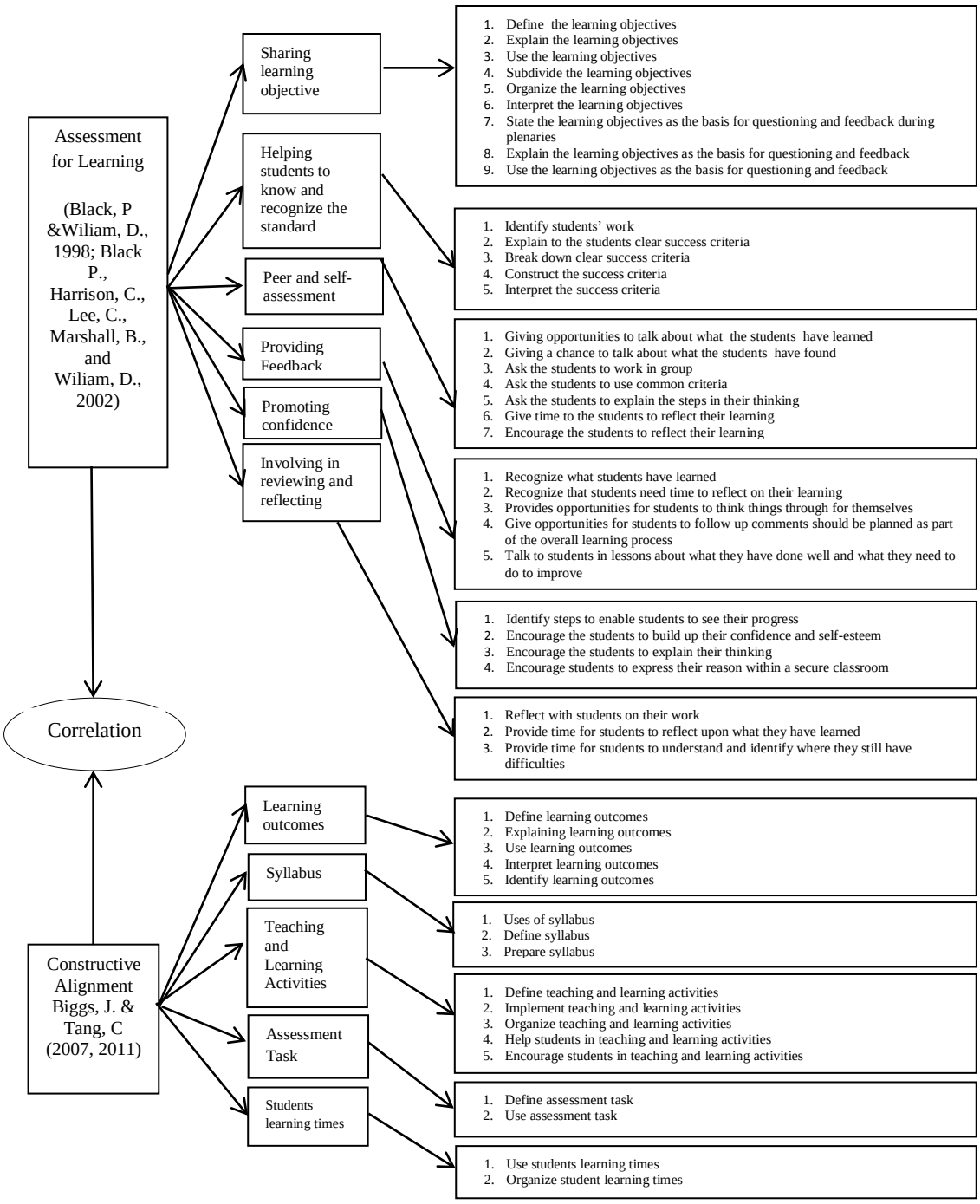

Figure 1.2 Conceptual Frameworks

The construction of meaning from the experience constructivism defined learning. The human being was compare to scientists who constantly carry out their own personal experiments, construct hypotheses and actively seek to confirm or disprove them in the process of seeking knowledge. The underlying principle of

constructivism was that the learners of their own experiences actively constructed knowledge.

Consequently, the students did not go out into the world on their own in constructing knowledge, but constantly were interacting and negotiating with others to construct their personal meanings. Constructivism, in this case, viewed as social constructivism (Burr, 1995; Kozulin, 1998; Lantoff, 2000; William and Burden, 1997). The lecturers took on an important role of facilitating student learning through assessment, that was the way the focus of the terms of the assessment for learning approach.

Based on the Figure 1.2, process of teaching and learning, lecturers needed to prepare a lesson plan as a guide in their teaching, and made were clear on the objectives of learning to their students, so that students may understand what they want to do. Preferably, in the process, teachers should pay attention to what students were doing, so that they can assess their learning.

In early studies, a teacher or lecturer need to share his goals / learning to the students, saying in a language that students may understand and have clear success criteria related to the learning objectives. The next things that teachers need to do was to involve students in peer and self-assessment by giving them the opportunity to talk about what they have found difficult, using the learning objectives as the focus.

Peer assessment involves students decide evaluation of other students' work was summative or formative. Getting students to take part in the peer-assessment may help them understand the operation of the evaluation criteria, internalize the characteristics of quality work and deepen their learning experience by using them for evidence of other students, such as essays, reports, presentations, practical work, etc. (Race, 2001).

To address the concerns of students and increase the reliability and validity of peer assessment, teachers need to ensure that (Toohey, 1996):

i. Teaching objectives and evaluation criteria have been made clear;
ii. Students have the opportunity to develop and practice their evaluation skills,
iii. The teacher has a simple instrument rating, and
iv. Second marker used to moderate rating.

Although self-assessment refers to people who were involved in identifying the standards and / or criteria to apply to their work and making judgments about the extent to which they have met these criteria (Boud, 1986). After doing so, the teacher will provide feedback that leads to students recognizing their next steps and how to lead them to identify what the students have done well, what needs to be done to improve, and how to do it. The last thing to do was to promote confidence in the teachers and students in studying and thinking about assessing information to provide time for students to reflect on what they have learned, understand, and identify where they still have problems.

In aligning the constructs of teaching and learning, teachers should pay attention to several things, such as learning outcomes, which is the most important in assessing students. Learning outcomes are a way to describe and define the tools of learning and evaluation processes and products, which may lead to better pedagogical practices in education and improve student-learning practices.

A good set of learning outcomes requires a great understanding of how to relate course content to sort your students: how to challenge without losing them, how to make a meaningful way to your students' needs and experiences of life and how to educate for life and achievements grading just a few weeks.

Learning outcomes focus attention on explicit and detailed statements of what students learn the skills, understanding and abilities we seek to develop and then test. It is important to stress that learning outcomes form an integral part of an educational reform agenda that can be summarized in the phrase student-centred learning’. This approach in its extreme manifestation has been represented as a paradigm shift from traditional ways to measure and express learning characterised as ‘input’ approaches

(that emphasises teaching hours and resource counting) to output-focused techniques (using learning outcomes and competences). The emphasis moves from the content (what staff teach) to outcome (what a student will be able to do). However, the move towards student-centred learning is not new and many educators have instinctively adhered to such an approach. The extreme choice between input, and output-focused approaches to teaching and learning misrepresents the situation where a middle way is often possible and constructive. The adoption of a learning outcomes approach focuses activity on the learner and away from the teacher. It promotes the idea of the teacher as a facilitator or manager of the learning process and recognizes that much learning takes place outside the classroom without a teacher present. It further involves the idea that students should be actively involved in the planning and management of their own learning and take more responsibility for this as the student progressively develop as an independent learner.24 (Adam, 2004).

Other things that have an important role in teaching and learning is the syllabus. To see the syllabus design is concerned essentially with the selection and grading of content. Syllabus only a framework in which these activities can be carried teaching tool to facilitate learning. It only becomes a threat to pedagogy when it considered as an absolute law to determine what learned rather than a reference point from which the bearings taken (Nunan, 1988).

Teaching and learning activities will be the next step, it was obtained through consultation with students quickly see that the normal condition of their teacher’s lecture will not help them achieve the results of the course (Biggs, 2007). In teaching and learning activities, teachers designed to produce or obtain the desired verb in a large or small class, group or individual activities.

Not all the previous steps can run well, if teachers do not interfere with students' learning time. Talking about student learning time, it may distinguish the language of instruction and learning time. The absolute learning time refers to the amount of time that students spend learning intentionally. In every subject of science, mathematics or accidental total learning time in points of education provided, whether in science, math or language of instruction, which allocated to one of three

types of learning activities that discussed in this report - normal school lessons, lesson out-of-school time or individual study.

1.10 Scope of the Study

This study only investigated two concepts that were Assessment for Learning (AfL) and Constructive Alignment (CA). The methodology used was survey followed by interview mixed method design. Quantitative and qualitative data used were for the purpose of this research sequentially. This study used multistage cluster random sampling method. The respondents chosen were from universities around Indonesia.

Rasch Model and Structural Equation Modeling implemented were as parametric statistical analysis. These two types of analysis used were as appropriate in testing validity and reliability of the AfL and CA instruments, and formulation of proposed model explaining the relationship between Assessment for Learning and Constructive Alignment. In addition, inductive thematic and coding analyses were used to qualitative interview data.

1.11 Definition of Terms

The definition of the concept study attempts to provide research information and understanding of the concepts and definitions of operational research focus. Therefore, in general, it can provide information and understanding of the focus of the study in two parts, namely the definition and the concept of operations. The definitions of terms for this study were as below:

1.11.1 Assessment for Learning

The definition of assessment for learning or formative assessment given by Black and Wiliam (1988) built as covering all activities undertaken by teachers and / or their students provide information that used as input to modify the teaching and learning activities involved. While the Assessment Reform Group (1999) stated that assessment for learning was the process of seeking and interpreting evidence for use by learners and their teachers to decide where the students in their learning, where they need to go and how best to get there.

According to Klenowski (2009) that the assessment of learning was part of everyday practice by the students, teachers and friends that seeks, reflects upon and responds to information from dialogue, demonstration and observation in ways that enhance ongoing learning. Black Harrison, Lee, Marshall, and Wiliam (2004) stated that assessment for learning was any assessment in the first place in the design and practices intended to encourage science students.

It differed from assessment designed primarily to serve the accountability, or proof of status or performance. Assessment can help you find out whether you state that teachers and students can use the study to assess themselves and others, and modify teaching and related activities of learning. This assessment was formative assessment when the evidence used to adapt the teaching to meet the needs of education.

Assessment for learning began when teachers share the students' goals, which represent expectations of the students-friendly language accompanied by examples of the exemplary students' work. Later, regular self-assessments provide the students (and teachers) continuous access to descriptive feedback in the amount that can managed effectively.

The students can plan their trajectories in order to achieve the goal of transparency set by their teachers. Extensive researches conducted around the world

show that consistently applies the principles of assessment for learning, we can produce impressive gains in student achievement, especially for serious students (Black and Wiliam, 1998).

For this research, assessment for learning referred to sharing learning objectives with pupils, helping students to know and recognize the standard, involving pupils in peer and self – assessment, providing feedback that leads pupils to recognizing their next steps and how to take them, promoting confidence, and involving both teachers and pupils in reviewing and reflecting on assessment information.

1.11.2 Constructive Alignment

Biggs developed the concept of constructive alignment. It consisted of two basic pillars, which started in the two views on student learning ("constructive") and principles to design a "good" education event, ranging from teaching courses for these programs ("alignment"). A good teaching system aligns teaching method and assessment of the learning activities stated in the objectives, so that all aspects of this system are appropriate in supporting student learning. The system called constructive alignment because it based on the twin principles of constructivism in learning and alignment in teaching.

Constructive alignment was the concept behind the need for these programs, specifications, declarations of learning outcomes and assessment criteria. Biggs and Tang, (2007) explained the building alignment as a principle used in developing teaching and learning activities, and assessment tasks, so that they directly address the learning outcomes. Being consistent with prior statements, constructive alignment reflects a paradigm shift from teacher-centered teaching and the students-centered learning for the stresses that support 'construction of their own knowledge inside and outside the classroom rather than the teacher as the transmission of knowledge in the classroom (Tran, Nguyen, & Nguyen 2010).

The implementation of constructive alignment in teaching and learning had Biggs (2007) splits into three parties taking part in the reflection transformation: teachers, students and institutions of various departments, faculties or schools or entire institutions and committees. Each participant reflected in the interaction with others in the following three domains or contexts: 1) teacher and the students, 2) the student's teachers and institutions, and 3) institutions.

For this research, constructive alignment refers to alliance with learning outcomes, syllabus, teaching and learning activities, assessment tasks and students' learning times.

1.12 Summary

This chapter has covered the background of the research, problem statement, objective of the research, research questions, significant of the study, constraints of the research and definition on specific terms and concept of the research. Therefore, the main purpose of the research was to develop an instrument to measure the lecturers' comprehend on assessment for learning in higher education using constructive alignment. These researches focused on the relationship between lecturers' comprehend on assessment for learning and constructive alignment and the influence of the demographic factors on lecturers' comprehending.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

The education evaluation system has been intended to support the development of education and to improve conditions of learning. The essential principles of system evaluation were linked to transparency and trust, and an interaction between the evaluators and those evaluated. Evaluation relies on transparency, fairness and independence and was not based on control or public comparison. It was primarily designed to serve the further development (Chelimsky, 1997; Fetterman, 2001; Patton, 2002, 2008).

Teaching and learning process does not only talk about the process, but it also talks about the results. Hence, to know the outcome of that process, teachers or lecturers should use the test as a tool in measuring the students' ability or performance, and decided, whether the students can pass or not. That is why we need to know some definitions of test, measurement, assessment and evaluation, so that we can clearly differentiate them. The first was test. Some experts have described several definitions:

a. Cronbach (1990) defined that the test is a systematic procedure for comparing the behavior of two or more persons.
b. Goodenough defined the test as a task or series of tasks assigned to individuals, groups of individuals, to compare their skills.

c. Reynolds, *et al* (1999); defined the test as a device or procedure in which the behavior of individuals in the sample is obtained, evaluated, and printed, using standard procedures.
d. Cohen and Swerdik. (2010), said that the test could be defined simply as a measure or procedure.
e. Musia *et al* (2009), defined testing as the process of assessment of knowledge or skills of the students with their performance on a particular instrument or task presented in a controlled manner.
f. Mohd. Najib (2011) defined that test is a systematic tool or procedure used to measure the behavior of the sample.
g. Berry (2008) said that test was any systematic procedure for sampling behavior, skill, and knowledge.

Referring to some ideas that had presented above, it can conclude that the test is a tool or instrument, which is standardize to measure or assess an aspect of ability, performance, or competence. Thus, the test is to collect data to find out the ability of individuals or groups of individuals to solve problem or show certain skills, the study results, or use psychological abilities to solve problems. The second was measurement. There were number of definitions that explained the measurements:

a. Lindeman (1967) defined measurement as the assignment of all or a set of figures for each of a set of people or things according to certain regulations.
b. Gronlund (1990) simply defined measurement as the limited quantitative evidence of student behavior.
c. Mehrens and Lehmann (1991) defined measurement as follows, using observation, rating scale or other device for us to get the information in quantitative form.
d. Berry (2008) stated that the measurement was any procedure that allows us to attach numbers to characteristics of people, object according to a set of rule.
e. Ebel and Frisbie (1990) defined measurement as the process to put a number to each member of a series of things or persons for showing the difference between their degrees in order to have a measurable characteristic.

f. Reynolds *et al* (2010), stated that measurement is a set of rules to assign numbers to represent objects, properties, characteristics, or behavior.
g. Campbell Sidhu, FWD (2007) defined measurement as the assignment of numbers to objects or events according to rules.
h. Mohd. Najib (2011) defined the measurement as the process of obtaining numerical evidence (data) at the level of the skill.

Based on this definition, we can said that there were two attributes of measurement, namely: 1) the use of numbers or scale and 2) according to certain rules or formulas. The third was the evaluation. Its members have defined several definitions, namely:

a. Witherington (1980) stated that the evaluation is a statement that something has value or not. Thus, evaluating construed as a statement that something, whether it is worthy or not. What is meant by value here can be in the form of quantitative, qualitative, or both.
b. Gronlund (1990) defined evaluation as a systematic process to determine the level of achievement of learning goals. There are two important aspects of the definition. First, the assessment refers to the systematic process. Second, assume that the purpose of learning assessment determined prior to the learning process.
c. Tyler (1967), who quoted by Brinkerhoff *et.al* (1983, 2012), said that evaluation as the process of determining the extent to which educational goals was actually realized.
d. Mehrens and Lehmann (1984) stated that the evaluation is the determination of the appropriateness of the display with the aim, in this relationship was not physically measure, but the characteristics of people who use a particular benchmark. These features are within the scope of activities of teaching and learning is the view of the students in the cognitive (knowledge, intelligence, common sense), affective (attitudes, interests, motivation, emotional), and psychomotor (skills, movement, and action).

Evaluation has several meanings set forth above indicate that a broader evaluation of the measurements. Evaluation includes both quantitative and qualitative aspects, whereas measurements only limited quantitative evidence. The last one is assessment. Assessment is the process of gathering and processing information to determine student achievement of learning outcomes. Clearly, we can see a number of definitions that had described by members of the assessment, namely:

a. Malcolm Van Blerkom (2009) stated that the assessment is a very general term that describes many of the techniques that we use to measure and evaluate the student's behavior and performance.
b. Griffin and Nix (1991) said that assessment based on a number of factual declarations to explain the characteristics of someone or something.
c. Linn and Gronlund, explained that the assessment is a general term that includes all series of procedures used to obtain information about student learning outcomes or the learners (for example: observation, a graduated scale performance, written test) and assessment of the students' progress (the students).
d. Stufflebeam *et.al.,* (1971) described the assessment says search and provide information that is useful in considering the decision alternatives.

The assessment is to produce information to know ahead of the next study (Beery and Adamson, 2011; Black *et.al.,* 2011; Carless, 2007; Hogan and Gopinathan, 2008; Lee, 2012; Mok *et.al.,* 2003; Ng, 2010). Currently, the evaluation system in some regions has changed. Assessment as Learning (AaL) and Assessment for Learning (AfL) were two new concepts in the assessment. Aal and AfL were form the basis for assessment reform in the system of primary education in the Asia-Pacific region, including Indonesia (Mok, 2012).

Furthermore, assessment in Hong Kong, Korea, China, Japan, Macau, Singapore and Taiwan, for example, traditionally in the form of high-stake norm-referenced examinations that defined the future prospects of education and employment test participants (Berry and Adamson, 2011; Hogan and Gopinathan,

2008; Mok, 2012). Evaluation system used in Indonesia based on the national curriculum that included assessment procedures at all levels of education. However, Indonesia had embraced for the assessment of learning. Assessment associated with behaviourist views of learning aims to check whether the learners have encountered the requirements as set. A Judgment will make by compare the predetermined learning targets and the ultimate performance of the learner. This view of assessment places a major focus on the product of learning. This kind of assessment represents Assessment of Learning (Berry, 2008).

The difference between assessment of learning and assessment for learning can be express in various ways. Assessment was learned that is designed to document the achievement or proficiency at one point in time, after learning to report for accountability. The details were then given to administrators, policy makers and planners as well as teachers, students and parents about student competence (Reeves, 2002a; Conley, 2005). In the process of teaching and learning, teachers or lecturers need to know what they did when they performed learning process in the classroom. Consequently, the teacher or lecturer should be implemented one of the taxonomy developed by Bloom and colleagues.

Bloom's Taxonomy (Bloom, Engelhart, Furst, Hill, & Krathwohl, 1956) presents a classification of individual cognitive operations occur using to learn completely. Learning was difficult in cognitive domains that categorized into six levels ordered from least to most complex: knowledge, comprehension, application, analysis, synthesis, and evaluation. The level should be collected, with each of the system building on the previous level of achievement.

Each of the six levels in the hierarchy is an important skill for students to become critical thinkers. At the level of knowledge, the lowest in the hierarchy, the student recalls or recognizes information, ideas, and principles in the approximate form in which he or she learns them. This material may vary from facts to complete theories, but all that needed was to remember information.

Learning objectives at this level include identifying terminology, facts, rules, procedures, basic concepts, and principles. In prior learning assessment, students were asked to identify how they learn tasks or skills from their life experiences. For example, a student who wrote an essay on the supervisory officer may review the rules and procedures they use in day-to-day supervision of their routine.

Boud (2000) used Black and Wiliam's (1998) analysis of recent research on formative assessment as a starting point to identify issues to be incorporated into an agenda for assessment reform. The points to be taken into account in revision of assessment practice to make it more sustainable were: (i) the importance of a standards-based framework to enable students to view their own work in the light of acceptable practice, (ii) a belief by teachers that all students can succeed, (iii) the need to foster confidence about students' capacity as learners because their beliefs about this affect achievement, (iv) the need to consider separating comments from grades because grades distract from engaging with feedback, (v) the need to focus assessment on learning rather than performance, (vi) the vital role of the development of self-assessment abilities, (vii) encouragement of reflective assessment with peers, and (viii) ensuring that comments on assessment tasks are actually used to influence further learning.

However, it is necessary to go beyond the identification of particular items to be pursued to an analysis of what kinds of practices are needed and what should guide our focus on them. It is not possible to develop a definitive account of the types of assessment activity that were needed to pursue an agenda of learning for the longer term. However, a range of examples that indicate directions in which a move to a more contextualised, participatory and relational assessment regime can proceed might usefully stimulate debate.

In this chapter, the researcher will describe more fully on assessment for learning and constructive alignment that related to higher education.

2.2 Assessment for Learning

Assessment associated with constructivist views of learning aims to understand how the learner learns, what the learner can do or cannot do, and makes some deliberations and decision on how to help the learner learn. This view, which is more closely linked to contemporary theories of learning, places more emphasis on the process of learning, theorists usually call this kind of assessment for learning (AfL), (Berry, 2008).

The concept of assessment learning gives a general direction of where assessment should go. However, given the strongly entrenched viewed and practices of classroom teacher or lecturers and school leaders regarding the proper role of assessment. Ten assessment principles for assessment for learning have consequently developed, presented within the framework of AoL, AfL, and Aal. The highlights of AoL, AfL, and AaL were their specific emphases, respectively, on product of learning, process of learning and learner taking control. The ten principles were (Berry, 2008):

a. *Aligning assessment to teaching and learning.* The assessment methods employed should reflect the variety of subject and course goals. Teachers give students effective feedback and then adjust teaching, as a means of focusing on continuous improvement in both teaching and learning. Teachers use the information obtained from their assessments to help them understand the learning progress of the students.

b. *Exploring the use of multidimensional assessment methods.* Assessment can varied in form, depth or breadth, to reflect different facets of learning. A variety in types of assessment allows a range of different learning outcomes to assess. It also keeps students interested, especially when assessment tasks are authentic. There are two special benefits arising from the use of multidimensional assessment methods in the improvement of quality learning. First, it conveys to the student the important message that learning is complex, and that important learning outcomes can take many different forms and can require many different skills to demonstrate. Multidimensional

assessment methods also help to ensure that the learning of students with less traditional or commonplace talents and ways of learning was properly acknowledged and credited.

c. *Selecting those assessment methods that were susceptible to learning.* The less effective forms of assessment inhibit or narrow learning opportunities and should reduce to a minimum. The "right" forms, accordingly, provide learners with plenty of learning opportunities. Using varied assessment strategies such as portfolios, observations, experiments, projects, simulations, interviews, performances, presentations, concept maps, word association etc. allows a deeper understanding of students' learning in different perspectives.

d. *Considering drawing on joint efforts among colleagues*. In education contexts, students' learning is the result of concerted efforts from different parties. This should also be applicable to assessment. Collaborative actions support discussion on assessment matters and understanding of students' learning from different perspectives. This kind of professional collaboration is very important to the setting of rating criteria, for example, when several raters will be involved in judging students' work against the same standards. Teachers can work together to set different sets of rating standard, including various kinds of skill and content. This helps in setting assessment plans of different levels.

e. *Assessing students continuously throughout the learning processes.* Progressively assess students' learning so that assistance can give to students when they first need it, and before serious learning difficulties arise. Students can give a series of smaller, appropriately valued assessment tasks spread through the term. What is important to bear in mind about continuous assessment is that the purpose is to identify potential problems, monitor satisfactory progress toward significant learner goals, and to provide feedback and encouragement along the way. For that reason, assessments based on initial attempts on the part of students to demonstrate new skills should not heavily weighted toward the final judgement of student proficiency in a new skill area, at the end of the term. These assessments can based on observation, judgement, encouragement, guidance, and corrections

f. *Allowing students to take part in the assessment process.* Assessment does not have to be conducted solely by the teachers (and in fact it is not, and

should not be). Students themselves can contribute towards their own learning through assessing themselves and their peers. Students should regard as insiders instead of outsiders when it comes to assessment and learning matters. They should be involved in making judgments about their own work, monitoring their own progress, learning to set goals for themselves, and presenting themselves and their work to others. Well-constructed self-assessment and peer assessment exercises have the potential to provide valuable learning experiences and encourage lifelong learning.

g. *Using assessment to uncover students' learning.* The main objective of assessment is improving students' learning behavior, not for getting the result by the end of the term. What is *not* advisable is to base end-of-term decisions about learning on a single source of evidence, or even type of evidence, *and* that information gathered primarily for formative purposes *not* serve as the basis for judging end-of-term status. Therefore, it is better to use multidimensional methods to assess students' performance. For example, a teacher should adopt summative assessment strategies to summarize students' quality of learning by the end of the school term for deciding whether they pass or not, or should promote to the next level. The objective in this case is to prove learning. In addition to the summative assessment techniques, the teacher should use formative assessment methods to diagnose learning difficulties and monitor student progress, while promoting greater learning. The objective is to improve learning. These two kinds of assessment can use simultaneously. The formative assessment is able to provide timely and regular feedback, while summative assessment usually presents the results.

h. *Making marking criteria accessible for students*. Students need to understand clearly, what expected of them in assessed tasks. Each assessment task was to accompanied by clear assessment criteria that are effectively communicated to students and markers. Teachers have to develop an assessment plan before teaching a learning programed and should let students know clearly at the start of the term what the goals of the learning programmed are, and how students will be expected to demonstrate the mastery of those goals. Criteria for assessment should be detailed, transparent and justifiable. Teachers can get students involved in discussing the criteria or even in setting the criteria

i. *Providing feedback to facilitate students' learning.* Feedback is fundamental to the learning process. It is important to provide students with timely and comprehensive feedback on the extent to which they are achieving the goals and objectives of their learning. Formative assessment is very effective in monitoring and supporting the students' learning progress during instruction. The objective is to provide teachers and students with feedback on the learning results for promoting students' learning, improving content arrangement in the curriculum and exploring better modes of teaching. Its fundamental spirit is totally assessments with the detailed target behavior to form an interactive cycle. From time to time, students should make aware of their achievements and those aspects they need to improve on for their future development. Students should give opportunities to act upon the useful suggestions made by the teachers, their peers, or ones they make themselves.

j. *Analyzing and reporting students' result.* Systematic analysis of students' performance on assessment tasks can help identify areas of the curriculum that need improvement. This enlightens teaching and eventually benefits students' learning. When reporting students' results, teachers can consider using the form of a qualitative profile rather than a single score or other quantification. The qualitative profile includes relevant data about effort, attitude, personality etc. The advantage is that the focus of the information reported was the student, his or her level of achievement, the effort shown, and the characteristics of the student as a learner, characteristics that may be aiding or impeding the student in his or her learning. By focusing the information thus, it was possible to reduce comparisons between students by parents, and give teachers a better opportunity to communicate with parents those essential matters regarding their student and his or her learning.

Assessment for learning comes from two main words, the assessment and learning. Definition of assessment for learning has been widely expressed by experts, such as; Assessment for learning is part of everyday practice by students, teachers and peers that seeks, reflects upon and responds to information from dialogue, demonstration and observation in ways that enhance ongoing learning. (Klenowski, 2009; Wiliam, 2011). This meaning was making to emphasize the progress of

learning. The lifelong learning skills as goal assessment for learning and recognizes the importance of both the right workout and casual laid in teaching and learning every day.

Assessment for Learning (AfL) is the process of seeking and interpreting evidence for use by learners and their teachers to decide where the learners are in their learning, where they need to go and how best to get there. (Assessment Reform Group, 2002). Another definition of AfL also define by Gibbs and Simpson (2005) and McDowell, et.al (2011) who were view awful as a system which direct and control students learning based on the power of summative assessment and grades in addition for providing feedback. AfL involves teachers providing descriptive rather than evaluative feedback and students' self-assessing and communicating their own result to others (Stiggins, Arter, Chappius & Chappius, 2006).

Historically, the term of assessment for learning began with the term formative assessment. That included an assessment for learning had been detected by Black & Wiliam (2006) and Newton (2007) from writing Scriven (1967) first distinguishes between formative and summative assessment purposes, the work of Bloom, Hasting and Madaus (1971) and the work of Sadler (1989), which highlights the importance of formative set criteria to inform students about learning.

Assessment in education takes many different forms and serves many different purposes (Messick, 1989). It will depend on the level of education system, from elementary to higher education. Countless educators have counseled the use of the supplementary kind of assessment, such as formative assessment or assessment for learning that might imitate students' learning procedures, extra larger than established assessments that merely focus on students' learning aftermath (Zessoules & Gardner, 1991; Wiggins, 1998).

Reforms had paired together in the assessment of educational reform in the countless range from all over the world in the last few decades. Countless educators have advice use additional types of assessments, such as formative assessment or

assessment for learning that may mimic 'great additional learning procedure of the assessment determined that only focused on students after learning (Zessoules & Gardner, 1991; Wiggins, 1998). They understand that the use of formative assessment or assessment for learning in class can support students as learners and further enhance student presentation skills (Sadler, 1998., Black et al, 2004).

According to this study (James & Pedder, 2006; Keppell & Carless, 2006; Marshall & Drummond, 2006; Munns & Woodward, 2006) uses the implementation of assessment for learning as a pedagogical training is far additional complex. Bernstein (cited in Munns & Woodward, 2006) provides a lens that displays the subject of interpretation influential educator and student beliefs, personality and manipulation to help understand the complexity.

Moreover, in the context of society and a very important strategy in assessment for learning and never linear and closed as a series of relate above. This is while training can inform theory assessment for learning. Reality that teachers and students debate can help researchers explain and understand the dynamics of the relationship assessment.

Assessment for learning is a field of international education policy reflects many significant in objective evaluation of the measure to focus on learning. Expression evaluation for learning began to emerge in talking distinguished goal of formative assessment or assessment for learning summative evaluation during the 1990s. Williams (in Popham, 2008a) stated relation to the first use of the phrase to Mary James in his conference in 1992.

The term of assessment for learning can sometimes similarly with formative assessment. Popham (2008b) in the USA by Clarke (2005) used the term for formative assessment in their later work with the teachers in England, by Perrenoud (1998) writing about the French context, and in Hong Kong by Carless (2007). On the contrary, Stiggins (2002) stated that formative assessment and assessment for learning are different.

Assessment for learning and assessment of learning has a great difference in use and goals. Assessment for learning refers to formative assessment, while assessment of learning refers to summative assessment. The goal of assessment for learning is to provide initial feedback to the students, teacher, and other adults to result in changes in instruction, motivation, or behavior in order to affect student learning and growth. On the other side, the goal of assessment of learning is to provide a measure of student learning once the instruction is complete. Table 1 below provides the difference between assessment for learning and assessment for learning.

Table 2.1 Comparing Assessment for and of Learning: Overview of Key Differences

Items	Assessment for Learning	Assessment of Learning
Reason for assessing	Promote increases in achievement to help students meet more standards, support on going student growth, improvement	Document individual or group achievement or mastery of standards, measure achievement status at a point in time for purposes of reporting, accountability
Audience	Students about themselves	Others about students
Focus of assessment	Specific achievement targets selected by teachers that enable students to build toward standards	Achievement standards for which schools, teachers, and students are held accountable
Place in Time	A process during learning	An event after learning
Primary Users	Students, teachers, parents	Policy makers, program planners, supervisors, teachers, students, parents
Typical Uses	Provide students with insight to improve achievement, help teachers diagnose and respond to student needs, help parents see progress over time, help parents support learning	Certify student competence, sort students according to achievement, promotion and graduation decisions, grading
Teacher‘s Role	Transform standards into classroom targets, inform students of targets, build assessments, adjust instruction based on results, offer descriptive feedback to students,	Administer the test carefully to ensure accuracy and comparability of results, use results to help students meet standards, interpret results for parents, build assessments for

	involve students in assessing	report card grading
Student‘s Role	Self- Assess and keep track of progress, contribute to setting goals, act on classroom assessment results to be able to do better next time	Study to meet standards, take the test, strive for the highest possible score, avoid failure
Primary Motivator	Belief that success in learning is achievable	Threat of punishment, promise of rewards

Note. From Classroom Assessment for Student Learning by R. Stiggins, J. Arter, J. Chappuis, and S. Chappuis, 2006.

Furthermore, Berry (2008) compared three assessment approaches that has own specific contribution student learning, which is important to know that the three approaches were indirect conflict with one another, as shown in the table 2.2 below.

Table 2.2 Comparison of the characteristics of the three assessment approaches: AoL, AfL, and AaL

	AoL	**AfL**	**AaL**
General description	This approach collects evidence at the end of learning for making judgments on student achievements against goals and standards.	This approach collect information during learning for making decisions on what kinds of actions needed to help improve teaching and learning.	This approach gets students to collect information about their own learning. Students reflect on their learning and make plans to improve it.
Validity and Reliability	This approach usually involves formal types of assessment such as standardized test and exams. Information obtained from this one single source of information is not able to provide a full picture of how students learn, and in this sense, it is less valid.	This approach can take both formal and informal types of assessment. The information collected various types of assessment describes student learning from different perspectives. Well-designed assessment task will provide valid	The assessment methods are usually informal, such as self and peer assessment. Students directly provide Informal. Well-conducted self and peer assessment can draw on valid information from students. However, assessment

	Standardized test, however, are quite reliable for comparing student performance.	and reliable judgments of student performance.	connected with this approach involves subjective judgment of performance and therefore can be less reliable.
Functions	✓ Measures learning outcomes ✓ Checks progress against standards ✓ Compares student by their performance ✓ Makes summative decisions ✓ Can have formative use for providing evidence to inform long-term planning ✓ Certification	✓ Understands how students learn by monitoring their progress during the learning process ✓ Makes instructional decisions using the information collected continuously ✓ Helps improve student learning through giving quality feedback	✓ Helps students understand the standards expected of them ✓ Develops students' abilities to self-monitor, self-assess, self-evaluate, and self- correct ✓ Enables students to develop their own learning plans
Focuses of assessment	The extent to which students can apply the key concepts, knowledge, skills, and attitudes related to the curricular outcomes, e.g. end of secondary school public exam	Students' progress and learning needs in relation to the curricular outcomes, e.g. a quiz for analyzing students strengths and weaknesses	Students' thinking about their learning and the strategies they use to improve their learning, e.g. students self-reflect on what part of their works needs to be improved on

Noted: From Assessment for Learning by Berry R, 2008.

Assessment for learning knows as classroom assessment, formative assessment and descriptive evaluation. Assessment for Learning often compared analogous to a doctor check-up or practice coaches' team (Wiggins, 2007). Assessment for learning is all about informing learners of their progress to empower them to take the necessary action to improve their performance (Jones, 2005).

To understand and defined assessment for learning were important for researchers who concerned that the principles of assessment for learning assessment was being misused and misunderstood in the context of the new policy so that they do not achieve the desired goal of student autonomy (McCormick & Murphy, 2008; Stobart, 2009). The focus around the reduced form of learning "assessment as learning" (Hume & Coll, 2009; Sadler, 2007; Torrance, 2007) and not in accordance with the third horizon creative community (Broadfoot, 2009).

An important of assessment for learning research work for teachers and students has occurred in U.K (Black, Swann, & Wiliam, 2006; Ecclestone, 2002; Gardner et al., 2008); Gipps, 2002; Hayward, 2007; Marshall & Drummond, 2006; Stobart, 2009) the U.S.A (Brokhart, 2001; Popham, 2008; Stiggins, 2002; Tierney &Charland, 2007) Hong Kong (Carless, 2007), New Zealand (Cowie, 2005b; Hattie & Tumpeley, 2007). In addition, another places around the world (Black & Wiliam, 2005; Perrenoud, 1998).

The focus of assessment for learning is increasing student achievement (Reeves, 2001) and the students learn rather than teaching (Harris, 2007). Assessment for learning also includes educational feedback designed to provide immediate, relevant and useful to students (Reeves, 2001) and formative feedback aims to provide information communicated to the students to support the modification of thought or behavior to improving learning (Shute, 2008).

Furthermore Hargreaves, (2010) stated that the concept of assessment for learning reflected in the definition of the Assessment Reform Group (2002):

> "Assessment for learning is the process of researching and interpreting evidence for use by learners and their teachers to decide where the students in their learning, where they need to go and how to get there."

Assessment for learning was an approach to teaching and learning based on the formation that the use of evaluation. The participation of students and develop

skills and disposition to learning throughout their lives in the midst of, and supported by a significant body of evidence that assessment for learning not only helps students learn but also help them become better students (Swaffield, S., 2011).

The assessment for learning approach had adopted in the state educational department in England, Northern Ireland, and Wales, as well as in Scotland, Australia, New Zealand, and in Hong Kong. The assessment for learning influence had felt in the US as well, and in some Canadian provinces (Albert Education, 2008; Krakow, 2005; Legendre, 2001; Western and Northern Canadian Protocol for Collaboration in Education, 2006).

Assessment for learning meant assessment employed to notify subsequent steps in teaching and learning. This conception of assessment for learning seems to connected to the assumption of the earlier conception that teachers and students demand to be clear whereas learning is processed (Hargreaves, E. 2010).

The Assessment Reform Group also produces a set of principles to guide the practice of that assessment for learning should:

1. Part of effective planning of teaching and assessment
2. Focus on how students learn
3. Recognized as central to classroom practice
4. Regarded as a key professional skill for teachers
5. Sensitive and constructive because any assessment has an emotional impact
6. Take-in account of the importance of learner motivation
7. Promotes commitment to learning goals and a shared understanding of the criteria by which they are assessed
8. Receive constructive guidance about how to improve
9. Develops learner's capacity for self-assessment so they can become reflective and self-managing
10. Recognize the full range of achievements for all learners (ARG, 2002a)

Assessment for learning relate to practices, such as sharing criteria with students, develop a classroom talk and ask questions, provide appropriate feedback were followed, and peer and self-assessment (Black and Wiliam 1998a) all require the active involvement of students and the rest of the constructivist theory of learning. Learning is seen as a process rather than product (Sadler, 2007), something that students do more than commodities to obtain.

Principles of assessment for learning are quite different from many of the practices of existing classrooms. Hence, the pedagogical implications of assessment for learning needs of teachers and students to change their method of thinking about their class action (James and Pedder 2006). For example, vision is not delivered by educators but is designed by students while facilitating teachers. Teachers are not transmitting vision.

Teachers need to provide opportunities for students to learn to understand and to engage in thoughtful discussion. Students are not passive recipients of knowledge. They have become their own learning controller for self-assessment and peer assessment. Carless (2005) showed the two cases for the implementation of assessment for learning in Hong Kong. One of the cases that show how an English teacher in primary schools share the assessment criteria with the students and the students grab a part in assessing their peers using a checklist. Additional cases reported how an English teacher incorporated evaluating peer in the classroom in order to increase student grammar.

In both studies, however, although teachers were satisfied to understand additional about their students and students explore a little self-assessment exercises, they expose the tension in this way in addition to normal teaching method and assessment in Hong Kong. Carless (2005) concluded that the results of both studies were the result of the appropriateness of assessment for learning as well as learning theory and supporting teachers beyond blessed by it.

Another recent study by Smith and Gorard (2005) leads the learning experiment established in 104 student's year 7 in the UK for a year. The experimental group given enhanced formative feedback on their work but no grades, manipulation scored as a group and grade as well as comments ignored common training school. Results show that the progress of the students in the experimental group in public examinations is lower than that given by the manipulation.

One explanation for the negative results is a misrepresentation clarifies thinking and assessment for learning improper implementation (Black, Harrison et al. 2005). Both of the above empirical studies carried out only to the aspects of assessment techniques for learning such as feedback, self-assessment or peer assessment. They were not using compound techniques to help students. Implement assessment for learning, which was very important to consider if the corresponding of teacher learning theory principles.

As a new concept in the field of assessment, assessment for learning offers many benefits for both teachers and students, especially for students of primary goals. One of the benefits is providing frequent feedback to students (Black & Wiliam, 1998). Another benefit assessment for learning is to increase student motivation (Sadler, 1989). Based on the OECD (2005), a research report that the bulk of assessment for learning was carried out in primary and secondary schooling (Yorke, 2003; Murphy, 2006).

Moreover, Murphy (2006) observed that the body of knowledge is growing regarding the application of formative assessment in school classroom, but in higher education, we are still in early stages of understanding how effective this approach to assessment developed within different higher education and in different areas of the curriculum.

A key feature of assessment for learning was shared both students learning objectives and intended learning outcomes in a bright and clear. To share learning objectives with students will help them identify what they are trying to learn and why. Pupils also need to know and recognize the standards they are aiming for. It is

important that teachers are clear about their expectations and communicate this to the students.

Pedder & James in Gardner (2006) stated one of the ten principles of the Assessment Reform Group that assessment for learning regarded as a key professional skill for teachers. Teachers require the professional knowledge and skills to: plan for assessment; observe learning; analyze and interpret evidence of learning; give feedback to learners and support the learners in self-assessment.

Associated with peer - and self-assessment, Hanrahan & Isaacs (2001) argued that self-assessment and peer-assessment used in higher education, to help assign grades to student work and help students to learn more effectively. However, despite this trend there is little in the published literature on how students view this method.

Furthermore, Hanrahan & Isaacs (2001) explained that both self-assessment and assessment skills needed by graduates of friends on the way (and private) of their working life. Self-assessment will help students to set goals and thus to learn on your own. Peer assessment will help them to contribute to building the collaborative effort.

Most of the literature on peer assessment in higher education is concerned with the assessment of whether an individual to group work (Conway, et al, 1993. Earl, 1986; Freeman, 1995; Goldfinch and Raeside, 1990; Rafic and Fullerton, 1996) or the extent to which such sign may not be valid for the purpose of scoring (Falchikov, 1986; Stefani, 1992, 1994). The literature on self-assessment, and reviewed the book Boud (1995), which shows the same emphasis.

There is an extended literature about the use of peer and self-assessment in higher education. Among the best-known and most significant contributors to this field was David Boud, who has written on the topic since the 1970s (e.g. Anderson and Boud 1996; Boud 1979, 1981, 1991, 1995, 1998, 1999; Boud and Brew 1995; Boud and Falchikov 1989, 2007; Boud and Holmes 1981; Boud and Tyree 1979;

Falchikov and Boud 1989). In addition, Nancy Falchikov, whose 2004 book (since republished) considered as the single most important literature survey in the field to data (Falchikov 1995, 2004; Falchikov and Boud 1989; Falchikov and Goldfinch 2000). In spite of the volume of research papers and books on this topic, Topping (1998) noted that the literature on peer-assessment in higher education is at an early point of development, very variable in type and quality, and scattered and fragmentary in nature (Topping, 1998).

Dochy, Segers, and Sluijsmans (1999), in a review of the literature of 63 studies, also found that a combination of different assessment tasks, including peer assessment, encouraged students to become more responsible and reflective. Wheater, Langan, and Dunleavy (2005) argued, the literature suggests that peer assessment in higher education was useful in terms of both being an efficient practice as well as having numerous pedagogical benefits to students and educators. The method contained varieties of classes in a range of teaching practices. That were included; a) peer nomination, which refers to the practice of placing the best and worst performers in the group; b) peer rating, which ranks the performance of the group members based on a set of performance requirements; c) peer rankings, which ranks group members of the best performers to worse (Pope, 2001).

Therefore, peer assessment is embedded in higher education institutes to help graduates appraise their own work and that of others, and to adopt a more self-directed attitude towards their learning in preparation for their ongoing professional development (Stefani, 1994; Oldfield & MacAlpine, 1995; Woolhouse, 1999).

In higher education institutions, the use of peer assessment is increasing. It defined was as a way whereby students assess the quality of their colleagues' performance and give feedback to one another (Dochy, Segers, & Sluijsmans, 1999; Sluijsmans, Brand-Gruwel & Merriënboer, 2002). In other words, Andrade (2010) stated that peer and self-assessment practices encourage students to identify learning objectives and understand the criteria used to judge their work, with the goal of increasing self-regulation.

In view of the value of peer assessment, different studies undertaken to investigate its use and influence. Brindley and Scoffield (1998) examined the use of peer assessment in two marketing modules in two undergraduate programs at Manchester Metropolitan University. The findings revealed that students' motivation increased because of their active involvement in the assessment process, and their ability to gain a greater understanding of the assessment process developed.

In an exploratory study of peer assessment at a Post Graduate Diploma in education in Singapore, Divaharn and Atputhasamy (2002) found that students were positive about group work and the use of peer assessment in tutorial work. The writers found that cooperative learning combined with peer assessment provided a solid basis for the development of several learning skills, including communication skills and support skills, as well as a stronger sense of responsibility towards learning activities.

Peer assessment should be considered as an integral component of group work, but does need moderation to ensure only students who are active participants in the group activities (and therefore more likely to be informed about relative contributions of peers) are eligible to provide assessment of their colleagues, to minimize the impact on grades from uninformed non-attendees. How this might be effectively managed is a topic currently being considered – it is possible to exclude the peer ratings of students identified by their colleagues as non-contributors, but this is a very labour-intensive task.

Similarly, Wen, Tsai and Chang's (2006) study showed that pre-service and in-service teachers had positive attitude towards the use of peer assessment as an alternative method of assessment. Orsmond and Merry (1996) found that students did enjoy implementing peer assessment tasks and benefited from them. In the context of education conceptualized as a response to both the employment function 'assessing' and 'education' (Dochy McDowell & 1997). In terms of evaluation, a feedback provides students with information on the performance and challenges him on an assessment task (Hounsell 1987). From an educational perspective, feedback

facilitates student development and improvement (Hester, 2001). Feedback also appears to be an important contributor to the quality of the student experience (Higgins et al. 2002).

Furthermore, Stiggins (2004, 2006) stated that assessment for learning argues that students learn best when they know what is expected and required for success. In addition, they understand how to close the gap between their own work and the standard for success. The strategy in providing students with this knowledge about what is expected found in the use of scoring guide. Accessible instructional scoring guides or rubrics can provide students with important information that can lead students to become self-regulated learner (Saddler and Andrade, 2004).

Finally, Sambell K, McDowell L, and Montgomery C (2013), emphasized that Assessment for Learning is an integrated approach to teaching assessment and supporting student learning. Furthermore, it present a manifesto built on the overall ethos Assessment for Learning as an integrated whole and address the key foundations of Assessment for Learning. The key foundations of AfL can be used to guided reflection on current practice and lead to an emerging agenda which requires transformed roles, relationships, sense of responsibilities and new ways of thinking that are needed to bring a culture of AfL about.

The three foundational elements are: 1) Risk, AfL offers students opportunities that are not normally available in conventionally designed modules and programs. AfL is used quite differently but as a result can be seen as high risk. The assessment practices that we design for our students deeply connected with how much we trust them to act responsibly, to want to learn, to be capable of getting involved and immersed in genuine, worthwhile learning and so on. 2) Power, Assessment for Learning offers a way of thinking about the student, which does not see them so negatively but positions them as people who, while inexperienced, have the potential to contribute, learn and improve, no matter what their starting point. In AfL we aim to develop informed students who are in a much more powerful positions when it comes to asking pertinent questions, directing their own learning and making judgments about the quality of their work.

It was unrealistic and indeed undesirable to think that the power of assessment can handed over to students. First, students need to learn what assessment is about and how to be an assessor. Second, for good reasons, there will always be limits to the student assessor role. 3) Reconceptualizing teaching, AfL gives us a different perspectives on the practice of learning, teaching and assessment. Most important is integration of these three familiar components and thus a reconceptualizing leading to forms of integrated practice. Institutions should ensure that processes, procedures, and assessment regulations supports Assessment for Learning. There should be opportunity for well-founded, well-planned calculated risks. The lecturers should act based on predictability may feel safe but is not inspiring. Students should realize that assessment could be an opportunity for learning, rather than just something endured and suffered. Active participation in assessment will lead to increased confidence, responsibility, and competence within beyond Higher Education.

2.3 Constructive Alignment

Students learn through various approaches depending on the subject areas and academic tasks, and both rote learning and deep learning are commonly used (Ramsden, 1992; Biggs, 1994; Presser & Trigwell, 1999). One of the methods to achieve meaningful and effective teaching and learning activities is through constructive alignment.

Lueddeke (1999) reflected that fundamental changes in teaching and learning are rare in higher education in most universities, teaching continues in much the same way as it has always done. A more optimistic view was put forward by Rust (2002) who argued that the espoused philosophical rhetoric of a change from a teaching focus on one of student learning was occurring, but there was still a significant lag in the connection between changes in teaching methods and changes in assessment. Furthermore, Harvey and Kamvounias (2008) argued that there is a

gap between institutional policy and practice in the implementation of teaching initiatives, particularly when imposed above.

Constructive alignment is an important principle in devising teaching and learning activities such as lectures tutorial classes and assessment so that both teachers and learners focus on the outcomes of the context (Biggs, 1996). The instructional design is vital to relate curriculum and learning outcomes. The launch of CA as a new way of designing courses is partly a consequence of the fact that universities and colleges have become mass-education institutions (Biggs and Tang, 1999; 2007).

The principles of constructive alignment (Biggs 1996; Biggs 1999; Biggs and Tang 2007) had long promoted as a powerful approach to facilitating improved student outcomes for a broader range of students. Despite some concern in the science education sector that constructivist approaches undermine the mastery of disciplinary knowledge and independent thinking (Jervis and Jervis 2005), there has been considerable attention in recent years to the concepts of constructive alignment (Boud and Falchikov 2006) and a general view as to its benefits (Rust 2002). However, there remains little evidence of its systematic implementation and even less evidence of its evaluation, particularly from a student perspective.

Curriculum, instruction, and assessment are the three central tenets of education that aim to develop students' abilities to think, solve problems, and become independent learners (Pellegrino, 2002). Instruction is comprised of the methods of teaching and the learning activities engaged in by professors and students in order to achieve the objectives, which guided by the curriculum.

The construction of this knowledge is therefore based not only on the types of teaching and learning activities, but on what a student brings to the learning environment, such as prior knowledge, experience, attitudes, and on assumptions (Biggs, 2003). Furthermore, Biggs (1996) talks about the merging of constructivism and instructional design when he identifies the alignment of three components: (a)

measurable, clearly-stated, curriculum or unit objectives, (b) learning activities that will help students gain and understand content knowledge, and (c) assessment tasks that utilize new knowledge to meet stated objectives (Biggs, 1999; Biggs, 2003, Harvey and Kamvounias, 2008).

Objectives are intended learning outcomes; they are explicit formulations of the way in which students expected to change by the educative process (Bloom, Engelhart, Furst, Hill and Krathwohl, 1956). Assessment is the means of measuring student teachers' learning outcomes. The three principles should be working toward the same goal, and should be mutually reinforcing, rather than working at cross-purposes.

To achieve such alignment, educators must identify a central theory about the nature of learning and knowing about the three principles can be coordinated. Learning takes place through the active behavior of the student: it was what did he learns, not what the teacher does (Tyler, 1949). Tyler's statement has been elaborated by Shuell (1986) students are to learn desired outcomes in a reasonably effective manner, then the teacher's fundamental task is to get students to engage in learning activities that are likely to result in their achieving those outcomes. It is helpful to remember that what the student does is actually more important in determining what learned than what the teacher does.

Constructive alignment refers to instructional design that has all aspects of the learning environment aligned, and that relies on a constructivist theoretical framework to guide decision-making (Biggs, 1996). Constructive alignment was based on the twin principles of constructivism in learning and alignment in the design of teaching and assessment.

It is constructive because it based on the constructivist theory that learners use their own activity to construct their knowledge or other outcome. The *alignment* in constructive alignment reflects the fact that the learning activity in the intended outcomes, expressed as a verb, needs to be activated in the teaching if the outcomes

is to be achieved and in the assessment task to verify that the outcome has in fact been achieved (Biggs & Tang, 2007).

Constructive alignment is a marriage between a constructivists understanding of the nature of learning and an aligned designed for teaching that is designed to lock students into deep learning (Biggs & Tang, 2007). It means that how the students can be understood and construct their knowledge and how the teachers aligned their teaching, so that students get a better learning.

Constructivism is a philosophy that underlies a variety of theories, all of which places the learner as central in creating meaning through various individual and social activities. According to constructivist philosophy, students hold personal assumptions, intentions, and current conceptions that filter the learning situation; these influences the quality of the learning that may take place (Biggs, 1996).

Selecting appropriate TLAs is a matter of experience and judgment. Ideas might be gained from a look at the literature on alternative teaching procedures and techniques (e.g. Gibbs, Habeshaw & Habeshaw 1992; Race & Brown 1993); the Higher Education Bulletins and Newsletters contain short articles of the "This worked for me; why don't you have a go?" variety (e.g. Fleming 1993; Saberton 1985) (both of which also worked for me, see below). It emphasized, though, that this should not involve the simple addition of a "good" technique; it chosen because its function and purpose cohere with one's total teaching system.

It also helps to recall that the teacher is not the only agent responsible for setting up TLAs. Both individual and social activities play a role in the construction of knowledge: 1. the teacher has major control over formal teaching activities: lectures, tutorials, laboratories, field excursions, etc. The teacher can also set up formal cooperative activities involving peers, such as discussion groups, brainstorming, or learning partnerships (Saberton 1985), and once the activity has been initiated, the role of peers becomes increasingly important. 2. Peer-controlled activities range from formal ones, initiated by the teacher, such as various kinds of

group work (Collier 1985; Johnson & Johnson 1990), or instructions to use learning partners, for informal and spontaneous collaboration by students outside the classroom, which may have positive effects on learning (Tang 1993). 3. Self-controlled activities, which includes anything that goes under the heading of independent learning and study, including specific strategies for extracting meaning from text such as summarizing and note-taking (Hidi & Anderson 1986, Kirby & Pedwell 1991), general study skills, and metacognitive strategy use (Brown, Bransford, Ferrara & champion 1983).

Constructive alignment is a principle that is used to develop teaching and learning activities, and assessment tasks, so that they directly address the learning outcomes (Biggs & Tang, 2007). A literature review on the learning outcomes has the same meaning. Some experts say, as follows: The learning outcomes are statements of what students expected to be able to do as a product of learning activities (Jenkins and Unwin, 2001). Although Bingham (1999) states that learning outcomes are clear descriptions of what students should know, understand and be able to do as a result of learning.

The alignment of assessment tasks to learning outcomes, as described Biggs and Tang (2007), reinforced by others. Brown (2004-2005) proposes that assessment tasks need to be authentic and fit for the purpose of the desired learning outcomes. The link between what students expect to learn and how they are required to demonstrate this learning needs to be clear. Thus, teaching staff need to use a variety of assessment strategies and tasks that relate directly to the range of intended learning outcomes (Rust 2002), and the verbs that used within the learning outcomes. The focus is therefore, not the assessment of learning but assessment for learning. Brown argues that assessment tasks should not be a bolt-on component of curriculum development, but instead need to be aligned with intended learning outcomes as described by Biggs and Tang (2007).

According to Walker (1994) the learning outcomes should be written in the future, identifying the learning needs of all, as to be achievable and measurable, using a language that students can understand, and relate to the achievement of a clear statement. Learning outcomes should make transparent the level of

achievement expected of students. There have been numerous attempts to connect learning outcomes with assessment (Gagne 1974; Ing, 1978; Biggs 1999; Jackson 2000; Entwistle 2005), but it is not a simple matter. If we consider the learning outcomes formulated for teaching session, they are unlikely to be directly measureable by an assessment exercise. They will often too small or restricted in scope; a concept may require numerous applications and a skill may require extensive practice before it could be said that acquired by the student. Therefore, while learning outcomes used for individual teaching events may build towards something that is assessable, they may not be in themselves, suited to assessment.

Furthermore Huba and Freed (2000), Anderson (2006) stated that learning outcomes are an accurate statement of what faculty expect students to know and can do in a number of ways that can be measured due to complete the program, courses, units, or lessons. In reflecting learning outcomes, Otter (1992) classifies four approaches that had exposed in investigation work in higher education learning objectives. They are based on: 1) The meaning specified in learning; 2) Subject knowledge that the contents usually identified in the course syllabus or documentation; 3) Discipline as a culture and value system of graduate admission and 4) efficiency of what graduates can incur because of the degree program, including a narrow notion of job efficiency.

Thus, we can see that the various definitions of learning outcomes did not differ significantly from one another. From this definition, it is clear that: learning outcomes focus on what students can achieve rather than the intention of teachers and the learning outcomes focus on what the student can show that at the end of the learning activities.

Biggs (1996) has introduced a model of constructive alignment shows that personal factors, however, influence the students with the process and results, the classroom environment must be in accordance with personal presage factors students. This model is called the 3P model of classroom systems framework for understanding student learning through consideration of the relationship between what teachers and students do and think and the nature of student learning outcomes

to acknowledge the relationship between the presage, process and product factors (Biggs , 1997, Biggs and Moore, 1993).

Presage factors include both student characteristics and aspects of the teaching context. Students are learning sign factors related to the characteristics, including the concept of learning, prior knowledge, abilities, learning styles, and social factors. Teaching context presage factors include the teaching methods, curriculum organization, task difficulty, classroom management, and classroom climate. Process factors are the result of the interaction between student and teacher presage factors and refer to the method of learning approaches. Product factors are the learning outcomes and determined by the approach to student learning.

In *Teaching for Quality Learning at University* Biggs outlines his theory of constructive alignment, which he claims will help ensure that teaching is effective in achieving its aims of actively engaging students in learning. In using the term 'constructive' Biggs emphasizes that, the students in the course of their learning experience constructed any learning; learning is a product of the student's activities and experiences, rather than the tutor's. In designing a learning experience, therefore, the focus should be on the learner's activities, and for Biggs the key questions were: what should the student be able to understand/perform at the end of the learning experience? What activities would the student have to undertake in order to learn this? In addition, how can the tutor find out if the student has learned successfully? To provide answers to these questions, Biggs advocates the three Ps approach: this involves the *presage*, the *process* and the *product*. The *presage* takes place prior to learning and involves consideration of the student's prior knowledge and ability, together with programme design, i.e., 'what is intended to be taught, how it will be taught and assessed' (2003, p. 18). The *process* is the 'learning-focused activities' which the student will undertake, and the *product* is the outcome desired from those activities (2003, p. 19). Aligning these three elements will ensure compatibility and consistency between the 'curriculum' (whatever shape that takes), the teaching method and the assessment set. In fact, Biggs prefers the term 'teaching/learning activities' (TLAs) to teaching method, as he feels it is more reflective of the desired relationship between academic staff and students.

This model focuses on learning activities that lead to the achievement of the desired kind of deep, transformational learning as opposed to a surface involvement with facts and information. There is an emphasis on process rather than on content, i.e., on achieving a particular level of understanding rather than covering a list of topics. Indeed, Biggs argues that the university focus on theoretical, declarative knowledge (which often seen as irrelevant by students) frequently results in a surface approach to learning focused on 'passing' the course. Instead, he emphasizes 'functioning knowledge', which extends the declarative knowledge into a specific context and can include integration of several domains of knowledge. In Biggs' view, traditional teaching methods such as the lecture, tutorial and private individual study do not provide much support for the development of the skills required for higher level learning processes.

These methods are effective for the academic, highly motivated student, but not for the majority of students. In order to achieve successful outcomes, he argues that students must want to learn (which reflects the attitude of the highly motivated student). He refers to Feather's expectancy-value theory, which postulates that students must see the learning to be important, i.e., it must have value to the learner, and that the learner must expect to be successful at the tasks to be undertaken.

In order to develop professional skills in students and to create functioning knowledge, Biggs postulates that it is necessary for them to have declarative knowledge (the relevant knowledge base), procedural knowledge (the skills necessary to apply this) and conditional knowledge (an awareness of appropriate circumstances in which to apply the rest). He argues that, traditionally, universities have taught much declarative knowledge and some procedural knowledge, but that the students have had to develop the conditional knowledge that is necessary to achieve fully functioning knowledge on their own after graduation. Constructive alignment can help address this issue, and ensure that students more fully prepared for their professional role.

Biggs (1996), states that any discussions about good teaching should include that of alignment models. Biggs integrated instructional design with constructivist principles to produce a framework. Constructive alignment that systematically operationalizes the important characteristics of a good teaching practitioner, which were:

1. Be able to define what the teacher or educator wants the student to learn and achieve (learning outcomes),
2. Be able to define what students have to do demonstrate they have learned the objectives to the required level (assessment tasks), and
3. Be aware of the different cognitive skills each of the teaching and learning activities elicit from the student and be able to instantiate them according to the learning objective defined (student-centered teaching and learning activities).

2.4 Higher Education

The Assessment for Learning in International Contexts (ALIC) project used a modified version of a survey employed with teachers in England (James & Pedder, 2006; Pedder, 2006; Winterbottom et al., 2008a, 2008b) to gather data from teachers working in schools in Argentina, India, Indonesia, Nigeria and Saudi Arabia. The ALIC survey probed the nature of the school culture through a series of statements about learning and assessment at pupil, teacher and whole school level, enabling the construction of a profile of the teachers' conceptualisations of Assessment for Learning (AfL) across these countries. The study-involved teachers with direct links to University of Cambridge International Examinations (CIE) and, in all, 242 ALIC surveys were completed and returned by teachers across the sample; the survey return rate differed for each nation. The responses from participant countries were combined, creating an 'international data set' for the purpose of comparison with similar data gathered in the context of a single Western country. The survey data, as it has been interpreted, thus far seem to indicate a number of issues. Given the global prominence given to AfL by governments, assessment agencies, researchers and

others, it is perhaps unsurprising to find that, in very broad terms, the items most valued by the ALIC teachers demonstrate the considerable cachet placed upon practices linked positively to formative assessment principles and strategies. In a sense, this outcome suggests that teachers share a language that helps to describe their understanding of their formative assessment practices.

The main policy of Higher education system in Indonesia is regulated in the Act no 20, 2003 on the National Education of Indonesia. The Act no 20, 2003 is derived further into the Government Regulation no 19, 2005 on the National Standard of Education and, the Minister of Education decree no 28, 2005 on the National Accreditation Agency for Higher Education. The educator is regulated under the Act no. 14, 2005 on Teacher and Faculty Member. While the higher education institutions (HEIs) are regulated under the Act no 9, 2009 on Legal Entity. The latest were heavily focused on the institutional and financial affairs, which prescribed any HEIs to change their status into a legal entity, with complete autonomous status of management by the end of the year 2012 for the existing public universities and by the end of the year 2014 for the rest.

The main goal of higher education was to educate (Boud and Falchikov, 2006; Barnett, 2007; Astin, 1985; Altbach, 2011) including progressing to higher order domain of cognitive learning (Altbach and Knight, 2007) and service to the society (Boud and Falchikov, 2006). Indonesia higher education policy aimed at improving quality through a policy called RAISE that puts emphases on enhancing Relevance, Academic atmosphere, Institutional management, Sustainability, and Efficiency. This policy in its implementation now combined was with a new paradigm in higher education that consists of strengthening autonomy, improvement of accountability, and enhancement of quality (Azra, 2008).

Chickering (1969) proposed model of higher education learning outcomes was still worth nothing that was:

i. Achieving competence
ii. Managing emotions; from inference with learning (Au, Watkins, Hattie and Alexander, 2009) to those that assist optimism and hopefulness.

iii. Mature interpersonal relation, respecting difference, working with peers
iv. Move from autonomy to independence, moving from needing assurance and approval of other to self-sufficiency, problem solving, and decision-making.
v. Establish identities, self-esteem, and self-efficacy.
vi. Developing purpose, from Who am I? and Where am I? to Where am I going?
vii. Develop integrity.

The argument of Chickering (1969) was that Higher Education should develop and assessed in all seven outcomes. Higher education was as much about identity, reputation enhancement, and growing as it was about becoming knowledgeable professionals. Bloom's mastery learning suggests that achievement did not based solely on aptitude, but given appropriate instruction and time to learn, the majority of pupils can achieve predefined learning outcomes.

Assessment in the context of higher education has interested researchers from different perspectives. In recent years the assessment studies mainly carried out in the UK have concentrated, for example, on using technology when assessing students (Gould and Day 2013; Hennessy and Forrester 2014; Munro and Hollingworth 2014). Studies carried out in other European countries have focused on the influence that assessment has on students' approaches to learning (e.g. Struyven, Dochy, and Janssens 2005) and academics ' conceptions of assessment (e.g. Postareff et al. 2012).

2.5 Evolution of Higher Education

From the late nineteenth century to the middle of the twentieth century, elitism was the order of the day. Bourdieu theorized that in his theory of social reproduction (Bourdieu and Passeron, 1977) whe he said the educational system was a reproductive system not primarily concerned to increase knowledge of the graduates but rather a way to maintain the societal status quo. These capitals could be in form of:

i. Economic capital: it connotes the ability to manage one's private economy. It was also apparent by the availability of financial means such as capital and interest;
ii. Cultural capital: it acts as a gatekeeper of the ruling class bordering culture and language associated with the educated class;
iii. Social capital: kind of interpersonal relationship an individual socialize with and one's degree of contacts;
iv. Scientific capital;
v. Political capital

Democratization of higher education began and coupled with labor migration, a growing demand in industrial nation for a post-secondary school education arose. In addition to segmentation by institutional sector, there may be segmentation by academic field, and Freeman's work in this regard is an improvement on Cartter's for he focuses on academic labor markets for particular fields of science. However, Freeman's human capital based economic model assumes a sort of self-correction due to changing wages: As certain fields experience a decline in starting salaries, students move into other fields.

The democratization era let to the middle class having more interest in higher education as it was purported additional education will lead to an ascent on the economic and social ladder. The accessibility in turn led to massification of the student body (Trow, 2006; Teichler and Kehm, 1995). However, began 1990, a rapid growth was witnessed but it was not till 1996, did the proportion of people enrolled in higher education exceed 40% in each respective age group in the OECD countries (Brennan et.al., 2004). Therefore, education seen as an investment and learning as a consumer product.

The massification was changed the average of traditional students' characteristics. Nontraditional students, transcending varied underrepresented groupings of students, which included first generation students, part time workers and adult learners. The accessibility demanded hence in resulting the increased

students' diversity (Sedlacek, 2004). This quest not fulfilled in some countries and with the growing of technology, it led to higher education globalization.

Globalization and communication technology advancement initiated the subtle shift from the previous national and cultural role of higher education to the economic rationale of neoliberalism (Huisman and Van der Wende, 2004). Though it aided cross border initiative and invention in both knowledge and academic strategies (Marginson, 2007), it also prompted global competitiveness among higher education. Globalization also stimulated mobility with the unexpected effect of enabling new insights into diversity of higher education systems with trends such as brain drain, gain, and circulation (Huisman and Van der Wendem 2004; Kenway and Fahey, 2009; Lunt, 2008; Welch and Zhen, 2008).

New curricula such as international education, comparative education and global education were new courses that prevalent in some higher education. These global trends of democratization, massification, diversification, globalization, and internationalization and resultant effects on the accountability, changing role and expectation of higher education on assessment system.

2.6 Indonesian Educational System

Indonesia was a country with population of 220 million, 81 public and 2.514 private higher education institutions; and 3.5 million students (Puruhito, 2006). The Ministry of National Education (MONE) through the Directorate General of Higher Education (DGHE) and other ministries such as the Ministry of Religious Affairs and the Ministry of Finance managed provision of higher education in Indonesia. Government has been reforming its public universities by giving a State-owned Legal Entity status (BHMN), which gives more independence in the management of financial, human resources, physical plant, organization, decision making and new accountability (DGHE, 1999).

Indonesia's education system today continues to reflect aspects of its past: its diverse ethnic and religious heritage, its struggle for national identity, and the uneven access different communities have to human and capital resources. The Indonesian education system has to attend the needs of a large, growing, diverse and widely dispersed population and with great disparity in enrolment rates between regions (MOEC, 2014).

A Law of Education Legal Entity covering issues on legal entity and status of higher education institution has recently passed which aims to empower public universities with autonomy, transparency and accountability (DGHE, 2008). Other important issues in Indonesian higher education involve unmet increasing demand on high quality of higher education, equity and participation, funding, internal efficiency, relevancy and governance (Tadjudin, 2005, p.30). Currently, there are about 5 000 international students in the country, while around 20 000 Indonesian students study overseas annually.

The main policy of Higher education system in Indonesia regulated in the Act no 20, 2003 on the National Education of Indonesia. The Act no 20, 2003 derived further into the Government Regulation no 19, 2005 on the National Standard of Education and, the Minister of Education decree no 28, 2005 on the National Accreditation Agency for Higher Education. The educator regulated under the Act no. 14, 2005 on Teacher and Faculty Member. While the higher education institutions (HEIs) regulated under the Act no 9, 2009 on Legal Entity.

The latest heavily focused on the institutional and financial affairs that prescribed any HEIs to change their status into a legal entity, with complete autonomous status of management by the end of the year 2012 for the existing public universities and by the end of the year 2014 for the rest. In addition, Higher education system in Indonesia largely influenced was by the American (Anglo Saxon) model except in some areas such as medical and vocational education where some forms of European (continental) model were adopted. Prior to the adoption of the American model in late 70s, the Old Dutch system was implemented. The higher

education system here referred was to all post-secondary education, constitutes vocational, academic, and professional education.

Furthermore, compared with other developed and developing countries, the overall quality of Indonesian universities generally regarded as of lower grade. Despite certain methodological and substantive issues regarding the way university rankings are constructed, Indonesian universities generally occupy lower ranks. According to an Asiaweek Survey in 2000, the University of Indonesia in Jakarta and Gadjahmada University in Jogjakarta (Central Java) positioned at 63 and 68, respectively, among 77 Asian universities. Worse still, in a more recent survey (2003) conducted by Shanghai Jiao Tang University's Institute of Higher Education, no Indonesian university at all appears in the list of the 100 best universities in the Asia-Pacific region.

The relatively low quality of Indonesian higher education institutions clearly related to insufficient teaching staff (lecturers), both in terms quantity and quality. The number of teaching staff is far below that which needed, and the quality is generally low. Approximately 60% of total lecturers have only the S1 (Bachelor) degree, 30% have an S2 (Master's) degree, and only 10% have earned the S3 (Doctorate) degree. Ideally, to achieve better quality, all lecturers would have S3 qualifications that will allow them to achieve professorship ranks.

Nevertheless, this ideal seems to be very difficult to achieve, since there are no 'affirmative policies' to upgrade the academic qualifications of lecturers. For many years, the government has not allocated a special budget for lecturers to pursue advanced degrees abroad. Virtually all those who study abroad are dependent on financial support received from foreign scholarships. Indonesian universities in general do not have the financial capability to send their lecturers abroad. As a result, the progress of improving academic qualifications of teaching staff is very slow.

Compounding the complexity of the situation, in July 1999, the Indonesian government issued Government Regulation 61/1999 to allow public universities to change their legal status, ostensibly in order to become more autonomous in various aspects of management. Under this new regulation, the government has the mandate

to establish a new state-owned legal entity through a government regulation, separating its assets (excluding land) from government assets. According to Satryo Soemantri Brodjonegoro, Directorate General of Higher Education at MONE, under this new regulation, it is now possible for state-owned universities to change their status to *Badan Hukum Milik Negara* (BHMN), meaning literally a 'State-Owned Legal Body'. In order for a state-owned university to become a BHMN, it has to submit a plan for autonomy and meet various criteria set by MONE. Only those who met the criteria and procedures granted a new status as BHMN.

In pursuit of that government regulation, the status of six public (state) universities has changed to become BHMNs, including Universitas Indonesia (UI), Institut Teknologi Bandung (ITB), Universitas Gadjah Mada (UGM), Institut Pertanian Bogor (IPB), Universitas Pendidikan Indonesia (UPI), and Universitas Sumatera Utara (USU). Each of these state-owned universities has a period of five years to transition fully into a state-owned legal entity (BHMN). In this process a range of new programs, need to be established, including the transfer of assets and personnel, the establishment of necessary apparatus within institution development of control system, a new budgeting system, and many others.

According to the Higher Education Law, each institution develops its own curriculum with reference to National Higher Education Standards for each study programme. It is important that at the institutional level, the management and lecturers have a clear focus on the need for modernization of content and methods and that at the central level the ministry provides support and guidance concerning the improvement of teaching qualifications.

Although the higher education system in Indonesia has been constantly improved and modified from time to time, there are still a lot of problems that need to be solved immediately. The major problems among others include six kinds of aspects, namely: (1) students accommodating capacity; (2) low teaching quality (3) relevance of curriculum to national needs, (4) equality of opportunity in education; (5) low productivity; and (6) slow-moving system dynamics.

A number of different incentives can be used to encourage individual lecturers and institutions as a whole to develop new teaching skills. These include: competitive funding schemes based on teaching quality; teaching development centers at institutions or groups of institutions depending on size; stronger focus on the role of the obligatory quality assurance units at the institutions; career paths to be facilitated not only by successful research but also – and probably at the majority of institutions almost exclusively – by high-quality innovative teaching.

The issues raised in this part warrants that the national objective of internationalization, expansion, globalization, and continued increased funding to sector achieved. This achieved by appraising non-cognitive factors that aid their academic attainment before a model explaining the phenomenon (assessment for learning and constructive alignment) formulated.

2.7 Learning Theories

The study of human learning focused on how individuals acquire and modify their knowledge, skills, strategies, beliefs, and behaviors. Learning represents an enduring change in behavior or in the capacity to behave in a given fashions, which resulted from practice or other experiences. Learning theories differed on how they address critical issues. Some of the more important issues concern how learning occurred, which factors influenced learning, what the role of memory is, what the role of motivation is, how transfers occurred, which processes were involved in self-regulation, and what theory's implication for instruction. A paradigm shift from behaviorism, to cognitivist, and constructivism hence became prevalent. In this section geared toward learning theories to assessment for learning and constructive alignment.

2.7.1 Behaviorism

Behaviorism, as expressed in conditioning theories—dominated the psychology of learning for the first half of the twentieth century. These theories explain learning in terms of environmental events. Mental processes are not necessary to explain the acquisition, maintenance, and generalization of behavior. The learning theories of Thorndike, Pavlov, and Guthrie are of historical importance. Although these theories differ, each views learning as a process of forming associations between stimuli and responses. Thorndike believed that responses to stimuli strengthened when followed by satisfying consequences. Pavlov experimentally demonstrated how stimuli conditioned to elicit responses by paired with other stimuli. Guthrie hypothesized that a contiguous relation between stimulus and response established their pairing. Although these theories are no longer viable in their original form, many of their principles are evident in current theoretical perspectives.

These theories and the research they generated helped to establish the psychology of learning as a legitimate area of study. Learning growth in this philosophy expected to be sequential, hierarchal, systematic, and linear but unfortunately isolated, atomized units of knowledge. Knowledge transfer was limited as each objective taught and tested individually (Shepard, 2000). In higher education, traditional lecture method of teaching practiced and its assessment was precise regurgitation of facts and information (Jackson, 2008; Maclellan, 2005) was to ascertain mastery.

The traditional assessment of learning (Butler, 2004), otherwise termed summative assessment was operational. This was not suitable of 21st higher education's learning in that its pedagogical process should be more of analysis, synthesis and evaluation of Bloom's taxonomy of cognitive outcome involving abstract and reflective thinking.

The basic operant conditioning method of behavioural change is shaping, or differential reinforcement of successive approximations to the desired form or rate of behaviour (Morse & Kelleher, 1977). To shape behaviour, one adheres to the following sequence:

i. Identify what the student can do now (initial behaviour)
ii. Identify the desired behaviour
iii. Identify potential reinforces in the student's environment
iv. Break the desired behaviour into small sub steps to be mastered sequentially
v. Move the student from the initial behaviour to the desired behaviour successively reinforcing each approximation to the desired behaviour

The behavioral outcomes commonly exemplified in lesson notes were measureable objectives; however, the pedagogical process saw the educators as the dominant figure who also determines how learning takes place. This pedagogy did not encourage students to take possession of their own learning making them passive, dependent learners (Schweitzer and Stephenson, 2008).

2.7.2 Cognitivism Theory

The functionalism of the individual and the environment influenced each other and reintroduced the concept of mind and its influenced learning (Stobart, 2008). The mental processing of learning was likened to a computer, as information received, processed by the central executive function to long and short-term memory for later usage. Najib (1997) explained a postulate of cognitivism of the human thinking had a substantial influence on a student's motivational stated. It was similarly at inculcating in the students the capacity and skills to learn better. The pedagogical process stresses the lecturer only as a facilitator while its assessment practice is the contemporary assessment for learning. Experience and language were important element too (Halx, 2010l Schweitzer and Stephenson, 2008).

Cognitive theories started with Gestalt theories of perception and interest (Atherton, 2005; Munoz, 2008) to cognitive development psychology of Piaget (Piaget, 1971; Soffer, 1993). Kohlberg (1971) developed and Fowler (2008) religious and faith development theory than imbibes experiential leaning (Jarvis et.al., 2003; Ormond and Davism 2004). Vygotsky's places more emphasis on the social

environment as a facilitator of development and learning (Tudge & Scrimsher, 2003). Vygotsky's theory stresses the interaction of interpersonal (social), cultural–historical, and individual factors as the key to human development (Tudge & Scrimsher, 2003).

Interactions with persons in the environment (e.g., apprenticeships, collaborations) stimulate developmental processes and foster cognitive growth. Nevertheless, interactions are not useful in a traditional sense of providing children with information. Rather, children transform their experiences based on their knowledge and characteristics and reorganize their mental structures. Ultimately, cognitivist theory gave rose to constructivism, which were eccentrically students centered in the pedagogical process.

2.7.3 Constructivism

Constructivism is an epistemology, or philosophical explanation about the nature of learning. Constructivist theorists reject the idea that scientific truths exist and await discovery and verification. Knowledge un-imposed from outside people but rather formed inside them. Constructivist theories vary from those that postulate complete self-construction, through those that hypothesize socially mediated constructions, to those that argue that constructions match reality.

Constructivism required that we structure teaching and learning experiences to challenge students' thinking so that they will be able to construct new knowledge. A core premise was cognitive processes are situated (located) within physical and social contexts. The concept of situated cognition highlights these relations between persons and situations. Piaget's theory is constructivist and postulates that children pass through a series of qualitatively different stages: sensorimotor, preoperational, concrete operational and formal operational. The chief developmental mechanism is equilibration, which helps to resolve cognitive conflicts by changing the nature of reality to fit existing structures (assimilation) or changing structures to incorporate

reality (accommodation). Vygotsky's sociocultural theory emphasizes the social environment as a facilitator of development and learning.

The social environment influences cognition through its tools—cultural objects, language, symbols, and social institutions. Cognitive change results from using these tools in social interactions and from internalizing and transforming these interactions. A key concept is the zone of proximal development (ZPD), which represents the amount of learning possible by a student given proper instructional conditions. It is difficult to evaluate the contributions of Vygotsky's theory to learning because most research is recent and many educational applications that fit with the theory are not part of it. Applications that reflect Vygotsky's ideas are instructional scaffolding, reciprocal teaching, peer collaboration, and apprenticeships. Private speech has a self-regulatory function, but is not socially communicative.

Vygotsky believed that private speech develops thought by organizing behavior. Children employ private speech to understand situations and surmount difficulties. Private speech becomes covert with development, although overt verbalization can occur at any age. Verbalization can promote student achievement if it is relevant to the task and does not interfere with performance. Self-instructional training is useful for helping individuals verbally self-regulate their performances.

There were four principles guiding constructivism:

i. Knowledge based on prior learning.
ii. Assimilation and accommodation leads to further learning.
iii. Learners were active as they personally formulate knowledge based on their comprehension.
iv. Meaningful learning arises after the resolution of cognitive dissonance.

A key assumption of constructivism is that people are active learners and develop knowledge for themselves (Geary, 1995). To understand material well, learners must discover the basic principles, as Anna did in the opening lesson. Constructivists differ in the extent to which they ascribe this function entirely to

learners. Some believe that mental structures come to reflect reality, whereas others (radical constructivists) believe that the individual's mental world is the only reality. Constructivists also differ in how much they ascribe the construction of knowledge to social interactions with teachers, peers, parents, and others (Bredo, 1997). Many of the principles, concepts, and ideas discussed in this text reflect the idea of constructivism, including cognitive processing, expectations, values, and perceptions of self and others (Derry, 1996).

Thus, although constructivism seems to be a recent arrival on the learning scene, its basic premise that learners construct understandings underlies many learning principles. This is the epistemological aspect of constructivism. Some constructivist ideas not as well developed as those of other theories discussed in this text, but constructivism has affected theory and research in learning and development.

Constructivism also has influenced educational thinking about curriculum and instruction. It underlies the emphasis on the integrated curriculum in which students study a topic from multiple perspectives. For example, in studying hot-air balloons, students might read about them, write about them, learn new vocabulary words, visit one, study the scientific principles involved, draw pictures of them, and learn songs about them.

Another constructivist assumption is that teachers should not teach in the traditional sense of delivering instruction to a group of students. Rather, they should structure situations such that learners become actively involved with content through manipulation of materials and social interaction. Activities include observing phenomena, collecting data, generating and testing hypotheses, and working collaboratively with others. Classes visit sites outside of the classroom. Teachers from different disciplines plan the curriculum together. Students taught to be self-regulated and take an active role in their learning by setting goals, monitoring and evaluating progress, and going beyond basic requirements by exploring interests (Bruning et al., 2004; Geary, 1995).

Constructivism leads to active learning or problem based learning. Constructivism was a combination of cognitive and affective tendencies drawing a combination of humanistic, existential and phenomenological ideas (Zainal Shah, 2011; Raskin 2008). Constructivism can be further expatiated to include (Cook-Sather, 2008; Glasersfeld, 1996; Sridevi, 2008):

i. Cultural constructivism, comprehension by the inter relationship with the environment.
ii. Psychological constructivism, awareness and assimilation, cognitive dissonance of learning material, as well as Piaget's (1969) model of development
iii. Social constructivism, knowledge was creating resulting from the first two stages and its interaction through social negotiation by scaffolding.

Two types of constructivism theory are cognitive development and social development. They both share common characteristics such as the view that knowledge constructed through reflective abstraction, learner's cognitive structures and processing, active and participative learning, and recognition that learning was not fixed and inert, but was continually developing (Cohen, Manion and Morrison, 2004; Prichard and Sawyer, 1994; McMahon, 1997; Merrill, 1997; Brophy; 2002; Liu, 2003; Campbell, 2006; Miller, 2007). Learning moved away from the stimulus-response/behaviourist paradigm to the ongoing development of conceptual structures in generative, creative and often unique ways. The learner actively constructs meaning rather than passively accepts meaning.

Many researchers in psychology had seen a move away from traditional behaviorist models towards stressing individuals' complex information processing strategies, met cognition and knowledge construction (De Corte and Greer, 1996; Fennema and Loef-Franke, 1992; Thompson, 1992; Askew et al.1997; Cohen, Manion and Morrison, 2000; Prichard and Sawyer, 1994; McMahon, 1997; Merrill, 1997; Brophy; 2002; Liu, 2003; Campbell, 2006; Miller, 2007). The various models emerging (constructivism and information processing theory) share an emphasis on pupils' active construction of learning, a view that differs from the 'stimulus-

response' behaviorist models that underlie traditional lecturer effectiveness research. Constructivist classrooms tend to be more student-centered and open-ended than in the direct instruction model (Campbell, 2006; Miller, 2007; Brophy; 2002; Liu, 2003).

The development of constructivism in psychology has led to the development of constructivist teaching methods by a variety of authors (De Jager, 2002; Merrill, 2002, Cohen, Manion and Morrison, 2004; Brophy; 2002; Liu, 2003; Miller, 2007; Weegar and Diego, 2012; Campbell, 2006). Modeling—the lecturer carries out a complex task and shows students the processes needed to carry out that task

Moshman (1982) has identified three types of constructivism: exogenous constructivism, endogenous constructivism and dialectical constructivism. In exogenous constructivism, as with the philosophy of realism, an external reality reconstructed was as knowledge formed. Thus, one's mental structures develop to reflect the organization of the world. The information processing conceptualizations of cognitive psychology emphasize the representation view of constructivism, calling attention to how we construct and elaborate schemata and networks of information based on the external realities of the environments we experience.

Endogenous constructivism or cognitive constructivism (Cobb, 1994; Moshman, 1982) focuses on internal, individual constructions of knowledge. This perspective, which derived from Piagetian theory (Piaget 1977, 1970), emphasizes individual knowledge construction stimulated by internal cognitive conflict as learners strive to resolve mental disequilibrium. Essentially, children as well as older learners must negotiate the meaning of experiences and phenomena that are discrepant from their existing schema. Students may said to author their own knowledge, advancing their cognitive structures by revising and creating new understandings out of existing ones. This accomplished was through individual or socially mediated discovery-oriented learning activities. There were important congruence among most constructivists with regard to four central characteristics believed to influence all learning: 1) learners construct their own learning; 2) the dependence of new learning on students' existing understanding; 3) the critical role

of social interaction and; 4) the necessity of authentic learning tasks for meaningful learning (Bruning, Royce,& Dennison, 1995; Pressley, Harris, & Marks, 1992).

Dialectical constructivism or social constructivism (Brown, Collins, & Duguid, 1989; Rogoff, 1990) views the origin of knowledge construction as being the social intersection of people, interactions that involve sharing, comparing and debating among learners and mentors. Through a highly interactive process, the social milieu of learning accorded center stage and learners both refine their own meanings and help others find meaning. In this way, knowledge mutually built. This view is a direct reflection of Vygotsky's (1978) sociocultural theory of learning, which accentuates the supportive guidance of mentors as they enable the apprentice learner to achieve successively more complex skill, understanding, and ultimately independent competence.

2.8 Rasch Model

Rasch model (RM) is generally the same as measurement of a parameter in IRT or also shown as Latin Trait Theory (LTT) (Dawis, 1987; Bond and Fox, 2007). The RM is a mathematical formula that specifies the form of the relationship between items that operationalize one construct. This model is not primarily concerned about total scores and not all items were treated as equal contributions to total score. That is, difficult items were weighted more highly than easier items when estimating level of knowledge ability.

In addition, the RM focuses on the pattern of item responses. A conceptual starting point is the assertion that some people have more attribute being measured than others, and some items require more of it to be completed successfully (Wright and Masters, 1982; Baker, 2001; Linacre, 2002; Liu, 2010; Bond and Fox, 2007). Success on a difficult item implies a probable success on an easier item, and an even higher probability of success on a much easier item. A failure of the responses to confirm this hierarchical structure reared was as a failure of measurement. Although,

estimating of a person ability and item difficulty derived from analysis of a particular test administration, both people and items viewed as samples drawn from a larger population; people from the population of plausible test takers, and items from the universe of items that could potentially be employed to measure that constructed. Furthermore, the candidate score is independent of item difficulty (Hambleton and Swaminathan, 1991). In addition, the analysis does not require strict parallel tests to assess reliability.

RM model used to analyze the data from instruments to measure the variables that cannot measured directly, such as the characteristics of ability, attitude and personality. This measurement model used primarily in areas related to psychometric theory and techniques of measurement in psychology. This model shows the probability of people's ability to measure item difficulty (Wright and Masters, 1982). RM is able to convert the qualitative data to linear measurement. It converts raw data into ration scale on common interval scale (Linacre, 2002).

The RM assumption was that respondents with high ability had the probability to answer more questions correctly, than respondents with lower ability (Bond and Fox, 2007). The RM converts raw data into logits, which compared with the linear model for the probability of success. Log denotes natural log of ratio form. The sample size in the Rasch model is smaller than ITR models. Wrights and Stones (1979) suggested a minimum sample of items is 20 and for the candidates is 200, while Linacre (2002) suggested that 50 persons as sample sufficient in using Rasch model. When using this model, it is important to assume that all items in attest are one-dimensional. One-dimensional means the existence of a dominant feature affecting performing the candidate in a test (Hambleton et al., 1991). In RM model, the validity of an instrument can identified by reference to the main analysis such as item polarity, item and person map, misfit and infit items, item and person separation, dimensionality and scale calibration (Bond and Fox, 2007). These concepts defined in chapter 3. However, this research is aims to produce empirical evidence of the validity and reliability of research instrument by using Rasch model. Interestingly, Rasch model can effortlessly help a researcher to decide whether it is the person or item that needs to omitted.

2.9 Summary

This chapter discusses the literature review of the theory of assessment for learning using constructive alignment at higher education. It also discussed in connection with the theory of constructivism and behaviorism that support assessment for learning and constructive parallels.

The next discussion in chapter 3 was about the methodology as a step in performing the study. Whereas, the research processes directed and controlled. Therefore, in this study was discussed about types of research, populations, sample, and location of study, data collection, and data analysis.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Introduction

This chapter discussed the research methodology that will be used by the researcher to identify the condition of assessment for learning in Indonesia universities and identify the state of constructive alignment in teaching by using constructive alignment, the relationship between assessment for learning and constructive alignment, as well to describe the assessment for learning and constructive alignment based on the lecturers' understanding.

This chapter discussed the research design, population, sampling, and location, instrumentation, pilot study, data collection, and data analysis.

3.2 Research Design

This research design as an explanatory sequential mixed method provides a better practice of the relationship between Assessment for Learning and Constructive Alignment. Creswell (2012) defined the explanatory sequential mixed method as a method that involves the procedure of first gathering quantitative data to explore a phenomenon, and then collecting qualitative data to explain relationship found in qualitative data. Its central premise is the use of quantitative and qualitative approaches in combination provides a better understanding of research problems than

either approach understanding of research problems than either approach alone (Creswell, 2012; Johnson and Christensen, 2012; Creswell, 2009; Creswell, 2002; Sekaran, 2003; Calimaorin *et. al.*, 2007; Jeffery 2000; Akker *et. al.*, 2006).

Research design was defined as an outline of the research which was dealing with what to study, what relevant data collected, what data collected, and how to analyze the data in such way that examined over the factors that might influence the validity of the result of the findings in maximum control. (Philibber, Schwab and Samsloss, 1980; Yin, 1989; Polit and Hungler, 1999) A research design was also kind of plan or blueprint of answering a set of question that need to be concluded in strategic framework for action that served as a bridge between research questions and execution or implementation of the research questions such as how, when and where data were to be collected and analyzed. Research design was the researcher's overall for answering the research question or testing the research hypothesis. (Burns and Grove, 2003; Parahoo, 1997; Polit et al, 2001; Sellitz, Jahoda, Deutsch, and Cook, 1965)

This research emphasized primarily on confirmatory scientific method, because it was concentrated on hypothesis testing and theory testing. Investigators in quantitative research were tending to stand on one's hypothesis and then examine and test those hypotheses with empirical data whether there were relationships among the variables (Creswell, 2009) This study also explored individuals' or groups' meaning in human problem, used to describe what was seen locally and come up with new hypotheses. The merger and combination of those two approaches above generated a mixed-method research approach. (Johnson & Onwuegbuzie, 2004; Creswell & Plano Clark, 2007).

This study assumed that cognition and behavior were highly predictable and explainable, which meant that all events were fully determined by one or more causes. It did not identify any universal and unerring laws of human behavior, quantitative tended to search for the probabilistic causes (Salmon, 2007; (Johnson & Christensen, 2012; Humphreys, 1989). The researcher also viewed human behavior as being fluid, dynamic, and changing over time and place. Thus, qualitative data

would also be collected to compliment the quantitative data. It was assumed that the use of one method whether it was quantitative or qualitative was incomplete and limiting for many research problems. (Johnson & Christensen, 2012).

This research conducted a mixed method design. It was conducted since the study investigated teachers' epistemological belief, teachers' preferred test, and the relationship between them quantitatively, and proposing a framework of preferred test based on teachers' epistemological belief qualitatively. Since there so many types for classifying and identifying types of mixed methods strategies, the researcher needed to mention those types of mixed method to get a better understanding about this type of mixed method. Particularly, quantitative methods were using questionnaires and qualitative methods were using the interviews. According to Bloor and Wood (2006) systematic comparison of a study conducted using several different methods to strengthen the findings. For Gall *et al* (2005) felt that the use of several methods of collecting data for a similar phenomenon being studied aims to strengthen the findings. Use some method in the study was a procedure in which researchers find convergency validity of several different information sources for generating theme, or category of cases studied (Creswell, 2008).

According to Merriam (2002), mixing several methods in one study has advantages, namely: 1) improve the reliability of an investigation; 2) increase the credibility of the findings generated in research; and 3) involve data from multiple sources such as questionnaires, interviews. The purpose mixed methods was to explore the problem of multiple paradigms, whether quantitative or qualitative methods. According to Morse (2003), there are several advantages of using the mixed method, as follows: (a) to expand the dimensions and scope of the research, (b) achieve a more complete picture of the research, (c) understand and achieve the goal of effective research. Through the implementation of this method will complement each other both quantitative and qualitative side, it will strengthen the research Salam (2011) and Shaw (2012). Besides, Creswell (2010), said that the mixed method will make it easier to achieve a comprehensive understanding of the problem as a survey.

The main purpose of this study was to determine the relationship between assessment for learning and constructive alignment in teaching learning process at the university. This research was a mixed method, which was a combination of methods to harness the power of quantitative and qualitative research methods at once. Before applying mixed methods, researchers need to identify the strategy of mixed methods as procedures in collecting, analyzing and reporting data. Therefore, strategy of will be used in this research was sequential explanatory, where this research begins with a quantitative process, and then the process was qualitative. The sequential explanatory strategy in mixed methods research was characterized by the collection analysis of quantitative data in first phase followed by the collection and analysis qualitative data in a second phase that build on the result of initial quantitative results, Creswell (2009).

The explanatory sequential design was done in two stages, namely quantitative research conducted through the first stage using a questionnaire and then followed by a second phase with a qualitative study using interviews and document (Creswell and Clark, 2007). Quantitative data were collected and analyzed first and then the qualitative data. Qualitative data used to support or elaborate explanations quantitative data results. The process of merging the data in this method occurs when the initial results of the quantitative inform qualitative data collection. Therefore, both quantitative and qualitative data separated but stay in touch (Creswell and Clark, 2007). The methods used in quantitative was survey by using a questionnaire as the main instrument, while the qualitative study used interview method.

The first process was the survey. The survey can reveal the information of respondents about the subject being studied; things are done at an earlier time, and the next thing about the behavior of the respondent or others (Kerlinger, 2002). Survey involves multiple steps or levels or selection with stratification and grouping units into various groupings, as well as survey research aims to describe a method of gathering information from samples of the larger population (Ferber et.al., 1980). The procedures are: 1) Design questions; 2) Collecting data and Instrumentation; 3) analysis of the data.

The second was interview. According to Lincoln and Guba (1985) that the interview be declared as a conversation that seeks to obtain construction was happening now about people, events, activities, organizations, feelings, motivation, recognition, anxiety and so on. The reconstruction of this condition can be expected to occur in the future and the certification, inspection, and information development or construction, reconstruction, and projections have been found previously (Lincoln & Guba, 1985). Interviews conducted, can directly focus on the theme or topic of research or provide perceived causal inferences (Yin, 2003). Next, the interview provides data that cannot be obtained from direct observations, providing historical background, and gives researchers control over what topics to be explored further (Creswell, 1994). Thus, the interview was a very good way of accessing people's perception, meaning, and definition of the situation and construction of reality (Punch, 2009). The procedures are: 1) providing several questions related to assessment for learning using constructive alignment; 2) collecting data by doing interviews; 3) interpreting the interviews result and; 4) analysis the data.

3.3 Research Procedure

The research procedure starts with the identification of the broad problem area through the process of literature review and need assessment before focusing on the phenomenon. Gray (2009) proposed eight steps for implementing the research process. Those were: (i) Identify broad area of research, (ii) select topic, (iii) formulate research objective, (iv) determine strategy of enquiry, (v) delineate research procedure, (vii) data collection, (viii) data Analysis, and (ix) present findings.

The research procedure adapted for this study as shown in Figure 3.1.

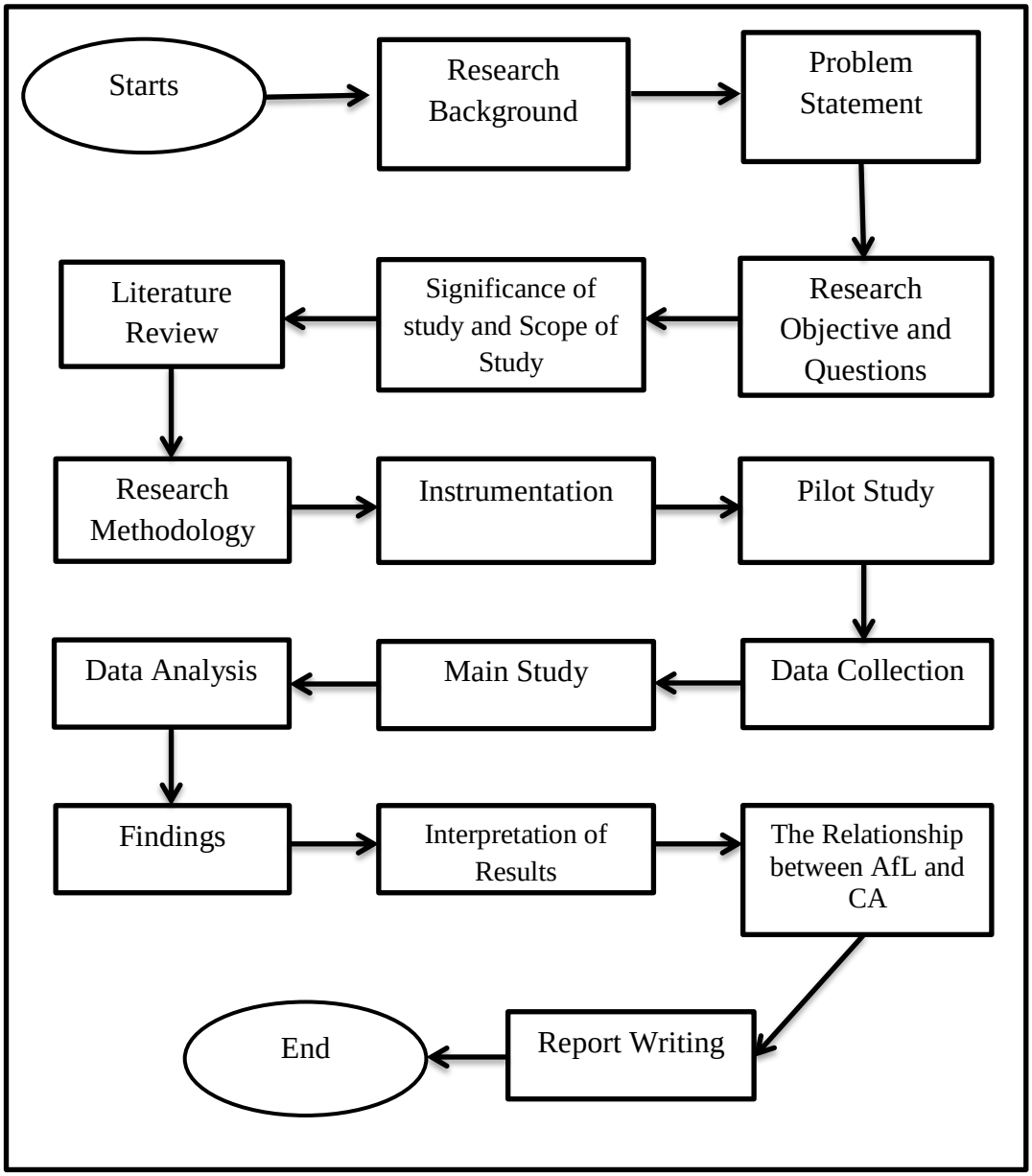

Figure 3.1: Research Procedure

3.4 Population, Sample and Location

The population was each group of individuals who had one or more of the same features of interest to researchers as seen as an area research (Sugiyono, 2008; Gay, 2006; Arikunto, 2009; Best & Kahn, 1998; Mohd. Najib, 2003). Therefore,

population was a group of individual, to whom the researcher wants to generalize his research.

Population was defined as a population as the totality of all subjects that conform to a set of specifications, comprising the entire group of persons that was of interest to the researcher and to whom the research results can be generalized where all members who were involved in a research were the area of researcher obtaining data and feedback. (Polit and Hungler, 1999; Najib Abdul Ghafar, 2009; Fraenkel & Wallen, 2009). The populations of this research were lecturers of Faculty of Education at the former Unicersity that called by Institute of Teacher Training and Education (ITTE) in Indonesia. The number of the teachers was described as 1484 of lecturers. Obviously described in the following table (Table 3.1)

Sample was described as a portion or a subset of the research population selected to participate in a study, representing the research population. A sample was source of gathering data. (Wood and Haber, 1998; Najib Abdul Ghafar, 2009; Johnson & Christensen, 2012). Due to the large number of the population of teachers in Indonesia, researcher employed multistage cluster random sampling. It was used because the researcher can define any sampling unit with which one or more listing units be associated, where the researcher can choose a random sample from each zone. Cluster sampling as a form of sampling in which clusters (a collective of unit that includes multiple elements, such as schools, classrooms, households, universities and city block) rather a single unit element (such as students, teachers, administrators, counselors) were randomly selected. (Levy & Lemeshow, 2008; Najib Abdul Ghafar, 2009; Johnson & Christensen 2012) and for qualitative data, researcher applied the purposive sampling from the sample of quantitative sample. Researchers deliberately chose a sample in order to get a representative sample of the total population based on the percentage. (Najib Abdul Ghafar, 2009).

Table 3.1: Number of Population Faculty of Education, Institute of Teacher Training and Education in Indonesia

No	Region	Name of University	Number of Lecturers	Total number of sample
1	Sulawesi	Manado State University	61	94
		Makassar State University	164	
		Gorontalo State University	97	
2	Sumatera	Medan State University	68	66
		Padang State University	166	
3	Java and Jakarta	Jakarta State University	168	294
		Malang State University	168	
		Semarang State University	108	
		Surabaya State University	133	
		Yogyakarta State University	131	
		Indonesia University of Education Bandung	220	
		Total	1484	454

(Source: Directorate General of Higher Education, 2012)

Table 3.1 showed the total number of populations in this study were 1484 lecturers at the former University that called by Institute of Teacher Training and Education in Indonesia. In determining the study sample, there were several opinions as stated by Mertens (1998) that the sample was the method used to select the number of people out of a population. Frankle and Wallen (2009) emphasized that the sample was the group on which information was obtained.

According to Azizi *et.al* (2006) that sample was a part of the population regardless of whether it could be representative of the population or vice versa. Thus, researchers have done the sampling in order to provide an overview of the population characteristics accurately. In addition, the sampling method should rationalize that the chosen respondents were representative of the population being studied (Kerlinger, 1986; Blaike, 2000; Black, 2002; Mohamad Najib, 2004; 2015). Moreover, even as the population size was large, the characteristics can represented through the sampling technique. The sample was whole of the population in this study based on the Table 3.1. This study utilized multistage cluster random sampling

method. This sampling method was applied in order to reduce travel costs, reduce interviewer cost, and reduce the time period needed to interview all the people in the sample (Najib Abdul Ghafar, 2004, 2009, 2015; Johnson & Christensen, 2012).

3.5 Instrumentation and Data Collection

The main instrument in this study was a questionnaire that distributed to the lecturers at the faculty of education who chosen as the sample. The questionnaire used to determine the understanding of the lecturers on assessment for learning and to know the assessment method of use of them in the learning process. While, interview and documentation used to determine comprehend of the lecturers on constructive alignment their method of aligning teaching and learning process. All of the items in the instrument which in questionnaire forms used interval scale where the option are strongly agree (5), agree (4), uncertain (3), disagree (2), and strongly disagree (1).

3.5.1 Instruments

The questionnaire was the instrument that often used was in quantitative research. The questionnaire was the most efficient way to obtain information from respondents (Azizi *et al*, 2006; Mohd. Najib, 2009). The questionnaire was also a technique of data collection done was by giving a set of written questions to obtain information from the respondents (Bungin, 2009). A questionnaire that used in this research divided were into three, namely Part A was a questionnaire containing questions to obtain background information related to the respondents. Part B was a questionnaire that contains questions to obtain information related to assessment for learning (show in table 3.2). Part C was a questionnaire that contains questions to obtain information related to the constructive alignment (show in table 3.3.). The items developed were through literature review, experts review, and pilot study. Figure 3.2 showed more details about the phases of developing instrument.

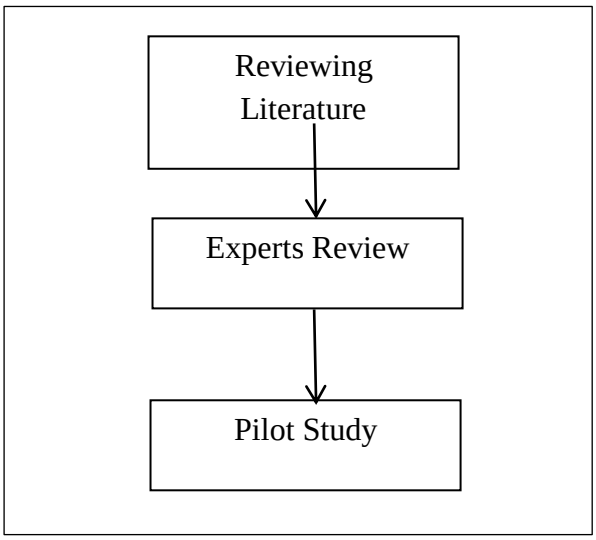

Figure 3.2: The Item Developing Phases

3.5.1.1 Reviewing Literature

Reviewing literature was the first main phase for developing instruments. Reviewing literature by defined the concept, construct, and operational definition (Mohd. Najib Ghafar, 2011). The distributions of the questionnaires shown were in the Table 3.2 and Table 3.3.

3.5.1.2 Part A Demography

Part A of the questionnaire contained questions to obtain personal information and a background lecturer in ensuring that selected respondents actually fulfilled the research criteria. The criteria asked in this section were gender, age, and academic background, work period as a lecturer, teaching experience, and study programs.

3.5.1.3 Part B Assessment for Learning Questionnaires (AfLQ)

Part B of this questionnaire consisted of six components, were:

1. Sharing learning objectives which contained 12 items,

2. Helping pupils to know and recognize the standards which contained of 7 items,
3. Peer and self-assessment which contained of 9 items,
4. Providing feedback which contained 8 items,
5. Promoting confidence which contained 6 items, and
6. Involving in reviewing and reflecting which contained of 8 items.

Total items in section of this questionnaire were 50. The distributions of the items for each component displayed were in Table 3.2.

Table 3.2 The distribution of the Items of Assessment for Learning Questionnaire (AfLQ)

No.	Construct	Number of Items	Total
1	Sharing learning objectives	B1,B7,B13,B18,B22,B23,B28,B35, B40,B44,B46,B48	12
2	Helping pupils to know and recognize the standards	B2,B8,B14,B19,B24,B29,B42	7
3	Peer and self-assessment	B3,B9,B15,B25,B32,B36,B43,B45, B47	9
4	Providing feedback	B4,B10,B16,B20,B30,B33,B37,B50	8
5	Promoting confidence	B5,B11,B21,B26,B34,B41	6
6	Involving in reviewing and reflecting	B6,B12,B17,B27,B31,B38,B39,B49	8

3.5.1.4 Part C Constructive Alignment Questionnaires (CAQ)

Part C of this questionnaire consisted of five components, were: (1) learning outcomes which contained 12 items, (2) syllabus which contained about 6 items, (3) students learning times which contained of 6 items, (4) assessment task which contained 6 items, and (5) teaching and learning activities which contained 10 items. Total items in section of this questionnaire were 40. The distributions of the items for each component displayed were in Table 3.3.

Table 3.3 The distribution of the Items of Constructive Alignment Questionnaire (CAQ)

No	Construct	Number of Items	Total
1	Learning outcomes	C51,C54,C57,C63,C66,C68,C72, C76,C78,C82,C84,C87	12
2	Syllabus	C52,C59,C65,C71,C74,C89	6
3	Students learning times	C53,C55,C56,C62,C70,C86	6
4	Assessment task	C58,C60,C61,C64,C69,C73	6
5	Teaching and learning activities	C67,C75,C77,C79,C80,C81,C83, C85,C88,C90	10

In this research, two specification tables constructed were as seen in Table 3.4. The specification Table constructed was given information details of concepts, constructs, items and their resources form the literature review. The first specification Table was for developing instrument of Assessment for Learning (AfL), and the other specification Table for developing instrument of Constructive Alignment (CA).

Table 3.4: Specification Table of Construct Item of AfL and CA Instrument

Concept	Construct	Item	Resources
Assessment for Learning	Sharing learning objectives	B1,B7,B13,B18,B22,B23,B28,B35, B40,B44,B46,B48	Black, P & Wiliam D, 1998; Berry, 2008; Pedder & James in Gardner (2006); McCormick & Murphy, 2008; Stobart, 2009; Oldfield & MacAlpine, 1995; Woolhouse, 1999. Nelson, 2006.
	Helping pupils to know and recognize the standards	B2,B8,B14,B19,B24,B29,B42	Black, P & Wiliam D, 1998; Chappuis, J(2005); Cowie, B(2005B); Falchikov and Boud 1989; Falchikov and Goldfinch 2000; Nancy Falchikov, 2004; Falchikov 1995, 2004; Stefani, 1994;
	Peer and self-assessment	B3,B9,B15,B25,B32,B36,B43,B45, B47	Black, P & Wiliam D, 1998; Boud 1996; Boud and Brew 1995; Falchikov, 1989, 2007; Boud and Holmes 1981; Boud and Tyree 1979; Falchikov and Boud 1989); Hanrahan, S. J., & Isaacs, G. (2001)
	Providing feedback	B4,B10,B16,B20,B30,B33,B37,B50	Black, P & Wiliam D, 1998; Boud, D. (1995); Brown, G., Bull, J., & Pendlebury, M. (1997); Chamberlain, C., Dison, L., Button, A. 1998.
	Promoting confidence	B5,B11,B21,B26,B34,B41	Black, P & Wiliam D, 1998; Weeden P et al. (2000); Sutton R., 1995
	Involving in reviewing and reflecting	B6,B12,B17,B27,B31,B38,B39,B49	Black, P & Wiliam D, 1998; Pearce, J., Mulder, R. & Baik, C., 2009; Falchikov, N.,2003; Stiggins, R.J., 1999;

Constructive Alignment	Learning outcomes	C51,C54,C57,C63,C66, C68,C72, C76,C78,C82,C84,C87	Biggs, J & Tang C, 2007; Biggs, J., & Collis, K., 1982; Biggs, J., 2011; Harlen, W & James, M., 1997; Maki, P.L., 2004; Maki, P.L., 2010; Potter, M.K. & Kustra, E., 2012; Adam, S., 2004; Allan, J., 1996;
	Syllabus	C52,C59,C65,C71,C74, C89	Biggs, J & Tang C, 2007; Altman, HB.,1989; Birdsall, M., 1989; Millis, B.J; Wilkerson, L., & McKnight, R.T., 1978; Bass, R. 1993; Grunert, J. 1997
	Students learning times	C53,C55,C56,C62,C70, C86	Biggs, J & Tang C, 2007; Carroll, J.B.,1963; Clark, D., & M.C. Linn., 2003; Fisher, C.W., et al., 1980; OECD, 2011; Smith, B., 2002.
	Assessment task	C58,C60,C61,C64,C69, C73	Biggs, J & Tang C, 2007; Ramsden, P.,1992; Biggs, J.B. ,2003; Shuell, T.J.,1986; Nightingale, P., Wiata, I., Toohey, S., Ryan, G., Hughes, C. and Magin, D. 1996
	Teaching and learning activities	C67,C75,C77,C79,C80, C81,C83, C85,C88,C90	Biggs, J & Tang C, 2007; Ramsden, P.,1992; Biggs, J.B. ,2003; Shuell, T.J.,1986; Anderson, L. (Ed.), Krathwohl, D. (Ed.), Airasian, P., Cruikshank, K., Mayer, R., Pintrich, P., Raths, J., & Wittrock, M. (2001).

All items of those questionnaires of a statement are positive. These items provided were by using a 5-score Likert scale to indicate the level of approval or not respondents to the statement, these items are as follows:

1. Strongly disagree
2. Disagree
3. Uncertain
4. Agree
5. Strongly Agree

3.5.1.5 Expert Review

Assessment for Learning (AfL) and Constructive Alignment (CA) questionnaires' items were constructed. The developed AfL and CA items were validated by 2 lecturers of UTM and 1 lecturer of Muhammadiyah University of Makassar. Expert reviewing of the content is one of the most important test for content validity (Cohen and Swerdilk, 2002; Kline, 2005; Gay et al., 2006).

3.5.1.6 Pilot Study

The pilot study was a mini version of the full-scale study or experiment conducted in preparation for a complete work. It also known was as feasibility study. The main purpose of the pilot study was to determine the validity and reliability of the instrument. It done was to ensure that the style of language and sentence structure used in the questionnaire form easily understood by respondents (Mohd. Najib, 2003). Thus, in this study, the researcher had done a pilot study at Indonesia University, where respondents were all lecturers in teacher training and education faculty. The pilot study results analyzed using the Rasch model analysis.

3.5.2 Interview

Interviews were conducted to obtain information from one or more face-to-face or via other media with verbal interaction. Bungin (2001) divided the interview into two parts, namely structured and unstructured interviews. A structured interview was used as data collection techniques if researchers have known for sure about the information obtained. The use of a structured interview was to know the opinion of the interviewee based on a list of interview questions (Creswell, 2010; Daymon & Holloway, 2008; Emzir, 2010). While the unstructured interview was an interview-free model, in which the researchers did not use a structured interview guide. This research conducted unstructured interviews with several lecturers, as a representative from each university. In this case, the lecturers who were interview with questions related to their understanding of assessment for learning and constructive alignment.

The steps were conducted in the interview was distributed into three phases.

(i) The first is researchers determined where and from whom the data collected. This activity also includes the determination and identification of materials required in the interview informants.
(ii) The second is included the introduction of the characteristics of respondents. The more elite respondents, it was increasingly important for researchers to

identify more information about the respondents. In addition, researchers have to prepare the order of questions, role, level of formality, and confirm time and location.

(iii) The third is in which the question was asked specifically that the interview process productivity can be maintained. The action to stop interviews, when it had many information if the researcher and the respondents were tired. The next step, if only recorded interviews and research include whether to re-examine what as well as the respondents as well as the possibility of respondents have said would like to add information on what given. Interview questions referred to the research objectives and research questions that had given previously.

3.5.3 Instrument Validity

The instrument validity of AfL and CA was tested using several as types of validity as evidence the developed AfL and CA questionnaires can be used as valid. Validity defined as the degree to which the researcher had measured (Smith, 1991). Many types of validity evidence can be collected, and in general, the best rule is to collect multisource of validity (Johnson and Christensen, 2012, Creswell, 2012; Creswell, 2009; Calmorin *et. al*, 2007, 2007, Dellinger & Leech, 2007; Sekaran, 2003). The content, construct validity, convergent, discriminate and validity of are evidence of high validity instrument (Gliner and Morgan, 2009).

The content validity of AfL and CA was tested based on literature review and expert panel. Using specification table gives evidence of the content validity Murphy & Davidshofer, 1998; Linn & Miller, 2005; Dellinger & Leech, 2007). There were 2 lecturers as experts from UTM and 1 lecturer as an expert from Muhammadiyah University of Makassar evaluated the content of both AfL and CA as another evidence of content validity. The content validity by a panel of experts described as face validity. The content related evidence based on a judgment of the degree in which the items, tasks, or questions on a test adequately represent the construct domain of interest (Schwab, 2005; Gliner & Morgan, 2009; Johnson & Christensen,

2012; Sekaran, 2003; Calmorin, 2007; Gliner & Morgan, 2009; Mille, 2003; Dellinger & Leech, 2007; Burton & Mazerolle, 2011).

Construct validity of the AfL and CA instruments was tested using Rasch Model (RM) analysis. Gliner and Morgan (2009) stated that construct validity are hypothetical concepts that cannot be observed directly such as; Intelligence, achievement, and anxiety. Gliner and Morgan described three processes that are important for achieving construct validity which are convergent evidence, discriminate evidence, and factorial evidence. Construct validity required researchers to demonstrate that instruments measured the constructs they were designed to measure. This was accomplished through multiple studies that focused on the internal structure of the data from the measures and their consistency with the theories they were hypothesized to represent.

Before analyzed the questionnaires by using Cronbach alpha, the researcher analyze the questionnaires whether some items need to be deleted of modified using RASCH Model and analyzing the result of pilot study which leading to the reliability of the questionnaire.

The following are the results of test reliability and validity questionnaires using Rasch model with Winstep:

Table 3.5 Item reliability of 90 items of 100 persons

SUMMARY OF 90 MEASURED ITEM

SUMMARY OF 90 MEASURED ITEM

	TOTAL SCORE	COUNT	MEASURE	MODEL ERROR	INFIT MNSQ	INFIT ZSTD	OUTFIT MNSQ	OUTFIT ZSTD
MEAN	397.5	100.0	.00	.17	.99	-.2	1.01	-.1
S.D.	42.0	.0	1.15	.02	.29	2.0	.29	2.0
MAX.	464.0	100.0	3.69	.21	1.80	4.6	1.81	5.1
MIN.	230.0	100.0	-2.17	.14	.49	-4.2	.52	-4.0
REAL RMSE	.18	TRUE SD	1.14	SEPARATION	6.28	ITEM	RELIABILITY	.98
MODEL RMSE	.17	TRUE SD	1.14	SEPARATION	6.60	ITEM	RELIABILITY	.98
S.E. OF ITEM MEAN = .12								

UMEAN=.0000 USCALE=1.0000

Source: Rasch Analysis, 2014

Table 3.6: Dimensionality table of 100 persons

Table of STANDARDIZED RESIDUAL variance (in Eigenvalue units)

	-- Empirical --		Modeled
Total raw variance in observations =	154.7	100.0%	100.0%
Raw variance explained by measures =	64.7	**41.8%**	42.1%
Raw variance explained by persons =	14.7	9.5%	9.6%
Raw Variance explained by items =	50.0	32.3%	32.5%
Raw unexplained variance (total) =	90.0	58.2% 100.0%	57.9%
Unexplned variance in 1st contrast =	10.0	**6.5%** 11.1%	
Unexplned variance in 2nd contrast =	7.4	4.8% 8.2%	
Unexplned variance in 3rd contrast =	6.7	4.4% 7.5%	
Unexplned variance in 4th contrast =	6.5	4.2% 7.2%	
Unexplned variance in 5th contrast =	5.7	3.7% 6.3%	

Source: *Rasch Analysis, 2014*

Based on table 3.6 above that the item dimensionality from 100 persons shows that the raw variance explained by measures was 41.8%. It was high than it should be, while the unexplained variance in 1st contrast was 6.5%. In fact the value of the raw variance explained by measure must be equal or more than 40% and smaller than 15% (Bond & Fox, 2007).

Table 3.7 Fit items table of 100 persons

ITEM STATISTICS: MISFIT ORDER

ENTRY NUMBER	TOTAL SCORE	TOTAL COUNT	MEASURE	MODEL S.E.	INFIT MNSQ	INFIT ZSTD	OUTFIT MNSQ	OUTFIT ZSTD	PT-MEASURE CORR.	PT-MEASURE EXP.	EXACT MATCH OBS%	EXACT MATCH EXP%	ITEM
62	230	100	3.69	.14	1.68	4.4	1.81	5.1	A .23	.50	36.0	49.2	C62
7	422	100	-.65	.18	1.80	4.6	1.77	4.6	B .42	.40	53.0	63.1	B7
40	411	100	-.30	.18	1.73	4.1	1.71	4.1	C .22	.41	50.0	63.6	B40
9	407	100	-.17	.17	1.57	3.3	1.60	3.5	D .05	.41	65.0	63.5	B9
8	346	100	1.44	.15	1.52	3.2	1.54	3.3	E .12	.46	43.0	53.9	B8
12	440	100	-1.25	.19	1.54	3.6	1.45	3.2	F .54	.39	47.0	61.7	B12
17	353	100	1.28	.15	1.49	3.0	1.50	3.0	G .33	.45	50.0	54.6	B17
67	331	100	1.77	.15	1.48	3.1	1.43	2.7	H .46	.47	40.0	53.0	C67
18	370	100	.86	.16	1.39	2.4	1.37	2.2	I .19	.44	47.0	58.7	B18
13	438	100	-1.18	.19	1.34	2.4	1.39	2.8	J .25	.39	56.0	62.1	B13
25	366	100	.96	.16	1.36	2.2	1.38	2.3	K .30	.44	57.0	57.9	B25
74	361	100	1.09	.16	1.26	1.7	1.34	2.1	L .38	.44	57.0	56.9	C74
68	357	100	1.18	.15	1.30	1.9	1.34	2.1	M .26	.45	56.0	55.0	C68
57	395	100	.18	.17	1.30	1.8	1.33	2.0	N .37	.42	65.0	63.7	C57
3	446	100	-1.46	.19	1.32	2.4	1.26	1.9	O .44	.38	65.0	61.7	B3
72	373	100	.79	.16	1.19	1.2	1.29	1.8	P .47	.43	61.0	59.9	C72
15	407	100	-.17	.17	1.27	1.7	1.22	1.4	Q .23	.41	60.0	63.5	B15
4	443	100	-1.35	.19	1.26	1.9	1.22	1.7	R .46	.38	52.0	61.1	B4
6	337	100	1.64	.15	1.23	1.6	1.19	1.3	S .62	.46	45.0	52.8	B6
45	316	100	2.08	.14	1.16	1.1	1.23	1.6	T .22	.48	61.0	52.1	B45
39	405	100	-.11	.17	1.22	1.4	1.21	1.4	U .52	.41	53.0	63.4	B39
11	461	100	-2.04	.21	.96	-.3	1.21	1.4	V .20	.35	64.0	66.1	B11
31	422	100	-.65	.18	1.19	1.3	1.19	1.4	W .27	.40	60.0	63.1	B31
41	427	100	-.81	.18	1.18	1.3	1.19	1.4	X .31	.40	60.0	62.8	B41
76	369	100	.89	.16	1.11	.8	1.19	1.2	Y .26	.44	49.0	58.6	C76
89	436	100	-1.11	.18	1.12	.9	1.18	1.3	Z .31	.39	53.0	62.3	C89
BETTER FITTING OMITTED													
24	427	100	-.81	.18	.87	-.9	.85	-1.1	z .57	.40	68.0	62.8	B24
16	436	100	-1.11	.18	.84	-1.2	.82	-1.4	y .40	.39	69.0	62.3	B16
64	379	100	.63	.16	.84	-1.1	.80	-1.4	x .38	.43	60.0	61.1	C64
54	401	100	.01	.17	.82	-1.2	.83	-1.2	w .72	.41	62.0	63.7	C54
27	409	100	-.24	.18	.81	-1.3	.82	-1.3	v .53	.41	66.0	63.5	B27

75	421	100	-.61	.18	.78	-1.6	.79	-1.5	u	.52	.40	73.0	63.2	C75
1	464	100	-2.17	.21	.78	-1.9	.69	-2.2	t	.51	.34	66.0	68.1	B1
21	413	100	-.36	.18	.74	-1.9	.76	-1.7	s	.64	.41	67.0	63.6	B21
33	412	100	-.33	.18	.75	-1.8	.71	-2.2	r	.69	.41	67.0	63.5	B33
28	446	100	-1.46	.19	.72	-2.4	.74	-2.2	q	.44	.38	67.0	61.7	B28
77	402	100	-.02	.17	.69	-2.2	.71	-2.1	p	.56	.41	69.0	63.6	C77
90	403	100	-.05	.17	.70	-2.2	.70	-2.2	o	.59	.41	74.0	63.6	C90
5	448	100	-1.53	.19	.70	-2.7	.70	-2.6	n	.50	.37	70.0	61.8	B5
78	392	100	.27	.17	.68	-2.3	.70	-2.2	m	.36	.42	84.0	63.5	C78
35	435	100	-1.08	.18	.63	-3.2	.69	-2.6	l	.42	.39	68.0	62.4	B35
50	400	100	.04	.17	.68	-2.3	.69	-2.2	k	.70	.41	63.0	63.7	B50
71	402	100	-.02	.17	.67	-2.4	.68	-2.3	j	.55	.41	77.0	63.6	C71
19	422	100	-.65	.18	.64	-2.8	.68	-2.6	i	.46	.40	80.0	63.1	B19
58	417	100	-.49	.18	.66	-2.6	.66	-2.6	h	.62	.40	74.0	63.1	C58
82	383	100	.52	.17	.59	-3.1	.60	-3.0	g	.49	.43	73.0	61.9	C82
42	416	100	-.45	.18	.58	-3.3	.59	-3.3	f	.59	.41	79.0	63.3	B42
53	363	100	1.04	.16	.59	-3.3	.58	-3.3	e	.58	.44	71.0	57.2	C53
85	394	100	.21	.17	.56	-3.4	.58	-3.2	d	.47	.42	77.0	63.6	C85
88	428	100	-.84	.18	.56	-3.7	.57	-3.8	c	.61	.40	71.0	62.6	C88
70	364	100	1.01	.16	.49	-4.2	.53	-3.8	b	.68	.44	69.0	57.3	C70
51	360	100	1.11	.16	.49	-4.2	.52	-4.0	a	.43	.44	76.0	56.1	C51
MEAN	397.5	100.0	.00	.17	.99	-.2	1.01	-.1				62.0	60.7	
S.D.	42.0	.0	1.15	.02	.29	2.0	.29	2.0				9.9	4.0	

Table 3.7 shows fit items of 100 persons, there are three items which have value more than the standard value of (MNSQ) 0.4 <y<1.5 and (ZSTD) was -2<y<2. (Bond & Fox, 2007). Those items are C62, B7, B40, B9, B8, B12, B17, C67, B18, B13 and B25, as shown as the table 3.8 below:

Table 3.8: Construct Analysis AFL and CA

Concept	Construct	Total Item	Item No.	Unrelevance
Assessment for Learning	1. Sharing Learning Objectives	12	B1, B7, B13, B18, B22, B23, B28, B35, B40, B44, B46, B48	B7, B13, B18, B40
	2. Helping pupils to know and recognize standards	7	B2, B8, B14, B19, B24, B29, B42	B8
	3. Peer and Self-Assessment	9	B3, B9, B15, B25, B32, B36, B43, B45, B47	B9, B25
	4. Providing Feedback	8	B4, B10, B16, B20, B30, B33, B37, B50	-
	5. Promoting confidence	6	B5, B11, B21, B26, B34, B41	-
	6. Involving in reviewing and reflecting	8	B6, B12, B17, B27, B31, B38, B39, B49	B12, B17
Constructive Alignment	1. Learning Outcomes	12	C51, C54, C57, C63, C66, C68, C72, C76, C78, C82, C84, C87	-

	2. Syllabus	6	C52, C59, C65, C71, C74, C89	-
	3. Students Learning Times	6	C53, C55, C56, C62, C70, C86	C62
	4. Assessment Task	6	C58, C60, C61, C64, C69, C73	-
	5. Teaching and Learning Activities	10	C67, C75, C77, C79, C80, C81, C83, C85, C88, C90	C67

Table 3.9 : SUMMARY OF CATEGORY STRUCTURE. Model="R"

CATEGORY LABEL	OBSERVED SCORE	COUNT	%	OBSVD AVRGE	SAMPLE EXPECT	INFIT MNSQ	OUTFIT MNSQ	STRUCTURE CALIBRATN	CATEGORY MEASURE	
1	1	39	0	-.89	-1.32	1.28	1.34	NONE	(-4.03)	1
2	2	310	3	.08	-.15	1.19	1.25	-2.80	-2.09	2
3	3	1649	18	.90	.99	.95	.94	-1.24	-.32	3
4	4	4838	54	2.16	2.16	.98	1.02	.50	2.06	4
5	5	2164	24	3.33	3.30	.97	.96	3.54	(4.68)	5

OBSERVED AVERAGE was mean of measures in category. It was not a parameter estimate.

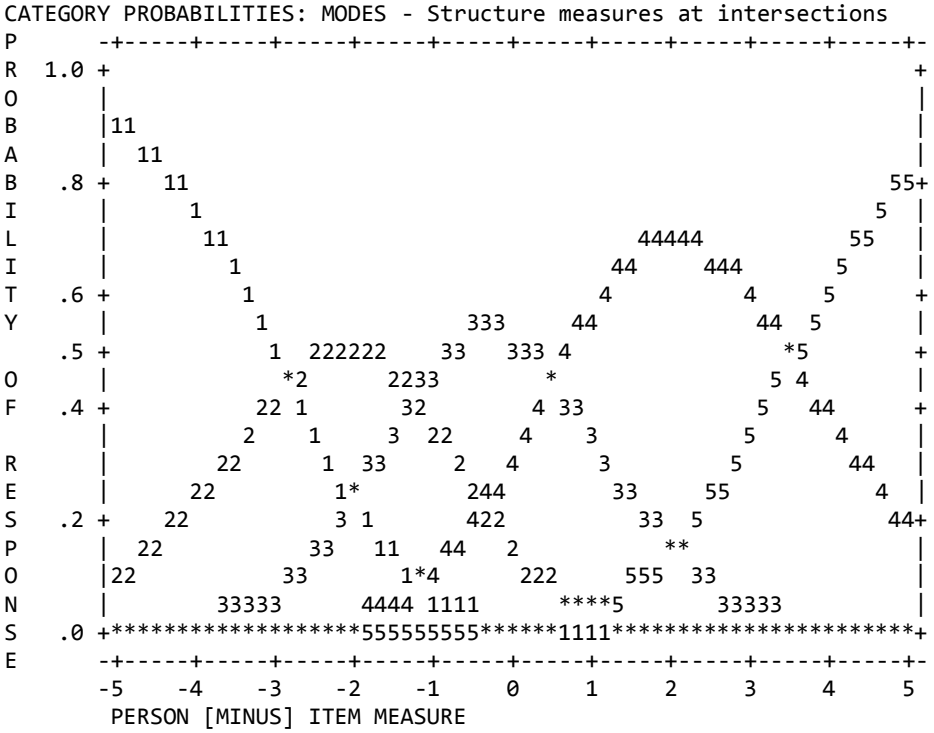

Table 3.9 and figure 3.1 above indicate that the scale calibration after deleting 5 persons. According to table 3.9 and figure 3.1, it was found that the scale differences between the scales are still more than 1.5 and less than 5 except in scale 2 (Disagree) and 5 (Strongly Agree). This indicates that the respondents or persons are

still quite difficult to distinguish between the two scales due to the values were more than 5

3.5.4 Items and Person Reliability Analysis

Rasch model was used to analyze reliability and validity of the items of Assessment for Learning (AfL) and Constructive Alignment (CA). The table results of test reliability and validity of questionnaire using the Rasch Model.

Table 3.10: Person reliability of 454 Respondent

	TOTAL SCORE	COUNT	MEASURE	MODEL ERROR	INFIT MNSQ	INFIT ZSTD	OUTFIT MNSQ	OUTFIT ZSTD
MEAN	335.3	79.0	2.22	.20	1.00	-.3	1.00	-.3
S.D.	30.7	.0	1.14	.05	.51	2.5	.50	2.4
MAX.	392.0	79.0	5.98	.59	7.06	9.9	6.88	9.9
MIN.	213.0	79.0	-.70	.12	.05	-9.8	.05	-9.9
REAL RMSE	.22	TRUE SD	1.12	SEPARATION	5.08	PERSON RELIABILITY	.96	
MODEL RMSE	.21	TRUE SD	1.12	SEPARATION	5.43	PERSON RELIABILITY	.97	
S.E. OF PERSON MEAN = .05								

SUMMARY OF 454 MEASURED PERSONS

Table 3.10 showed that the person reliability of the instrument from 454 persons was 0.96. It showed that the person reliability was high (Bond & Fox, 2001). This was very high reliability, which also approaching to the value proposed by the model was 0.97. This person reliability was supported by item reliability of 0.95, which was also high (Bond & Fox, 2001) as described in table 3.11.

Table 3.11: Item Reliability of 79 Items of 454 Persons

	TOTAL SCORE	COUNT	MEASURE	MODEL ERROR	INFIT MNSQ	INFIT ZSTD	OUTFIT MNSQ	OUTFIT ZSTD
MEAN	1926.7	454.0	.00	.08	.99	-.1	1.00	-.1
S.D.	57.1	.0	.36	.00	.16	2.0	.17	2.2
MAX.	2020.0	454.0	.82	.09	1.50	5.7	1.55	6.6
MIN.	1783.0	454.0	-.63	.07	.73	-4.0	.70	-4.6
REAL RMSE	.08	TRUE SD	.35	SEPARATION	4.20	ITEM RELIABILITY	.95	
MODEL RMSE	.08	TRUE SD	.35	SEPARATION	4.33	ITEM RELIABILITY	.95	
S.E. OF ITEM MEAN = .04								

SUMMARY OF 79 MEASURED ITEM

Table 3.12 showed item dimensionality of 454 persons which pointing to the raw variance explained by measures was only 32.5%. It was lower than it should be namely ≥40%, while the unexplained variance in the first contrast was 4.6%.

Table 3.12: Dimensionality table of 454 Persons

Table of STANDARDIZED RESIDUAL variance (in Eigenvalue units)

		-- Empirical --		Modeled
Total raw variance in observations	=	117.1 100.0%		100.0%
Raw variance explained by measures	=	38.1	**32.5%**	32.5%
Raw variance explained by persons	=	19.8	16.9%	16.9%
Raw Variance explained by items	=	18.2	15.6%	15.6%
Raw unexplained variance (total)	=	79.0	67.5% 100.0%	67.5%
Unexplned variance in 1st contrast	=	5.4	**4.6%** 6.8%	
Unexplned variance in 2nd contrast	=	3.4	2.9% 4.3%	
Unexplned variance in 3rd contrast	=	2.8	2.4% 3.6%	
Unexplned variance in 4th contrast	=	2.6	2.2% 3.3%	
Unexplned variance in 5th contrast	=	2.5	2.1% 3.1%	

In addition to the item dimensionality, also need to set out a table that contains the item statistics, like in the Table 3.13.

TABLE 3.13: Fit Items table of 454 persons

ENTRY NUMBER	TOTAL SCORE	TOTAL COUNT	MEASURE	MODEL S.E.	INFIT MNSQ	INFIT ZSTD	OUTFIT MNSQ	OUTFIT ZSTD	PT-MEASURE CORR.	PT-MEASURE EXP.	EXACT MATCH OBS%	EXACT MATCH EXP%	ITEM
57	1888	454	.26	.08	1.50	5.7	1.55	6.6	A .49	.55	63.4	60.4	C71
1	1998	454	-.47	.09	1.32	4.0	1.41	4.8	B .24	.51	52.4	64.1	B1
20	1814	454	.66	.07	1.35	4.3	1.40	5.0	C .56	.57	55.7	57.6	B45
15	1959	454	-.19	.08	1.34	4.2	1.37	4.5	D .37	.52	54.6	62.8	B3
62	1812	454	.67	.07	1.29	3.6	1.37	4.6	E .59	.57	54.6	57.6	C56
36	1830	454	.58	.07	1.35	4.2	1.32	4.1	F .58	.57	54.2	58.1	B6
24	1868	454	.37	.08	1.21	2.7	1.30	3.9	G .30	.55	58.8	59.6	B16
69	1824	454	.61	.07	1.28	3.4	1.28	3.6	H .59	.57	56.8	57.8	C69
54	1957	454	-.18	.08	1.17	2.2	1.28	3.5	I .26	.53	55.9	62.8	C52
3	1997	454	-.46	.09	1.19	2.5	1.07	1.0	J .52	.51	59.9	64.1	B23
22	2020	454	-.63	.09	1.14	1.9	1.19	2.3	K .40	.50	65.2	65.2	B4
9	1963	454	-.22	.08	1.13	1.7	1.18	2.3	L .35	.52	58.8	62.9	B2
7	1994	454	-.44	.09	1.15	2.0	1.11	1.4	M .50	.51	61.9	64.0	B46
17	1834	454	.56	.07	1.06	.8	1.14	1.9	N .41	.56	53.3	58.3	B32
25	1978	454	-.32	.08	1.03	.4	1.13	1.7	O .42	.52	61.2	63.3	B20
5	1968	454	-.25	.08	1.09	1.2	1.12	1.5	P .41	.52	60.1	63.0	B35
75	1813	454	.67	.07	1.07	.9	1.11	1.5	Q .46	.57	57.3	57.6	C81
8	1930	454	.00	.08	1.10	1.4	1.07	.9	R .55	.53	61.7	62.0	B48
64	1875	454	.33	.08	1.08	1.0	1.10	1.3	S .62	.55	59.0	59.9	C86
70	1833	454	.56	.07	1.08	1.0	1.10	1.3	T .61	.56	57.7	58.3	C73
34	1966	454	-.24	.08	1.05	.7	1.09	1.3	U .42	.52	59.7	63.0	B34
31	2006	454	-.52	.09	1.09	1.2	1.03	.4	V .48	.51	61.7	64.4	B11
35	1980	454	-.34	.08	1.09	1.2	1.04	.6	W .51	.52	62.3	63.4	B41
10	1965	454	-.23	.08	.96	-.5	1.09	1.2	X .53	.52	68.5	62.9	B14
27	1909	454	.13	.08	1.05	.7	1.08	1.0	Y .39	.54	56.4	61.0	B33
49	1954	454	-.16	.08	1.07	1.0	1.02	.3	Z .52	.53	64.5	62.7	C76
BETTER FITTING OMITTED													
26	1944	454	-.09	.08	.93	-.9	.86	-1.9	z .62	.53	65.0	62.3	B30
47	1875	454	.33	.08	.86	-1.9	.93	-1.0	y .58	.55	63.4	59.9	C68
65	1948	454	-.12	.08	.87	-1.7	.92	-1.0	x .55	.53	67.8	62.5	C58

79	1981	454	-.34	.08	.91	-1.2	.86	-2.0	w .62	.52	66.5	63.5	C90
32	1927	454	.02	.08	.91	-1.3	.90	-1.4	v .58	.54	63.2	61.9	B21
78	2014	454	-.58	.09	.89	-1.5	.83	-2.3	u .55	.50	68.5	64.9	C88
72	1965	454	-.23	.08	.89	-1.5	.88	-1.6	t .57	.52	65.9	62.9	C77
23	1976	454	-.31	.08	.88	-1.6	.89	-1.6	s .49	.52	66.7	63.3	B10
43	1958	454	-.18	.08	.89	-1.6	.87	-1.9	r .56	.53	65.2	62.8	C54
58	1916	454	.09	.08	.88	-1.7	.87	-1.9	q .64	.54	65.2	61.4	C74
39	1900	454	.18	.08	.87	-1.7	.86	-2.0	p .66	.54	66.3	60.8	B38
40	1961	454	-.20	.08	.87	-1.8	.83	-2.4	o .61	.52	66.5	62.8	B39
61	1926	454	.02	.08	.87	-1.8	.86	-2.0	n .62	.54	61.0	61.9	C55
77	1944	454	-.09	.08	.81	-2.6	.85	-2.1	m .57	.53	69.6	62.3	C85
46	1868	454	.37	.08	.80	-2.8	.85	-2.1	l .54	.55	67.2	59.6	C66
45	1977	454	-.31	.08	.85	-2.1	.81	-2.7	k .61	.52	71.6	63.3	C63
50	1964	454	-.22	.08	.82	-2.5	.84	-2.3	j .56	.52	68.7	62.9	C78
41	1865	454	.39	.07	.79	-3.0	.83	-2.4	i .44	.56	62.3	59.5	B49
66	1998	454	-.47	.09	.83	-2.4	.80	-2.7	h .57	.51	70.7	64.1	C60
67	1992	454	-.42	.09	.83	-2.4	.80	-2.8	g .59	.51	68.9	63.9	C61
38	1961	454	-.20	.08	.76	-3.5	.79	-3.0	f .65	.52	71.4	62.8	B31
6	1892	454	.23	.08	.79	-2.9	.76	-3.5	e .65	.55	63.4	60.4	B44
52	1868	454	.37	.08	.76	-3.4	.79	-3.1	d .61	.55	63.4	59.6	C84
37	1935	454	-.03	.08	.78	-3.0	.76	-3.5	c .64	.53	68.7	62.0	B27
14	1931	454	-.01	.08	.78	-3.1	.77	-3.4	b .64	.53	69.4	62.0	B42
13	1957	454	-.18	.08	.73	-4.0	.70	-4.6	a .66	.53	71.4	62.8	B29
MEAN	1926.7	454.0	.00	.08	.99	-.1	1.00	-.1			62.9	61.7	
S.D.	57.1	.0	.36	.00	.16	2.0	.17	2.2			4.6	2.0	

Table 3.13 showed, there were 10 items which have value more than the standard value of (MNSQ) 0.4 <y <1.5 and (ZSTD) was -2 <y <+2. Those items were C71, B1, B45, B3, C56, B6, B16, C69, C52, and B23. Furthermore, to obtain an item dimensionality, as suggested by Bond & Fox, 2007 which was equal to or more than 40% and less than 15%, it was necessary to re-test by removing the persons who have misfit order more than 0.4<yM1.5 for the MNSQ and -2<y<+2 for ZSTD, as shown in Appendix C.

According to Appendix C, there were 106 respondents got the misfit order. The respondents number were; 166, 158, 424, 65, 145, 370, 153, 73, 137, 151, 49, 374, 72, 46, 157, 30, 454, 440, 262, 78, 243, 185, 29, 217, 192, 70, 188, 182, 414, 176, 199, 222, 156, 202, 58, 35, 177, 173, 258, 408, 55, 403, 187, 57, 432, 442, 201, 174, 175, 195, 31, 186, 254, 140, 44, 203, 60, 144, 71, 215, 208, 171, 321, 51, 401, 178, 444, 62, 248, 179, 189, 435, 200, 380, 149, 308, 197, 11, 221, 43, 40, 20, 341, 212, 111, 7, 69, 219, 205, 396, 303, 422, 50, 382, 263, 240, 107, 404, 196, 261, 172, 148, 410, 170, 15, 21. Therefore, the researcher decided to remove the respondents who were misfit order.

After removing the 106 respondents, the Rasch analysis was conduct for the rest 348 respondents and the result was as followed.

Table 3.14: Person Reliability of 348 Persons

	TOTAL SCORE	COUNT	MEASURE	MODEL ERROR	INFIT MNSQ	INFIT ZSTD	OUTFIT MNSQ	OUTFIT ZSTD
MEAN	336.0	79.0	3.00	.22	.99	-.2	.99	-.2
S.D.	31.4	.0	1.44	.04	.27	1.8	.28	1.8
MAX.	392.0	79.0	7.01	.59	1.71	3.5	1.74	3.6
MIN.	213.0	79.0	-.93	.14	.04	-9.5	.04	-9.6
REAL RMSE	.24	TRUE SD	1.42	SEPARATION	**6.02**	PERSON RELIABILITY		**.97**
MODEL RMSE	.23	TRUE SD	1.42	SEPARATION	6.25	PERSON RELIABILITY		.98
S.E. OF PERSON MEAN = .08								

SUMMARY OF 348 MEASURED PERSONS (after deleting 106 persons)

Table 3.14 showed that the person reliability of the instrument after deleted 106 persons was 0.97. It showed that the person reliability was high (Bond & Fox, 2001). This was very high reliability, which also approaching to the value proposed by the model was 0.98. This person reliability was supported by item reliability of 0.93, which was also high (Bond & Fox, 2001) as described in Table 4.21.

Table 3.15: Item Reliability of 79 of 348 Persons

SUMMARY OF 79 MEASURED ITEM

	TOTAL SCORE	COUNT	MEASURE	MODEL ERROR	INFIT MNSQ	INFIT ZSTD	OUTFIT MNSQ	OUTFIT ZSTD
MEAN	1480.1	348.0	.00	.10	1.00	-.1	.99	-.2
S.D.	38.1	.0	.39	.00	.15	1.8	.16	1.9
MAX.	1551.0	348.0	.97	.11	1.52	5.7	1.62	6.0
MIN.	1380.0	348.0	-.79	.09	.74	-3.5	.72	-3.8
REAL RMSE	.11	TRUE SD	.38	SEPARATION	**3.60**	ITEM RELIABILITY		**.93**
MODEL RMSE	.10	TRUE SD	.38	SEPARATION	3.71	ITEM RELIABILITY		.93
S.E. OF ITEM MEAN = .04								

Table 3.15 showed the item dimensionality of 348 persons which pointing to the raw variance explained by measures was 38.6%. It was lower than it should be namely ≥40%, while the unexplained variance in the first contrast was 4.5%.

Table 3.16: Dimensionality table of 348 Persons

Table of STANDARDIZED RESIDUAL variance (in Eigenvalue units)

		-- Empirical --		Modeled
Total raw variance in observations	=	128.6	100.0%	100.0%
Raw variance explained by measures	=	49.6	**38.6%**	38.4%
Raw variance explained by persons	=	30.3	23.6%	23.4%
Raw Variance explained by items	=	19.3	15.0%	14.9%
Raw unexplained variance (total)	=	79.0	61.4% 100.0%	61.6%
Unexplned variance in 1st contrast	=	5.8	**4.5%** 7.3%	
Unexplned variance in 2nd contrast	=	3.1	2.4% 4.0%	
Unexplned variance in 3rd contrast	=	3.0	2.3% 3.8%	
Unexplned variance in 4th contrast	=	2.5	1.9% 3.1%	

Based on the Table 3.16, the item dimensionality should be achieved ≥ 40%, so that it removed some items. The misfit items were items number B1, B3, B4, B23, B16, B2, C52, B33, and B46, as shown at the Table 3.17

Table 3.17: Fit Items Table of 348 Persons

ITEM STATWASTICS: MISFIT ORDER (after deleting 106 persons)

ENTRY NUMBER	TOTAL SCORE	TOTAL COUNT	MEASURE	MODEL S.E.	INFIT MNSQ	INFIT ZSTD	OUTFIT MNSQ	OUTFIT ZSTD	PT-MEASURE CORR.	PT-MEASURE EXP.	EXACT MATCH OBS%	EXACT MATCH EXP%	ITEM
1	1528	348	-.51	.11	1.52	5.7	1.62	6.0	A .18	.58	53.2	68.2	B1
15	1511	348	-.32	.11	1.40	4.5	1.50	5.1	B .36	.59	56.9	67.6	B3
22	1551	348	-.79	.11	1.25	3.0	1.38	3.6	C .40	.57	65.8	69.4	B4
3	1531	348	-.55	.11	1.30	3.5	1.19	2.0	D .54	.58	62.1	68.4	B23
24	1430	348	.51	.10	1.21	2.5	1.25	2.9	E .41	.61	64.4	64.5	B16
9	1496	348	-.15	.10	1.20	2.4	1.23	2.6	F .33	.59	60.9	67.0	B2
54	1500	348	-.20	.10	1.15	1.8	1.22	2.5	G .35	.59	60.3	67.2	C52
27	1465	348	.17	.10	1.22	2.6	1.21	2.5	H .44	.60	58.3	65.9	B33
7	1534	348	-.58	.11	1.18	2.2	1.16	1.8	I .51	.58	62.4	68.5	B46
25	1516	348	-.37	.11	1.08	1.1	1.18	2.0	J .49	.59	64.9	67.7	B20
62	1411	348	.69	.10	1.16	1.9	1.12	1.4	K .71	.62	58.9	63.8	C56
69	1422	348	.59	.10	1.16	1.9	1.13	1.5	L .71	.61	62.6	64.1	C69
35	1514	348	-.35	.11	1.16	1.9	1.13	1.4	M .57	.59	65.5	67.7	B41
36	1431	348	.50	.10	1.15	1.8	1.12	1.5	N .67	.61	62.1	64.5	B6
70	1422	348	.59	.10	1.13	1.6	1.09	1.1	O .69	.61	61.5	64.1	C73
17	1412	348	.68	.10	1.09	1.1	1.12	1.5	P .47	.62	59.2	63.8	B32
31	1536	348	-.61	.11	1.12	1.5	1.08	.9	Q .51	.58	64.1	68.6	B11
53	1472	348	.10	.10	1.12	1.5	1.07	.9	R .67	.60	66.4	66.2	C87
8	1492	348	-.11	.10	1.11	1.4	1.06	.7	S .59	.59	64.9	66.9	B48
30	1532	348	-.56	.11	1.10	1.3	1.05	.6	T .50	.58	65.8	68.4	B5
34	1505	348	-.25	.10	1.07	.9	1.10	1.2	U .47	.59	63.5	67.4	B34
44	1460	348	.22	.10	1.10	1.2	1.07	.8	V .66	.60	61.5	65.7	C57
5	1509	348	-.30	.11	1.08	1.0	1.09	1.1	W .49	.59	64.4	67.5	B35
20	1421	348	.60	.10	1.09	1.1	1.08	1.0	X .68	.61	64.7	64.1	B45
33	1524	348	-.47	.11	1.07	.9	1.01	.2	Y .53	.58	67.8	68.0	B26
75	1398	348	.81	.09	1.07	.9	1.06	.8	Z .53	.62	62.4	63.3	C81
BETTER FITTING OMITTED													
39	1469	348	.13	.10	.92	-1.0	.87	-1.6	z .70	.60	67.8	66.1	B38
42	1380	348	.97	.09	.91	-1.1	.92	-1.0	y .49	.63	70.1	62.8	C51
65	1481	348	.01	.10	.89	-1.3	.91	-1.1	x .65	.60	70.7	66.6	C58
79	1516	348	-.37	.11	.90	-1.2	.85	-1.9	w .65	.59	69.5	67.7	C90
10	1504	348	-.24	.10	.84	-2.2	.90	-1.2	v .63	.59	73.3	67.3	B14
78	1542	348	-.68	.11	.90	-1.3	.84	-1.8	u .59	.58	71.0	68.9	C88
48	1478	348	.04	.10	.88	-1.6	.89	-1.3	t .66	.60	72.4	66.5	C72
51	1468	348	.14	.10	.86	-1.8	.87	-1.6	s .53	.60	64.7	66.0	C82
41	1420	348	.61	.10	.87	-1.6	.87	-1.6	r .47	.61	65.8	64.1	B49
37	1490	348	-.09	.10	.87	-1.7	.83	-2.1	q .66	.59	71.0	66.7	B27
38	1492	348	-.11	.10	.82	-2.4	.87	-1.7	p .69	.59	71.0	66.9	B31
74	1485	348	-.04	.10	.86	-1.8	.83	-2.1	o .68	.60	74.1	66.6	C80

72	1494	348	-.13	.10	.86	-1.8	.84	-2.0	n .65	.59	71.3	66.9	C77
76	1452	348	.30	.10	.85	-1.9	.85	-1.9	m .61	.61	67.2	65.3	C83
58	1479	348	.03	.10	.85	-1.9	.82	-2.4	l .71	.60	71.8	66.5	C74
66	1527	348	-.50	.11	.85	-2.0	.82	-2.2	k .62	.58	75.3	68.2	C60
45	1504	348	-.24	.10	.85	-2.0	.80	-2.5	j .68	.59	74.1	67.3	C63
43	1495	348	-.14	.10	.85	-2.0	.82	-2.2	i .64	.59	71.6	67.0	C54
77	1492	348	-.11	.10	.80	-2.6	.83	-2.1	h .62	.59	73.0	66.9	C85
6	1446	348	.36	.10	.82	-2.3	.78	-2.9	g .72	.61	68.4	65.1	B44
52	1442	348	.40	.10	.81	-2.4	.81	-2.6	f .64	.61	68.7	65.0	C84
46	1445	348	.37	.10	.79	-2.8	.81	-2.6	e .58	.61	71.0	65.1	C66
67	1518	348	-.40	.11	.79	-2.9	.76	-3.0	d .68	.59	75.3	67.8	C61
50	1503	348	-.23	.10	.74	-3.5	.75	-3.2	c .64	.59	73.6	67.3	C78
14	1480	348	.02	.10	.75	-3.3	.74	-3.5	b .69	.60	73.6	66.5	B42
13	1489	348	-.08	.10	.75	-3.4	.72	-3.8	a .72	.59	74.1	66.7	B29
MEAN	1480.1	348.0	.00	.10	1.00	-.1	.99	-.2			66.8	66.4	
S.D.	38.1	.0	.39	.00	.15	1.8	.16	1.9			4.6	1.4	

Table 3.18: Person Reliability of 348 Persons

	TOTAL SCORE	COUNT	MEASURE	MODEL ERROR	INFIT MNSQ	INFIT ZSTD	OUTFIT MNSQ	OUTFIT ZSTD
MEAN	297.1	70.0	3.14	.24	.99	-.2	.98	-.2
S.D.	29.3	.0	1.56	.05	.28	1.7	.29	1.7
MAX.	347.0	70.0	7.10	.59	1.79	3.2	1.80	3.3
MIN.	193.0	70.0	-.86	.16	.04	-8.8	.04	-8.9

REAL RMSE	.26	TRUE SD	1.54	SEPARATION 6.03	PERSON RELIABILITY **.97**
MODEL RMSE	.25	TRUE SD	1.54	SEPARATION 6.27	PERSON RELIABILITY .98
S.E. OF PERSON MEAN = .08					

Instead of Table 3.18, the reliability of the individual who answered the study, following the analysis of Rasch measurement model was 0.97. A very high reliability was also approaching the value suggested by the model was 0.98, then the reliability of these individuals showed the reliability was very high (Azrilah, 2011; Hambleton et al., 1991; Wu & Adams, 2007, and Wright & Master, 1982). Bond and Fox (2007) pointed out the value>0.08 was the reliability of the strongly accepted. This showed that the respondents were respondents representing the character to be tested and reliable.

For the separation of the individual, this study can separate the 6 groups of the overall respondents. The separation of 6 groups was good because it showed that there was diversity of abilities in answering instruments (Linacre, 1999; Bond & Fox, 2007; Smith, 2000 and Andrich, 1978). In the analysis using the Rasch Measurement Model, the separation of more than 2 groups was required. This

separation showed that 6 separations or differences of individual groups according to their abilities in the measured variables.

Table 3.19 showed the reliability item analysis of the Rasch Measurement Model. The reliability obtained using the Rasch Measurement Model analysis was 0.93. It was a very high reliability equal to the value proposed by the model was 0.93.

Table 3.19: Item Reliability of 348 Persons (after deleting 9 items)

	TOTAL SCORE	COUNT	MEASURE	MODEL ERROR	INFIT MNSQ	INFIT ZSTD	OUTFIT MNSQ	OUTFIT ZSTD
MEAN	1476.9	348.0	.00	.10	.99	-.1	.98	-.2
S.D.	37.1	.0	.40	.00	.12	1.5	.12	1.5
MAX.	1542.0	348.0	.97	.11	1.20	2.3	1.27	2.8
MIN.	1380.0	348.0	-.74	.10	.76	-3.3	.74	-3.4

REAL RMSE	.11	TRUE SD	.38	SEPARATION 3.59	ITEM RELIABILITY	**.93**
MODEL RMSE	.10	TRUE SD	.38	SEPARATION 3.68	ITEM RELIABILITY	.93
S.E. OF ITEM MEAN = .05						

Rasch analysis can help to determine the validity of the scale was used to make the determination of zero and then making the calibration scale was used. Rasch analysis to determine the validity of the probability of response was spread evenly between the scales of the fixed (Norlide, 2007; Azrilah Aziz, 2010 and Perkins et al., 2002). Table 3.20 showed the analysis of scale calibration of category structure for 348 persons.

Table 3.20: Scale Calibration of 348 Persons

SUMMARY OF CATEGORY STRUCTURE. Model="R"

CATEGORY LABEL	OBSERVED SCORE	COUNT	%	OBSVD AVRGE	SAMPLE EXPECT	INFIT MNSQ	OUTFIT MNSQ	STRUCTURE CALIBRATN	CATEGORY MEASURE	
1	1	16	0	-.61	-.28	.85	.78	NONE	(-4.11)	1
2	2	292	1	.29	.36	.96	.92	-2.88	-2.16	2
3	3	2289	9	1.19	1.28	.93	.91	-1.27	-.45	3
4	4	12900	53	2.75	2.71	.99	.98	.23	2.11	4
5	5	8863	36	4.32	4.35	1.06	1.04	3.92	(5.04)	5

CATEGORY PROBABILITIES: MODES - Structure measures at intersections

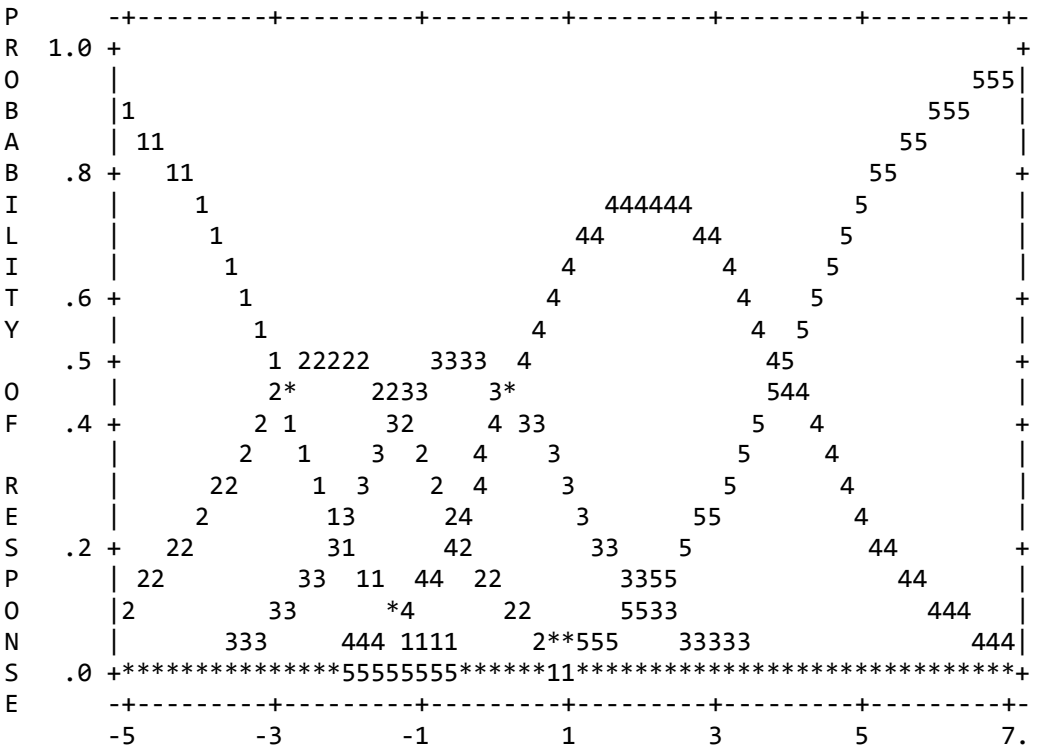

Figure 3.3 : Structure Calibration Scale of 348 Persons

Table 3.20 and Figure 3.3 showed summary of the categories of the rating scale and the size of the structure at the point of intersection. In column observation, count it showed respondent's answers to the scale of the increase given. From Table 4.26, the most frequent answer given by the respondents was that the scale of 4, which was 12900 (53%) preferred. The selection of the next grading scale that has been chosen by the respondents was that the scale of 5 by 8863 (36%), followed by choice and scale 3 of 2289 (9%) of choice and scale 2 of 292 (1%) and a scale of 1 to 16 (0%) preferred. The observed average showed the pattern of respondents. Calculated normal pattern if was found to increase regularly from negative to positive. Table 3.20, also showed response patterns starting from -0.61 logit and move one direction towards +4.32 logit and the answers of the respondents were consider normal.

The structure calibration was the power of the Rasch Measurement Model superior. If there was a deviation of smaller than 1.4, then the ranking scale was expect to be summarized (Perkins, et al., 2000; Wright and Stones, 1979; Hambleton et al., 1991; Wu and Adams, 2007). In this study, the variance between the scale of 1

and 2 were more than 1:44, (2.88), as well as the variance scale of 2 and 3 (4.15), the scale of 3 and 4 (1.50) and the scale of 4 and 5 (4.15), showed the use of a scale of 1,2,3,4,5 were appropriated and can be distinguished by the respondents. According to Bond and Fox (2007), the persistence of a rating scale was when the variance exceeds 1.4 and less than 5 (1.4 <s <5).

Table 3.21: Dimensionality of 348 Persons (After deleting 9 Items)

Table of STANDARDIZED RESIDUAL variance (in Eigenvalue units)

	-- Empirical --		Modeled
Total raw variance in observations =	119.6	100.0%	100.0%
Raw variance explained by measures =	49.6	**41.5%**	41.3%
Raw variance explained by persons =	31.8	26.6%	26.5%
Raw Variance explained by items =	17.7	14.8%	14.8%
Raw unexplained variance (total) =	70.0	58.5% 100.0%	58.7%
Unexplned variance in 1st contrast =	4.1	**3.5%** 5.9%	
Unexplned variance in 2nd contrast =	3.0	2.5% 4.3%	
Unexplned variance in 3rd contrast =	2.8	2.3% 4.0%	
Unexplned variance in 4th contrast =	2.4	2.0% 3.5%	
Unexplned variance in 5th contrast =	2.4	2.0% 3.4%	

In Table 3.21, the variance can be explained in the measurement was 41.5%, and this value showed a good level of unidemensional. Similarly, the variance cannot be explained only reach 3.5% and not more than 15%. It showed all the constructs in this study to measure one dimension.

3.5.5 Instrument Reliability

A reliable instrument was the instrument when used several times to measure the same object would produce the same data. Reliability led to the accuracy and precision of a measuring instrument in the measurement procedure. The reliability coefficient indicates the stability of the scores obtained by the individual; the score reflects the reproductive process. The score was called stable if he scores at a time and at other times the results are relatively similar. Another meaning of reliability in terms of stability was a subject that was subject to measurement will occupy the same relative rank in a separate testing with assays equivalent (Singh, 1986; Thorndike, 1991).

Reliability refers to the consistency of the respondents gave an answer. High reliability can be cultivated by using several methods. Questionnaires were usually split half method, which has two items by asking for one thing one thing two times, often using a different verse. Reliability also improved by using test-re-test or an equivalent test method. (Mohd. Najib, 2003). To obtain the reliability of the questionnaire were adopted in this research; researchers have done a pilot study on the lecturers of teacher and training education faculty, Muhammadiyah University of Makassar, South Sulawesi, Indonesia.To determine the reliability for each item in the questionnaire was built, researchers have conducted the Cronbach Alpha analysis using SPSS 20. Interpretation of Cronbach alpha values according to George and Mallery (2003) as shown in Table 3.22 below:

Table 3.22: Interpretation of Cronbach Alpha Values

Values of Coefficient-α	**Interpretation**
> 0.90	Excellent
0.80 – 0.89	Good
0.70 – 0.79	Acceptable
0.60 – 0.69	Questionable
0.50 – 0.59	Poor
< 50	Unacceptable

Method of determining reliability can be quantitative as described above. It can enhance using qualitative method that was done by reviewing each item in term of grammar and comprehension by discussing with the respondents. Based on the results of a pilot study has been conducted, the following will describe the value of Cronbach Alpha for each of the concepts and constructs, obtained from the analysis using SPSS software version 17.0, namely assessment for learning and constructive alignment, as shown in Table 3.23below.

Table 3.23 Cronbach Alpha Value for Each Concepts and Constructs

No	Concepts	Construct	Number of Items	Cronbach α for each construct	Cronbach α for a concept
1	Assessment for Learning	Sharing learning objectives	12	0.671	**0.90**
		Helping pupils to know and recognize the standards	7	0.422	
		Peer and self-assessment	9	0.506	
		Providing feedback	8	0715	
		Promoting confidence	6	0.724	
		Involving in reviewing and reflecting	8	0.699	
2	Constructive Alignment	Learning Outcomes	12	0.828	**0.92**
		Syllabus	6	0.718	
		Student learning times	6	0.599	
		Assessment task	6	0.711	
		Teaching and learning activities	10	0.752	

The Overall Cronbach Alpha value of the concept of assessment for learning was 0.909. This means greater than r_{table} value ie r_{count} = 0.909 > r_{table} = 0.306. Thus the items used for data collection on assessment for learning was reliable. Although the Cronbach alpha value of each construct was different, however, from the calculation of $r_{count} > r_{table}$. So there are some items that should be grammatically correct, namely: B8, B9, B10, B13, B14, B15, B17, B18, B20, B23, B31, B36, and B40. To construct sharing learning objectives, four items that must be corrected grammatically item B13, B18, B23, and B40. The second construct was helping pupils to know and recognize the standards, there are also two items that should be corrected grammatically, the item B8 and B14. The third construct was peer and self-assessment, there are three items that should also be grammatically correct the item B9, B15 and B36. Subsequently the fourth construct providing feedback, there are two items that B10 and B20. Specifically to construct a fifth, namely promoting confidence, none of the items that should corrected, it would mean that all existing items in the construct are reliable. Moreover, the last was a construct involving in reviewing and reflecting, where there were two items that should corrected grammatically namely B17 and B31.

Cronbach alpha for the overall value of the concept of constructive alignment was 0.927. This indicates that the value was greater than r_{table}, namely $r_{count} = 0.927 > r_{table} = 0.306$. Therefore, items used for data collection on constructive alignment are reliable. Although there are differences in Cronbach alpha value of each constructs. Thus there are several items that should be corrected grammatically namely C62, C68 and C79. The third item was a construct of student learning C62 times the item, then that item C68 learning outcomes, and construct teaching and learning activities that item C79. This means that there are two constructs of the items do not require repair of grammatically, namely syllabus and assessment tasks. Thus, the items to the concept of constructive alignment are reliable and should be used for data collection.

3.6 Data Analysis

This research used two types of data analysis, the analysis of quantitative and qualitative. The quantitative analysis used descriptive analysis and correlation, t-test and structural equation model (SEM). The qualitative analysis analyzed based on the results of the interview data.

3.6.1 Quantitative data analysis

The main objective of this research was to explore the understanding of educators on Assessment for Learning (AfL) and Constructive Alignment (CA) and to determine the relationship between assessment for learning and constructive alignment in the process of teaching and learning. Thus, the questionnaire was the instrument used to measure the lecturers of understanding about assessment for learning and constructive alignment, and then analyzed quantitatively using descriptive analysis.

Descriptive analysis focused on lecturers demographics obtained from the questionnaire part A consisting of gender, age, academic qualification, teaching

experience at the university and department. The lectures' demographics will be analyzed by mean and percentage, by using Statistical Package for the Social Science (SPSS) verse 20.0.While the analysis of the data for understanding lecturers on assessment for learning and constructive alignment obtained from the questionnaire part B and C will be used correlation, t-test and structural equation model (SEM).

3.6.1.1 Descriptive Statistics

Descriptive statistics used were in this study because the data generated can considered as a summary of the entire data set.It can also provide information directly and easily (Azizi Yahaya, et al., 2007). This test was to explain the views of respondents on the distribution of assessment for learning and constructive alignment based on a percentage, frequency, min, and standard deviation.

As already informed, the items on the selected demographic characteristics i.e. gender, age, academic qualifications, work experience, and the department were contained in section A of the questionnaire. While the analysis of the data for understanding lecturers on assessment for learning and constructive alignment obtained from the questionnaire part B and C will be used correlation, t-test and structural equation model (SEM). The measurement techniques also use analysis like min, frequency, percent and standard deviation. The use of the min value was a method used to describe the responses of all participants in the study of items something instrument (Creswell, 2008). For identifying understanding of assessment for learning and constructive alignment, this study has used a score of min interpretations that have been formulated by Nunally (1978) as shown in Table 3.24.

Table 3.24 Interpretation of Mean Assessment for Learning and Constructive Alignment

Mean Score	Interpretation
1.00 - 2.00	Low
2.01 - 3.00	Moderately Low
3.01 - 4.00	Moderately High
4.01 - 5.00	High

3.6.1.2 Inferential Statistics

Statistical test using statistical inference testing methods such as Pearson correlation coefficient 'r' used were in the hypothesis-testing phase. It was aimed to test the hypothesis that any previously established by researchers. The results determined whether the null hypothesis was accepted or rejected.

To determine whether there was a linear relationship between demographic factors, assessment for learning and constructive alignment, statistical tests used were Pearson Correlation Test 'r'. This was measures the relevance of which indicate the strength and direction of the relationship between two variables on a scale (-1) to (+1). If the value of 'r' indicates a positive value, this means that the relationship between the relevant variables will also increase (Algifari, 2000). Table 3.25showed the power of the correlation between the variables.

Table 3.25: Classification of Correlation Strength

"r" value	**Interpretation**
Less than 0.20	Very weak
0.20 – 0.40	Weak
0.40 – 0.70	Moderate
0.70 – 0.90	High
0.90 – 1.00	Very high

(*Source :* Mohd Najib, 2009)

3.6.1.3 Structural Equation Model (SEM)

The model used in this study was a model of causality or influence relationships based on hypothesis testing proposed in this study, the analysis technique used was the Structural Equation Modeling (SEM) operated by AMOS verse 18. The modeling of study by SEM allows researchers to find the answers of the research questions that are dimensional measure of an indicator of what a concept

and that was regressive influence or degree of relationship among the factors that have been identified its dimensions. According to Ferdinand (2006), that there were several reasons used SEM program as a tool for analysis that were.

i. Verify undimensionality of various indicators for a dimension/construct/ concept/factor.
ii. Test the feasibility / accuracy of a model based on empirical data that were examined.
iii. Test the feasibility of the model at the same time cause and effect relationship between factors constructed / observed in the research model.

The steps in using SEM to test a model must meet the following characteristics:

(i) The validity of instruments

To assess the accuracy of the measurement of an item instrument was used to measure the construct validity of instruments. The requirement needed for carrying out the analysis of the validity of instruments was that each indicator has a unidimensional nature of its construct (Hair *et al.,* 1998). According Ghozali (2008) that the instrument can be developed using a data sample for analysis without sample other items. So that details who dropped out were not included in the data set for analysis of inference. So, all the questionnaires in this study also continue to use the data as a sample in the sample data to measure the accuracy and consistency of instruments. Therefore, the test statistics are was used as follows:

First, Unidimensional. Unidimensional nature of the items can be obtained through correlation with the composite score. Items that have a correlation of less than 0.35 will drop out (Ghozali, 2008). *Second*, construct validity. Construct validity consists of three parts, namely nomological validity, convergent validity dan dicriminant (Hair *et al*., 1998). Nomological Validity directly affected due to the build construct indicators based on theories and relevant research results. By such, the study only tested the convergent and discriminant validity. The method can be carried out to see the level of construct validity was the CFA (Confirmatory Factor Analysis). Item parameters are not set in the CFA still provide sufficient information

in the validity of the questionnaire. Indeed, in this study will used in conducting the CFA method every item questionnaire validity of latent constructs. CFA procedures for the final model was to build a model of measurement, perform the initial CFA models, make modifications to the index when the model has not fit, and so forth until an adequate fit overal index called the final stage of the model (Hair *et al.,* 1998). The validity of using a loading factor obtained in the CFA for the content validity of the questionnaire has been filled. Criteria used in assessing the validity of an item was said to be authentic that when the estimated value for the standardized regression weight (factor loading) of models over the final 0:40. or critical ratio (CR) greater than two times the standard.

(ii) Reliability

This analysis used to perform consistency valid measurement of latent variables. Coefficients were used to assess the internal consistency (reliability level) was Cronbach's alpha. In Ghozali (2008) noted that the Cronbach's alpha was not a statistical test, but only the absolute coefficient of reliability or consistency that shows a correlation between the grain and therefore suitable for measuring the latent constructs, so that when the calculation of the random sample, the alpha take the random error and was automatically have participated in the process of counting time calculation using the formula below. Agreement that can be taken to assess the internal consistency was satisfactory if the alpha value greater than 0.70.

3.6.2 Qualitative data analysis

Qualitative research was a sustainable process. Qualitative data analysis was a systematic and progressive process. Flexibility of qualitative data allows the authors analyzed the data during the data collection process. (Daymon and Holloway, 2008). In general, Miles and Huberrman (1994) said that qualitative data analysis consists of three flow events occurring simultaneously, namely: data reduction, data display and conclusion drawing / verification. Data gathered by interview followed by recording, categorized according to themes (document analysis). The thematic

approach is also known as classic content analysis (Wicks, 2010; Krippendorf, 2004; Marks and Yardley, 2004; Neuendorf, 2001; Weber, 1990). Furthermore, Braun and Clarke's guide to the six phases of conducting thematic analysis were: (i) becoming familiar with the data, (ii) generating initial codes, (iii) searching for themes, (iv) reviewing themes, (v) defining and naming themes, and (vi) producing report.

3.7 Research Calendar

Table 3.26 shows the research calendar plan of the research has started from September 2011 to November 2015. It contains the date, phases, and achievable phases that were completed and will be completed.

Table 3.26: Research calendar

Date	Research Phases
September – December, 2011	Reading and Discussing about research topic
January – June, 2012	Determining the objectives, purposes, scope, problem statement significant and background of problem of the research (Chapter One)
July – September, 2012	Reading literature review
October – December, 2012	Reading about research methods
January – July, 2013	Writing chapter 1, 2 and 3
August – October, 2013	Constructing the AfL and CA instruments
November, 2013	Distributing questionnaire for pilot study and First defense assessment
December 2013 – January 2014	Revising proposal
February - May, 2014	Collecting Data
June – August, 2014	Input data and analysis using SPSS, Winstep and AMOS
September – December, 2014	Data Analysis for chapter 4
January – February, 2015	Final data analysis using SPSS, Winstep and AMOS
March – May, 2015	Writing chapter 4 and 5
June – October, 2015	Reviewing chapter 4 and 5
November, 2015	Submission thesis to supervisor

3.8 Summary

The research design of this study was an explanatory sequential mixed method. The whole population of this study was used as a cluster random sampling technique. The developed AfL questionnaire was used to measure the Lecturers' comprehend and practice on Assessment for Learning. The developed CA questionnaire was used to measure the Lecturers' Comprehend and Practice on Constructive Alignment. The quantitative data analyzed using descriptive inferential statistics, Rasch Model and SEM. The qualitative data were analyzed using thematic and coding analyses.

CHAPTER 4

DATA ANALYSIS AND FINDINGS

4.1 Introduction

This chapter presents the findings of the study based on the research questions sited in chapter one and answers to the test of the hypotheses. The data analysis describes the result highlighting the demographics of the respondents, the condition of assessment for learning in Indonesia, the condition of constructive alignment in Indonesia, and the relationship between assessment for learning and constructive alignment at the university in Indonesia.

4.2 Demography of Respondents

This section discussed the finding on the demographics of the respondents, sourced from the questionnaire that was gender, age, teaching experience, academic qualification, and the department. The SPSS software version 20.0 used to calculate the respondent's answers to the frequency and percentage of respondents who answered the questions. The study was conduct at four universities in Indonesia, from February until May 2014. The number of respondents who participated to the survey was 454 lecturers (Table 4.1, with 197 (43.4) of them were males and 257 (56.6) females.

Table 4.1: Demography Background of AfL and CA

		N	Sample Percentage	Mean Value	
				CA	AfL
Gender	Male	197	43.4	3.86	3.91
	Female	257	56.6	4.49	4.53
Age	25 - 30	30	6.6	4.02	4.10
	31 - 35	71	15.6	4.00	4.04
	36 - 40	143	31.5	4.20	4.20
	41 - 45	58	12.8	4.34	4.41
	46 - 50	57	12.6	4.40	4.43
	51 - 55	64	14.1	4.33	4.40
	56 - 60	24	5.3	4.23	4.35
	61 - 65	7	1.5	4.41	4.60
Experience	1-5	97	21.4	4.00	4.03
	6-10	137	30.2	4.20	4.20
	11-15	78	17.2	4.40	4.36
	16-20	68	15.0	4.41	4.43
	21-25	41	9.0	4.40	4.45
	26-30	24	5.3	4.11	4.27
	31-35	8	1.8	4.20	4.41
	36-40	1	.2	5.00	4.87
Qualification	Master	265	58.4	4.10	4.15
	Doctorate	189	41.6	4.40	4.40
Department	Social	3	.7	2.75	3.13
	Psychology	22	4.8	3.30	3.54
	Science	135	29.7	3.84	3.96
	Education	257	56.6	4.42	4.42
	Language	37	8.1	4.86	4.80

The table shows data about demographic background of assessment for learning and constructive alignment, with a further classification by level of gender, age, teaching experiences, academic qualifications, and department. A steady but significant increase can be seen in the percentage of the respondents, which possessed gender (female). It was in line with competition increases to academic qualification and and department as well as the number of respondents' teaching experience and their age. Whereas by 265 (58.4 percent) out of 454 respondents belonged to master of academic qualification.

An analysis of the data by level of education shows 257 (56.6 percent) out of 454 respondents belonged to department of education. In teaching experience, only 1 (0.2 percents) out of 454 respondents came from the others. The lecturers who were teach between 6-10 years were considerable majority, of approximately 30.20

percentage. While the majority respondents 143 (31.5 percent) who aged between 36-40 years old. According to Sumanto (2014); Nuh and Gultom (2014); Kurniasih and Sani (2014), this age is as indicated and included as the productive respondents in experiences are. In summary, the majority of lecturers who were practice AfL and CA are female and had master qualification.

Assessment for learning (AfL) mean values for female (4.53) was higher than male (3.91). The analysis of t-test showed that the difference was significant at the 0.05 level. Table 4.2 below shows the analysis of Anova between Assessment for Learning (AfL) and gender.

Table 4. 2 : T-test Analysis of AfL and Gender

Assessment for Learning

	N	Mean	Std. Deviation	Std. Error
Male	197	3.9058	.26740	.01905
Female	257	4.5265	.19881	.01240
Total	454	4.2571	.38485	.01806

Findings show the data of gender (Male and Female), with a further classification by values of mean, standard deviation, and standard error of assessment for learning. An analysis of the data by values indicates positive response to the practice of AfL by looked at the gender difference. Total mean score of gender is 4.25 and standard deviation is 0.384 showed that they were higher than α 0.05.

Constructive Alignment (CA) mean value of female (4.49) was higher than male (3.86). The analysis of Anova showed that the difference was significant at the 0.05 level. Table 4.3 below shows the analysis of t-test between constructive Alignment (CA) and gender.

Table 4. 3 : T-test Analysis of CA and Gender

Constructive Alignment

	N	Mean	Std. Deviation	Std. Error
Male	197	3.8579	.33201	.02365
Female	257	4.4880	.26458	.01650
Total	454	4.2146	.43009	.02019

The findings show the data of gender, with a further classification of values of mean, standard deviation, and standard error of constructive alignment. An analysis of the data by values indicates a positive response to the practice of CA by looking at the gender difference. The total mean score of gender is 4.21 and the standard deviation is 0.43 showed that they were higher than α 0.05.

Assessment for Learning (AfL) mean values in terms of age showed the highest mean (4.60) for the 61 – 65 year age group followed by (4.43) for the 46 - 50 year age group, (4.41) 41 – 45, (4.40) 51 - 55, (4.35) 56 – 60, (4.20) 36 – 40, (4.10) 25 – 30, and (4.04) 31 - 35 year age group. There was a positive and significant correlation between age and AfL, where $r = 0.325$, $p < 0.000$, the relationship was weak. The pattern also showed that the higher in the age of the AfL values. Constructive Alignment (CA) mean values in terms of age showed the highest mean (4.41) for the 61 – 65 year age group followed by (4.40) for the 46 - 50 year age group, (4.34) 41 – 45, (4.33) 51 - 55, (4.23) 56 – 60, (4.20) 36 – 40, (4.02) 25 – 30, and (4.00) 31 - 35 year age group.

AfL mean values in terms of experience showed the highest mean (4.87) for the 36 - 40 year of experience followed by (4.45) for the 21 – 25 year of experience, (4.43) 16 - 20, (4.41) 31 - 35, (4.36) 11 – 15, (4.27) 26 – 30, (4.20) 6 – 10, and (4.03) 1 - 5 year of experience. There was a positive and significant correlation between experiences and AfL, where $r = 0.321$, $p< 0.000$, the relationship was weak. CA mean values in terms of experience showed the highest mean (5.00) for the 36 - 40 year of experience followed by (4.41) for the 16 - 20 year of experience, (4.40) 21 - 25 and 11 - 15, (4.20) 31 – 35 and 6-10, (4.11) 26 – 30, and (4.00) 1 - 5 year of experience. AfL mean values in terms of qualification showed the highest mean (4.40) for the doctorate and (4.15) for master, while CA mean values in terms of qualification showed the highest mean (4.40) for the doctorate and (4.10) for master. The t-test showed that the difference was significant at the 0.05 level.

AfL mean values in terms of department showed that the highest mean (4.80) for language, followed by (4.42) for education, (3.96) for science, (3.54) for psychology, and (3.13) for social department.. CA mean values in terms of

department showed that the highest mean (4.86) for language, followed by (4.42) for education, (3.84) for science, (3.30) for psychology and (2.75) for social department. This means that the lecturer in language department has a great understanding and practicing of AfL and CA compare with others.

4.3 Assessment for Learning (AfL) Practice

This part refers to data analysis of research question number one in terms of (i) sharing learning objectives, (ii) helping pupils to know and recognize the standard, (iii) Peer and Self-Assessment, (iv) Providing Feedback, (v) Promoting Confidence, and (vi) Involving in reviewing and reflecting. This study group respondents' gender, which classified 454 participants with 197 male and 257 female (Table 4.1). In addition, this study also looks at respondents' age, experience, qualification and the department (Table 4.1).

Table 4.4 showed the results of the analysis of each item to variable assessment for learning, in which each item consists of the analysis of percentage and mean. The number of items analyzed for variable assessment for learning was 41 items of the 6 constructs. The item was removed 11 items for variable assessment for learning as much as 50.

Table 4.4: Descriptive Analysis of Construct of Assessment for Learning (AfL)

Construct	Item	Options					Mean
		SD (1)	DA (2)	U (3)	A (4)	SA (5)	
Sharing Learning Objectives	B1	0.2	0.2	5.5	47.4	46.7	4.40
	B22	0.2	0.7	6.2	46.0	46.9	4.39
	B23	0	1.8	7.7	39.4	51.1	4.40
	B28	0	0.9	6.8	43.8	48.5	4.40
	B35	0.2	0.7	5.9	51.8	41.4	4.33
	B44	0	1.3	14.8	49.8	34.1	4.17
	B46	0.7	0.7	5.9	44.3	48.5	4.39
	B48	0.2	1.5	11.9	45.6	40.7	4.25
							4.34
Helping pupils to know and recognize the standard	B2	0.2	0.7	5.5	53.7	39.3	4.32
	B14	0	1.3	6.8	49.6	42.3	4.33
	B19	0	1.3	7.0	55.5	36.1	4.26
	B24	0.4	1.5	9.9	48.9	39.2	4.25

	B29	0	0.7	8.6	49.8	41.0	4.31
	B42	0.2	1.3	8.8	52.2	37.4	4.25
							4.29
Peer and Self-assessment	B3	0.4	1.5	7.3	47.6	43.2	4.31
	B15	0.4	2.9	15.4	42.1	39.2	4.17
	B32	0.2	2.0	16.1	57.0	24.7	4.04
	B36	1.1	1.8	9.3	51.3	36.6	4.20
	B43	0.2	3.7	13.4	46.7	35.9	4.14
	B45	0.7	6.6	17.8	42.3	32.6	4.00
	B47	0.2	5.1	13.2	46.5	35.0	4.11
							4.14
Providing feedback	B4	0.4	0.4	3.1	45.8	50.2	4.45
	B10	0	0	6.2	52.4	41.4	4.35
	B16	0.2	0.4	15.6	55.1	28.6	4.11
	B20	0	0.2	7.5	48.7	43.6	4.36
	B30	0.2	0.7	12.1	44.7	42.3	4.28
	B33	0.2	0.7	10.1	56.4	32.6	4.20
	B37	0.2	2.9	10.4	50.2	36.3	4.20
	B50	0.4	0.2	7.7	61.5	30.2	4.21
							4.27
Promoting Confidence	B5	0.2	0.2	6.8	46.0	46.7	4.39
	B11	0.2	0.2	7.0	42.5	50.0	4.42
	B21	0.2	1.5	9.3	51.5	37.4	4.24
	B26	0	0.2	7.9	45.4	46.5	4.38
	B34	0.2	0.4	6.8	51.1	41.4	4.33
	B41	0	0.9	9.0	43.2	46.9	4.36
							4.35
Involving in reviewing and reflecting	B6	0.9	6.8	14.8	43.4	34.1	4.03
	B27	0.2	0.7	9.9	51.1	38.1	4.26
	B31	0.2	0.9	7.5	49.6	41.9	4.32
	B38	0.2	2.6	12.1	48.5	36.6	4.19
	B39	0	0.7	9.9	46.3	43.2	4.32
	B49	0	1.3	9.3	66.7	22.7	4.11
							4.21

Since that, this study of the practice of assessment for learning and constructive alignment used a set of questionnaire with Likert Scale from 1 to 5 scales. The data gathered from the respondents was analyzed by using descriptive statistics to know the mean scores and standard deviation at the aspects assessment for learning practice (research question one) are analyzed in the following discussion.

4.3.1 Sharing Learning Objectives

Four hundred and fifty four respondents who responded to the construct of sharing learning objectives toward eight items were found in a very good result and ordered in an ordinal ranking of mean scores in a Table 4.5 as follows

Table 4.5 : Sharing Learning Objectives means Score and Standard Deviation of Assessment for Learning

Construct	Item	Options					Mean	Std. Deviation
		SD (1)	DA (2)	U (3)	A (4)	SA (5)		
Sharing Learning Objectives	B1	0.2	0.2	5.5	47.4	46.7	4.40	.625
	B23	0	1.8	7.7	39.4	51.1	4.40	.708
	B28	0	0.9	6.8	43.8	48.5	4.40	.656
	B46	0.7	0.7	5.9	44.3	48.5	4.39	.691
	B22	0.2	0.7	6.2	46	46.9	4.39	.654
	B35	0.2	0.7	5.9	51.8	41.4	4.38	.682
	B48	0.2	1.5	11.9	45.6	40.7	4.33	.639
	B44	0	1.3	14.8	49.8	34.1	4.25	.739
							4.34	

The table shows the mean scores and standard deviation of Assessment for Learning (AfL), with a further categorization by sharing learning objectives aspect (SLO) A steady ordered aspect of SLO and its significant findings can be seen in the mean score and standard deviation of the respondents. The SLO aspects of the respondents, obtained similarity of mean score and standard deviation, whereas by 4.40 mean scores of the lecturers' gave information to the students what they will learn at the beginning of the lesson (B1). The lecturers' perform brainstorming, as a routine activity (B44) was determined as the lowest order, with its mean score 4.16.

The mean scores and standard deviation of all respondents of the above indicated they were in a very good grade. They were between 4.17 as the lowest mean score and 4.40 as the highest mean scores which the respondents of sharing learning objectives.

4.3.2 Helping pupils to know and recognize the standard

There were 454 lecturers, who responded to the construct of helping pupils to know and recognize the standard toward 6 items were found in a very good result and ordered in an ordinal ranking of mean scores and standard deviation in a Table 4.6 as follow.

Table 4.6 : Helping Pupils to Know and Recognize the Standard means Score and Standard Deviation of Assessment for Learning

Construct	Item	Options					Mean	Std. Deviation
		SD (1)	DA (2)	U (3)	A (4)	SA (5)		
Helping pupils to know and recognize the standard	B14	0	1.3	6.8	49.6	42.3	4.33	.661
	B2	0.2	0.7	5.5	53.7	39.3	4.32	.629
	B29	0	0.7	8.6	49.8	41	4.31	.653
	B19	0	1.3	7	55.5	36.1	4.26	.645
	B42	0.2	1.3	8.8	52.2	37.4	4.25	.687
	B24	0.4	1.5	9.9	48.9	39.2	4.25	.729
							4.29	

Based on the table above, it can be seen that the mean scores and standard deviation of Assessment for Learning (AfL), with a further construct by helping pupils to know and recognize the standard (HP). The findings provide description of respondents' mean scores on descriptive statistics for the six items of helping pupils to know and recognize the standard as the one of the construct of AfL. The mean scores for each item of HP were varied. The lowest mean score was the item B24 about "the lecturers' have to know the students' need to reach the next stage in their learning" and item B42 about "the lecturers' expressed some of the criteria that must be fulfilled by students based on standard", were 4.25.; whereas, the highest one was offered by the item B.14 about "the lecturers' determines some aspects that match with the assessment standard", with its mean score was 4.33.

4.3.3 Peer and Self-Assessment

There 454 lecturers who were responded to the construct of peer and self-assessment as the part of AfL concepts. This construct consists of seven items and were very good grade and ordered in an ordinal ranking of mean scores and standard deviation in a Table 4.7 below.

Table 4.7 : Peer and Self- Assessment means Score and Standard Deviation of Assessment for Learning

Construct	Item	Options					Mean	Std. Deviation
		SD (1)	DA (2)	U (3)	A (4)	SA (5)		
Peer and Self-assessment	B3	0.4	1.5	7.3	47.6	43.2	4.31	.712
	B36	1.1	1.8	9.3	51.3	36.6	4.20	.766
	B15	0.4	2.9	15.4	42.1	39.2	4.17	.821
	B43	0.2	3.7	13.4	46.7	35.9	4.14	.802
	B47	0.2	5.1	13.2	46.5	35	4.11	.833
	B32	0.2	2	16.1	57	24.7	4.04	.711
	B45	0.7	6.6	17.8	42.3	32.6	4.00	.911
							4.14	

The mean scores and standard deviation of all respondents of AfL in terms of peer and self-assessment above indicated they were in a very good grade. They were between 4.00 as the lowest mean score (promote students to assess their friend's work) and 4.31 as the highest mean scores (the lecturers' support students' self-reflection) which the respondents acquired.

4.3.4 Providing Feedback

Eight items that had been fulfill by 454 respondents in the construct of providing feedback. Most of respondents were understood and practicing providing feedback in their teaching process. The mean score and standard deviation of the providing feedback construct as shown at the table 4.8 below.

Table 4.8 : Providing Feedback means Score and Standard Deviation of Assessment for Learning

Construct	Item	Options					Mean	Std. Deviation
		SD (1)	DA (2)	U (3)	A (4)	SA (5)		
Providing feedback	B4	0.4	0.4	3.1	45.8	50.2	4.45	.624
	B20	0	0.2	7.5	48.7	43.6	4.36	.627
	B10	0	0	6.2	52.4	41.4	4.35	.594
	B30	0.2	0.7	12.1	44.7	42.3	4.28	.716
	B50	0.4	0.2	7.7	61.5	30.2	4.21	.621
	B33	0.2	0.7	10.1	56.4	32.6	4.20	.658
	B37	0.2	2.9	10.4	50.2	36.3	4.20	.751
	B16	0.2	0.4	15.6	55.1	28.6	4.11	.684
							4.27	

The fourth construct of AfL was “providing feedback”, which consisted of 8 items. Those items were B4, B10, B16, B20, B30, B33, B37, and B50. The highest mean value was the item B4 about “the lecturers appreciate what the students have learned”, were 4.45, and the lowest mean value was the item B16 about “the lecturers instruct the students to perform the explanation during the learning process”, were 4.11.

4.3.5 Promoting Confidence

Promoting confidence was as one of the important construct in AfL. The lecturers who were respondents in this research got a good grade in practicing and understood it. Six items have to answer by the respondents. The mean value and standard deviation provided at the table 4.9 below.

Table 4.9 : Promoting Confidence mean score and standard deviation of Assessment for Learning

Construct	Item	Options					Mean	Std. Deviation
		SD (1)	DA (2)	U (3)	A (4)	SA (5)		
Promoting Confidence	B11	0.2	0.2	7	42.5	50	4.42	.652
	B5	0.2	0.2	6.8	46	46.7	4.39	.644
	B26	0	0.2	7.9	45.4	46.5	4.38	.639
	B41	0	0.9	9	43.2	46.9	4.36	.682
	B34	0.2	0.4	6.8	51.1	41.4	4.33	.642
	B21	0.2	1.5	9.3	51.5	37.4	4.24	.700
							4.35	

The fifth construct of AfL was “promoting confidence”, which consisted of 6 items. Those items were B5, B11, B21, B26, B34, and B41. The highest mean value was item B11 about “the lecturers stimulate the students to establish their confidence”, were 4.42, and the standard deviation were 0.65 and the lowest mean value was item B21 about “the lecturers inquire the students what they have achieved”, were 4.24.

4.3.6 Involving in Reviewing and Reflecting

Four hundred and fifty four respondents who responded to the construct of involving in reviewing and reflecting toward six items were found in a very good grade and ordered in an ordinal ranking of mean scores in a Table 4.10 as follow

Table 4.10 : Involving in reviewing and reflecting mean score and standard deviation of Assessment for Learning

Construct	Item	Options					Mean	Std. Deviation
		SD (1)	DA (2)	U (3)	A (4)	SA (5)		
Involving in reviewing and reflecting	B31	0.2	0.9	7.5	49.6	41.9	4.32	0.669
	B39	0	0.7	9.9	46.3	43.2	4.32	0.675
	B27	0.2	0.7	9.9	51.1	38.1	4.26	0.677
	B38	0.2	2.6	12.1	48.5	36.6	4.19	0.761
	B49	0	1.3	9.3	66.7	22.7	4.11	0.601
	B6	0.9	6.8	14.8	43.4	34.1	4.03	0.918
							4.21	

The sixth construct of AfL was "involving in reviewing and reflecting", which consisted of 6 items. Those items were B6, B27, B31, B38, B39, and B49. The highest mean value was item B31 about the lecturers provide time for the students to reflect what they have learned. Item B39 about "the lecturers provide time for the students to identify their learning difficulties", were 4.3, and the lowest mean value was the item B6 about "the lecturers discussed with the students in reviewing the papers test", were 4.03.

Overall, the findings of this study show that assessment for learning practice at the university in Indonesia had mean value = 4.26, it showed the understanding and practicing of lecturers in assessment for learning at the university at the highest level.

4.4 Constructive Alignment (CA) Practice

Table 4.11 showed the results of the analysis of each item to variable constructive alignment, which was consisted of the analysis of percentage and mean.

The number of items analyzed for variable constructive alignment were 38 items from 5 constructs.

Table 4.11: Descriptive Analysis of Construct of CA

Construct	Item	Options					Mean
		SD (1)	DA (2)	U (3)	A (4)	SA (5)	
Learning Outcomes	C51	0.7	1.3	19.6	61.5	17.0	3.93
	C54	0	1.1	7.5	50.4	41.0	4.31
	C57	0.2	1.5	16.3	43.6	38.3	4.18
	C63	0	1.1	7.0	47.1	44.7	4.35
	C66	0.4	2.4	8.1	63.2	25.8	4.11
	C68	0.2	2.4	11.9	55.1	30.4	4.13
	C72	0.2	3.3	7.3	53.5	35.7	4.21
	C76	0.4	1.3	7.5	48.9	41.9	4.30
	C78	0.2	0.9	4.8	54.2	39.9	4.33
	C82	0.2	0.2	8.6	60.8	30.2	4.20
	C84	0.2	2.0	12.3	57.0	28.4	4.11
	C87	0.2	2.6	12.8	45.2	39.2	4.20
							4.20
Syllabus	C52	0	0.4	6.2	55.3	38.1	4.31
	C59	0.2	0.4	6.4	43.6	49.3	4.41
	C65	0	1.1	10.8	57.7	30.4	4.17
	C71	0.9	6.4	6.8	47.8	38.1	4.16
	C74	0.2	2.0	11.0	49.1	37.7	4.22
	C89	0	0.2	6.8	42.1	50.9	4.44
							4.29
Students Learning Times	C53	0.7	2.4	13.7	50.7	32.6	4.12
	C55	0	1.8	11.2	48.0	39.0	4.24
	C56	1.3	5.9	17.8	42.1	32.8	3.99
	C70	0.7	2.6	14.3	47.1	35.2	4.14
	C86	0.7	2.9	15.4	44.9	36.1	4.13
							4.12
Assessment Task	C58	0	1.1	7.7	52.2	39.0	4.29
	C60	0	0.2	5.7	47.8	46.3	4.40
	C61	0	0.4	6.4	47.1	46.0	4.39
	C64	0.4	1.5	17.4	57.0	23.6	4.02
	C69	0.9	5.5	17.8	42.5	33.3	4.02
	C73	0	5.9	16.1	46.3	31.7	4.04
							4.19
Teaching and Learning Activities	C75	0	1.1	7.0	49.1	42.7	4.33
	C77	0	0.7	8.4	48.5	42.5	4.33
	C79	0	2.0	11.5	44.9	41.6	4.26
	C80	0.2	1.5	10.1	46.7	41.4	4.28
	C81	0.9	2.2	17.2	56.2	23.6	3.99
	C83	0.7	1.3	10.1	56.6	31.3	4.17
	C85	0	0.7	8.4	53.1	37.9	4.28
	C88	0.2	0.2	4.6	45.6	49.3	4.44
	C90	0	0.9	9.3	42.5	47.4	4.36
							4.26

4.4.1 Learning Outcomes

Learning outcomes as the part of constructive alignment construct. There 454 respondents of the lecturer in Indonesia fulfill. They were orientated to practicing and understood the conception of learning outcomes through 12 items of questionnaire of constructive Alignment. Each respondent resulted mean score, which described learning outcomes items. The grades were ordered based on formulation mean scores and standard deviation as shown in Table 4.12 as follows.

Table 4.12 : Learning outcomes mean score and standard deviation of Constructive Alignment

Construct	Item	Options					Mean	Std. Deviation
		SD (1)	DA (2)	U (3)	A (4)	SA (5)		
Learning Outcomes	C63	0	1.1	7	47.1	44.7	4.35	.661
	C78	0.2	0.9	4.8	54.2	39.9	4.33	.630
	C54	0	1.1	7.5	50.4	41	4.31	.657
	C76	0.4	1.3	7.5	48.9	41.9	4.30	.703
	C72	0.2	3.3	7.3	53.5	35.7	4.21	.733
	C87	0.2	2.6	12.8	45.2	39.2	4.20	.778
	C82	0.2	0.2	8.6	60.8	30.2	4.20	.613
	C57	0.2	1.5	16.3	43.6	38.3	4.18	.772
	C68	0.2	2.4	11.9	55.1	30.4	4.13	.724
	C66	0.4	2.4	8.1	63.2	25.8	4.11	.681
	C84	0.2	2	12.3	57	28.4	4.11	.703
	C51	0.7	1.3	19.6	61.5	17	3.93	.688
							4.20	

The figures in a table above reveal the average of the lecturer were responsibility to contribute to the students' learning outcomes (C63) by 4.35 mean score and its standard deviation by .661 becoming the highest of all. In the other hand, the learning outcomes were provided on the subject (C51) was the lowest level by mean score 3.93 and its standard deviation .668. Furthermore, it can be said that the practiced of providing learning outcomes by the lecturers in Indonesia categorized low level.

4.4.2 Syllabus

There 454 respondents of the lecturer in Indonesia fulfill. They were orientated to practicing and understood the conception of syllabus through 6 items of

questionnaire of constructive Alignment. Each respondent resulted mean score, which described syllabus items. The grades were ordered based on formulation mean scores and standard deviation as shown in Table 4.13 as follows.

Table 4.13 : Syllabus mean score and standard deviation of Constructive Alignment

Construct	Item	Options					Mean	Std. Deviation
		SD (1)	DA (2)	U (3)	A (4)	SA (5)		
Syllabus	C89	0	0.2	6.8	42.1	50.9	4.44	.630
	C59	0.2	0.4	6.4	43.6	49.3	4.41	.651
	C52	0	0.4	6.2	55.3	38.1	4.31	.604
	C74	0.2	2	11	49.1	37.7	4.22	.734
	C65	0	1.1	10.8	57.7	30.4	4.17	.653
	C71	0.9	6.4	6.8	47.8	38.1	4.16	.872
							4.29	

Table 4.11 above shows that the item C89 (lecturers compile a syllabus that was equipped with assessment techniques) was categorized as the highest level by 4.44 mean score and .630 standard deviation. While the lecturer design syllabus based on the students' learning times (C71) was categorized the lowest level by mean score 4.16 and its standard deviation was .872.

4.4.3 Students Learning Times

Four hundred and fifty four respondents who responded to the construct of students' learning times toward five items were found in a very good grade and ordered in an ordinal ranking of mean scores in a Table 4.14 as follows.

Table 4.14 : Students' Learning Times mean score and standard deviation of Constructive Alignment

Construct	Item	Options					Mean	Std. Deviation
		SD (1)	DA (2)	U (3)	A (4)	SA (5)		
Students Learning Times	C55	0	1.8	11.2	48	39	4.24	.718
	C70	0.7	2.6	14.3	47.1	35.2	4.14	.802
	C86	0.7	2.9	15.4	44.9	36.1	4.13	.821
	C53	0.7	2.4	13.7	50.7	32.6	4.12	.778
	C56	1.3	5.9	17.8	42.1	32.8	3.99	.930
							4.12	

The third construct of CA was “students learning times”, which consisted of five items. Those items were C53, C55, C56, C70, and C86. The highest mean value was the item C55 about “lecturers devote to some time to give some strategies to learn in the best way”, were 4.24. The lowest mean value was the item C56 about “lecturers ask students work on projects that require at least two weeks to complete”, were 3.99.

4.4.4 Assessment Task

Assessment task as the part of constructive alignment construct. There 454 respondents of the lecturer in Indonesia fulfill. They were orientated to practicing and understood the conception of learning outcomes through 6 items of questionnaire of constructive Alignment. Each respondent resulted mean score, which described assessment task items. The grades were ordered based on formulation mean scores and standard deviation as shown in Table 4.15 as follow

Table 4.15 : Assessment Task mean score and standard deviation of Constructive Alignment

Construct	Item	Options					Mean	Std. Deviation
		SD (1)	DA (2)	U (3)	A (4)	SA (5)		
Assessment Task	C60	0	0.2	5.7	47.8	46.3	4.40	.607
	C61	0	0.4	6.4	47.1	46	4.39	.626
	C58	0	1.1	7.7	52.2	39	4.29	.654
	C73	0	5.9	16.1	46.3	31.7	4.04	.846
	C64	0.4	1.5	17.4	57	23.6	4.02	.715
	C69	0.9	5.5	17.8	42.5	33.3	4.02	.901
							4.19	

The fourth construct of CA was “assessment task”, which consisted of six items. Those items were C58, C60, C61, C64, C69 and C73. The highest mean value was the item C60 about “lecturers set up assessment tasks based on the learning objectives”, were 4.40. The lowest mean value was the item C64 about “lecturers plan an assessment task which relates to real life” and item C69 about “lecturers assess their students by peer assessment than group assessment”, were 4.02.

4.4.5. Teaching and Learning Activities

There 454 respondents of the lecturer in Indonesia fulfill. They were orientated to practicing and understood the conception of teaching and learning activities through 9 items of questionnaire of constructive Alignment. Each respondent resulted mean score, which described teaching and learning activities items. The grades were ordered based on formulation mean scores and standard deviation as shown in Table 4.16 as follows.

Table 4.16 : Teaching and Learning Activities mean score and standard deviation of Constructive Alignment

Construct	Item	Options					Mean	Std. Deviation
		SD (1)	DA (2)	U (3)	A (4)	SA (5)		
Teaching and Learning Activities	C88	0.2	0.2	4.6	45.6	49.3	4.44	.616
	C90	0	0.9	9.3	42.5	47.4	4.36	.686
	C75	0	1.1	7	49.1	42.7	4.33	.656
	C77	0	0.7	8.4	48.5	42.5	4.33	.655
	C85	0	0.7	8.4	53.1	37.9	4.28	.641
	C80	0.2	1.5	10.1	46.7	41.4	4.28	.723
	C79	0	2	11.5	44.9	41.6	4.26	.737
	C83	0.7	1.3	10.1	56.6	31.3	4.17	.707
	C81	0.9	2.2	17.2	56.2	23.6	3.99	.759
							4.26	

The fifth construct of CA was “teaching and learning activities”, which consisted of nine items. Those items were C75, C77, C79, C80, C81, C83, C85, C88, and C90. The highest mean value was item C88 about “the lecturers ask questions to stimulate students' reflection”, were 4.44. The lowest mean value was item C81 about “the lecturers encourage students to answer questions or out of class assignments that involve research”, were 3.99.

Overall, it can be said that Constructive alignment practice at the university in Indonesia had mean value = 4.21, it showed that the practicing and understanding of the lecturers in the constructive alignment at the university categorized at the high level.

4. 5 Inferential Statistical Analysis of AfL and CA

This section discussed the findings of a study on the relationship between assessment for learning and constructive alignment, thus answered the third research questions of the study.

4.5.1 The Relationship between AfL and CA

The analysis showed the relationship of each variable strengthens of assessment for learning and constructive alignment. Whereas will be answered the null hypothesis ($H_0$1) in this study. It showed the value of the correlation coefficient (*r*) and significance level (*sig.*) of each variable. Table 4.17 showed the results of the following:

Table 4.17: The Result of Correlation Analysis between AfL and CA

			Constructive Alignment					
			Learning Outcomes	Syllabus	Teaching Learning Activities	Assessment Tasks	Student Learning Times	Constructive Alignment
Assessment for Learning	Sharing Learning Objectives	Pearson Correlation	.674**	.662**	.664**	.609**	.608**	.724**
		Sig. (2-tailed)	.000	.000	.000	.000	.000	.000
		N	454	454	454	454	454	454
	Helping Pupils	Pearson Correlation	.714**	.692**	.655**	.654**	.650**	.760**
		Sig. (2-tailed)	.000	.000	.000	.000	.000	.000
		N	454	454	454	454	454	454
	Peer and Self-Assessment	Pearson Correlation	.685**	.691**	.664**	.714**	.708**	.786**
		Sig. (2-tailed)	.000	.000	.000	.000	.000	.000
		N	454	454	454	454	454	454
	Providing Feedback	Pearson Correlation	.670**	.637**	.633**	.593**	.617**	.709**
		Sig. (2-tailed)	.000	.000	.000	.000	.000	.000
		N	454	454	454	454	454	454
	Promoting Confidence	Pearson Correlation	.651**	.647**	.590**	.535**	.587**	.675**
		Sig. (2-tailed)	.000	.000	.000	.000	.000	.000
		N	454	454	454	454	454	454
	Involving reviewing reflecting	Pearson Correlation	.750**	.755**	.651**	.720**	.720**	.814**
		Sig. (2-tailed)	.000	.000	.000	.000	.000	.000
		N	454	454	454	454	454	454
	Assessment for Learning	Pearson Correlation	.852**	.817**	.758**	.766**	.777**	.896**
		Sig. (2-tailed)	.000	.000	.000	.000	.000	.000
		N	454	454	454	454	454	454

Table 4.17 showed the relationship of assessment for learning at the first was the sharing learning objectives indicators with learning outcomes that there was a positive and significant relationship with the value of r = 0.674, p <0.000, where the strength of the relationship was moderate (Najib, 1999). The correlation between sharing learning objectives and syllabus was a positive relationship with the value of r = 0.664 (p <0.000) where the strength of the relationship was moderate.

The correlation between sharing learning objectives with teaching and learning activities that there was a positive relationship with the value of r = 0.679 (p <0.000) where the strength of the relationship was moderate. The correlation between sharing learning objectives and assessment task was a positive relationship with the value of r = 0.608 (p <0.000) where the strength of the relationship was moderate.

The correlation between sharing learning objectives and students learning times was a positive relationship with the value of r = 0.609 (p < 0.000) where the strength of the relationship was moderate. The correlation between sharing learning objectives and constructive alignment was a positive relationship with the value of r = 0.726 (p <0.000) where the strength of the relationship was high.

Table 4.17 showed the relationship assessment for learning in the first was the helping pupils to know and recognize the standard indicators with learning outcomes was a positive and significant relationship with the value of r = 0.714 (p <0.000) where the strength of the relationship was high. The correlation between helping pupils to know and recognize the standard and syllabus was a positive relationship with the value of r = 0.655 (p <0.000) where the strength of the relationship was moderate. The correlation between helping pupils to know and recognize the standard and teaching and learning activities was a positive relationship with the value of r = 0.709 (p <0.000) where the strength of the relationship was high.

The correlation between helping pupils to know and recognize the standard and assessment task was a positive relationship with the value of r = 0.650 (p <0.000) where the strength of the relationship was moderate. The correlation between helping pupils to know and recognize the standard and students learning times was a positive relationship with the value of r = 0.654 (p <0.000) where the strength of the relationship was moderate. The correlation between helping pupils to know and recognize the standard and constructive alignment was a positive relationship with the value of r = 0.762 (p <0.000) where the strength of the relationship was high.

Table 4.17 showed the relationship assessment for learning at the first was the peer and self-assessment and learning outcomes was a positive and significant relationship with the value of r = 0.685 (p <0.000) where the strength of the relationship was moderate. The correlation between peer and self-assessment and syllabus was a positive relationship with the value of r = 0.664 (p <0.000) where the strength of the relationship was moderate. The correlation between peer and self-assessment and teaching and learning activities was a positive relationship with the value of r = 0.707 (p <0.000) where the strength of the relationship was high.

The correlation between peer and self-assessment and assessment task was a positive relationship with the value of r = 0.708 (p <0.000) where the strength of the relationship was high. The correlation between peer and self-assessment and students learning times was a positive relationship with the value of r = 0.714 (p <0.000) where the strength of the relationship was high. The correlation between peer and self-assessment and constructive alignment was a positive relationship with the value of r = 0.776 (p <0.000) where the strength of the relationship was high.

The correlation between providing feedback and learning outcomes was a positive and significant relationship with the value of r = 0.670 (p <0.000) where the strength of the relationship was moderate. The correlation between providing feedback and syllabus was a positive relationship with the value of r = 0.633 (p <0.000) where the strength of the relationship was moderate. The correlation between providing feedback and teaching and learning activities was a positive

relationship with the value of r = 0.649 (p <0.000) where the strength of the relationship was moderate.

The correlation between providing feedback and assessment task that there was a positive relationship with the value of r = 0.617 (p <0.000) where the strength of the relationship was moderate. The correlation between providing feedback and students learning times was a positive relationship with the value of r = 0.593 (p <0.000) where the strength of the relationship was moderate. The correlation between providing feedback and constructive alignment was a positive relationship with the value of r = 0.712 (p <0.000) where the strength of the relationship was high.

The correlation between promoting confidence and learning outcomes was a positive and significant relationship with the value of r = 0.651 (p <0.000) where the strength of the relationship was moderate. The correlation between promoting confidence and syllabus was a positive relationship with the value of r = 0.590 (p <0.000) where the strength of the relationship was moderate. The correlation between promoting confidence and teaching and learning activities was a positive relationship with the value of r = 0.665 (p <0.000) where the strength of the relationship was moderate.

The correlation between promoting confidence and assessment task was a positive relationship with the value of r = 0.587 (p <0.000) where the strength of the relationship was moderate. The correlation between promoting confidence and students learning times was a positive relationship with the value of r = 0.535(p <0.000) where the strength of the relationship was moderate. The correlation between promoting confidence and constructive alignment was a positive relationship with the value of r = 0.768 (p <0.000) where the strength of the relationship was moderate.

The correlation between involving in reviewing and reflecting and learning outcomes was a positive and significant relationship with the value of r = 0.750

($p < 0.000$) where the strength of the relationship was high. The correlation between involving in reviewing and reflecting and syllabus was a positive relationship with the value of $r = 0.651$ ($p < 0.000$) where the strength of the relationship was moderate. The correlation between involving in reviewing and reflecting and teaching and learning activities was a positive relationship with the value of $r = 0.763$ ($p < 0.000$) where the strength of the relationship was high.

The correlation between involving in reviewing and reflecting and assessment task was a positive relationship with the value of $r = 0.720$ ($p < 0.000$) where the strength of the relationship was high. The correlation between involving in reviewing and reflecting and students learning times was a positive relationship with the value of $r = 0.720$ ($p < 0.000$) where the strength of the relationship was high. The correlation between involving in reviewing and reflecting and constructive alignment was a positive relationship with the value of $r = 0.814$ ($p < 0.000$) where the strength of the relationship was high.

The correlation between assessment for learning and learning outcomes was a positive and significant relationship with the value of $r = 0.794$ ($p < 0.000$) where the strength of the relationship was high. The correlation between assessment for learning and syllabus was a positive relationship with the value of $r = 0.742$ ($p < 0.000$) where the strength of the relationship was high. The correlation between assessment for learning and teaching and learning activities was a positive relationship with the value of $r = 0.800$ ($p < 0.000$) where the strength of the relationship was high.

The correlation between assessment for learning and assessment task was a positive relationship with the value of $r = 0.749$ ($p < 0.000$) where the strength of the relationship was high. The correlation between assessment for learning and students learning times was a positive relationship with the value of $r = 0.739$ ($p < 0.000$) where the strength of the relationship was high. There was the relationship between assessment for learning and constructive alignment was a positive relationship with the value of $r = 0.896$, ($p < 0.000$), the strength of the relationship was high. The findings of this study indicated that there was a significant relationship between

assessment for learning and constructive alignment. This means that, the null hypothesis $H_0$1: there was no significant relationship between assessment for learning and constructive alignment was rejecting.

4.5.2 The Relationship between Demographic Factors with AfL and CA

The analysis showed the relationship of each variable between demographic factors with assessment for learning and constructive alignment. There were three hypotheses, first hypothesis there was no significant correlation between gender with assessment for learning and constructive alignment ($H_0$21), second hypothesis there was no significant correlation between age with assessment for learning and constructive alignment ($H_0$22), third hypothesis there was no significant correlation between teaching experience with assessment for learning and constructive alignment ($H_0$23).

4.5.2.1 The Relationship between AfL and CA based on gender

Based on the correlation analysis, it was no significant correlation between gender with assessment for learning and constructive alignment. The data showed that gender has a positive correlation with assessment for learning with the r = 0.800 and *sig.* = 0.000 and gender to constructive alignment with the r = 0.727 and *sig.* = 0.000, as shown at the table 4.18 below. It can be said that there a significant correlation between gender with assessment for learning and constructive alignment ($H_0$21) or $H_0$21 accepted.

Table 4.18: The Result of Correlation Analysis between AfL and CA based on Gender

		Assessment for Learning	Constructive Alignment
GENDER	Pearson Correlation	.800**	.727**
	Sig. (2-tailed)	.000	.000
	N	454	454

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

(*Source*: SPSS 20 Analysis, 2014)

4.5.2.2 The Relationship between AfL and CA based on Age

Based on the correlation analysis was no significant correlation between age with assessment for learning and constructive alignment. The data showed that age has a positive correlation with assessment for learning with r = 0.325 and p = 0.000 and age to constructive alignment with r = 0.269 and $p.$ = 0.000, as shown at the table 4.19 below. There was a significant correlation between age with assessment for learning and constructive alignment ($H_0$22) or $H_0$22 accepted.

Table 4.19: The Result of Correlation Analysis between Afl and CA based on Age

		Assessment for Learning	Constructive Alignment
AGE	Pearson Correlation	.325**	.269**
	Sig. (2-tailed)	.000	.000
	N	454	454

**. Correlation was significant at the 0.01 level (2-tailed).
(*Source*: SPSS 20 Analysis, 2014)

4.5.2.3 The Relationship between AfL and CA based on Teaching Experience

Based on the correlation analysis was no significant correlation between teaching experience and assessment for learning and constructive alignment. The data showed that teaching experience has positive correlation with assessment for learning with the r = 0.321 and $p.$ < 0.000 and teaching experience to constructive alignment with the r = 0.248 and $p.$<0.000, as shown in the table 4.20 below. There was a significant correlation between teaching experience with assessment for learning and constructive alignment ($H_0$23) or $H_0$23 accepted.

Table 4.20. The Result of Correlation Analysis between AfL and CA based on Teaching Experience

		Assessment for Learning	Constructive Alignment
EXPERIENCE	Pearson Correlation	.248**	.321**
	Sig. (2-tailed)	.000	.000
	N	454	454

**. Correlation was significant at the 0.01 level (2-tailed).
(*Source*: SPSS 20 Analysis, 2014)

4.6.3 The Differentiate between Demographic Factors with AfL and CA

The analysis showed that the differentiation of each variable between demographic factors with assessment for learning with constructive alignment. There were three hypotheses, first; there was no significant different between gender with assessment for learning and constructive alignment ($H_0$31), second; there was no significant different between academic qualification with assessment for learning and constructive alignment ($H_0$32), third; there was no significant different between department with assessment for learning and constructive alignment ($H_0$33).

4.6.3.1 The Differentiate between Gender with AfL and CA

The data analysis on differentiate between gender with assessment for learning and constructive alignment showed a significant difference. It was obtained out of sig. = 0.000, as shown in table 4.21 below. There was no significant different between gender with assessment for learning and constructive alignment ($H_0$31) or $H_0$31 rejected. It showed that there was significant difference between gender toward Assessment for Learning and Constructive Alignment.

Table 4.21: The Result of Differentiate Analysis between AfL and CA based on Gender

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	GENDER - Constructive Alignment	-2.64850	.34777	.01632	-2.68058	-2.61643	-162.267	453	.000
Pair 1	GENDER - Assessment for Learning	-2.69106	.29782	.01398	-2.71853	-2.66359	-192.531	453	.000

(*Source*: SPSS 20 Analysis, 2014)

4.6.3.2 The Differentiate between Academic Qualification with AfL and CA

The result of the data analysis of the differences between academic qualification with assessment for learning and constructive alignment showed a significant difference. It was obtained out of sig. = 0.000, as shown in the table 4.22 below. There was no significant different between academic qualification with assessment for learning and constructive alignment ($H_0$32) or $H_0$32 rejected. It showed that there was significant difference between the academic qualification against Assessment for Learning and Constructive Alignment.

Table 4.22: The Result of Differentiate Analysis between AfL and CA based on Academic Qualification

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Academic Qualification – CA	-2.79828	.53100	.02492	-2.84726	-2.74931	-112.286	453	.000
Pair 1	Academic Qualification - AfL	-2.84084	.51885	.02435	-2.88869	-2.79298	-116.663	453	.000

(*Source*: SPSS 20 Analysis, 2014)

4.6.3.3 The Differentiate between Department with AfL and CA

The results of the data analysis of the differences between departments with assessment for learning and constructive alignment showed a significant difference. It was obtained out of sig. = 0.000, as shown in table 4.23 below. There was no significant difference between the department with assessment for learning and constructive alignment (H033) or H033 rejected. It showed that there was a significant difference between the department against an Assessment for Learning and Constructive Alignment.

Table 4.23: The Result of Differentiate Analysis between AfL and CA based Department

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Department-Constructive Alignment	-.54718	.37713	.01770	-.58196	-.51240	-30.915	453	.000
Pair 1	Department-Assessment for Learning	-.58974	.47329	.02221	-.63339	-.54608	-26.549	453	.000

(*Source*: SPSS 20 Analysis, 2014)

4.6.4 Normality and Linearity

The distribution of data should be analyzed to see if the assumption of normality was fulfilled so that the data can be processed further by modeling the SEM. Normality can be tested with data or the histogram image and can be tested using a statistical model. Normality test was performing using skewness test that showed almost all normal variables at the 0.01 level (1%). This can be seen in the CR of skewness which was under ± 2.58 (Arbuckle, 1997). The multivariate value of the test was a multivariate kurtosis coefficient, when the results obtained were still below the limit of ± 2.58; this means there was data used multivariate normal distribution.

Table 4.24: Normality and Linearity

Variable	min	max	skew	c.r.	kurtoswas	c.r.
TLA	2.670	5.000	-.471	-4.098	.021	.093
AT	2.330	5.000	-.484	-4.211	-.103	-.450
SLT	1.600	5.000	-.787	-6.845	.556	2.416
SYL	2.670	5.000	-.699	-6.084	.599	2.604
LO	2.080	5.000	-.878	-7.636	1.667	7.250
DEPT	1.000	5.000	-.597	-5.191	.794	3.454
EXP	1.000	8.000	.744	6.476	-.191	-.831
QUAL	1.000	2.000	.340	2.954	-1.885	-8.197
AGE	1.000	8.000	.414	3.604	-.668	-2.904
GENDER	1.000	2.000	-.267	-2.320	-1.929	-8.389
IRR	2.170	5.000	-.635	-5.523	.245	1.064
PC	2.500	5.000	-.716	-6.232	.736	3.202
PF	2.500	5.000	-.712	-6.193	1.176	5.115
PSA	2.290	5.000	-.650	-5.655	.245	1.067
HP	2.670	5.000	-.536	-4.663	.214	.930
SLO	2.880	5.000	-.597	-5.197	.217	.943
Multivariate					71.816	31.879

4.6.4.1 Adjusted Goodness of Fit CMIN

Further analysis showed the output of the Model Fit. Test that showed Adjusted Goodness of Fit the first was CMIN, can be shown in Table 4.25.

Table 4.25 CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	35	1136.600	101	.000	11.253
Saturated model	136	.000	0		
Independence model	16	6912.000	120	.000	57.600

Chi Square test results Goodness-of-fit of the model $\chi 2$ (N = 454, df = 101) = 1136.600, p> .05, which was not significant. Based on the results of this analysis, the researcher failed to reject the null hypotheswas, and reported that the measurement model proposed by the researchers matched data.

4.6.4.2 Incremental Fit Indices

Further analysis showed that the Baseline Comparison output, values measuring tool NFI, RFI, IFI, TLI, and CFI on line Default Model. If the measuring instrument was close to 1 (one), then the model was said to be Fit, can be seen in Table 4.26.

Table 4.26: Baseline Comparison

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.836	.805	.848	.819	.848
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

The index value equivalence NFI, IFI, TLI, CFI and NFI in the Table 4.38 was more than 0.80 (from .805 to .848) for this model. Equivalence values that exceeds.80 confirming Chi Square Goodness-of-Fit that researcher proposed measurement model corresponds to the data of the study.

4.6.4.3 Parsimony Fit Indice

While the ratio of measuring instruments, PNFI, and CFI was in the interval 0 to 1, then the model said to fit, as shown in Table 4.27.

Table 4.27 Parsimony-Adjusted Measures

Model	PRATIO	PNFI	PCFI
Default model	.842	.703	.713
Saturated model	.000	.000	.000
Independence model	1.000	.000	.000

The calculation results in the line Default Model indicated that the ratio, PNFI, and CFI were in the interval from 0 to 1. The model was fit.

4.6.5 Model of Assessment for Learning and Constructive Alignment

This section discussed inferential data analysis using the Structural Equation Model (SEM). This analysis was use to propose a model of the variables consisting of independent variables of constructive alignment, dependent variable which assessment for learning and moderator variables, namely demography respondents.

SEM used model test method in the verification stage model and hypothesis testing. Once the model was specified (fit) with the existing criteria, the researchers were able to extend the analysis to examine the relationship between a set of variables or influence in relation to that used in hypothesis testing stage. Before creating and testing the structural model in SEM, first do a test on the factors that make up each variable.

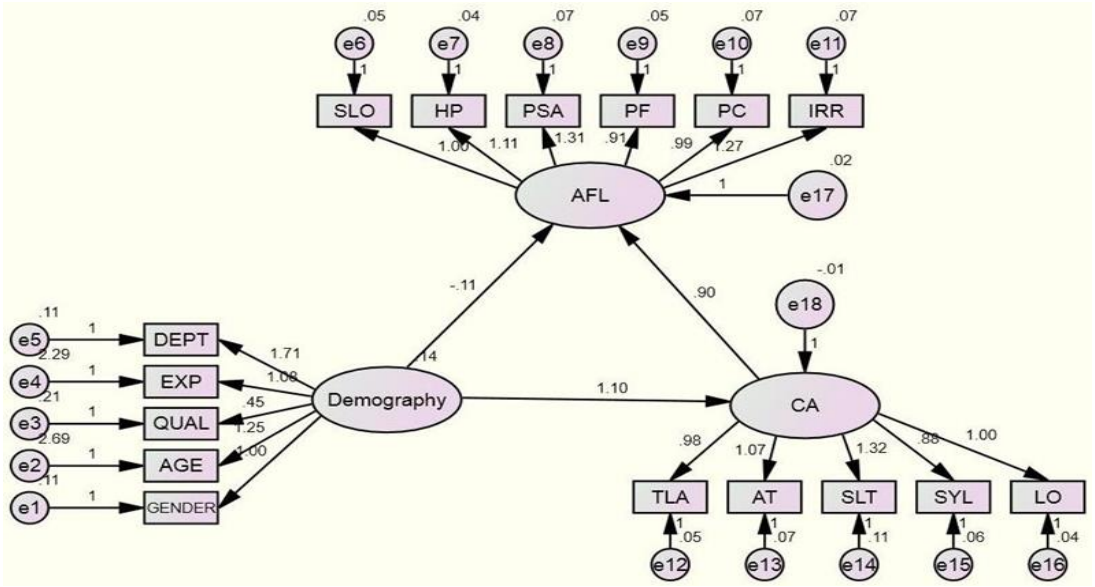

Figure 4. 1 : The Results of SEM analysis

Figure 4.1 showed the results of SEM analysis using AMOS software. In conducting qualification test research model, there were several assumptions of SEM that have to be achieved, namely sample size, normality and linearity, outliers, and multicollinearity.

4.7 Qualitative Data Analysis

Data was also using interviews to support the quantitative data. Data was analysis the thematic only based on the construct, as determined before in the quantitative method. It found all the constructs to be existed by the respondents.

4.7.1 Assessment for Learning Practice

The analysis found six themes related to assessment for learning that was: (i) formulating learning goals, (ii) provide insight to students about the purpose of teaching, (iii) knowing that the purpose of teaching that can be understood by students, (iv) reflecting the learning outcomes for students, (v) improve self-esteem

of students to teaching provided, and (vi) involving students in assessing learning outcomes.

4.7.1.1 Formulating Teaching Objective

Analysis of the interviews found that in formulating a lecturer teaching objective must provide information to students about the material to learn at the beginning of the lesson. The respondent DS / Lang / P-02 made these statements that:

> *Okay, sir... if you ask me based on my experience as a lecturer until today, some of the steps I did in formulating the learning objectives, such as…inform students about what was to be studied at the beginning of the course ... this was the first time I had to do.*

Statement respondents DS / Lang / P-02 was also supported by respondents DS / Edu / P-01, which states that in formulating teaching objectives can be done by providing information about the materials that will be taught, discussed what must be done to achieve the goal of teaching and provides questions that relate to the subject of research. Respondents DS / Edu / P-01 said,

> *Usually sir ... the steps that I took ... like ... gives information about what will be learned at the beginning of the lecture ... then I usually do a discussed with the student what needs to be done to achieve the learning objectives. In addition, the next ... I usually offer some questions to students associated with the material to be delivered*.

Different views presented by the respondents DS / Sci / L-05. He said that in formulating a lecturer-teaching objective must provide the module before teaching starts, giving questions based on teaching objectives be achieved and provides information on what must be learned. Respondents DS / Sci / L-05 argued,

> *In my opinion, it was definitely sir, well... we have to provide the module before learning begins ... the first ... furthermore provide some questions to the students based on the learning objectives to be achieved. Therefore, to provide information to students about what they should have learned at the beginning of the term.*

Respondents DS / Psy / L-03 and DS / Edu / P-01 also supported respondents' views DS / Sci / L-05. Respondents DS / Psy / L-03 states that in formulating teaching objectives a course lecturer provides modules, provides information and questions regarding the material to be taught a lesson. He added that teaching materials to clarify in advance, giving questions about teaching objectives and giving quizzes as a basic for assessing the results of teaching carried. Respondents DS / Psy / L-03 said,

> *In formulating the learning objectives ... before I provide modules ... furthermore provide some questions to the students ... to provide information to students about what they should have learned ... eemmm ... so sir ... usually I first explain about what to do at the beginning of the student's learning. Then, anyway... I put the question to the student based on the learning objectives. Finally yet importantly was ... preparing quizzes as a basic for evaluating the learning process. I think so, sir...*

Another view presented by the respondent DS / Soc / L-04 that in formulating a lecturer teaching objective must implement brainstorming as a routine activity in early studies, delivering teaching materials and organized students to prepare presentation materials for each instructional material. Respondents' submissions DS / Soc / L-04,

> *Okay, sir... if you ask me... the activities I do in formulating the goal was ... to implement brainstorming as a routine activity in the beginning of the lesson. In addition, the subject of the lecture delivered at the beginning of learning. Then, I encouraged the students to prepare presentation of any learning material... This based on my experience sir...*

The interview analysis of five respondents found some stages in the development of teaching objectives, were:

1. Provide information to students about anything to be learned;
2. Discussed what needs to be done to achieve the goal of teaching;
3. The questions related to student learning materials;
4. Providing teaching and learning modules before commencement;
5. Provide questions based on the purpose of teaching;
6. Provide information to students about what they have learned absolutely;

7. Explained what must be done early in teaching students,
8. Provides questions to students based on teaching objectives,
9. Quizzes as a basis for evaluating teaching and learning,
10. The practice of brainstorming as a routine activity in early studies,
11. Delivered teaching materials for teaching and learning in the beginning, and
12. Provide information to students to prepare presentations on any material.

4.7.1.2 Provide students the experience of teaching objectives

This section discussed the findings of a study on the understanding of teaching purposes. Analysis of interviews found some ways to do the lecturers in giving understanding to their students about teaching purposes. Respondents DS / Sci / L-05 said that done in a way that gives understanding to their students about teaching objectives and learning was to determine the criteria that must be met. DS / Sci / L-05 said,

> *Yes, sir... so... so... how I give to my students an understanding of the purpose of my study done in such way ... specify criteria that students must achieve learning ... I think this was very important in my opinion.*

Statement respondents DS / Sci / L-05 was basically supported by the DS / Lang / P-02, which states that in order to give students the experience of teaching objectives can be done in various ways, such as determining the criteria for learning that students should achieve, then lead a discussed based certain criteria. In addition, specify some aspects in accordance with valuation standards and provide feedback to students about their ability to achieve the standard of teaching. Respondents DS / Lang / P-02 argued,

> *So, my experience..... Some ways that normally given to the students in understanding the purpose of teaching, such as, a lecturer should be able to determine the learning criteria that must be achieved, ... then a lecturer should lead a discussed based on certain criteria, ... determine some aspects in accordance with the standards of assessment and ... giving advice to students what they need to do to reach the standard of learning...*

Statement respondents DS / Sci / L-05 and DS / Lang / P-02 was also supported by the statement of the respondent DS / Edu / P-01, DS / Psy / L-03 and DS / Soc / L-04. They showed various methods that performed in giving understanding to their students about the purpose of teaching were to determine. The learning criteria that met, gave advice to students on their efforts in achieving the standards of learning, students need to know to reach the next level in learning, supervised students in achieving standard and disclosed various criteria that met by the student standard. Respondents DS / Edu / P-01 argued,

> *Well, sir... if you ask my opinion, a lecturer should be able to determine the learning criteria that must achieved. In addition giving advice to the students what they need to do to reach the standard of learning ... know the needs of students to reach the next stage in their learning ... guide students on how the right to reach the standard, ... and last ... reveals several criteria that must be met by the student based on the standard.*

Therefore, based on the information obtained from these respondents, it found a few ways to do the lecturers in giving understanding to their students about the purpose of determining the teaching and learning criteria that met. Leading discussion based on certain criteria, determined some aspects with standard evaluation. Giving advice to the students what they must do to achieve high standards of teaching and learning, students learn the requirements to achieve the next stage in their education, supervised students in identifying appropriate way to achieve the standard, and reveals several criteria that must be met by students based standard.

4.7.1.3 Knowing that the purpose of teaching can be understood by students

Based on the analysis, it found numerous interviews conducted by the lecturer level in knowing that their students can understand teaching objectives. Respondents DS / Psy / L-03, for example, reveals how knowing that she's doing the learning objectives understood by students was by unremitting support students to provide feedback on students' own personal in lectures. Respondents DS / Psy / L-03 said,

> *Eee okay, sir... so how do I know that I made the learning objectives that can be understood by students was usually the way ... I ceaselessly encourage them to always reflect itself in the lecture.*

Different views expressed by respondents DS / Sci / L-05 that way for identifying learning objectives understood by students through classroom discussed activity by dividing the students into several working groups and to train students to use the rubric to assess their work. Respondents DS / Sci / L-05 argued,

> *I usually do the trick this time in knowing the purpose of teaching was understood by students was ... I usually divide students into several working groups, then ... train them to use the rubric to assess their work. That is what I used to do, sir...*

The respondent DS / Edu / P-01, DS / Lang / P-02 and DS / Soc / L-04 presented different views. Respondents DS / Edu / P-01 states that the method for identifying learning objectives were understood by students asking them to express their problems in the classroom and give them a second chance to improve their work. Respondents DS / Lang / P-02 states that the method for identifying learning objectives understood by students were instructed to students what they must run in their group work. In addition, respondents DS / Soc / L-04 reveals how to identify learning objectives understood by students was to encourage students to evaluate their own work and the work of their own friends, and encourage them to carry out a self-assessment on every instructional material. Comment the three respondents as follows,

> *Mmm... in my opinion, sir... how do I know that I made the learning objectives that can be understood by students was by asking the students to express their problems in the classroom and give them a second chance to improve their work (DS / Edu / P-01).*
> *In my opinions, ... I did by asking the students what they should do in their group work (DS / Lang / P-02).*
> *Like this, sir... I usually use way to encourage students to assess their own work and the work of their own friends ... and besides, I advwase students to conduct self-assessment at each lecture material ... I think so sir (DS / Soc / L- 04).*

Therefore, the analysis found that to see students can understand the lessons need to practice until the lecturer level activities such as:

1. To encourage students to reflect on himself in teaching and learning
2. Divide students into several working groups
3. To train students to use the rubric to assess their work
4. To required students to express their problems in class
5. To provide a second chance for students to improve their work
6. To instruct the students to what they must do in their group work
7. Encourage students to evaluate their own work
8. Encourage students to evaluate their own work friend
9. Encourage students to do a self-assessment to each material.

4.7.1.4 Reflecting on learning outcomes for students

This section discussed the findings of an ongoing effort by the lecturer in reflecting on their learning outcomes for students in higher education institutions. Five respondents interviewed and gave their perceptions about various efforts in providing feedback on the learning outcomes they have run. Respondents DS / Edu / P-01, for example, stated that the business which he ran in giving feedback was appreciated what had been learned by the student and allow time for students to explore what they have learned. Respondents DS / Edu / P-01 argued,

> *Based on my experience sir ... the way I do to reflect the student learning outcomes I was like: ... by the way ... appreciate what has been learned by the students ... then ... give time for students to explore what they have learned ...*

Different views expressed by respondents DS / Lang / P-02. He said that the efforts made to provide feedback on the lessons that have been granted by directing students to come forward to explain what they had gained during the process of teaching and learning and making notes about student achievement. Respondents DS / Lang / P-02 said,

> *According to my experience ... the way I do for me to reflect on the learning outcomes Students were instructed students to perform to explain what they can during the learning process ... and record the outcomes of students...*

Respondents DS / Psy / L-03 and DS / Sci / L-05 also supported the statement of respondents DS / Lang / P-02. Respondents DS / Psy / L-03 states that the way it was run to reflect a student's learning outcomes instruct students to come forward to explain that they get during the learning process and ask students to express various comments. While respondents DS / Sci / L-05 said that the way it was run to reflect the learning outcomes for students of directing students to appear to explain what they have achieved during the learning process and constantly interact with students to identify the problem whether they have run even which they must operate. Comment the two respondents,

> *In my opinion ... the way that I normally do to reflect on lessons learned to my students was mmm ... instruct students to perform to explain what they can during the learning process. Then ... usually I ask the students to express their comments on the teaching materials … (DS / Psy / L-03).*
> *Hhmm ... many ways actually sir ... but if I often do ... usually I instruct students to perform to explain what they know during the learning process, then I can also do by interacting with students to find out what they have done and what they should do ... (DS / Sci / L-05).*

Respondents DS / Soc / L-04 expressed next, different views. He stated that the efforts made to provide feedback on the teaching that had given by way of identifying what students need to do to repair and provide information to students about student achievement for each topic that had taught. Comment respondents DS / Soc / L-04,

> *Well, sir ... if it seems to me ... the way I did to give a reflection on the learning that has been done was ... I need to know what students need to do to repair ... and ... to inform the students about the achievements for each topic taught ... I think so sir .*

Therefore, based on analysis of interviews found eight levels of activity carried lecturers in teaching students to reflect on the results of, were:

1. Appreciate what they have learned students,
2. Provide time for students to explore what they have learned,
3. Instruct students to explain what they appear to be during the learning process, (4) students achieved record results,

4. Asked students to express various comments,
5. Interacting with students to find out what they do and what they should do,
6. Find out what students need to do to repair, and
7. Provide information to students about the achievements for each material.

4.7.1.5 Increase confidence of students in teaching

Various efforts had undertaken by lecturers in enhancing the confidence of students to teaching that had carried out. As stated by the five respondents in this study. Respondents DS / Psy / L-03 said that his efforts have been carried out to improve the self-confidence of students to teaching was to inspire students to explore their ideas. He said,

> *Well, yes sir ... usually the way I do to boost my self-confidence of students towards learning provided was ... usually I inspire students to explore their ideas...*

Respondents DS / Sci / L-05 presented the same view. He said that efforts were being made to improve the self-confidence of students to teaching was to stimulate students to develop their confidence and inspire students to explore their ideas. Respondents DS / Sci / L-05 argued,

> *Yes, sir ... hehehe ... if you ask me, the way I usually do to boost my self-confidence was to stimulate their students to build confidence and inspire them to explore ideas.*

Different views presented by the respondents DS / Edu / P-01, DS / Soc / L-04 and DS / Lang / P-02. Respondents DS / Edu / P-01 stated that efforts were made to increase the confidence of students in teaching was to give questions to the students what they have achieved. Respondents DS / Soc / L-04 states that in order to increase the confidence of students was done by providing support to students to constantly improve their confidence in the classroom. While according to respondents DS / Lang / P-02, to improve self-esteem of students was done by providing motivation for students to always find new concepts in their learning and provide recognition for students' work. Comment the three respondents as follows.

> *Well, in my opinion,... usually the way I do to boost my self-confidence of students towards learning provided was asking the students what they have achieved ... (DS / Edu / P-01).*
> *If you ask me ... I always encourage students to improve their confidence in the classroom ... (DS / Soc / L-04).*
> *Yes, sir... so... based on my experience... I do with how to motivate students to seek new concepts in their learning. In addition, give the award to a student working... I think so, sir... (DS / Lang / P-02).*

Based on respondents' perceptions obtained six lecturers efforts in enhancing the confidence of students in teaching that they run were:

1. Inspire students to explore their ideas,
2. Stimulate students to build their confidence,
3. Asked the students what they have achieved,
4. Encourage students to improve their confidence in the classroom,
5. Motivate students to find new concepts in their learning, and
6. Give award to students' work.

4.7.1.6 Involving students in evaluating the results of teaching

The analysis found a theme in assessment for learning was the ability to involve the students in evaluating the results of teaching and learning. The five respondents described their views on efforts to involve the students in evaluating the results of teaching and learning. Respondents DS / Lang / P-02, for example, reveals an effort to involve the students in evaluating the results of teaching and learning that was discussed with the students about the test form and constantly interact with students about their feedback in teaching and learning practices. Respondents DS / Lang / P-02 said,

> *Based on my experience in involving students in evaluating learning outcomes ... I usually do by discussed with students in reviewing the exam sheet. Besides, I always interacted with the students to reflect on the teaching and learning process.*

Respondents DS / Edu / P-01 and DS / Sci / L-05 also supports the view of respondents DS / Lang / P-02. Respondents DS / Edu / P-01 revealed that the efforts to involve the students in evaluating the results of teaching and learning which

provides time for students to give feedback on what they have learned. While respondents DS / Sci / L-05 revealed that efforts to engage students in assessing the outcomes of learning to do with the way he uses the results of the feedback for the preparation of the next lesson. Comment both the responder was,

> *Based on my experience, usually to involve the students in evaluating learning outcomes I always make time for students to reflect on what they have learned (DS / Edu / P-01).*
> *Eee..like this, sir ... I do a variety of ways to involve my students in evaluating learning outcomes ... one which I often do was ... always hold a reflection of the material that has been taught and used the results of the reflection in preparation of the next lesson materials (DS / Sci / L-05).*

Different views presented by the respondents DS / Soc / L-04. He said that the efforts to involve the students in evaluating the results of teaching and learning by providing opportunities for students to set their own targets and provides the opportunity for students to discussed their performance. Comment respondents DS / Soc / L-04,

> *Ooo ... so sir ... so In my opinion ... the way I do I usually give students the opportunity to set their own targets ... I think this was the most important. So ... I give students the opportunity to review the performance of them ... I think that in my experience sir ... hehehe*

Respondents DS / Psy / L-03 expressed different views. He stated that the efforts involve the students in evaluating the results of teaching and learning by collaborating with students to assess the effectiveness of student assignments and provide time for students to identify their complexity in teaching and learning. Respondents DS / Psy / L-03 said,

> *Well, sir... when I asked... so I will answer based on my experience it ... so ... the way that I normally do to involve my students in evaluating learning outcomes as collaborate with students to evaluate the effectiveness of their tasks and provide time for students to identify their difficulties in the learning ... I often do sir ...*

Finally, from a variety of views of respondents frequently found various efforts undertaken lecturer in engaging their students in evaluating the results of

teaching and learning that they have run. Among the efforts discussed was with students to review the test form were, interact with their students to give feedback on teaching and learning practices that had carried out. Provide an opportunity for students to set their own targets. Giving chance to students to discussed their performance, provide time for students to give feedback on what they had to learned, collaborate with students to assessed the effectiveness of the service. Provide time for students to identify their complexity in learning, and using their feedback outcome to prepare for the next lesson.

4.7.2 Constructive Alignment Practice

The analysis found five themes related to the Constructive Alignment namely; defining learning outcomes, developing a syllabus, designing teaching and learning activities, giving assessment task, and designing learning time.

4.7.2.1 Defining Learning Outcomes

A theme related to the level of constructive alignment was defined learning outcomes. This section discussed efforts by the lecturer in defining learning outcomes. Respondents DS / Psy / L-03 stating the activities carried out in defining learning outcomes such as providing planning, teaching and learning in the subject being taught and using the various elements of the subject as (courses, handouts, tutorials, references, and activities) to assisted student learning. Comment respondents DS / Psy / L-03,

> *So, according to my usual activities sir... that I run in defining learning objectives by providing lesson plans on the subject I teach. Besides that ... I also use various elements of the subject (lectures, handouts, tutorials, reading, activities) that help students learn ... this was based on my experience sir ... hehehehe*

Different views expressed by respondents DS / Sci / L-05. He said that the activity which he ran in defining learning outcomes such as designing teaching and

learning to improve student learning and responsibility to contribute to student learning outcomes. Respondents DS / Sci / L-05 argued,

> *Eee... for me, sir... usually the activities I do in defining learning objectives ... I feel very feasible when planning teaching to improve student learning. I always responsible was contributing the student learning outcomes.*

Respondents DS / Edu / P-01 also supported respondents' views DS / Sci / L-05. He stated that the activity which he often run in defining learning outcomes as plan teaching and learning to improve student achievement. The teaching and learning practice-based learning achievement, earned more than three learning achievement to be assessed, providing teaching and learning refers to the learning achievements of students and have always believed that students know what they must run for their learning achievements. Comments DS / Edu / P-01,

> *Hhmm ... put it this way, sir ... many activities that I normally did, sir ... To define learning objectives usually I planned teaching to improve student learning. And then prepare lectures based on the results of their learning, hmmm ... got more than three learning outcomes to be assessed, then ... prepare lectures, which refers to student results, and finally I usually make sure that students know exactly what they need to do to achieve their learning outcomes ... something like that.*

The respondents of DS / Soc / L-04 expressed different views with respondents DS / Psy / L-03, DS / Sci / L-05 and DS / Edu / P-01. Respondents DS / Soc / L-04 states that the activity which she often runs in defining learning outcomes as practice-based learning and teaching learning achievement in line with the institution's mission and organize teaching and learning activities, assessment and learning appropriate to the achievement of student learning. Respondents DS / Soc / L-04 argued,

> *I think ... I do activities such as implement lectures based on learning outcomes in line with the institution's mission ... then arrange lectures, assessment and learning according to the learning outcomes ... so sir if you ask me*

Respondents DS / Lang / P-02 expressed next, different views. He stated that the activities were often carried out in defining learning objectives as an institution has a set of learning outcomes which apply to all students and provides student achievement information prior to commencement of teaching and learning. Respondents' views DS / Lang / P-02,

> *Various ways that I normally do sir ... to define learning objectives like I always have a set of learning outcomes that apply to all students and provide information about the achievement of learning ... and inform the learning outcomes to students before the start of the course*

Finally, based on the analysis of various views of respondents found the some activities that carried out by lecturers in teaching and learning, were defined the purpose of providing instructional design of teaching materials. Use various elements of teaching materials to facilitate students' learning (i.e. handouts, tutorials, and references). Responsible for contributing to student learning outcomes, teaching and learning practices based on learning outcomes. Involving more than three learning outcomes to assessed. Identifying what students must perform in order to achieve the learning outcomes. Teaching practices and learning based on learning outcomes in line with the institution's mission. Organize teaching and learning activities, evaluating learning outcomes that were consistent. Provide information about learning outcomes to students before teaching and learning begin.

4.7.2.2 Developing a Syllabus

The next theme was to develop a syllabus for teaching and learning. This section discussed the findings of an ongoing effort by the lecturers in preparing the syllabus for teaching and learning. Interviews were analyzed using thematic analysis and obtained various efforts in preparing the syllabus for teaching and learning based on the experiences of five senior lecturer interviews as respondents. Respondents DS / Sci / L-05, for example, stated that he was running activities in preparing the syllabus for teaching and learning was to plan and organize the teaching syllabus and curriculum-based institutions. Respondents DS / Sci / L-05 said,

> *I think like this, sir... before the start of the lecture in class... I first prepare the lecture plan. In addition, I have to create a syllabus based on the curriculum of the institution ... I think this was very important and done by a lecturer...*

The rrespondent's statement DS / Sci / L-05 was also supported by the four other respondents. Respondents DS / Lang / P-02 stating that her activities run in preparing the syllabus for teaching and learning was a complete syllabus with the team of lecturers from the same subject. In addition, respondents DS / Psy / L-03 states that the activities he carried out in preparing the syllabus for teaching and learning planned syllabus-based learning time of students. Respondents DS / Edu / P-01 revealed that the activities he carried out in preparing the syllabus for teaching and learning was to provide a syllabus with regard to learning outcomes. While respondents DS / Soc / L-04 states that the activities he carried out in preparing the syllabus for teaching and learning was designing the syllabus was completed by using valuation techniques. The comments of all four respondents as follows,

> *Usually the way I did in preparing the syllabus such as preparing a syllabus with a team of lecturers on the same subject (DS / Lang / P-02).*
> *ee ...according to my understanding of sere... usually the first to create a syllabus, teaching my first design a syllabus that was based on student learning time (DS / Psy / L-03).*
> *Most often I do in preparing a syllabus was to prepare the syllabus, taking into account the learning outcomes (DS / Edu / P-01).*
> *Based on government's policies and my own experiences... I am putting together a syllabus that was equipped with ... This valuation technique to measure the extent to which the plan can achieve the goal teaching the course that had been developed (DS / Soc / L-04).*

Finally, based on the findings obtained by lecturers in preparing the syllabus before running the classroom, preparing the syllabus and curriculum-based institutions, provides the syllabus with the team of lecturers for the same subject, designing the syllabus time-based student learning, providing syllabus with regard to learning outcomes, and preparing the syllabus was equipped with a valuation technique.

4.7.2.3 Designing Teaching and Learning Activities

This section discussed the analysis of interviews related to the theme of designing teaching and learning activities. The analysis found that various initiatives undertaken by the lecturer in planning, teaching and learning activities. Respondents DS / Lang / P-02, for example, stated that the efforts made in designing teaching and learning activities was to help students to understand the complex concept by giving them an analogy in different fields, and provide information to students to read literature reference and study. Respondents DS / Lang / P-02 said,

> *Well, sir... usually... I do business in planning learning activities... like I always help my students to understand difficult concepts by giving them an analogy in a completely different field ... Then ... I always advised students to read research literature...*

The other view presented by the respondent DS / Soc / L-04. He noted the efforts undertaken in designing teaching and learning activities were supervised students to see their lack of reasoning or make improvements to inaccurate conclusions. In addition, he also gave advice to the students to discuss the next instructional materials. Comment respondents DS / Soc / L-04,

> *There are various businesses that often I do, sir ... so ... to plan learning activities usually I always guide my students to see their reasoning or correct deficiencies improper conclusions. Besides ... the usual well, I always advised them to discussed the course material after the lecture was finished ... I usually do sir ..*

Respondents DS / Edu / P-01 delivers a different view with respondents DS / Lang / P-02 and DS / Soc / L-04. He noted the efforts undertaken in designing teaching and learning activities were to help students make valuable notes in teaching and learning activities and help students to answer questions or outside the classroom assignments involving research. Respondents DS / Edu / P-01 said,

> *How, sir? Oh yes sir... so my usual attempt to plan learning activities such as helping my students to make a valuable record of their learning activities. In addition, I also often help them to answer questions or outside class assignments involving research ... that's what I used to do sir ...*

The respondent DS / Sci / L-05 presented different views. He noted the efforts undertaken in designing teaching and learning activities was to help students in the use of text and other reading effectively. In addition, to help students identify what they need in teaching and learning activities. Respondents' submission DS / Sci / L-05,

> *Based on my experience of sir ... that ... the efforts that I often use in planning learning activities such as for example ... mmm ... helping students to use text and other reading more effectively. Other than that, I also often help students to find what they need in the learning process ... the sir in my opinion.*

Next, respondents DS / Psy / L-03 also provide a different view with the four previous respondents. He noted the efforts undertaken in designing teaching and learning activities were to provide questions to stimulate feedback from the students and help them to provide feedback on their learning. Respondents DS / Psy / L-03 argued,

> *When I asked about my experience ... then I will answer based on my experience, sir ... hehehe ... so ... I often do business in planning learning activities like ... I always ask questions to stimulate student reflection ... then ... usually I often help them to reflect on their learning ... so sir ... hehehe*

4.7.2.4 Giving Assessment Tasks

This section discussed the findings with respect to business conducted by lecturers in Indonesia in assigning tasks and assessments to their students. Thematic analysis conducted to analyze the interview data from the five interviews respondents in this study. Various activities undertaken lecturer in assigning tasks and assessments to students as described below.

Basically, the five respondents indicated that they run regular activities in assigning tasks or evaluate students using a variety of methods such as questionnaires, test questions, open discussion, presentations and the like (DS / Edu / P-01; DS / Lang / P -02; DS / Psy / L-03; DS / Soc / L-04; DS / Sci / L-05).

Respondents DS / Lang / P-02 states that the measures he took in assigning tasks and evaluate students using a variety of methods such as questionnaires or exam questions and devised assessment tasks based teaching and learning purposes. Respondents DS / Lang / P-02 said,

> *In giving tasks and evaluate the student ... I usually often use different methods to assess student work such as questionnaires and test questions. Then ... I formulate assessment tasks based on learning objectives that I have made before ... so sir ... hehehe*

Respondents DS / Soc / L-04 corroborates respondents DS / Lang / P-02. He said the activities often carried out in assigning tasks using a variety of methods to assess student work such as questionnaires, open discussion and the like. In addition, he also provides assessment tasks in teaching and learning. Respondents DS / Soc / L-04 argued,

> *I often use a variety of methods to assess student work such as questionnaires, open conversation, and others. Other than that, I also certainly always to prepwere for lecture's assessment tasks ... so sir*

The statement of respondents DS / Lang / P-02 and DS / Soc / L-04 parallel to the respondents' statements DS / Sci / L-05, DS / Edu / P-01 and DS / Psy / L-03. Respondents DS / Sci / L-05 said that the activities were often carried out in assigning tasks or evaluate students using a variety of methods for evaluating the work of students as test questions, questionnaires, open discussion and the like. In addition, he planned assessment tasks that relate to real life. Respondents DS / Edu / P-01 states that the activities were often carried out in assigning tasks or evaluate students using a variety of methods to assess student work such as oral exams, exam questions and open discussion. In addition, he also conducted an evaluation for students by involving colleagues or group assessment. While respondents DS / Psy / L-03 revealed that the activities were often carried out in assigning tasks or evaluate students using a variety of methods to assess student work such as questionnaires and test questions. In addition, he was also involved colleagues in calculating the final cost of student marks. Comment the three respondents as follows,

I think like this, sir ... if that often I wear ... it ... me in giving assignments or evaluate the a student ... I use a variety of methods to assess student work such as short or long tests, questionnaires, and open conversation. In addition, it must have been my plan assessment tasks related to real life ... so that students can more naturally so sir (DS / Sci / L-05).
Many methods I guess, sir... to assign tasks and assess the work of our students. Sometimes I use oral teams, questionnaires, tests of short or long, and open conversation. Then to evaluate this task ... I often engage my colleagues for peer review rather than group assessment ... sir ... hehehe (DS / Edu / P-01).
Ooo so yes sir ... so my tricks in giving tasks and assess my students ... I often use methods such as questionnaires and tests of short or long ... and then ... to assess or evaluate ... usually I use peer assessment to calculate the final score of each student of mine (DS / Psy / L-03).

Therefore, based on the analysis found many activities were often carried out by lecturers in Indonesia for assigning tasks and assess their students. Variety methods used to assess students' work such as, questionnaires, short or long test questions, open discussion, and oral examinations. Organizing assessment tasks based on learning objectives. Provide assessment tasks for teaching and learning practices. Designing assessment tasks relates to real life, assessing students with guest worker of the group. Use assessment unions for calculating the final grade of each student.

4.7.2.5 Designing Student Learning Time

Analysis of the interviews found that sub-themes related to the level of learning design carried out by the lecturer. The findings obtained from the results of the interviews of the five respondents in this study. Respondents DS / Edu / P-01 submitted that his regular activities carried out in the design of teaching time was spent quite a lot of time in class for students to reflect on their own learning activities. Respondents DS / Edu / P-01 said,

Actually, in many ways that I normally do, sir... one of the activities that I often run in designing instructional time was to spend enough time in the classroom for students to reflect on their own learning process...

Different views expressed by respondents DS / Psy / L-03. He stated that his regular activities carried out in the design of instructional time were devoted time to adopt a variety of strategies to learn better ways, whether individually or with others. Respondents' submissions DS / Psy / L-03,

> *I did the usual thing to design a sir ... teaching me ... like I sometimes devote time to give some learning strategies in a way that was better (alone or with others) ... I think so sir .*

The respondent DS / Soc / L-04 presented different views. He stated that his regular activities carried out in the design of instructional time was giving assignments to students to work on projects that require two weeks to complete. Respondents DS / Soc / L-04 said,

> *Well...that in my experience sir ... for designing instructional time I usually assign tasks to my students to work on projects that take two weeks for completion ... I think this way was quite effective in my experience*

Moreover, respondents DS / Lang / P-02 and DS / Sci / L-05 gave the same view. Respondents DS / Lang / P-02 expressed his regular activities carried out in the design of instructional time was spend a lot of time to assess student presentations and prepare a lot of time to provide comments to the student's work. While respondents DS / Sci / L-05 expressed his regular activities run in designing instructional time was devoted time for students after completing their studies and prepares a lot of time to provide comments to the student's work. Comment the two respondents,

> *This was according to my experience, sir ... usually for designing time ... I always spend a lot of time to assess my student presentations. In addition, I also always prepare a lot of time to provide comments to the students assignment ... (DS / Lang / P-02).*
> *Designing the teaching time ... usually I often do like to devote my time to the students after completing the lesson, then I also would prepare a lot of time to provide comments to the student assignment ... (DS / Sci / L-05).*

Therefore, based on analysis of interviews on five respondents above, obtained various activities that carried out by lecturers in designing their teaching.

Spend much time in the classroom for students to provide feedback on their own learning. Devote time for provide a variety of learning strategies with a better way Give assignments for students to work on projects that require two weeks for completion. Spend a lot of time to assess students' presentation. Prepare a lot of time to leave a comment to the student's work. Devote time for students after completing teaching and learning activities.

Finally, based on the thematic analysis, it was found that the various efforts of the lecturer in planning their teaching and learning activities. Among these activities were describing as follows.

1. Help students to understand the complex concepts by giving an analogy in different fields.
2. Advise students to read research literature.
3. Supervise students to see their lack of reasoning or provide improvements to the conclusion that inaccurate.
4. Advise students to discuss teaching materials after completion of teaching and learning.
5. Assist students to make notes valuable for teaching and learning activities.
6. Assist students to answer questions in or outside the classroom assignments involving research.
7. Assist students to use textbooks and other reading more effectively.
8. Assist students to identify what they need in teaching and learning activities.
9. Provide questions to stimulate feedback from students
10. To assist students to provide feedback on their learning

4.8 Summary

The finding showed that there was correlation between Assessment for Learning and Constructive Alignment. The model proposed based on analysis preferred using SEM model. Interview with respondents was evidence the framework of Assessment for Learning and Constructive Alignment.

CHAPTER 5

DISCUSSION, CONCLUSION, AND RECOMMENDATION

5.1 Introduction

This chapter presented discussion, conclusion, and recommendation concerning this research as whole. This study used a mixed method of explanatory design, which aimed to explore the understanding of lecturers on Constructive Alignment (CA) and Assessment for Learning (AfL) in Higher Education, in Indonesia. In achieving these objectives, the instruments are survey and questionnaires had used in developing process substantively. To obtain information and data, respondents had to fill in questionnaires, and interviews were conducted.

Based on four research questions, the studies successfully explores and understand the concept of assessment for learning by using constructive alignment for lecturers at universities in Indonesia. This study used constructivism theory (Piaget, 1952, 1969, 1971; Baldwin, 1902, 1906-1911; Bruner, 1974) and Behaviorist Learning Theory (Ivan Pavlov, 1849-1939). In addition took two other theories as main concept of this study, namely Assessment for Learning (Black, P & Wiliam D, 1998; Black P., Harrison, C., Lee, C., Marshall, B., & Wiliam D, 2002) and Constructive Alignment (Biggs J & Tang C, 2007).

5.2 Discussion

After obtaining all information in the previous chapter, in this sub-chapter the researcher would like to discuss the result with literature reviews and research questions that were previously established. This sub-chapter covered following sessions:

i. The assessment for learning practices in higher education.
ii. Constructive alignment practices in higher education.
iii. Relationship between assessment for learning and constructive alignment

Research questions were divided in three main parts, namely; how is the practice of Assessment for Learning (AfL) in Indonesia; How is the practice of Constructive Alignment (CA); and The relationship between Assessment for Learning and Constructive Alignment. Thus, the discussion of the research findings was discussed based on its objectives, questions and hypotheses.

5.2.1 Assessment for Learning Practice

The numbers of the respondents participating in this research are 454 lecturers, comprising 197 males and 257 females. The gender of the respondents in this study was compared.

The Rasch Model used was primarily in areas related to psychometric theory and techniques of measurement in psychology (Wright and Masters, 1982; Baker, 2001; Linacre, 2002; Liu, 2010; Bond and Fox, 2007). Thus, Rasch Model was used to test the validity and reliability of Assessment for Learning (AfL).

The findings indicated that AfL instrument was valid and reliable. The developed of questionnaire contained 41 items measuring 6 constructs which were Sharing Learning Objectives (SLO), Helping Pupils to know and recognized the

standard (HP), Peer and Self-Assessment (PSA), Providing Feedback (PF), Promoting Confidence (PC), and Involving in Reviewing and Reflecting (IRR). These 6 construct of AfL questionnaires were used to measure the Lectures' Understanding and Assessment method used in Higher Education.

This study finding was supported by many studies that used Rasch Model (RM) for examining the construct validity (Fox and Jones, 1998; Forkmann et. al, 2009; Saidfudin and Azrilah, 2008; Wolfe et. al., 2009; Teasdale and Williams, 2009; Akib and Najib, 2015). For instance, a study conducted by Fox and Jones (1908) traditional and innovative uses of the RM in the development and validation of small and large-scale psychological instruments. Saidfudin and Azrilah (2008), was conducted study to determine construct validity of their instruments.

Another study by Bateman, Teasdale and Williams (2009) used the RM to determine the validity of the constructs in study entitled "Assessing Construct Validity of Self-rating Version of the European Brain Injury Questionnaire Using Rasch Analysis". Forkmann et.al, (2009) in their study concluded that evaluation of Rasch model fit (infit < 1.3), differential item functioning, dimensionality, local independence, item spread, item and person separation (>2.0), and reliability (>.80) resulted in a bank of 79 items with good psychometric properties. Wolfe et, al., (2009) in their study to develop instrument to measure the social context of schools teacher perception of influence over school policy and classroom practice, teacher perception of students, and teacher perception of school climate.

The results of Rasch analysis indicated that a single dimension dominates each instrument, although the primary dimension for the school climate measures was somewhat weaker than the primary dimensions for the other two sets of measures. In addition, RM analysis indicated that the teacher measures were highly reliable and precise. Analysis of the structure of the rating scale for each instrument indicated that these rating scales function as intended but that the number of rating scale categories may be too great: Lecturers may not be able to reliable distinguish between the numbers of levels indicated by the rating scales.

The finding of RM analysis indicated that Assessment for Learning (AfL) as valid and reliable instruments can be used to measure the Lecturers' understanding and assessment methods used at university or higher education in Indonesia, or other countries who have the same context, characteristics, and environment.

5.2.2 Constructive Alignment Practice

The constructs of Constructive Alignment developed based on the several literature reviews, the validation by experts and pilot study. The developed of Constructive Alignment (CA) questionnaires contained 38 items measuring 5 constructs which were Learning Outcomes (LO), Syllabus (Syl), Students Learning Times (SLT), Assessment Task (AT), and Teaching and Learning Activities (TLA). Based on the analysis found that Syllabus as the greatest indicators in CA where the mean value is 4.28, followed by Teaching and Learning Activities, Learning outcomes, Assessment Tasks and Students Learning Times in the last. While the whole mean for CA is 4.21, it means that the understanding of lecturers toward constructive alignment at the Higher Education in the high level.

Findings of the modified model showed the goodness fit indices of proposed measurement model was improved and showed good goodness fit. This result showed the good fit of proposed model fit the data resulted in Rasch model analysis. In addition, the results of AVE of the CVA measurement model showed that all items in the CVA measurement model were statistically significant.

5.2.3 Relationship between Assessment for Learning and Constructive Alignment

The findings showed that there was a significant correlation between Assessment for Learning and Constructive Alignment. This result implied that such changes in lecturers' comprehend on teaching and learning process will lead to specific changes in their classroom behaviors and practices. The lecturers' comprehend toward AfL and CA are their platforms which guide their teaching

activities and practices. Professional development of lecturers can be enhanced when their teaching practices are high as a result of high comprehend on AfL and CA Practicing

5.3 Implication

The study produces several important contributions to the field of assessment at in general and of understanding of lecturers on assessment for learning and constructive alignment of higher education, in particular. First, the developed AfL and CA instruments contribute measuring the AfL and CA among lecturers. Considering understanding term, AfL and CA of the lecturers could highlight the importance both of them in education assessment, particularly in higher education.

Practical implications of the research findings can be derived for all lecturers in community colleges and stakeholders. The implication included suggestions of using AfL as a standardized instrument to measure the Lecturers' Comprehend on Assessment for Learning and CA as a standardized instrument to measure the Lecturers' Comprehend on Constructive Alignment. The AfL and CA could be used as self-assessment or in among lecturers to assess their beliefs on teaching functions and teaching practices. Professional development will be linked to colleges' improvement priorities and to the ongoing professional development needs and priorities of individual lecturers.

It can be concluded from the research findings the significant relationship between AfL and CA may tested by using the proposed measurement model to predict the causal effects of beliefs of teaching functions on teaching practices among lecturers and how could demographic factors moderate the casual effects of AfL on CA. All these will go a long way in enriching the educational process for lecturers, producing high academic achievers while still, instilling in lecturers strategies that are necessary for workforce of the 21st century. To conclude, the research findings implied AfL and CA to determine the level of comprehend on teaching functions and the level of teaching practices among the lecturers. The

proposed measurement model could be implied to be predicting model for the relationship between AfL and CA and the effects of AfL on CA.

The measurement model, therefore, provides an integrated model of teaching functions and practices. The proposed hierarchical model is made up two levels with AfL constructs variable being the first level while the CA constructs make up the second level. Therefore, this framework provides a conceptual background for future analysis of beliefs on teaching functions and practices in community colleges. Theoretically, this research relies on constructivist theory, it testifies to a fact that Therefore, the effects of beliefs on teaching functions on teaching practices theoretically based on constructivism theory which relied on practices and experience. The results of this research supported that by concluding that AfL affects CA.

5.4 Recommendation

A model of Assessment for Learning and Constructive Alignment that can implement by lecturers was recommended to increase the quality of teaching and learning proffesion in higher education in Indonesia. The researchers who are interested in exploring multidimensional of the Rasch Model analysis will prove infective as the Rasch Model only works for unidimensional instruments (Kubinger, 2005).

Because of the limit of this research, researcher suggests some recommendations for future research. Although, this research involved lecturers from community colleges, but future research could be implemented to considered other higher institutions in Indonesia. Also in this research, only lecturers from higher educational institutions in Indonesia were involved. Future research can engage lecturers at schools in Indonesia. It is possible involving other population might add new factors to be studied. Further, it is suggested involving other respondents as lecturers in other Indonesia universities or colleges. It can be done a comparative

research on lecturers' beliefs on teaching functions and teaching practices in government universities and private universities in Indonesia.

Research in the future could also consider other factors may affect the relationship between AfL and CA. These factors may include the role of culture, religion, work overload, time restraints, and problems with student behavior, working's conditions, and relationships with colleagues, lack of resources, and the physical demands of teaching. Also, the empirical research is possible to identify the effectiveness of these instruments. This is because the empirical research is able to explain causes and effect of a phenomenon. In addition, future research could be studying the effects of lecturers' beliefs on teaching functions and practices on students' outcomes. Further research could focus on refining the other factors could make change in the relationship and influence of beliefs on teaching functions on teaching practices among lecturers and lecturers in any educational institutions.

A full SEM for further future research is an essential to expand the theory guiding this phenomenon. Finally, future research can use a larger sample of employed accurate statistical findings on using SEM to further investigating on effects among variables. This study is to test the model of AfL and CA as future research. Finally, there is a need to investigate the role played by the beliefs of certain people with whom lectures dealt during the educational process such as the college and university administration and inspectors, educational decision makers and their aims, and the students themselves.

5.5 Conclusion

This study showed that the person reliability was categorized as good, and the item reliability was as Excellent. This study shows the importance of considering symmetry measures due to the gap between person reliability, item reliability, and difficulty level of scales. In addition, it showed that the six constructs of AfL have a very significant value in measuring and knowing the lecturers' comprehending and

understanding. Include implication of results to universities in Indonesia using the findings.

In this research, female higher practice than man, so recommend universities to hire more female than male or send men to workshops to increase their skills in AfL practice. In terms of age, the older lectures have a good an understanding of AfL than the younger, so this study recommended universities to send the younger lecturers to workshop to increase their capability and ability in AfL practice. In terms of teaching experience, the lecturers who have been teaching more than 36 years have a better understanding about AfL than others. In terms of academic qualification, the lecturers who have a doctorate degree higher understanding of AfL than master degree, it's recommended to the universities to give a chance to the lecturers in continuing their study for doctorate programs. And then in terms of departments, the lecturers in language have a better understanding of AfL because they have a good communication skill, so it's recommended to the universities to send the lecturers in another department to workshop in increasing their ability of communication skills.

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APPENDIX A

REVIWED AND DEVELOPED AFL &CA QUESTIONNAIRES

Part A: Demography

Instruction: Please tick "√" in the space provided!

1. Gender:

   ☐ Male
   ☐ Female

2. Age: ____ years

3. Academic qualification:

   ☐ Bachelor's degree (S1)
   ☐ Master's degree (S2)
   ☐ Ph.D. (S3)

4. Teaching experience at higher education: _____ years

5. Department/Specialization:

   ☐ Guidance and Counseling
   ☐ Educational Technology
   ☐ Special Education
   ☐ Elementary School Teacher Education
   ☐ Education Administration
   ☐ Education Management
   ☐ Mathematics Education
   ☐ English Education
   ☐ Early Childhood Education
   ☐ Others: please write …….

Part B: Assessment for Learning

Instructions: Please indicate your opinion about each statement below by ticking the box on the right.

Strongly Disagree = 1
Disagree = 2
Neutral = 3
Agree = 4
Strongly Agree = 5

No.	Item	Option				
		1	2	3	4	5
B1	I inform the students what they will learn at the beginning of the lesson					
B2	I specify the criteria the students should achieve					
B3	I support students' self - reflection					
B4	I appreciate what the students have learned					
B5	I am inspired the students to explore their ideas					
B6	I discuss with the students in reviewing the test papers					
B7	I discuss with the students what needs to be done to achieve the learning objectives					
B8	I led discussion based on the specific criteria					
B9	I divide the students into several group work					
B10	I give a time to the students to explore what they have learned					
B11	I stimulate the students to establish their confidence					
B12	I interact with students to reflect the teaching and learning process					
B13	I arrange some questioning of the students which are related to the subject matter					
B14	I determine some aspects that match with the assessment standard					
B15	I train students to use rubrics to judge their work					
B16	I instruct the students to perform the explanation that they during the learning process					
B17	I give a chance to the student to set their personal targets					

No.	Item	Option				
		1	2	3	4	5
B18	I provide the module before the lesson begins					
B19	I suggest the students what they have to do to reach the standard					
B20	I record the student achievement					
B21	I inquire the students what they have achieved					
B22	I provide questions based on the learning objectives					
B23	I invoke the students what they are supposed to learn at the beginning of the lesson					
B24	I have to know the students' need to reach the next stage in their learning					
B25	I ask the students to express their problems in the classroom					
B26	I encourage students to increase their self-confidence in the classroom					
B27	I am given opportunities to the students to review their performances					
B28	I explain what the students have to do at the beginning of the lesson					
B29	I guide the right way for the students to reach the standard					
B30	I ask for the students to express any comments					
B31	I provide time for the students to reflect what they have learned					
B32	I provide a second chance for the students to improve their work					
B33	I interact with the students to know what they have done and what they need to do					
B34	I motivate the student to find new concepts in their learning					
B35	I ask questions to the students based on the learning objectives					
B36	I instruct the students what they have to do in their group work					
B37	I have to know what the students need for improvement					
B38	I collaborate with students to evaluate task effectiveness					

No.	Item	Option				
		1	2	3	4	5
B39	I provide time for the students to identify their learning difficulties					
B40	I arrange the quiz as the basis for evaluating teaching and learning process					
B41	I give reward for students' work					
B42	I expressed some of the criteria that must be fulfilled by students based on standard					
B43	I encourage students to assess their own work					
B44	I perform brainstorming as a routine activity at the beginning of the lesson					
B45	I promote students to assess their friend’s work					
B46	I delivered the subjects of the lectures at the beginning of the lesson					
B47	I encourage students to do self-assessment for each subject					
B48	I encourage students to prepare a presentation on each of the learning materials					
B49	I use reflection results in arranging the next lesson					
B50	I inform students about their achievement for each topic taught					

Part C: Constructive Alignment

Instructions: Please indicate your opinion about each statement below by ticking the box on the right.

No.	Item	Option				
		1	2	3	4	5
C51	Learning outcomes are provided on the subject that I teach					
C52	I prepare lesson plans before beginning my lectures in the classroom					
C53	I devote enough time in the classroom for the students to reflect on their own learning process					
C54	I use various elements of the subject (lectures, handouts, tutorials, readings, activities) which help students learn					
C55	I devote to some time to give some strategies to learn in the best way (alone or with the others)					
C56	My students work on projects that require at least two weeks to complete					
C57	I feel very competent when planning instruction to promote students' learning					
C58	I am using multiple methods to assess the students' work (questionnaires, short or long tests, open conversations, oral team displays).					
C59	I set up syllabus based on the institution's curriculum					
C60	I set up assessment tasks based on the learning objectives					
C61	I prepare assessment task for my subject					
C62	I spend a lot of time to assess students' presentation					
C63	My area of responsibility is to contribute to the students' learning outcomes					
C64	I plan an assessment task which relates to real life					
C65	I prepare my syllabus with a team of lecturers of the same subjects					
C66	I prepare the lectures based on the learning outcomes					
C67	I help students to understand difficult concepts by giving them analogy in a completely different field					

No.	Item	Option				
		1	2	3	4	5
C68	I get more than three learning outcomes to assess					
C69	I assess my student by peer assessment than group assessment					
C70	I spend a lot of time into a comment on the student's work					
C71	I design syllabus based on the students' learning times					
C72	I refer to the learning outcomes when preparing my lecture					
C73	I use peer assessment to calculate the final score for each student					
C74	I am preparing syllabus by taking into account the learning outcomes					
C75	I suggest students read the research literature					
C76	I ensure that students know exactly what they have to do to achieve learning outcomes					
C77	I guide students to see flaws in their reasoning or correcting improper conclusion					
C78	I do my lecture based on learning outcomes aligned with the institution's mission					
C79	I advise students to discuss the lecture material at the end					
C80	I ask students to take notes that worthwhile for learning activities					
C81	I encourage students to answer questions or out of class assignments that involve research					
C82	I arrange the coursework, assessment and learning activities matched the learning outcomes					
C83	I help students to use text and other readings more effectively					
C84	My institution has a common set of the student learning outcomes that applies to all students					
C85	I help students to know what they need in the learning process					
C86	I devote some time for my students after finish the lesson					
C87	I inform learning outcomes to the students before start the lectures					

No.	Item	Option				
		1	2	3	4	5
C88	I ask questions to stimulate students' reflection					
C89	I compile a syllabus that is equipped with assessment techniques					
C90	I have to help students to reflect their learning					

APPENDIX B

EXPERTS' VALIDATING APPROVAL AND COMMENTS

DECLARATION FORM EVALUATION RESEARCH INSTRUMENTS

TITLE

ASSESSMENT FOR LEARNING USING CONSTRUCTIVE ALIGNMENT

Overall Assessment

Total items for each construct are not equally distributed.

Language used is not clear.

Structure of the items not consistently developed.

Too many double-barreled Questions (measuring two elements or more in one item)

A lot of items are not measuring the construct.

Suggestions

1. Be clear with Conceptual definitions for each construct before developing instrument / crafting the items

Hereby, I consider that the comments that I made as stated in the questionnaire, "Assessment for Learning using Constructive Alignment".

Thank You,

TQ and Best wishes.

Date, 2/4/2013

Dr. Rohaya Talib
Faculty of Education
UTM, Skudai

DR. ROHAYA TALIB
Senior Lecturer
Department of Educational Foundation
Faculty of Education
81310 UTM Johor Bahru

DECLARATION FORM EVALUATION RESEARCH INSTRUMENTS

TITLE

ASSESSMENT FOR LEARNING USING CONSTRUCTIVE ALIGNMENT

Overall Assessment

- Most of the items were not measuring the constructs especially :

  1) Peer & self assessment

- Re write and rearrange the items clearly in every construct

Hereby, I consider that the comments that I made as stated in the questionnaire, "Assessment for Learning using Constructive Alignment".

Thank You,

Dr. Hamimah bte Abu Naim
Faculty of Education
UTM, Skudai

Date, 3/4/2013 2013

DR. HAMIMAH ABU NAIM
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Department of Educational Foundations
Faculty of Education
Universiti Teknologi Malaysia
81310, Johor Bahru

No.:

Makassar 26 juli 2013

DECLARATION FORM EVALUATION RESEARCH INSTRUMENTS
FORMULIR PERNYATAAN EVALUASI INSTRUMEN PENELITIAN

TITLE
JUDUL

APPENDIX C

FIT PERSON OF 79 ITEMS

Fit Person of 79 Items

PERSON STATISTICS: MISFIT ORDER

ENTRY NUMBER	TOTAL SCORE	TOTAL COUNT	MEASURE	MODEL S.E.	INFIT MNSQ	INFIT ZSTD	OUTFIT MNSQ	OUTFIT ZSTD	PT-MEASURE CORR.	PT-MEASURE EXP.	EXACT MATCH OBS%	EXACT MATCH EXP%	PERSON
166	327	79	1.76	.19	7.06	9.9	6.88	9.9	A .33	.21	.0	62.6	00166P
158	245	79	-.21	.13	3.76	9.9	3.81	9.9	B-.08	.30	17.7	38.7	00158P
424	380	79	4.21	.28	3.01	6.6	2.67	5.4	C .17	.14	91.1	81.2	00424P
65	327	79	1.76	.19	2.78	6.9	2.69	6.7	D .40	.21	26.6	62.6	00065P
145	277	79	.38	.15	2.59	6.5	2.56	6.3	E .40	.27	25.3	49.1	00145P
370	347	79	2.50	.20	2.40	7.1	2.37	7.1	F .19	.20	15.2	54.5	00370P
153	291	79	.69	.16	2.33	5.3	2.33	5.3	G .33	.25	30.4	56.2	00153P
73	304	79	1.04	.17	2.31	5.0	2.26	4.9	H .18	.23	36.7	62.4	00073P
137	310	79	1.21	.17	2.27	4.9	2.28	5.0	I .34	.23	29.1	63.8	00137P
151	332	79	1.94	.19	2.20	5.3	2.17	5.3	J .46	.21	24.1	60.9	00151P
49	300	79	.93	.16	2.12	4.5	2.17	4.7	K .11	.24	35.4	60.3	00049P
374	323	79	1.63	.18	2.12	4.7	2.11	4.7	L .35	.21	31.6	63.6	00374P
72	342	79	2.31	.20	2.12	5.7	2.06	5.5	M .31	.20	35.4	55.8	00072P
46	353	79	2.75	.20	2.10	6.2	2.11	6.4	N-.13	.19	39.2	55.1	00046P
157	279	79	.42	.15	1.85	3.9	1.93	4.2	O .03	.27	29.1	49.4	00157P
30	317	79	1.43	.18	1.90	3.8	1.91	3.9	P .07	.22	48.1	64.2	00030P
454	358	79	2.96	.21	1.88	5.3	1.74	4.7	Q .47	.19	63.3	57.1	00454P
440	331	79	1.90	.19	1.85	4.0	1.78	3.8	R .63	.21	38.0	61.3	00440P
262	361	79	3.10	.21	1.80	4.9	1.71	4.5	S .27	.19	64.6	59.6	00262P
78	281	79	.46	.15	1.79	3.7	1.78	3.6	T .13	.26	34.2	50.3	00078P
243	367	79	3.39	.23	1.76	4.5	1.64	3.8	U .25	.18	70.9	65.3	00243P
185	342	79	2.31	.20	1.76	4.1	1.68	3.8	V .54	.20	43.0	55.8	00185P
29	324	79	1.66	.18	1.73	3.3	1.73	3.4	W .09	.21	49.4	63.4	00029P
217	343	79	2.35	.20	1.69	3.9	1.71	4.0	X .05	.20	34.2	55.4	00217P
192	317	79	1.43	.18	1.69	3.1	1.65	3.0	Y .40	.22	36.7	64.2	00192P
70	315	79	1.37	.18	1.66	2.9	1.67	3.0	Z .00	.22	39.2	64.2	00070P
188	346	79	2.46	.20	1.65	3.8	1.63	3.8	.26	.20	38.0	54.8	00188P
182	362	79	3.14	.22	1.64	4.1	1.53	3.4	.28	.19	65.8	60.3	00182P
414	332	79	1.94	.19	1.63	3.1	1.61	3.1	.52	.21	32.9	60.9	00414P
176	346	79	2.46	.20	1.62	3.7	1.61	3.6	.31	.20	41.8	54.8	00176P
199	367	79	3.39	.23	1.62	3.8	1.60	3.6	.14	.18	69.6	65.3	00199P
222	356	79	2.87	.21	1.61	3.9	1.55	3.6	.42	.19	63.3	56.4	00222P
156	316	79	1.40	.18	1.61	2.7	1.60	2.8	.28	.22	62.0	64.2	00156P
202	362	79	3.14	.22	1.60	3.9	1.60	3.8	.18	.19	65.8	60.3	00202P
58	317	79	1.43	.18	1.55	2.5	1.58	2.7	.36	.22	40.5	64.2	00058P
35	352	79	2.70	.20	1.58	3.7	1.56	3.6	.17	.20	45.6	55.0	00035P
177	347	79	2.50	.20	1.57	3.5	1.57	3.5	.30	.20	46.8	54.5	00177P
173	348	79	2.54	.20	1.57	3.5	1.56	3.5	.34	.20	46.8	54.5	00173P
258	372	79	3.66	.24	1.56	3.2	1.43	2.4	.29	.17	78.5	71.6	00258P
408	336	79	2.08	.19	1.56	3.0	1.52	2.8	.50	.21	46.8	59.0	00408P
55	327	79	1.76	.19	1.55	2.7	1.55	2.7	-.13	.21	45.6	62.6	00055P
403	322	79	1.59	.18	1.55	2.6	1.54	2.6	.59	.21	40.5	63.7	00403P
187	316	79	1.40	.18	1.54	2.5	1.50	2.3	.38	.22	46.8	64.2	00187P
57	318	79	1.46	.18	1.53	2.5	1.54	2.5	-.11	.22	44.3	64.1	00057P
432	365	79	3.29	.22	1.54	3.5	1.43	2.8	.21	.18	65.8	63.5	00432P
442	328	79	1.80	.19	1.54	2.7	1.51	2.6	.46	.21	57.0	62.3	00442P
201	355	79	2.83	.21	1.54	3.5	1.51	3.4	.05	.19	38.0	55.8	00201P
174	344	79	2.39	.20	1.51	3.0	1.50	3.0	.30	.20	45.6	55.2	00174P
175	342	79	2.31	.20	1.50	2.9	1.50	2.9	.23	.20	43.0	55.8	00175P
195	365	79	3.29	.22	1.49	3.2	1.38	2.5	.52	.18	70.9	63.5	00195P
31	316	79	1.40	.18	1.49	2.3	1.48	2.3	.07	.22	57.0	64.2	00031P
186	320	79	1.53	.18	1.48	2.3	1.39	2.0	.24	.22	63.3	64.0	00186P
254	359	79	3.00	.21	1.47	3.1	1.42	2.9	.33	.19	55.7	58.0	00254P
140	304	79	1.04	.17	1.46	2.2	1.42	2.0	.48	.23	58.2	62.4	00140P
44	320	79	1.53	.18	1.44	2.1	1.43	2.1	.22	.22	41.8	64.0	00044P
203	367	79	3.39	.23	1.44	2.8	1.32	2.1	.32	.18	65.8	65.3	00203P
60	336	79	2.08	.19	1.43	2.4	1.43	2.4	-.23	.21	49.4	59.0	00060P
144	306	79	1.09	.17	1.40	1.9	1.42	2.0	.13	.23	38.0	62.8	00144P
71	299	79	.90	.16	1.42	2.0	1.41	1.9	.29	.24	50.6	59.8	00071P
215	341	79	2.27	.19	1.38	2.3	1.41	2.4	.13	.20	58.2	56.4	00215P
208	365	79	3.29	.22	1.40	2.7	1.34	2.3	.10	.18	57.0	63.5	00208P
171	343	79	2.35	.20	1.40	2.4	1.39	2.4	.33	.20	45.6	55.4	00171P
321	324	79	1.66	.18	1.40	2.0	1.39	2.0	.10	.21	46.8	63.4	00321P

51	254	79	-.06	.13	1.40	2.4	1.39	2.3	.20	.30	35.4	40.9	00051P
401	319	79	1.49	.18	1.39	1.9	1.39	1.9	.23	.22	54.4	64.1	00401P
178	344	79	2.39	.20	1.35	2.2	1.36	2.2	.17	.20	50.6	55.2	00178P
444	365	79	3.29	.22	1.35	2.4	1.24	1.7	.42	.18	67.1	63.5	00444P
62	319	79	1.49	.18	1.35	1.7	1.34	1.7	.08	.22	51.9	64.1	00062P
248	367	79	3.39	.23	1.34	2.2	1.27	1.8	.33	.18	70.9	65.3	00248P
179	363	79	3.19	.22	1.34	2.3	1.27	1.9	.37	.18	72.2	61.3	00179P
189	359	79	3.00	.21	1.33	2.3	1.29	2.1	.26	.19	50.6	58.0	00189P
435	333	79	1.98	.19	1.33	1.8	1.32	1.8	.53	.21	44.3	60.4	00435P
200	354	79	2.79	.21	1.33	2.3	1.32	2.2	.28	.19	50.6	55.4	00200P
380	358	79	2.96	.21	1.32	2.3	1.26	1.9	.42	.19	62.0	57.1	00380P
149	300	79	.93	.16	1.32	1.6	1.31	1.6	.29	.24	53.2	60.3	00149P
308	338	79	2.16	.19	1.32	1.9	1.30	1.8	.12	.20	46.8	57.9	00308P
197	371	79	3.60	.24	1.31	1.9	1.23	1.4	.31	.17	74.7	70.3	00197P
11	325	79	1.70	.18	1.30	1.6	1.31	1.6	.22	.21	51.9	63.2	00011P
221	362	79	3.14	.22	1.29	2.1	1.29	2.0	.24	.19	62.0	60.3	00221P
43	300	79	.93	.16	1.22	1.1	1.29	1.5	-.02	.24	44.3	60.3	00043P
40	308	79	1.15	.17	1.24	1.2	1.28	1.4	.17	.23	44.3	63.4	00040P
20	316	79	1.40	.18	1.27	1.4	1.23	1.2	.55	.22	64.6	64.2	00020P
341	359	79	3.00	.21	1.26	1.8	1.26	1.9	-.18	.19	39.2	58.0	00341P
212	361	79	3.10	.21	1.26	1.8	1.23	1.7	.30	.19	62.0	59.6	00212P
111	337	79	2.12	.19	1.25	1.5	1.25	1.5	-.28	.20	55.7	58.4	00111P
7	276	79	.35	.14	1.18	1.1	1.25	1.4	.36	.27	44.3	48.8	00007P
69	348	79	2.54	.20	1.23	1.6	1.24	1.7	-.08	.20	46.8	54.5	00069P
219	360	79	3.05	.21	1.24	1.8	1.23	1.7	.29	.19	60.8	58.6	00219P
205	317	79	1.43	.18	1.24	1.2	1.20	1.1	.57	.22	55.7	64.2	00205P
396	362	79	3.14	.22	1.24	1.7	1.17	1.3	.38	.19	60.8	60.3	00396P
303	332	79	1.94	.19	1.24	1.4	1.23	1.3	.25	.21	49.4	60.9	00303P
422	326	79	1.73	.19	1.24	1.3	1.18	1.0	.29	.21	64.6	62.9	00422P
50	262	79	.08	.14	1.22	1.3	1.23	1.4	.05	.29	39.2	42.0	00050P
382	365	79	3.29	.22	1.23	1.6	1.18	1.3	.05	.18	54.4	63.5	00382P
263	346	79	2.46	.20	1.23	1.5	1.21	1.5	.20	.20	48.1	54.8	00263P
240	366	79	3.34	.22	1.23	1.6	1.20	1.4	.09	.18	62.0	64.4	00240P
107	341	79	2.27	.19	1.22	1.4	1.21	1.4	-.18	.20	49.4	56.4	00107P
404	335	79	2.05	.19	1.22	1.3	1.20	1.2	.31	.21	59.5	59.5	00404P
196	381	79	4.29	.29	1.22	1.0	1.05	.3	.37	.14	84.8	82.5	00196P
261	353	79	2.75	.20	1.22	1.5	1.20	1.5	.14	.19	55.7	55.1	00261P
172	320	79	1.53	.18	1.18	1.0	1.21	1.1	.22	.22	51.9	64.0	00172P
148	301	79	.95	.17	1.21	1.1	1.21	1.1	.30	.24	59.5	61.0	00148P
410	299	79	.90	.16	1.20	1.1	1.21	1.1	.31	.24	45.6	59.8	00410P
170	314	79	1.34	.18	1.17	.9	1.21	1.1	.00	.22	54.4	64.1	00170P
15	296	79	.82	.16	1.20	1.1	1.21	1.1	.48	.24	54.4	58.7	00015P
21	335	79	2.05	.19	1.20	1.2	1.20	1.2	.05	.21	53.2	59.5	00021P
BETTER FITTING OMITTED													
269	319	79	1.49	.18	.83	-.9	.77	-1.3	.38	.22	78.5	64.1	00269P
317	318	79	1.46	.18	.79	-1.1	.81	-1.0	.24	.22	67.1	64.1	00317P
104	343	79	2.35	.20	.80	-1.4	.80	-1.4	-.01	.20	62.0	55.4	00104P
287	359	79	3.00	.21	.80	-1.6	.80	-1.6	.32	.19	64.6	58.0	00287P
99	346	79	2.46	.20	.80	-1.5	.80	-1.5	-.07	.20	59.5	54.8	00099P
96	346	79	2.46	.20	.80	-1.5	.79	-1.5	.15	.20	51.9	54.8	00096P
98	339	79	2.20	.19	.79	-1.4	.78	-1.5	-.19	.20	68.4	57.3	00098P
161	263	79	.10	.14	.79	-1.4	.79	-1.3	.45	.29	46.8	42.7	00161P
318	320	79	1.53	.18	.77	-1.3	.79	-1.2	.33	.22	67.1	64.0	00318P
64	281	79	.46	.15	.78	-1.3	.79	-1.2	.25	.26	58.2	50.3	00064P
339	352	79	2.70	.20	.78	-1.7	.78	-1.7	.20	.20	60.8	55.0	00339P
330	341	79	2.27	.19	.78	-1.5	.78	-1.5	-.04	.20	62.0	56.4	00330P
150	285	79	.55	.15	.78	-1.3	.78	-1.2	.38	.26	53.2	52.9	00150P
312	342	79	2.31	.20	.76	-1.6	.78	-1.5	.26	.20	63.3	55.8	00312P
438	341	79	2.27	.19	.78	-1.5	.78	-1.5	.16	.20	64.6	56.4	00438P
86	338	79	2.16	.19	.78	-1.4	.78	-1.5	.01	.20	67.1	57.9	00086P
311	315	79	1.37	.18	.76	-1.3	.77	-1.2	.36	.22	65.8	64.2	00311P
114	338	79	2.16	.19	.76	-1.6	.77	-1.6	.06	.20	67.1	57.9	00114P
181	347	79	2.50	.20	.76	-1.7	.76	-1.8	.07	.20	62.0	54.5	00181P
112	333	79	1.98	.19	.76	-1.5	.76	-1.5	-.04	.21	70.9	60.4	00112P
97	345	79	2.42	.20	.75	-1.8	.75	-1.8	.01	.20	64.6	55.1	00097P
76	297	79	.85	.16	.70	-1.7	.75	-1.3	.47	.24	57.0	59.0	00076P
116	345	79	2.42	.20	.75	-1.8	.75	-1.8	.01	.20	62.0	55.1	00116P
377	336	79	2.08	.19	.75	-1.6	.75	-1.7	.51	.21	65.8	59.0	00377P
402	351	79	2.66	.20	.74	-2.0	.75	-2.0	.26	.20	60.8	55.0	00402P
37	291	79	.69	.16	.75	-1.4	.69	-1.8	.29	.25	69.6	56.2	00037P
94	344	79	2.39	.20	.74	-1.8	.75	-1.9	.20	.20	58.2	55.2	00094P
102	340	79	2.23	.19	.75	-1.7	.74	-1.8	.00	.20	65.8	56.8	00102P
48	258	79	.01	.13	.72	-1.9	.74	-1.7	.08	.29	48.1	41.3	00048P
110	344	79	2.39	.20	.74	-1.9	.74	-1.9	.00	.20	58.2	55.2	00110P

125	342	79	2.31	.20	.74	-1.8	.74	-1.8	-.11	.20	65.8	55.8	00125P
165	289	79	.65	.15	.71	-1.7	.74	-1.5	.06	.25	48.1	54.8	00165P
36	264	79	.12	.14	.69	-2.1	.74	-1.7	.31	.29	59.5	43.7	00036P
167	331	79	1.90	.19	.72	-1.7	.73	-1.7	.10	.21	70.9	61.3	00167P
122	345	79	2.42	.20	.73	-2.0	.73	-2.0	.08	.20	64.6	55.1	00122P
129	352	79	2.70	.20	.72	-2.2	.73	-2.2	.36	.20	63.3	55.0	00129P
441	324	79	1.66	.18	.72	-1.6	.73	-1.6	.45	.21	67.1	63.4	00441P
33	293	79	.74	.16	.69	-1.8	.73	-1.5	.20	.25	57.0	57.9	00033P
213	346	79	2.46	.20	.72	-2.1	.73	-2.1	.14	.20	67.1	54.8	00213P
163	322	79	1.59	.18	.70	-1.7	.72	-1.6	.00	.21	78.5	63.7	00163P
411	341	79	2.27	.19	.72	-2.0	.72	-2.0	.51	.20	64.6	56.4	00411P
117	343	79	2.35	.20	.72	-2.0	.72	-2.0	.02	.20	64.6	55.4	00117P
392	324	79	1.66	.18	.72	-1.6	.72	-1.7	.46	.21	67.1	63.4	00392P
100	341	79	2.27	.19	.72	-2.0	.72	-2.0	.13	.20	67.1	56.4	00100P
298	329	79	1.83	.19	.72	-1.7	.72	-1.7	.17	.21	70.9	62.0	00298P
12	303	79	1.01	.17	.72	-1.6	.70	-1.7	.47	.23	68.4	62.2	00012P
373	354	79	2.79	.21	.71	-2.4	.71	-2.3	.45	.19	68.4	55.4	00373P
412	337	79	2.12	.19	.71	-1.9	.71	-2.0	.51	.20	63.3	58.4	00412P
120	343	79	2.35	.20	.71	-2.1	.71	-2.1	.05	.20	67.1	55.4	00120P
310	340	79	2.23	.19	.69	-2.2	.71	-2.1	.15	.20	68.4	56.8	00310P
433	318	79	1.46	.18	.69	-1.7	.71	-1.7	.49	.22	67.1	64.1	00433P
155	287	79	.60	.15	.70	-1.7	.69	-1.8	.38	.26	57.0	54.2	00155P
331	349	79	2.58	.20	.69	-2.4	.70	-2.4	.34	.20	69.6	54.2	00331P
126	337	79	2.12	.19	.70	-2.0	.70	-2.1	-.03	.20	70.9	58.4	00126P
92	340	79	2.23	.19	.69	-2.2	.69	-2.2	.17	.20	68.4	56.8	00092P
103	341	79	2.27	.19	.68	-2.3	.68	-2.3	.04	.20	69.6	56.4	00103P
322	326	79	1.73	.19	.67	-2.0	.68	-2.0	.07	.21	74.7	62.9	00322P
453	345	79	2.42	.20	.67	-2.5	.68	-2.5	.26	.20	69.6	55.1	00453P
93	341	79	2.27	.19	.67	-2.3	.68	-2.4	.26	.20	69.6	56.4	00093P
434	332	79	1.94	.19	.66	-2.2	.67	-2.2	.34	.21	69.6	60.9	00434P
14	299	79	.90	.16	.66	-2.0	.67	-1.9	.44	.24	65.8	59.8	00014P
391	285	79	.55	.15	.65	-2.1	.67	-2.0	.38	.26	62.0	52.9	00391P
22	323	79	1.63	.18	.65	-2.1	.67	-2.0	.23	.21	73.4	63.6	00022P
101	338	79	2.16	.19	.66	-2.3	.66	-2.4	-.10	.20	72.2	57.9	00101P
313	327	79	1.76	.19	.66	-2.1	.66	-2.1	.18	.21	73.4	62.6	00313P
436	293	79	.74	.16	.66	-2.0	.65	-2.1	.55	.25	63.3	57.9	00436P
304	324	79	1.66	.18	.66	-2.0	.64	-2.2	.10	.21	74.7	63.4	00304P
159	344	79	2.39	.20	.65	-2.7	.66	-2.6	.27	.20	65.8	55.2	00159P
427	343	79	2.35	.20	.64	-2.7	.65	-2.6	.24	.20	64.6	55.4	00427P
63	345	79	2.42	.20	.64	-2.8	.65	-2.7	.34	.20	64.6	55.1	00063P
134	319	79	1.49	.18	.64	-2.1	.65	-2.1	.08	.22	75.9	64.1	00134P
27	325	79	1.70	.18	.64	-2.2	.65	-2.2	.26	.21	77.2	63.2	00027P
369	339	79	2.20	.19	.63	-2.7	.63	-2.7	.07	.20	70.9	57.3	00369P
378	314	79	1.34	.18	.63	-2.1	.63	-2.2	.28	.22	72.2	64.1	00378P
89	333	79	1.98	.19	.63	-2.5	.63	-2.5	.12	.21	73.4	60.4	00089P
290	325	79	1.70	.18	.62	-2.4	.63	-2.3	.13	.21	75.9	63.2	00290P
18	298	79	.87	.16	.63	-2.2	.57	-2.6	.49	.24	77.2	59.2	00018P
333	338	79	2.16	.19	.62	-2.7	.63	-2.7	.25	.20	69.6	57.9	00333P
393	322	79	1.59	.18	.63	-2.3	.61	-2.4	.21	.21	82.3	63.7	00393P
91	337	79	2.12	.19	.62	-2.7	.62	-2.7	.19	.20	70.9	58.4	00091P
214	329	79	1.83	.19	.61	-2.5	.62	-2.5	.28	.21	73.4	62.0	00214P
105	338	79	2.16	.19	.62	-2.7	.62	-2.7	.04	.20	72.2	57.9	00105P
124	334	79	2.01	.19	.62	-2.6	.62	-2.6	.01	.21	74.7	60.0	00124P
13	317	79	1.43	.18	.61	-2.3	.59	-2.5	.30	.22	77.2	64.2	00013P
75	292	79	.72	.16	.58	-2.6	.61	-2.4	.13	.25	59.5	57.4	00075P
118	339	79	2.20	.19	.60	-2.9	.60	-2.9	.16	.20	70.9	57.3	00118P
332	342	79	2.31	.20	.59	-3.1	.61	-3.0	.34	.20	68.4	55.8	00332P
121	339	79	2.20	.19	.60	-2.9	.60	-2.9	.17	.20	70.9	57.3	00121P
324	331	79	1.90	.19	.59	-2.7	.60	-2.7	.29	.21	73.4	61.3	00324P
106	333	79	1.98	.19	.59	-2.8	.60	-2.7	.02	.21	75.9	60.4	00106P
306	334	79	2.01	.19	.59	-2.8	.60	-2.8	.29	.21	72.2	60.0	00306P
90	337	79	2.12	.19	.58	-3.0	.59	-3.0	.30	.20	70.9	58.4	00090P
4	310	79	1.21	.17	.56	-2.6	.59	-2.4	.37	.23	72.2	63.8	00004P
135	321	79	1.56	.18	.58	-2.6	.58	-2.6	.44	.22	73.4	63.9	00135P
320	330	79	1.87	.19	.57	-2.9	.58	-2.8	.07	.21	77.2	61.6	00320P
81	332	79	1.94	.19	.57	-2.9	.58	-2.9	.00	.21	77.2	60.9	00081P
146	295	79	.79	.16	.57	-2.6	.57	-2.6	.46	.25	67.1	58.5	00146P
336	309	79	1.18	.17	.56	-2.7	.57	-2.6	.30	.23	73.4	63.6	00336P
431	247	79	-.18	.13	.57	-3.4	.57	-3.3	.41	.30	53.2	38.8	00431P
139	298	79	.87	.16	.57	-2.6	.53	-2.9	.30	.24	79.7	59.2	00139P
8	272	79	.27	.14	.56	-3.1	.57	-2.9	.26	.28	55.7	46.8	00008P
446	331	79	1.90	.19	.57	-2.9	.56	-3.0	.36	.21	77.2	61.3	00446P
68	334	79	2.01	.19	.56	-3.1	.56	-3.1	-.05	.21	77.2	60.0	00068P
449	295	79	.79	.16	.53	-2.9	.53	-2.9	.34	.25	75.9	58.5	00449P

328	282	79	.48	.15	.50	-3.4	.53	-3.1	.42	.26	65.8	51.4	00328P
418	308	79	1.15	.17	.53	-2.9	.52	-3.0	.27	.23	74.7	63.4	00418P
61	333	79	1.98	.19	.52	-3.4	.52	-3.5	.02	.21	78.5	60.4	00061P
9	322	79	1.59	.18	.52	-3.1	.52	-3.2	.15	.21	79.7	63.7	00009P
87	330	79	1.87	.19	.52	-3.3	.52	-3.4	.03	.21	79.7	61.6	00087P
405	304	79	1.04	.17	.51	-3.0	.51	-3.0	.32	.23	70.9	62.4	00405P
6	308	79	1.15	.17	.50	-3.1	.50	-3.1	.35	.23	78.5	63.4	00006P
305	328	79	1.80	.19	.50	-3.4	.50	-3.5	.13	.21	79.7	62.3	00305P
45	295	79	.79	.16	.49	-3.3	.50	-3.2	-.09	.25	69.6	58.5	00045P
413	335	79	2.05	.19	.49	-3.8	.50	-3.7	.28	.21	75.9	59.5	00413P
316	289	79	.65	.15	.49	-3.3	.49	-3.3	.02	.25	60.8	54.8	00316P
289	319	79	1.49	.18	.46	-3.6	.48	-3.4	.26	.22	81.0	64.1	00289P
295	327	79	1.76	.19	.45	-3.8	.46	-3.8	.22	.21	81.0	62.6	00295P
439	334	79	2.01	.19	.42	-4.4	.44	-4.3	.42	.21	77.2	60.0	00439P
291	330	79	1.87	.19	.42	-4.2	.43	-4.2	.35	.21	79.7	61.6	00291P
123	329	79	1.83	.19	.43	-4.1	.43	-4.2	z .00	.21	83.5	62.0	00123P
379	314	79	1.34	.18	.43	-3.8	.41	-4.0	y .38	.22	83.5	64.1	00379P
66	270	79	.23	.14	.42	-4.4	.42	-4.3	x .14	.28	60.8	45.9	00066P
180	297	79	.85	.16	.42	-3.9	.39	-4.1	w .35	.24	74.7	59.0	00180P
80	319	79	1.49	.18	.41	-4.0	.42	-4.0	v .21	.22	83.5	64.1	00080P
337	320	79	1.53	.18	.40	-4.1	.41	-4.1	u .34	.22	82.3	64.0	00337P
54	281	79	.46	.15	.40	-4.4	.41	-4.2	t .40	.26	64.6	50.3	00054P
293	321	79	1.56	.18	.40	-4.1	.41	-4.1	s .24	.22	83.5	63.9	00293P
294	328	79	1.80	.19	.38	-4.6	.40	-4.5	r .33	.21	82.3	62.3	00294P
334	316	79	1.40	.18	.38	-4.2	.39	-4.2	q .18	.22	84.8	64.2	00334P
297	318	79	1.46	.18	.35	-4.6	.36	-4.6	p .31	.22	84.8	64.1	00297P
296	324	79	1.66	.18	.34	-4.8	.36	-4.7	o .32	.21	84.8	63.4	00296P
416	306	79	1.09	.17	.34	-4.6	.35	-4.6	n .09	.23	83.5	62.8	00416P
288	317	79	1.43	.18	.32	-4.9	.32	-5.0	m .33	.22	86.1	64.2	00288P
407	317	79	1.43	.18	.30	-5.1	.32	-5.0	l .16	.22	88.6	64.2	00407P
323	319	79	1.49	.18	.30	-5.1	.31	-5.2	k .15	.22	88.6	64.1	00323P
292	322	79	1.59	.18	.29	-5.4	.30	-5.4	j .31	.21	87.3	63.7	00292P
327	316	79	1.40	.18	.30	-5.1	.30	-5.2	i .28	.22	87.3	64.2	00327P
17	312	79	1.27	.18	.30	-5.1	.30	-5.1	h .24	.22	87.3	64.0	00017P
183	311	79	1.24	.17	.28	-5.3	.25	-5.7	g .16	.22	96.2	63.9	00183P
326	316	79	1.40	.18	.27	-5.5	.27	-5.6	f .40	.22	87.3	64.2	00326P
335	314	79	1.34	.18	.22	-6.1	.21	-6.3	e .34	.22	89.9	64.1	00335P
399	323	79	1.63	.18	.20	-6.6	.21	-6.5	d .31	.21	91.1	63.6	00399P
38	316	79	1.40	.18	.05	-9.8	.05	-9.9	c .00	.22	100.0	64.2	00038P
52	316	79	1.40	.18	.05	-9.8	.05	-9.9	b .00	.22	100.0	64.2	00052P
381	316	79	1.40	.18	.05	-9.8	.05	-9.9	a .00	.22	100.0	64.2	00381P
MEAN	335.3	79.0	2.22	.20	1.00	-.3	1.00	-.3			62.9	61.7	
S.D.	30.7	.0	1.14	.05	.51	2.5	.50	2.4			14.7	8.6	

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