

Facets of Teacher Education

**Some Principles Of Assessment And Evaluation
In Teacher Education**

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"Our primary message to school is to look beyond the schoolhouse to the role students will play when they leave to become workers, parents and citizens. Our message to teachers is to look beyond your discipline and your classroom to the other courses your students take, to your community, and to lives of your students outside school...Our message to employers is to look outside your company and change your view of responsibility for human resource development" SCANS 1997

McMillan (2000) writing about the fundamental principles of assessment of teacher and school administrators says that though several authors have argued that there are a number of "essential" assessment concepts, principles, techniques, and procedures that teachers and administrators need to know about (e.g. Fullan 2001, Calfee & Masuda, 1997; Cizek, 1997; Ebel, 1962; Farr & Griffin, 1973; Fleming & Chambers, 1983; Gullickson, 1985, 1986; Mayo, 1967; McMillan, 2001; Sanders & Vogel, 1993; Schafer, 1991; Stiggins & Conklin, 1992), there continues to be relatively little emphasis on assessment in the preparation of, or professional development of, teachers and administrators (Stiggins 2000)¹. In most of the developed countries the standards now require institutions to provide compelling evidence that teachers entering the profession know the subject they plan to teach and how to teach effectively so that students demonstrate learning. The accrediting body requires multiple measures of candidate performance over the period of time candidates are enrolled in the program, and uses external evidence such as state licensing exam data and employer evaluations as factors in accrediting decisions.² How Teaching Matters, an ETS study released in October, 2000³, finds that teachers' classroom practices greatly influence student achievement, and that 'more attention needs to be paid' to improving classroom practices. Student achievement increases when students have teachers who are trained in developing higher order thinking skills, who are skilled at implementing hands-on experiences in the classroom, and who are trained to work with special populations. The findings support teacher development, and dispel the idea that only subject matter knowledge is necessary in order to teach effectively. Moreover, the role of the teacher is changing. The SCANS commissions' statement that is quoted above has brought 'Service Learning' to the center of learning in American Schools. One would be surprised to see how much of service learning is done in the American Schools today. It is practiced at every grade level and today at university admission the American Universities give preference to students with good 'service learning' records. These studies show that clinical preparation of teacher is crucial for successful teaching. This means the teacher has to be prepared just the way one would prepare a medical doctor to treat a patient.

Function of Assessment and Evaluation

I wish to state the functional importance of assessment and evaluation than define it. 'Assessment and evaluation in any education program is a tool of learning. It is a tool of monitoring. It is tool of mentoring a learner. It is an integral part of the program that weaves through all activities and events to ensure its quality. It is an instrument of ensuring quality of learning. It is an instrument

¹. Stiggins, R. J. (2000). Classroom assessment: A history of neglect, a future of immense potential. Paper presented at the Annual Meeting of the American Educational Research Association.

² [The National Council for Accreditation of Teacher Education \(NCATE\) : E-mail: \[ncate@ncate.org\]\(mailto:ncate@ncate.org\) http://www:Teacher Ed/dec_rept_release.htm](http://www.NCATE.org/Teacher_Ed/dec_rept_release.htm); Accrediting Body Changing the Status Quo in Teacher Preparation Many States Adopt Profession's Standards, The National Council for Accreditation of Teacher Education (NCATE), Feb 2001

³NCATE; [http://www. NCATE.org/Teacher_Ed/NCATE-.htm](http://www.NCATE.org/Teacher_Ed/NCATE-.htm), Summary Data on Teacher Effectiveness, Teacher Quality, and Teacher Qualifications, 2001

that guides the teacher and the students with common objectives to reach a set goal. It is a vehicle of mobilizing the vision of a program towards its expected outcomes to ensure that it achieves the end result. Therefore, assessment and evaluation in teacher education, if it is fully realized within its own totality, is the most powerful instrument of achieving program effectiveness. Assessment and evaluation is also the most powerful instrument of program management to achieve its efficiency. Efficiency is the economic aspect of the program. It is necessary for the managers to know the economic efficiency of the program. Is the program running with its expected 'cost-effectiveness? The efficiency in the management of time frames and tasks, efficiency of handling student activities, efficiency in reaching every student, efficiency in ensuring activities without trading in quality. These are all assessment and evaluation oriented questions.'

One can take each of the above functions and analyze further. These functions are necessary to achieve the expected efficiency and effectiveness of the program. Once a program spells out the details of those functions, naturally assessment and evaluation would be webbed and inter-woven into all aspects and events of the program. This makes assessment and evaluation an integral part of the program.

Unfortunately, we often witness the misuse of assessment and evaluation in all teacher education programs. The usual practice of assessment is to assess students' performance to give them a grade and release results and finish the business. This is not only true for teacher education but also for schools. This misuse of assessment and evaluation has created a fear in student about assessment. Test taking is a fearful act for most of the students because for most of the learners it brings failure. Test is a critical event, which often decides the future of the student; rather than helping one in learning.

Therefore, the first principle to establish here is that assessment and evaluation is a tool for help, tool for guidance and tool for ensuring success and avoiding failure. This should be the spirit of the use of assessment and evaluation in teacher education programs and particularly this should be so in the training of teacher in order to demonstrate and train them to use assessment and evaluation for helping their students achieve success.

If the above description of the role and function of assessment and evaluation is accepted, then the two most important aspects of assessment and evaluation are *effectiveness and efficiency*. In fact in program evaluation these two aspects decides what to assess, when to assess and how to assess. Therefore, it is necessary to understand what is meant by effectiveness and efficiency.

Effectiveness relates to the degree of learning achievement, and the degree of success that the program has achieved against its expected outcomes. This indicates that the programs must have *predetermined expected outcomes* to assess the degree of achievement of outcomes. To achieve success trainee and the trainer have to know the degree of achievement that is expected as the minimum requirement to certify success. These predetermined expected performance should be fully communicated to the trainee and the trainer and the programs should be developed to enable the achievement of those outcomes. These are often communicated as *goals and objectives*. These relate to several key variables and dimensions in assessment and evaluation, which need further descriptions.

Efficiency relates to cost-effectiveness. It is an assessment of the *cost-effectiveness* of the interventions, processes, instruments and equipment of the program. Did the program select the most cost-effective approach to training and education? Were the interventions, methods and approaches used in achieving its expected outcomes cost effective? There are many paths to reach the same goals and objectives. There are many ways that the same thing can be done. However, all alternatives are not equally effective and efficient. Assessment and evaluation in teacher education is not only a matter of assessing the teacher trainee's achievement but also the efficacy of the delivery and the management of the program. There is no point in finding the failures of a program at the end of the

program. Therefore, assessment and evaluation needs to be built to provide information to the planners, managers and also the recipients more frequently to enable them monitor the program to achieve its goals and objectives. This means the program should be focused on student's achievement and on the degree of achievement of the expected outcomes to assess efficiency of the program. In other words it is an assessment of the teacher trainee and the trainers, institutions, and the managers of the program. All these aspects should be built into the teacher education program to make it work

Expected Outcomes and The Ideology of Teacher Education

The rational analysis of expected outcomes should be derived from its *ideology* at various levels, and at each and every educational intervention. Often what we see in the centralized educational systems in the developing countries is an educational paradox, contradictions and inconsistencies of interventions. The ideology of teacher education has to be derived from the ideology of education. The teacher is a key interactive force and a catalyst in the total development of the young child. *A teacher needs to be a clinician who is prepared to teach as well as to function as an Animator who could transform the young child to a human resource, a worthy citizen through the human development interventions, which more often, is offered as formal schooling and education. Although the formal education model and the school model perhaps are not the best ways of developing the human resource in the developing countries, formal school is the only available institution in society.* Therefore, the best possible intervention is to prepare the school curriculum and the teacher in the formal schools to meet with these human resource development needs. Preparing teachers to work with the children and community and to develop their skills to meet with the growing socio-economic needs of tomorrow is a bigger challenge than most of our teacher education programs have ever envisaged. It is in this perspective that the teacher education in the developing countries needs to be perceived to contribute to a more effective social transformation – (Sedere 2000).

Teacher's role is multidimensional. In most of the countries teacher education and training programs are designed to produce teachers mostly centered on successful teaching in a conventional frame. There had been very little effort on the part of the policy makers and teacher educators to adopt drastic changes in the teacher education programs to meet with the socioeconomic demands of the society. Partly this is due to conservatism that prevails in the bureaucracies and partly is the lack of understanding of education as the most powerful intervention of sustainable human development. These shortcomings exist even in the developed countries. Though, 'Service-Learning' and 'National Community Service' have become an essential part of the American education system, nothing much has been incorporated in the teacher preparation programs. Similarly in a recent study in the United States it was found that although teachers have considerable influence on young people's moral development, research evidence of several studies suggest that the pre-service teacher education programs demonstrates lower principled moral reasoning than college students in other majors – (Cummings at el 2001). Kielsmeier (May 2000)⁴ states that 'Service-Learning' challenges the existing roles of teachers, parents and other members of communities by demanding new levels of involvement. *The teacher effectiveness in the developing countries has to be assessed in the context of the challenges that the developing countries are faced with. The assessment and evaluation in teacher education alone cannot do this unless the ideology of education fully supports such activities. Ideology of education should be translated to the teacher education programs.*

The teacher's primary task is to develop the child as a human being to acquire the basic competencies that are required for a child to live as a dignified adult. However, the teacher has to perform this task within the boundaries set-forth for the teacher. The curriculum, the methods, materials, school conditions, functioning roles, etc guide the teacher. Therefore, the role of the teacher and the functions of a teacher are important consideration in framing of the policies. Therefore, as a pre-requisite to assessment and evaluation in teacher education, it is necessary to know the ideological stand of

⁴ Kielsmeier, James – "A Time to Serve, A Time to Learn – Service Learning and The Promise of Democracy" May 2000, Phi Delta Kappan, Volume 81 No: 9

teacher education as assessment and evaluation is bound to follow suit it. Teacher education must be a cohesive act of extending the ideology of education to the learner.

Assessment and Evaluation

Teacher assessment and evaluation are often designed to serve two purposes: *(a) to measure teacher competence and (b) to foster professional development and growth of the teacher.* The assessment of competence is largely for certification to assure that a teacher is equipped with the required skills to perform the expected role. The further professional growth of the teacher is a continuous function. A teacher has to up-date skills and remain an active learner through out his or her carrier. Therefore, the teacher has to absorb the ideology and the mission of education towards human development to continue to function effectively and efficiently. In most of the developing countries there is hardly any follow up training in place to work with the teacher for further professional advancement.

Teacher education programs have to make a serious attempt to use assessment and evaluation continuously in shaping the teacher's personality. Most of the teacher-training programs have failed in this respect and have produced non-functional (non-productive) teachers who acquire training only for the sake of qualification. Most of the trained teachers get back to schools and continue to teach in the same way that they used to teach before. This failure is partly due to the lack of continuous monitoring and mentoring of teachers during the training and partly due to lack of follow-up procedures to ensure effective functioning of teachers. The programs have failed to make the real change in the teacher's personality. Changing the personality of a teacher who is already used to a way of teaching is a difficult task, as such teachers have to unlearn before learning innovative methods and techniques. This is one reason why *pre-service training* is preferred over in-service training in developing teacher personality. Teacher education should translate the *vision and mission of education to teacher skills* and in turn ensure children's accomplishment of the expected outcomes of schooling. The best instrument to use is an in built system of assessment and evaluation of every necessary step, behavior and skill of the trainee teachers to mentor their personalities to ensure that they are the type of teachers envisaged by the ideology of education. Most of the teacher education programs are so conventional and, are neither based on the development ideology nor are mentored or monitored to train them to become catalysts of the ideology. A trainee teacher must face continuous formative assessments to ensure the professional growth during the training in order to ensure the requisite skills are acquired. Teacher educators should design the formative and summative assessments in such a way as to ensure that at the end of the training the teacher achieves the requisite skills, qualities and knowledge to perform the expected role and function effectively and efficiently. Tteacher education programs should be designed to produce '*functionary-productive-teachers*' and the assessment and evaluation should be integrated to the training to enable certification of the desired teacher personality.

Assessment and evaluation in teacher education should be more directed at the development of teacher personality by making assessment and evaluation an integral part of the program at all events and levels of the program. Assessment should convey the importance of shaping the 'teacher personality and positive personality traits' to become an effective and efficient teacher. The high importance that assessments now place on subject matter knowledge needs to be directed more to interactive personality assessment and development. This in turn would enable the programs to produce functionary-productive teachers.

Validity, Reliability and Multidimensionality

In order to be able to certify a teacher's personality and skills, the assessment and evaluation faces the critical challenge of establishing validity of assessment, which in my opinion is the most critical aspect in teacher education. In the recent years particularly those who advocate Criterion Reference

Measurement considers validity is more important than the reliability (Popham⁵ 1981) of an assessment. Therefore, the assessment and evaluation in teacher education programs have to focus more on validity of the assessment. Validity has two aspects one is the '*validity of the source of information*' and the other is the '*validity of the information*'. To ensure construct validity the assessment instruments should satisfy these two requirements. To achieve these two aspects some basic questions need to be asked and answered. Who should assess? What should be assessed? How best these could be assessed? The questions naturally lead the assessment to focus on multidimensional functions of a teacher to ensure higher level of validity. This is unavoidable.

This is an issue of **Construct Validity**. Although the definition of construct validity is challenged by many authors (Popham 1981, Norris 1983), Cronbach (1993) in an article titled, "Construct Validity After Thirty Years" states that construct in psychology and education seem "closer to common sense than to some presumed structure of nature." Messick (1994) says that validity conceptions are not uniquely tied to any particular philosophical position but rather are congenial with aspects of multiple positions. *Validity refers to the degree to which the evidence supports that these interpretations are correct and that the manner in which the interpretations are used is appropriate* (American Educational Research Association, American Psychological Association & National Council on Measurement in Education, 1999). Therefore, teacher education has to have a clear ideology and vision and training should be based on that, and the assessment and evaluation must be viewed and webbed into the system to check the pulse of the program, the achievements and the behavioral dimensions of the trainee to ensure the expected qualities are harnessed through training. In this perspective, *assessment and evaluation in teacher education has to validate its approach, methods and instruments in the light of its ideological and philosophical foundations*. The justification of assessment and evaluation naturally has to be derived from the ontology of education.

The underlining principle here is that assessment and evaluation in teacher education has to follow its philosophical ontology. It is the validity of the assessment and evaluation on the ontological realism or rationalism that should govern the assessment and evaluation of the trainee teacher's performance.

Assessment is technology. It performs an essential technical function, which demands valid and reliable approaches, methods, techniques and instruments to provide correct information for interpretations and judgments about the teacher performance on the ontological expectations. The feedback to the teacher on effectiveness and professional growth has to be realistic and rational on its philosophical foundation on which the teacher education is designed and geared for.

The dual function of assessment and evaluation rests upon the validity and reliability of the assessment. These two technical aspects are interdependent aspects of measurement. However, reliability alone has no meaning unless and otherwise validity is ensured. In the assurance of these dual functions in assessment a lot depends on the **construct validity** of the measures obtained. Most of the educational tests assess **content validity**. Most of the teacher education programs have content-based tests for certification. The teacher education programs offer educational psychology, sociology, teaching methodology and a range of subjects to the teacher trainees and assess their subject knowledge and to an extent the higher-level cognitive abilities using paper– pencil tests. The paper-pencil test is the most common one in any teacher education program that I know of. Most of the end of course student certification is done on the basis of such test results. It places relatively a lower weight on the other assessments such as the grade for practice teaching, portfolio management, role of the teacher and the personality. In the developing countries, without much fear I can say, there is no teacher education program that takes either the 'student's evaluation of the teacher' or 'the peer evaluation' in the certification of performance. Most of the tests attempt to show that they assess the ability to apply knowledge by having a test item for which the candidate is expected to develop a

⁵ Because the chief thrust of Criterion Referenced test is to provide a clear picture of what it is that an examinee can or can't do, it is only natural that, for criterion-referenced tests, content validity should be a matter of paramount importance, page 105.

scheme or a plan based on some theory that was taught in class. The candidates learn these in class and simply reproduce them at examination.

The conformity of assessment to the actual performance on the ontology of teacher education ensures a good evaluation system in teacher education. Therefore, the instrumentation of assessment should be relevant and appropriate to teacher performance on the ideology of teacher education, which is envisaged as its outcome. The approaches, methods and instruments employed in the assessment should be relevant. The conformity and the suitability of the instruments to assess the expected constructs in the teacher should ensure its validity and reliability to furnish relevant and reliable information for evaluation.

Figure – 1 adopted from Samuel Messick (1993) illustrates the realistic view of constructive validity of assessment. Assessment and evaluation in teacher education should follow its realities in order to provide a meaningful and useful evaluation.

Figure 1: Constructive Realistic View of Assessment in Teacher Education

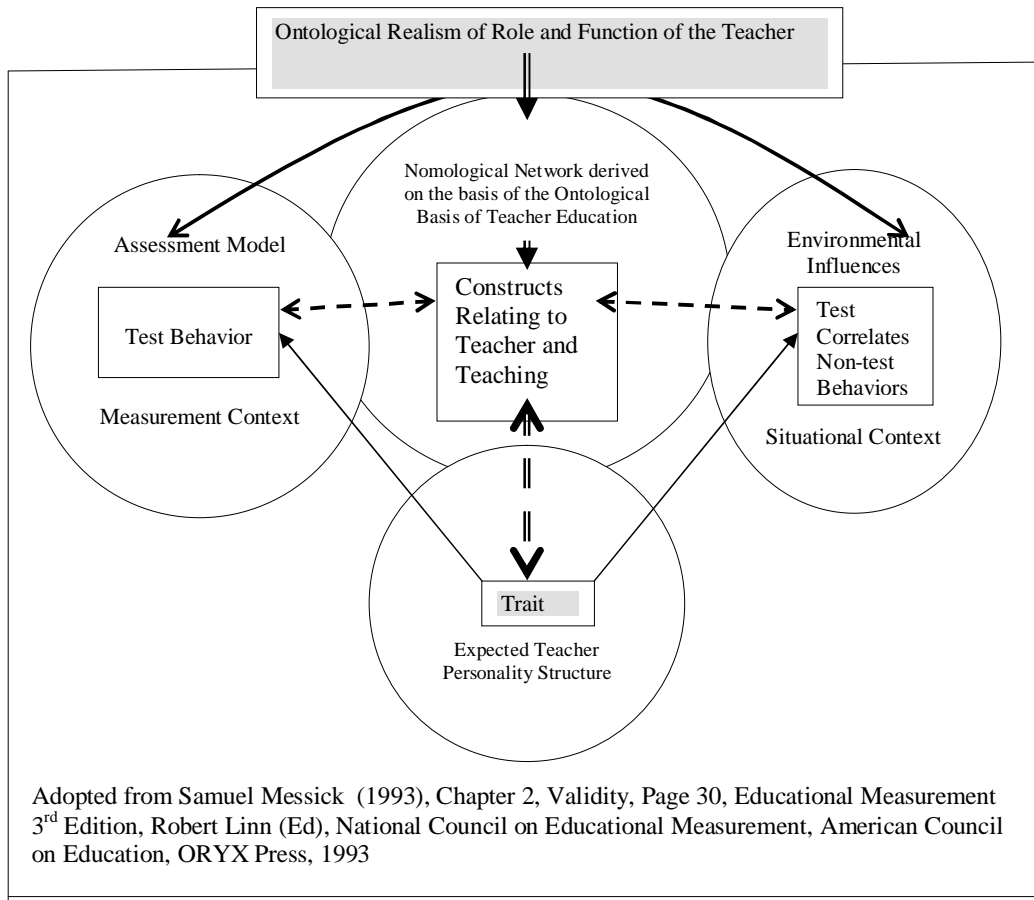
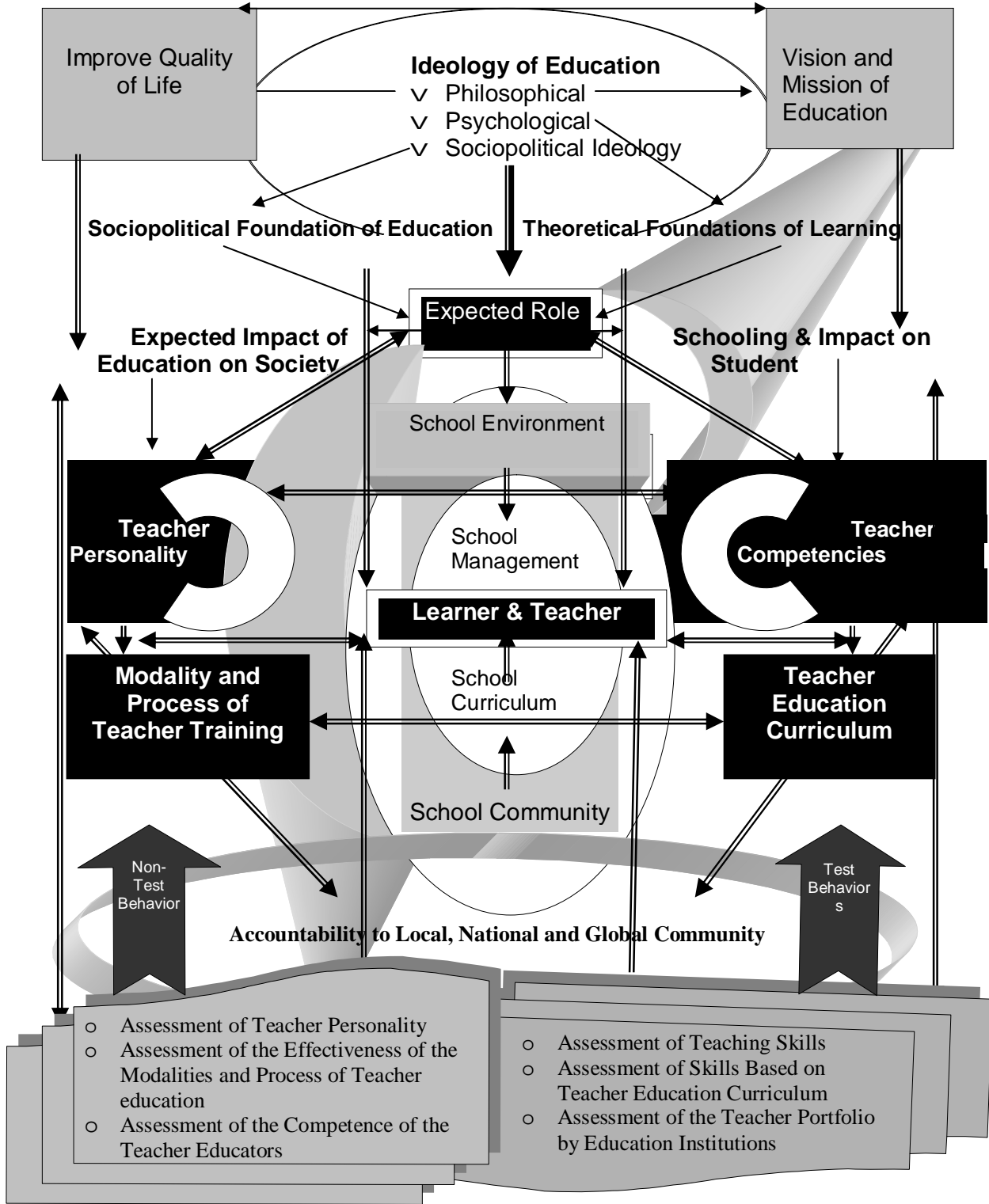


Figure – 2
The Ontological Paradigm of Teacher and Assessment in Teacher Education



The Nomological network, the laws and the rules of reasoning derived from the ideological basis of the teacher education programs, should be a direct reflection of the ideology, whatever is adopted by the policy maker to frame teacher education. The Construct Validity has to satisfy those axioms of the ideology. **Figure- 2** illustrates the 'Ontological Paradigm of Assessment in Teacher Education, which directs assessment at 'Test Behavior' and 'Non-Test behavior'. *In the case of assessment of 'Test behavior' and 'Non-Test Behavior' the examiner has to identify the most relevant variables, environments and situational context to make assessment and evaluation a useful technology of shaping of the teacher behavior and skills.*

Messick (1993) discusses the 'construct under-representation' and 'irrelevant test variance' as a threat to construct validity. This is very true for assessment and evaluation in teacher education. The teacher performs a multidimensional role. The multidimensional aspects of teachers' role and function could be utilized to satisfy this double demand of validity and reliability. Assessment and evaluation of the teacher should be done in a *realistic and rationalistic frame of reference* than simply finding the easy way of assessing through a paper-pencil group test in an examination hall. I am not ruling out the paper-pencil test in total, but the apparent dominance of paper-pencil tests in teacher education certainly discounts the value of assessment and evaluation as a technology in teacher education.

Today, assessment and evaluation is turning more and more towards '**Authentic Assessment**' to make assessment closer to the real life situation. *Authentic assessments require students to be effective performers with acquired knowledge* - Wiggins⁶ (1990). Teacher competence in performing the multiple roles and functions has to be assessed by different actors in different circumstances. The relevant actors are the ones the teacher is accountable for. Teacher performance is best seen in student performance and student attitudes and judgments. The student's performance does not imply the student's cognitive performance alone in a given cognitive test. One must realize that most of the teacher education programs are centered on psychological models of cognitive operations and these implicit theories proved to be inappropriate (Kolbe 1998)⁷. This has been the main cause for teacher education also to be biased to the cognitive domain. In most of the lower grade classes particularly in the KG through Grade five, perhaps the parents are better judges of teacher performance than the students. These teachers have characteristics that make the person an effective and efficient teacher. These characteristics are the ones that make the teacher 'a good teacher' or 'a weak teacher'. These teacher traits are the ones that need to be assessed. These traits are seen through the 'Construct Validity' of the test and are not likely to be seen through the content oriented test those that satisfies 'Content Validity'. Most of the teacher education programs are heavily loaded on the cognitive performance of the trainee teacher than on teacher personality, commitment, actual working with children, and shaping of the lasting qualities of the younger children. Only multiple measurements satisfying the ontological idealism and realism of the functional teacher would enable meaningful evaluation in teacher education. More authentic measurement has to be identified to assess and evaluate the trainee teachers in teacher education programs.

The following Table – 1 illustrates the theoretical and logical demands on assessment in teacher education. The Table – 1 simplifies the assessment and evaluation dimension and the theoretical and the logical demand on assessment and evaluation. . Although there are many deviations to this simplification, in general if one assures good construct validity in the assessment, naturally that contributes to increase the reliability of the assessment. If assessment is lower in validity it is not possible to make a reliable evaluation of a teacher by using such data. Therefore, it is important to the teacher evaluators to understand these dimensions. The identification of the multidimensional role and function of the teacher is an important pre-requisite to assessment and evaluation in teacher education. It is assumed that the multidimensional role of the teacher is spelled out in the teacher education program in specific terms. It is important to point out that the *construct validity depends on the analysis of the profile of the teacher as a functionary and the ability to produce the expected out*

⁶ Wiggins, Grant (1990). The case for authentic assessment. *Practical Assessment, Research & Evaluation*, 2(2). Available online: <http://ericae.net/pare/getvn.asp?v=2&n=2>.

⁷ Fritz-Ulrich Kolbe (1998), *Teacher Education Without Normative Guidelines For Practical Action Knowledge?*

comes in the student. The usual assessments are centered on objective learning, competency, understanding, and professional growth, appropriate attitudes, mastery of subject matter, motivation and future orientation of learning etc. Hardly ever are the learner's learning, and learner's attitudes are accounted in the assessment in teacher education. One requires examining the teacher as a learner but more importantly are to be assessed as a performer in his or her own context. On the other hand as is shown in the Table-2, if multidimensional roles and functions of teacher are included in the assessment, that would increase the construct validity and also would provide multiple measurements (assessment data) of the trainee teacher and that in turn increases the reliability. The multiple measurements are more reliable in the evaluation of teachers than using single variable linear assessments of the teacher.

Table – 1: Theoretical And Logical Demands On Assessment In Teacher Education

Demand	Focus of Assessment	Focus of Evaluation
Theoretical Demands	<i>Construct Validity</i>	<i>Reliability of assessment</i>
Ontological Demands	<i>Multidimensional Role of Teacher</i>	<i>Authentic Multiple Measurement of Teacher Performance</i>

The use of the right assessment instruments to obtain multiple measurements has to be well thought out. Although, it is not possible here to discuss all these elements of the assessment, Marsh⁸ (1991, 2001) makes a valuable analysis of the multidimensional measurements of assessing teacher performance. Marsh (2001) evaluating student workloads, grades, perceptual learning and background variables strongly support the use of Student Work-Sampling Systems (WSS) in teacher evaluation. Such research also provides insights to the assessment and evaluation in teacher education, as teacher training has to provide objectivity to the teacher (Boyd⁹ 1989). Subjectivity in assessment of student achievement is a factor of concern in all assessments. Subjectivity reduces the reliability of the assessment. However, teacher education in most of the developing countries has not taken significant steps to train the teachers to be objective in their assessments of students, and also the teacher trainers to be objective in their assessments. **Table – 2** provides the likely actors who should provide assessments of the teachers. The likely persons who should evaluate teacher performance are the teacher trainers, Headteachers (Principals) and the Supervisory teachers, Peers, Students who received instruction and the parents of those learners. What should be assessed? And, How should be assessed? Are further illustrated in Table – 2. Table –2 illustrates the possible sources of obtaining multiple measures over and above the institutional instructor based assessments. In summary, by ensuring the assessment through multiple constructs and multiple sources (Actors) the validity and the reliability of the assessment can be increased.

Teacher Competencies:

Teacher education is to develop the competencies that are needed for the successful delivery of education to achieve its expected ends. Most of the teacher education/training has been adopted without considering the realities in classrooms, school and communities. Teacher competencies should be identified accordingly and validate these to provide the basis for designing of the teacher education curriculum, identify the best fitting modalities and processes of teacher education in

⁸ Herbert W. Mash, Distinguishing Between Good (Useful) and Bad Workloads on Student Evaluation of Teaching, American Educational Research Journal, Pages 183-212, Vol: 38 Number 1, Spring 2001

⁹ Boyd, Ronald T. C., Improving Teacher Evaluations, American Institutes for Research

developing the teacher personality. The basis for the assessment and evaluation in teacher education has to be derived from these operational modes.

The assessment and evaluation scheme should be developed and validated for those realistic conditions by identifying the competencies that are needed to be effective in those conditions.

Table – 2: Illustration of Types of Assessment, its Feasibility and Contribution to Validity and Reliability

Actors Evaluation ⇒ ↓	Instructor/s	Students	Parents	Peers
Instructional Dependent Content Validity	1. Assessment of Teacher Trainee's Performance by the Training Institution and the Supervising Instructor based on the learning and teaching given by the institution	2. Assessment of the Teacher by the students who were taught by the teacher	Not Applicable	3. Assessment of the Trainee performance by the other trainee teachers those who also received instruction at the same time
Instructional Independent Construct Validity	4. Assessment of Teacher Trainee's Performance by the Training Institution not based on the training and teaching given to the trainee during the training period by the institution	5. Assessment of the Teacher personality traits than the subject matter taught	6. Assessment of Teacher performance by the parents of the students who were taught by the teacher.	7. Assessment by the Principal and the Teacher of the School Where Practice Teaching Was done by the Trainee Teacher
Multiple Measures On Validity Reliability] & Practicality	Increases the Validity and the Reliability of Assessment by having a composite score of 1 & 2 above Feasible	Increases Validity and Reliability of assessment when combined 1&2 with 3 & 4 Feasible and can be used at Middle School and above	Increases Construct Validity when 5 combined with 1&2 and 3&4 Feasible in only with regular teachers of schools	Increases Construct Validity and Reliability when combined 6 & 7 with 1 & 2 and 3 & 4 Feasible

Skills and Sub-Skills

Secondly, in teacher training it is important that the expected standards relate to important teaching / instructional skills. This is a pre-requisites to valid and reliable assessment and evaluation in competency based teacher education. It is the program that should guide the assessment and evaluation and not the other way around. In a recent article Flippo and Riccard (2000)¹⁰ describe an interesting case of 'Tail Wagging the Dog' in the Initial teacher Certification in the State of Massachusetts, where one attempts to assess teacher competencies without having a competency based teacher education program. This should not be the case. Assessment and evaluation should be an integral part of the overall program; both identified and developed on the expected ideology of education. *Competencies should be translated to Skills and Sub-skills and the course of teacher*

¹⁰ Flippo, Ronna A and Riccards Mitchael P; "Initial Teacher Certification Testing in Massachusetts: A Case of the 'Tail Wagging the Dog'" Phi Delta Kappa, September 2000

training should be skills oriented to enable the assessment and evaluation to focus on teacher effectiveness and efficiency. A competency can be seen through the demonstration of the skill in actual situations. What the teacher demonstrates is seen as a skill. Competencies and skills are not necessarily the same. One competency may demand several different skills. These may be identified as sub-skills (Sedere, FAO 1988)¹¹.

Therefore, it is important to translate or extend the competencies to skills and sub-skills. This analysis is to understand the in-between steps to ensure that the achievement of the skill which, demonstrates the expected competency. The competencies need to be translated to highly specific performance objectives. This is a way to assure accuracy of assessment. A competency is a composite of many sub-skills. The **Figure – 3** illustrates how a Competency may be translated to a skill and sub-skills. It is an analysis of the skill. To assess a competence of a teacher, one needs to know what elements are in it. It is necessary to realize that a teacher cannot be assessed and evaluated on skills and sub-skills if the teacher training has not followed a competency based course of training. Most of the teacher training programs are lecture oriented and are education programs rather than training programs. In such programs the trainers should not expect the trainee teacher to demonstrate a very high level of practical skills. This is one reason why teacher training has not been effective as expected by the policy makers. However, there are ideological difference between teacher education and teacher training. Therefore, if one is looking for competencies and skills, then that the course of training should also be skills oriented without which assessment and evaluation alone would not be successful in producing such competent teachers.

Performance Standards:

Assessment and evaluation should be as objective as possible. The expectations must be clearly communicated to the teacher at beginning of the training and throughout the training. These expectations should be reviewed frequently with assessments and evaluations to link training to the teacher's professional development.

Objective assessment of a competency is a challenge. One of the most established ways of doing this is to identify the performance standard in precise terms. This is possible only if the competency is identified in specific terms of skills and sub-skills through a task analysis. This is necessary because it is the analysis of skills that would visualize the expected performance and the expected level of performance. There are different ways of translating the task analysis to performance objectives or Specific behavioral objectives (Mager 1962, Romiszowaski 1981). The Performance Objective should tell the learner as well as the trainer what task is to be performed, where and what conditions it has to be performed; what are the expected outcomes of the performance and at what level and under what conditions the task has to be performed to demonstrate the satisfactory level of the skill. These are specific questions that a performance analysis has to answer. Many of the teacher education programs particularly in the developing countries have not taken the trouble to do such an analysis. However, developing countries must realize that increasingly professional training is moving in this direction. The author developed a simpler system of assessing Competency Based Training in the Agricultural Sector (FAO 1988). This technique analyzes the competency and also leads to the identification of 'All-Possible-Outcomes of Performance' to establish 'Performance Standards'. Performance standard should be indicative of the level of skill the teacher has achieved as skilled, semi-skilled or unskilled in that particularly activity. The skilled teacher is certified and given license to teach. The semi-skilled teacher will have to improve and reach the standard. The unskilled may be given a chance to improve if not asked to leave teaching. No parent wants an unskilled teacher to teach his or her child. Therefore, the performance standard is an essential element in the assessment and evaluation of a teacher. Setting a performance standard has to be done in an objective manner. The standard helps every trainee teacher to work towards it. It is a

¹¹ A Guide to Performance Evaluation for Competency based Training Programs in Agriculture, AAETE, FAO Indonesia 1988

Figure – 3
Translation of A Competence to Skills and Sub-Skills Through Task Analysis

Competence

The trainee teacher should be able to prepare the Annual Lesson Plan for a given subject in a given school year.

Skill

The trainee teacher demonstrates the skill by preparing an Annual Lesson Plan for Grade Six Social Studies curriculum for the current school year.

Sub-Skills

1. The trainee teacher will examine the relevant background information as a pre-requisite to the preparation of the Annual lesson Plan:
 - Identify the Social Studies course materials such as the textbooks, syllabus, teachers guides, etc that are prescribed for Grade – 6
 - Examine the Grade – 5 Social Studies curriculum and textbooks to understand the level of achievement that the Grade – 6 students are expected to have at entry level to Grade – 6.
 - If available consults the previous years social Studies Teacher to understand the task at hand
2. The trainee teacher will examine the prescribed guidelines by the curriculum makers to comply with the overall planning of the curriculum
 - Examines the Goals and Objectives of the Grade Level curriculum
 - Examines the other subjects for the grade level to understand possible horizontal integration of the lessons and subject matter
 - Examines the Grade –5 and Grade – 7 curriculum to understand the vertical integration of the curriculum
3. The trainee teacher will estimate the number of school days in the given school year and make a ‘school-term’ wise analysis of the possible number of working days:
 - Examines the number of official working days in a given school term
 - Accounts the number of school days may required to be set aside for other school activities such as sports meets, parent conferences etc
 - Take note of the local events, cultural events etc those that may not allow normal school working
4. The trainee teacher will evaluate the Lesson Units and the time requirement and assess the importance of each lesson unit, its relative weight-age and the likelihood of allocating school working days for each Lesson Unit
5. The trainee teacher will examine the Lesson Units and the Methods of Teaching and Learning, classroom lessons, activities, other activities such as projects, out of school programs, field visits etc required to be accommodated in the Annual Plan
6. The trainee teacher will consult the school administration and the other teachers teaching the Grade –6 class to examine possible sharing of school time, after school projects, field visits etc to establish team work and confirm the likely allocation of school days for the Annual Work Plan
7. Prepares the Draft Annual Plan and presents it to the teacher of Grade 6 for feedback and presents the revised Draft Plan for the school administration for feedback and concurrence.

motivator. It also helps the trainer to communicate the level the trainee has to achieve. It helps the trainer to mentor teacher trainee performance. It enables the school administrators to hire quality teachers. It assures the parents of the quality of education that their children would receive. It increases the accountability of the transaction of teaching and learning from all angles. Therefore, the performance standard is one which is a necessary pre-requisite to assessment and evaluation to increase credibility of school-based learning.

The principle here is that assessment and evaluation in teacher education must follow standards that are pre-established as the required standard that a teacher has to reach to certify her/him as a competent teacher to teach. Those who cannot achieve the requisite pre-established standards should not be allowed to enter the teaching profession.

Assessment of Reliability

Quantification of the consistency and inconsistency in examinee performance constitutes the essence of reliability analysis – (Feldt & Brennan, 1993). All measurements must be presumed to contain error. Some of this error may be systematic and some may be random. Error, cannot be removed from one's performance, but if one could assess the likely error in the examinees score, it could help the evaluator to assess the examinee performance with more reliability. Reliability of assessment is an important technical aspect of assessment because it indicates the consistency of performance. When the examiner certifies that a teacher is 'A Grade' teacher, to what a degree that assessment is true or false is conveyed through the reliability index. In the assessment of multidimensional traits of a teacher, it is rather difficult to ensure that all measures are equally reliable. Moreover, one set of scores taken on one aspect of the teacher performance may not necessarily give the same rank order that was shown on a different set of measurements of different trait. Therefore, one should not expect the scores of multidimensional measurements to have high correlations. The lower correlations across traits show that the traits are different in quality. *Therefore, a lower level of internal consistency across traits should be expected. However, within the trait the consistency either on test-re-test, parallel forms and across items internal consistency has to be high to satisfy reliability of assessment.* A teacher may do well on one trait and may not do that well on another trait. This is true. Therefore, the reliability of the assessment of each trait relating to teacher performance may have to employ the most suitable technique of assessment of reliability. One other important concern in assessment is the inter-rater consistency. To justify the assessment of traits, it is always better to have more than one examiner rating a trainee teacher. In such situations the *inter-rater consistency* is expected to be higher, indicating more reliability of assessments. Moreover, it is also important to have *independent inter-rater assessments*. Often this is difficult to satisfy, as the examiners tend to share their information being unjust to the examinee. Over and above the standardized instrument, reliable procedures need to be institutionalized to arrest such violations as such cannot be estimated by statistical indices such as the Standard Error of Measurement. Assessment should be fair by the examinee.

Multiple Approaches to Measurements of Teacher Performance

The standards now require institutions to provide compelling evidence that candidates know the subject they plan to teach and how to teach effectively so that students demonstrate learning. The accrediting body requires multiple measures of candidate performance over the period of time candidates are enrolled in the program, and uses external evidence such as state licensing exam data and employer evaluations as factors in accrediting decisions.¹²

Students' Work Sample Assessment:

Student Work Sample Assessment (SWSA) is one of the effective assessment techniques that could be used in teacher education. The teacher educators/trainers could collect valid work samples from the students who have been taught by the teacher trainees and assess the quality of student's work to assess the performance of the teacher. This technique is more a result oriented assessment because it is the output of the teaching-learning transaction that is assessed here. Marsh (2001) also has used evaluating student workloads with several other variables such as grades, perceptual learning and background variables and strongly supports the use of Student Work-Sampling Systems (WSS)..

¹² file:///C:/My Documents/Teacher Ed/dec_rept_release.htm; Accrediting Body Changing the Status Quo in Teacher Preparation Many States Adopt Profession's Standards, The National Council for Accreditation of Teacher Education (NCATE)

A Teacher Portfolio Assessment:

A teacher portfolio is an education tool, which is primarily used in two ways. First, portfolios are used as a means of authentic assessment in evaluating the effectiveness of a teacher for licensure and/or employment decisions. Second, teacher portfolios are used to provide feedback to teachers so that they may improve their teaching and level of professionalism. The majority of the programs that use teacher portfolios are pre-service teacher education programs. These programs use portfolios to increase reflection and provide an ongoing record of a teacher's growth. The portfolio provides a vehicle for assessing the relationship between teacher choices or actions and their outcomes. In addition, teachers are encouraged to share their portfolios, during construction, with both beginning and experienced teachers. This continuous dialogue is designed to provide a rich context in which to experience the multifaceted nature of teaching.

A teacher portfolio is a collection of work produced by a teacher. Just as an artist uses a portfolio of collected works to illustrate his or her talents, a teacher portfolio is designed to demonstrate the teacher's talents. Thus, teachers to highlight and demonstrate their knowledge and skills in teaching construct teacher portfolios. A portfolio also provides a means for reflection; it offers the opportunity for critiquing one's work and evaluating the effectiveness of lessons or interpersonal interactions with students or peers. Doolittle, Peter (1994)¹³. What is actually included or related in a teacher portfolio depends on how the portfolio will be used. A portfolio may include some or all of the following:

- Teacher background.
- Class description: time, grade and content.
- Written examinations: National Teacher's Exam, State licensure tests.
- A personal statement of teaching philosophy and goals.
- Documentation of effort to improve one's teaching: seminars, programs, etc.
- Implemented lesson plans, handouts and notes.
- Graded student work such as tests, quizzes and class projects.
- Video/audio tape of classroom lessons.
- Colleague observation records.
- Written reflections on teaching.
- Photographs of bulletin boards, chalkboards or projects.

The first alludes to the **portfolio assessment** implementation process as involving four types of organizational issues: temporal, spatial, human and contextual. *Temporal* issues concern time spent on planning and scheduling portfolio assessment related activities and their fit within existing teaching and assessment practices. *Spatial* issues deal with organizing the portfolio's format, physical characteristics, storage, and access. *Human aspects* include role-sharing such responsibilities as establishing and updating a table of contents, dating and sorting portfolio entries, reflection, and marking for formative or summative assessment purposes. Finally, *contextual matters* have to do with specifying the object of assessment, determining the scope of disciplines from which portfolio items are selected, and establishing their quantity and quality - (Forgette-Giroux, Renée & Marielle Simon 2000).

Observation of Classroom Activities:

This is by far the most common form of assessment technique used in teacher education programs. The goal of class observations is to obtain a representative sample of a teacher's performance in the classroom. Evaluators cannot accomplish this goal with a sample of only a few hours of observation or with an observation of only one class. Observations can be formal and planned or informal and unannounced. Both forms of evaluation can provide valuable information. It is necessary to have a standardized Observation schedule to be used and more than one observer to use the schedule

¹³ Doolittle, Peter (1994). Teacher portfolio assessment. *Practical Assessment, Research & Evaluation*, 4(1). Available online: <http://ericae.net/pare/getvn.asp?v=4&n=1>.

independently at different times. Also it is important to observe a variety of situations than similar processes.

Review Lesson Plans and Classroom Records.

Lesson plans can reflect how well a teacher has thought through instructional goals. Looking at classroom records, such as tests and assignments, can indicate how well a teacher has linked lesson plans, instruction, and testing. However, it is important to examine student records, exercises, lesson notes etc to ensure the validity and the reliability of the review.

Student Evaluation of Teacher:

Amongst the multidimensional measures 'Student Evaluation of Teaching' (SET) is one of the most recognized multidimensional measure in teacher education (Marsh 2001). Meisels et al (2001) state that a teacher judgment of student learning is a key element in performance assessment. They examined the validity of teacher judgment using different other assessment measures and concluded that the students' assessment of teacher provides more user value as it is the recipient's response that tells how effective is the teacher in teaching. This also tells a lot about the teacher personality. Evaluators should consider a variety of teaching skills. If the evaluators use several sources of information about a teacher's performance, they can make a more accurate evaluation.

Peer Evaluation and Self Evaluation:

Trainee teacher can receive feedback through peer assessments. This has a two-way advantage. The peer who assesses a colleague would also develop a sense of teacher performance and where the weaknesses are and how and why those weaknesses happen. Similarly, the peer can easily relate to the trainees' performance and that becomes easy for the trainees to understand and shape up or modify behavior. Most often Principals or Supervisors conduct evaluations. Again, many state laws and collective bargaining agreements specify that teacher's supervisors evaluate their performance. This system works well if the only goal of evaluation is to determine competence. If the goal of the evaluation is to promote growth, however, other evaluators should participate. Self-evaluations give teachers' perspective on their work. Surprisingly, few school systems require self-evaluation. Peer and student evaluations, if schools administer them properly, can also benefit teachers.

Methods and Instruments

Expand the number of people involved in the evaluation:

Teachers who want to improve their teaching are eager to know how other teachers and their students view them. These are the people who interact with the teacher everyday; their perspective should not be ignored during the evaluation process. It is always better to have more than one rating of the trainee. This increases validity and ensures reliability of assessments.

Use More than One Method of Assessment;

Assessing the productivity, efficiency and effectiveness of teachers is a formidable task. While the National Teacher's Exam may provide a minimum criterion for the certification of teachers, it is not meant to be used as a measure of teacher effectiveness. One more reliable method for assessing teacher performance is the teacher portfolio- (Doolittle 1994). In addition to the admonitions of many authors, there are established professional standards for assessment skills of teachers (Standards for Teacher Competence in Educational Assessment of Students (1990), a framework of assessment tasks for administrators (Impara & Plake, 1996), the Code of Professional Responsibilities in Educational Measurement (1995), the Code of Fair Testing Practices (1988), and the new edition of Standards for Educational and Psychological Testing (1999).

Use Standardized Procedures:

A teacher evaluation system should give teachers useful feedback on classroom needs, the opportunity to learn new teaching techniques, and counsel from principals and other teachers on how to make changes in their classrooms. To achieve these goals, evaluators must first set specific procedures and standards. The standards should

- Relate to important teaching skills,
- Be as objective as possible,
- Be clearly communicated to the teacher before the evaluation begins and be reviewed after the evaluation is over, and
- Be linked to the teacher's professional development.

Use More Objective and Accurate Methods:

Evaluators should consider a variety of teaching skills. If the evaluators use several sources of information about a teacher's performance, they can make a more accurate evaluation. Some procedures evaluators can use are to:

- Observe classroom activities. This is by far the most common form of data collection for evaluation. The goal of class observations is to obtain a representative sample of a teacher's performance in the classroom. Evaluators cannot accomplish this goal with a sample of only a few hours of observation or with an observation of only one class. Observations can be formal and planned or informal and unannounced. Both forms of evaluation can provide valuable information.
- Review lesson plans and classroom records. Lesson plans can reflect how well a teacher has thought through instructional goals. Looking at classroom records, such as tests and assignments, can indicate how well a teacher has linked lesson plans, instruction, and testing.
- Expand the number of people involved in the evaluations. Most often principals or department supervisors conduct evaluations. Again, many state laws and collective bargaining agreements specify that teacher's supervisors evaluate their performance. This system works well if the only goal of evaluation is to determine competence. If the goal of the evaluation is to promote growth, however, other evaluators should participate. Self-evaluations give teachers' perspective on their work. Surprisingly, few school systems require self-evaluation. Peer and student evaluations, if schools administer them properly, can also benefit teachers. Boyd, Ronald T. C. (1989).

Link Assessment and Evaluation to Development of the Teacher;

It is the most unfortunate thing that often assessment measures are not fully utilized in the evaluation and also for the development of the teacher. Assessment it self is an end in many instances and rarely it is examined further to guide the trainee and the trainers to learn of their own performance. Linking evaluation and development is a difficult task for teachers, evaluators, and principals. Although there are few easy answers, evaluation can be used to

- Work with teachers to set specific, achievable goals;
- Provide constructive criticism and guidance to improve performance in the weaker areas and amplify strengths; and
- Enlist experienced teachers to help improve the performance of less experienced teachers.

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