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Conducting Teacher Evaluation to Improve the Teaching of Higher Order Thinking Skills: Use of an Observation Based Instructional Assessment (OBIA)

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Abstract

The paper proposes the use of an Observation Based Instructional Assessment (OBIA) for conducting teacher evaluation so as to enhance the teaching of higher order thinking skills. The No Child Left Behind act emphasizes the need for all students to succeed. Critically, the intent is to move all students not meeting expectation to meet or exceed performance expectation. Standardized tests tend to contain a range of lower order to higher order thinking skills as specified in the Bloom's taxonomy. Those who failed to meet expectation logically tend to miss items on higher order thinking skills. In order to enhance the capability of students to meet or exceed expectation, it is necessary to teach those not meeting expectation how to think in terms of higher order thinking skills. An Observation Based Instructional Assessment (OBIA) for Effective Teacher Evaluation is developed with an input-output system to ensure teacher effectiveness in terms of students' outcomes. The input variables are: Teacher action areas such as: Procedural communication, students' experiences, textbook knowledge, previous content taught, related subject-matter, assessment of student performance, and positive social management. Teacher integrating processing strategies are: Use of explanations, questions, praise and students' answers as bases from which to negotiate the input variables so as to transform the knowledge, skills and dispositions to be learned into students' outcomes as measured in terms of higher order thinking skills on the Bloom's taxonomy. Data indicate that students tend to increase their responses in terms of higher order thinking skills when teachers use explanations, questions, praise and students' answers in probing students' experiences on higher order thinking skills in relation to textbook knowledge, related subject matter, and hands-on experiences.

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Context and Need

Four issues appear to provide the need for an effective observation based instructional assessment (OBIA). First, the context of the learners that varies in socio-economic background and corresponding economic and learning abilities (Coleman, et al, 1965; Bernstein, 1961; Hess and Shipman, 1961; Hossler and Stage, 1992; NCES, 1992). Second, The failure of various reforms (Fullan and Miles, 1970) and Levine's (2006) critical analysis of teacher education institutions as not training administrators and teachers adequately for meeting the challenges of the school context. Third, the requirement of the National Council for the Accreditation of Teacher Education (NCATE) that the effectiveness of teacher education be demonstrated in terms of students' outcomes as the basis for earning accreditation. Fourth, the challenge issued by the No Child Left Behind Act (NCLB) that all students not meeting expectation be taught to meet and exceed performance expectation.

It is necessary to refer to NCATE's standards that teacher education institutions must satisfy in order to obtain accreditation, because they indicate the kind of teacher evaluation that might be necessary for a teacher to demonstrate effectiveness in terms of students' outcomes in K-12 classrooms. NCATE has provided a conceptual framework for the evaluation of teacher education institutions that appears directly related to teacher evaluation, and if followed, would enhance an internship program's capacity to meet requirements for accreditation. It conceptualizes six standards as follows:

Standard I refers to the 'Knowledge, Skills and Dispositions' outcomes that teacher candidates must demonstrate in terms of impacting student performance in schools,

Standard II refers to 'Assessment and Evaluation' as the basis for determining the extent to which the outcomes have been met and on the basis of which changes should occur in all other standards,

Standard III refers to the provision of clinical experiences for teacher candidates so as to demonstrate effectiveness in the knowledge, skills and dispositions to teach in K-12 classrooms,

Standard IV refers to diversity of the curriculum experiences (including courses, faculty, resources, etc.) provided to teacher education candidates, and.

Standard V refers to the relevance of faculty development (in terms of teaching, service and research) to the effectiveness of teacher candidates in terms of their performance in K-12

Standard VI: Governance and resource development is measured as the extent to which teacher education institutions provides leadership support and resources necessary to engage the entire process for candidates' effectiveness in K-12.

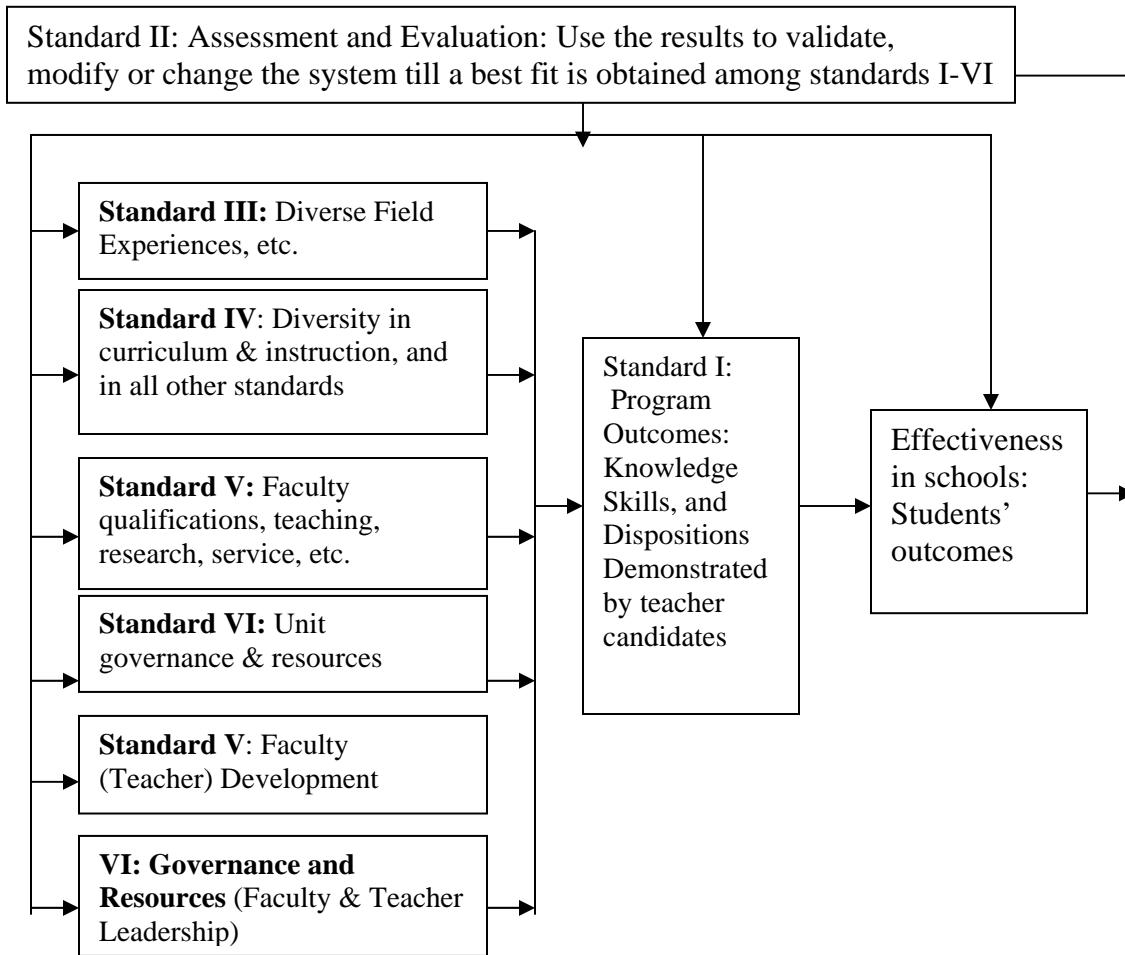


Figure 1: Diagram of a system representation of NCATE’s conceptual framework for teacher education evaluation (Note: NCATE has not diagramed its conceptual framework. However its verbal description of its conceptual framework is a model for Teacher Education as a UNIT to emulate)

NCATE’s requirements clearly necessitate teacher education institutions to demonstrate that a teacher candidate is effective in the actual teaching process of diverse classrooms. The assumption is that college preparatory courses no matter how well demonstrated in the syllabi or in process teaching in the college classrooms are ineffective if the teacher interns and graduate teachers are ineffective in the schools’ classrooms. Therefore, there is a need for classroom teachers to demonstrate that their lesson plans are effective in terms of: (a) Delivery of the lesson as observed, (b) Classroom students meeting or exceeding performance expectation as measured by amount of higher order thinking skills generated. An Observation Instructional Assessment (OBIA) model was designed for this purpose.

OBIA: Theoretical Framework

A theory is a formulation (based on: Colardarci, Fehl, Griffith) of the variables that map the field of the operational (practical) behaviors such that the dependent variables as

outcomes (NCATE Standard I) are impacted by the intended independent (or causal) variables (NCATE Standard II to VI) in a manner indicated by the assumptions made in the way the variables are defined. A theory or conceptual framework provides a framework for definitions, research questions and hypotheses. Theoretically, teacher and student outcomes, as measured in terms of knowledge, skills and dispositions (NCATE Standard I) could be influenced by teacher planning of the lesson that utilizes assessment and evaluation (NCATE Standard II) to determine the current performance level of each student, and the utilization of the results in choosing: Students clinical experiences (NCATE standard III), diversity of curriculum materials and strategies (NCATE Standard IV), teacher leadership and resource strategy (NCATE Standard VI), teacher technical integration processing (indicative of teacher development: NCATE Standard V). These relationships are demonstrated in figure 2 and are in alignment with NCATE’s standards.

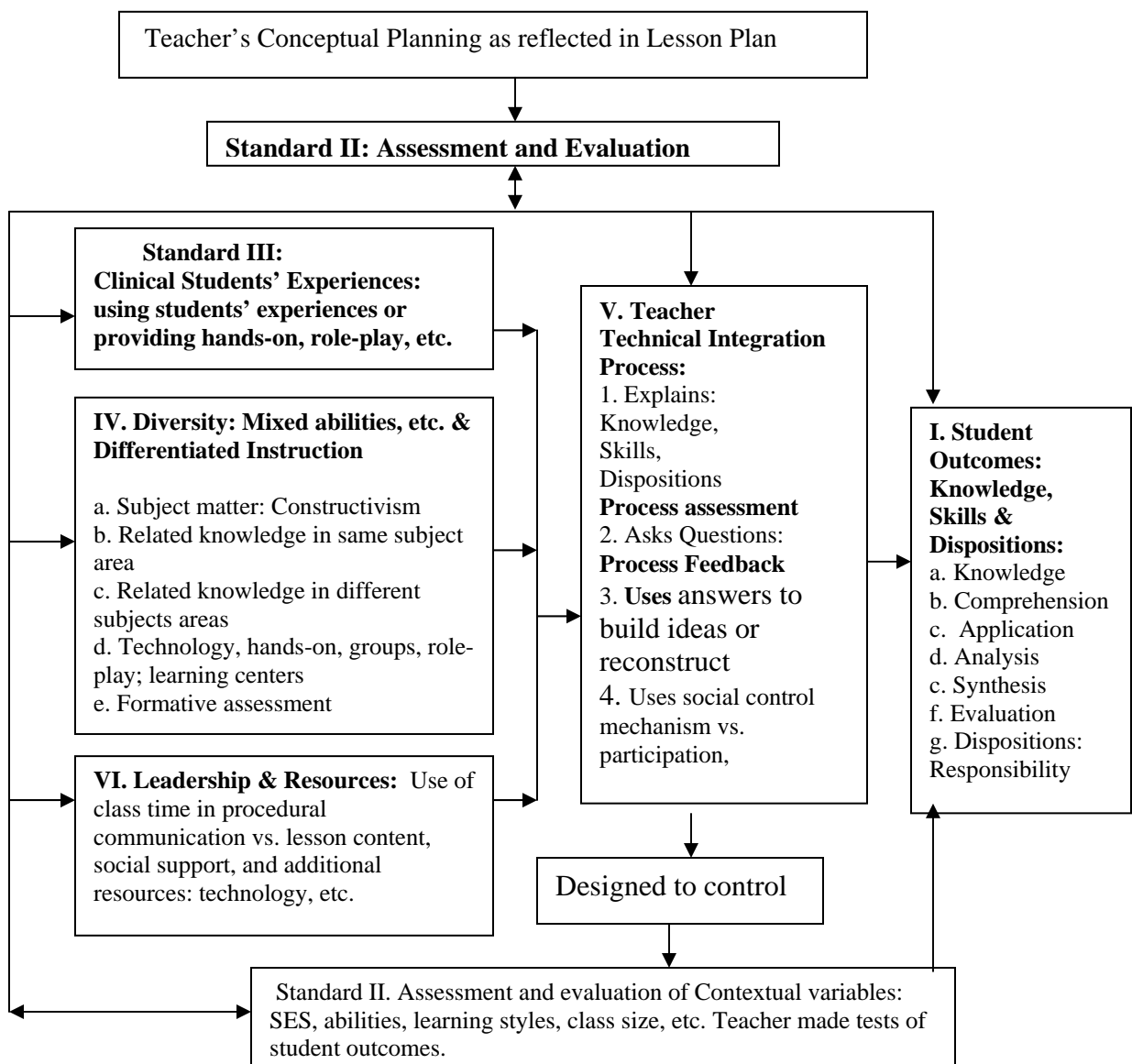


Figure 2: Student outcomes in relation to teacher technical integration process and instructional inputs

If the lessons are planned within such a framework, we could expect that upon observation in the act of teaching, a teacher could achieve the outcome(s) of the lesson. Alternatively, if a teacher did not plan within such a framework, there might be a discrepancy between the desired outcomes and the actual outcomes. The theory allows the following research questions to be generated:

1. In a pre-posttest comparison, are the teacher and students demonstrating growth in both lower order thinking skills (knowledge and comprehension) and higher order thinking skills (higher end of the Bloom's taxonomy) as rated by an observer in a live classroom setting?
2. Are the teacher and students utilizing the everyday experiences as a clinical platform for processing the textbook/curriculum content in both lower order and higher order thinking as required by the experiential learning theory (Dewey,)?
5. Is there greater diversity in the spread of instructional strategies in the posttest as compared to the pre-test as required by differentiated instruction and the requirement of the integrated curriculum?
6. Is the teacher managing social behavior positively in both lower and higher thinking skills areas?
Is there a greater diversity in the spread of explanations, questions and use of students' answers in the posttest as compared to the pre-test?
7. Does the teacher use more class time on lesson content than in procedural communication in the post-test than in the pre-test?
8. Does the teacher in the conduct of classes demonstrate greater social support of all students in the post-test than in the pre-test?

The use of a theoretical/conceptual framework enhances both the evaluator and teacher capability to utilize the results on the evaluation questions to make changes on the inputs and process sides for improving the outcomes. Indeed, in this framework the teacher could be self-directed to make his/her own evaluation and spirally make changes in lesson planning accordingly.

The measurement of Outcomes: Dependent variables

NCATE requires outcomes to be measured in terms of (a) Knowledge, (b) Skills (c) Dispositions, but has left these to be defined in a valid and reliable manner by the College instructors. Cognitive abilities can be ordered on a continuum that reflects levels of proficiency (Glasser, 1963, Nitko, 1984). Bloom (1956) organizes cognitive learning in terms of a continuum such as: Knowledge, comprehension, application, analysis, synthesis, and evaluation. Therefore, the Bloom's taxonomy is utilized to measure outcomes such as: knowledge, skills, and dispositions. The operational definitions are stated in Table 1. In the table, knowledge and comprehension are considered as basic lower order thinking skills (LOTS). We need to know and comprehend the basic facts that exist. Next we must analyze the facts to articulate their inter-relationships before we can apply them in different contexts. Therefore, in the table, analysis is stated before application.

Table 1: Levels of the cognitive affective domain in Bloom/s taxonomy

	Levels of learning	Definition	Initiating strategy
1	Knowledge	Recall of facts and ideas, methods and procedures in which a subject is organized	Identify fact, opinion, issue: What, which, how, where, when could facilitate process
2	Comprehension:	Paraphrasing, restating or providing a similar example of facts and ideas, methods and procedures of a subject; explaining essential meaning contained in the facts and ideas	What is your understanding? Explain in own words, What is the main idea? Explain in own words and provide an example Explain in order the main issues or facts
3	Analysis	The breakdown of facts and ideas as contained in some principle or abstraction into its sub-parts or elements in order to demonstrate the relationships among the parts (Cause-effect relationships, Structure-functions: constructivism)	What are the constituents of the main idea (deconstruct)? How are the parts inter-related to whole (reconstruct)? Identify and explain cause-effect relationships; identify similarities and differences and explain relationships: Why the relationships?
4	Application	The use of abstractions, principles and generalizations about the original facts and ideas in different situations and contexts (This differentiates application from b and c in comprehension and moves it to a higher order thinking skills). This is often referred to as transfer learning. Given a problem in a different context, how would you solve it? (Requires the application of the principle as derived in 3-analysis above)	Provide a different scenario, or situation, and ask students to solve using principles discerned/learned as a result of analysis. Provide a verbal problem situation to apply math principles
5	Synthesis	Re-arrangement of the elements of the facts and ideas to form a new meaning when combined with ideas not in the basic content and that was not easily evident or observed before (Often referred to as an inference)	Provide a scenario requiring creative responses beyond the current principle, and ask: What would you do? What are inferences being learned that could form a larger principle”
6	Evaluation	Use of a standard, acceptable criterion, or by comparison with alternatives to assess and make judgments about the worth or value of the stated facts, ideas, methods and procedures	Compare two or more facts or opinions, etc., Which is the best and by what criteria?
7	Disposition	Values learned from above knowledge and skills that could modify our behavior or offer a lesson to us.	How do you feel about issues in terms of: right and wrong, respect for others, cooperation, collaboration, honesty, etc.

Measuring the input activities/variables (Simple Form)

A teacher is likely to perform teaching acts down the vertical column on the left side of the OBIA chart.

- A. Leadership and resources (NCATE Standard VI):** Initiates procedural communication and defined as the extent to which teacher explains, asks questions, and uses answers to indicate how the tasks will be conducted and towards what purpose and with what resources (and/or making procedural announcements). Explanation, questions and use of answers could be conducted at lower or higher order thinking levels
- B. Uses student clinical experiences (NCATE Standard III)** is defined as the extent to which a teacher explains concepts within the social and life experiences of students, ask questions about such experiences and utilizes the answers to build higher order thinking skills. This is possible because the same knowledge exists in different forms (Leinhardt, 1992).
- C. Uses a diversified/differentiated curriculum experience (NCATE Standard IV)** is defined as the extent to which the teacher: explains or paraphrases textbook knowledge, and ask questions to recall basic knowledge or demonstrates literal meanings (lower order thinking skills); or explains, asks questions, uses answers in a constructivist approach by: analyzing, applying to different situations, developing new ideas, making judgments about issues, and considers inferences about social dispositions about right or wrong, respect and tolerance, honesty, responsibility and change, etc.
- D. Relates concepts to previous lessons in same subject area (NCATE Standard IV)** is measured by the extent to which the teacher explains, asks questions and uses answers to link concepts in the current lesson to previous
- E. Relates concepts to different subject areas (NCATE Standard IV)** is measured by the extent to which the teacher explains, asks questions and uses answers to link concepts in current lesson to different
- F. Assess Performance on concepts (NCATE Standard II)** is measured by the extent to which the teacher explains concepts to be tested, uses questions to identify meanings to be tested, and uses opinions to explore possible answers
- G. Manages Social Behavior (NCATE Standard VI)** is measured by the extent to which the teacher: uses criticisms, etc. to control (rating = 0); or, uses eye contact, proximity, and dialogue to manage discipline (1-5) positively (Nelsen, 1987).

Below the chart are listed teaching aids and resource support system such as: (a) Technology: overhead projector, power point; (b) Group work and role-play, (c) . Class ability, (d) Percent free Lunch (e) (e) Class size, (f) Subject area, (g) Grade level, (h) Teacher ID as control variables.

Measuring the input activities/variables (Differentiated Form): Appendix A

A differentiated form is shown in appendix A to demonstrate the extent to which a teacher utilizes explanation, questions and students' answers in each task area. This will

Observation-Based Instructional Assessment (OBIA) System (Simple Form)

Instructor/Teacher ID/Num: **Dept/Grade Level:** ; **Subject area:** **Date**

Teacher Task Areas & Means	Instructor/TEACHER and Candidate/STUDENT OUTCOMES			
Teacher Task Areas	SPSS ECE L code	Lower order thinking: Recall knowledge, Paraphrasing: Explains, questions, answers	Higher Order Think Skills: Application, Analysis, synthesis, evaluation: Explains, questions, answers	Dispositions: Right & wrong, fairness, tolerance, responsibility: Explains, questions, answers
A. Procedural Communication: Explains, Asks questions, uses answers	<u>1-3</u>	<u>0</u> <u>1</u> <u>2</u> <u>3</u> <u>4</u> <u>5</u>	<u>0</u> <u>1</u> <u>2</u> <u>3</u> <u>4</u> <u>5</u>	<u>0</u> <u>1</u> <u>2</u> <u>3</u> <u>4</u> <u>5</u>
B. Uses student social experiences: Explains concepts using students' experiences, or uses questions and answers to obtain students' opinions about experiences to build the concepts	<u>4-6</u>	<u>0</u> <u>1</u> <u>2</u> <u>3</u> <u>4</u> <u>5</u>	<u>0</u> <u>1</u> <u>2</u> <u>3</u> <u>4</u> <u>5</u>	<u>0</u> <u>1</u> <u>2</u> <u>3</u> <u>4</u> <u>5</u>
B. Uses curriculum content: Paraphrase textbook knowledge (lower order); or higher order: analyzes (constructivist), applies to different situations, develops new ideas, makes judgments about issues, or considers moral implications & inferences	<u>7-9</u>	<u>0</u> <u>1</u> <u>2</u> <u>3</u> <u>4</u> <u>5</u>	<u>0</u> <u>1</u> <u>2</u> <u>3</u> <u>4</u> <u>5</u>	<u>0</u> <u>1</u> <u>2</u> <u>3</u> <u>4</u> <u>5</u>
D. Relates concepts to previous lessons - in same subject area Explains, asks questions and uses answers to link current lesson to previous	<u>10-12</u>	<u>0</u> <u>1</u> <u>2</u> <u>3</u> <u>4</u> <u>5</u>	<u>0</u> <u>1</u> <u>2</u> <u>3</u> <u>4</u> <u>5</u>	<u>0</u> <u>1</u> <u>2</u> <u>3</u> <u>4</u> <u>5</u>
E. Relates concepts to different subject areas - Explains, asks questions and uses answers to link current lesson to different subjects' concepts	<u>13-15</u>	<u>0</u> <u>1</u> <u>2</u> <u>3</u> <u>4</u> <u>5</u>	<u>0</u> <u>1</u> <u>2</u> <u>3</u> <u>4</u> <u>5</u>	<u>0</u> <u>1</u> <u>2</u> <u>3</u> <u>4</u> <u>5</u>
F. Assesses performance concepts: Uses questions to identify meanings to be tested, Uses opinions to explore possible answers	<u>16-18</u>	<u>0</u> <u>1</u> <u>2</u> <u>3</u> <u>4</u> <u>5</u>	<u>0</u> <u>1</u> <u>2</u> <u>3</u> <u>4</u> <u>5</u>	<u>0</u> <u>1</u> <u>2</u> <u>3</u> <u>4</u> <u>5</u>
G. Manages Social Behavior (Positive): If using criticisms, etc. to control (0); Using eye contact, proximity, dialogue to manage (1-5)	<u>16-18</u>	<u>0</u> <u>1</u> <u>2</u> <u>3</u> <u>4</u> <u>5</u>	<u>0</u> <u>1</u> <u>2</u> <u>3</u> <u>4</u> <u>5</u>	<u>0</u> <u>1</u> <u>2</u> <u>3</u> <u>4</u> <u>5</u>

© Ganga Persaud, copyright, 2007, revised from 1993: Simple Form for rating according to NCATE standards

Rating scale: Observations of acts: 1 = 1-2; 2 = 3-4; 3 = 5-6; 4 = 7-8; 5 = 9 or more; **An act** = Complete statement with meaning.
19. Technology: Overhead, Power-point, etc.: 1. NO ___; 2. YES ___; **20. Groups or role-play:** No ___; YES ___.
21. Class ability: Low ___; Middle ___; High ___; **22. Free Lunch-Percent** ___; **23. Class size:** Below-- 20-; 21--23; 24--27; 28--31; 31--+; **24. Subject area:** 1. math ___; 2. Science ___ 3. Reading/Language ___; 4. Social studies ___; 5. Other ___; **25. Grade Level:** ___; **26. Teacher ID:** T1 ___; T2 ___; T3 ___; T4 ___; T5 ___
27. Pre-Test = 1; Post-Test = 2

allow for the research question: In a pre-posttest setting is the teacher utilizing a greater spread of explanation, questions and students' answers in developing students lower order thinking skills.

Teacher Technical integration processing (TIP)

Aside from non-verbal and mediated communication, a teacher has four main tools for the transfer of knowledge, skills and dispositions from the curriculum action areas to students' cognitive system. These are itemized in the long form (Appendix A) and detailed below:

1. Explanation
2. Questioning
3. Use of Answers, praising, valuing, and
4. Managing social behavior: Command and criticize to seek compliance (=0), or use of praise, eye-contact, proximity, opportunity for success

Explanation of linkages

Flanders (1970) utilized teacher explanation, questioning, and acceptance or rejection of student answers as the critical instructional acts for the delivery of the curriculum. The use of these three dimensions in the classroom delivery process can be demonstrated as follows:

A. Explanation is the principal means for any instructor/teacher to identify and make observations about clinical experiences (Standard III) curriculum diversity in (Standard IV) in relation to outcomes (Standard I) and to make assessment (Standard II) about relevant relationships. The explanation could be conducted at the literal knowledge level, higher order thinking skill level (application, analysis, synthesis, and evaluation, critical consciousness), and dispositions about value clarification, moralizing, orientation to change, social justice, and initiation of innovations for social justice.

B. Questioning is the principal means for (i) Chunking the explanation into assimilated subsets (ii) Generating student responses (iii) Assessing the quality of understanding by students through their responses (Standard II), (iv) Facilitating opportunities for the teacher to praise students for responses (v) Facilitating opportunities for a teacher to utilize students' responses in building ideas in the higher order thinking sense-making and modeling (vi) Facilitating teacher opportunities for feedback into revision of questions, and explanations. Therefore, the more questions are framed within the experience of the learners, the greater the likelihood that the students would have a greater output of responses, and the greater the teacher opportunity to utilize such output for building higher order thinking skills and dispositions. The converse would take place if the teacher used closed-end questions and focused on recall of knowledge.

C. Use of student answers is the principal means for the /teacher praising, building on ideas and motivating learners through the demonstration of high expectations.

D. Behavior management through command and criticisms or acceptance, praise, eye contact, proximity, opportunity for success: A teacher might seek compliance through commands and criticisms (lower thinking) or reasoning (higher order) for the purpose of managing social behavior in relation the teaching process.

In the chart, right columns, the following knowledge, skills and dispositions are defined:

Knowledge & comprehension = Recalling facts & ideas, paraphrasing or providing literal explanation of texts or clinical experiences.

Skills = Application, analysis, synthesis & evaluation. Skills are further defined as:

Application: Applying an idea or principle or practice in a new situation. It always involves asking questions on a problem in another situation that requires action (Teaching for transfer of learning from one situation to another).

Analysis = breakdown (deconstructing) of a main idea into its sub-parts so as to explore relationships among the parts to the whole (Reconstructing)

Synthesis = developing a new idea or principle as a result of analysis and application: building inferences

Evaluation – comparing two or more facts, ideas, issues, or opinions to judge their relative merit in terms of worth

An act = a complete statement carrying a meaning: Yes and no are complete statements carrying full meanings.

Control variables

Contextually as suggested in the literature, the socio-economic (SES) conditions of the students could influence the development of their early abilities to learn. Therefore, the teacher needs to be conscious of the SES and associated factors (ability levels, learning styles, etc.) of the learners so as to counteract these in the ‘technical integration process’
If the teacher used technology to show and tell basic recall knowledge without spanning the other curriculum areas and/or utilizing the appropriate explanation, questions and use of answers to integrate the process, students might not show an improvement in higher order thinking skills. However, a teacher could utilize the medium to visually refer to higher order thinking skills, and in relation to related subject matter, student experiences as well as moral and social issues and inferences thereby enhancing the development of higher order thinking skills. The same applies for: group work, class size, etc. These variables are not included in the observation chart for rating purposes, since, if used the teacher would need to utilize the range of the student experiences, textbook knowledge, and inter-related concepts, etc. They are checked below the chart to determine if they contributed to the development of higher order thinking skills.

Scoring Definitions

Analysis: Breaking down of a concept, or problem into its sub-parts, or providing cause-effect relationships.

Synthesis: Building/constructing a new idea or solution to a problem.

Evaluation: Providing a judgment about the worth of something; comparing two objects to make a judgment about which is better or worse.

Dispositions: Value judgment, moralizing, fairness, responsibility, honesty, distinguishing between right and wrong, taking action to do the right thing: generally covered in character education.

Rating: of observations:

- 0 = did not occur
- 1 = 1-2
- 2 = 3-4;
- 3 = 5-6;
- 4 = 7-8;
- 5 = 9 or more acts.

An act = a complete statement carrying a meaning: Yes and no are complete statements carrying full meanings.

The acts are carried out in the left column of chart: A. Procedural communication; B. Student experiences; C. Textbook knowledge, D. Related concepts previously taught, E. Related concepts in different subject areas; F. Test Concepts; G. Technology; H. behavior management

These categories are developed into acts by **Explanation, Questioning and Use of answers: praising, valuing and building on answers, or Directing: commanding, rejecting, criticizing.**

These acts are rated in each teacher and student outcomes on the above scale for each dimension: Knowledge and comprehension; higher order thinking skills (application, analysis, synthesis and evaluation), and dispositions.

The rating is done for explanation, questioning, use of answers and directing behavior

How the Process Works in Relation to learning styles and SES differences

The following diagram (Figure 3) demonstrates a teacher's role in relation to learning styles (Vertical axis) and students' background variables. The diagram is self-explanatory.

Teaching begins with explanations about what students' know about their life experiences (Starting from the known) to (degrees of unknown) related knowledge encountered in same subject or different subjects or on large social moral issues. Teacher preparation is essential to the process: The same knowledge exists in many forms. The teacher needs to transform or re-configure the book knowledge into the social experiences of the learners (This is the most critical aspect of teaching so that all children learn). The teacher explains and asks questions to pool students' answers so that they develop the model of the textbook knowledge within their experiences as a group (This is

why NCATE puts the clinical experiences before curriculum diversity). Next the teacher having engaged students in recognizing the knowledge system within their experiences could then expound the textbook knowledge similarly and gain the participation of all. Teacher explanations, questions, and use of student answers when conducted to traverse the full range of the Bloom's taxonomy in relation to bridge the gaps between students' experiences and textbook knowledge could become the hub around which the wheel of teaching and learning could turn to overcome students' differential backgrounds and equalize the playing field for equity in the classroom.

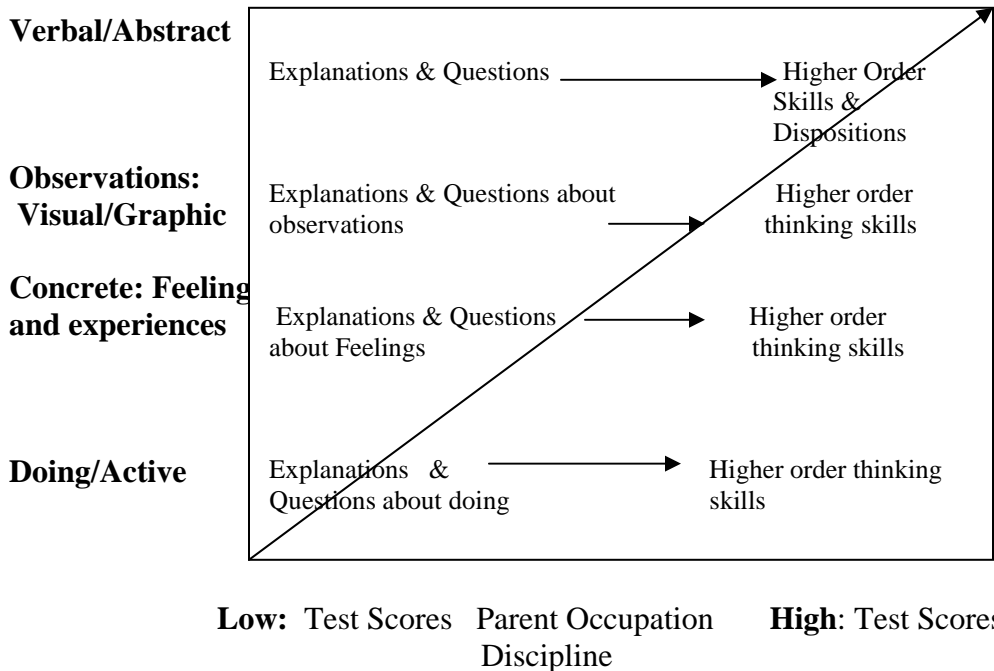


Figure 3: Teaching for different learning styles in relation to higher order thinking skills and controlling for students' social characteristics

Lesson Planning for effective evaluation

Evaluation is the converse to planning. The purpose of teacher evaluation is to determine if the teacher planning process is valid in terms of delivery and students' outcomes and adequately controlling for socio-economic and learning styles factors. The following table is self-explanatory in its alignment correspondence with the OBIA. If a lesson format is constructed and utilized in lesson planning along such dimensions, the data from the OBIA chart could be utilized for change and development purposes.

Lesson Planning Form in Alignment with OBIA
Please rate the weekly lesson plan using the following scale:

Scale: 1 = Not in line with Model, or Below standard; 2 = Needs Improvement;
3 = Meets Standard; 4 = Above Standard; 5 = Well Above Standard

	Lesson Planning	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
A	Needs Assessment (Research the causes)					
1	Identifies variation in students' performance, or identifies number of students below expectation, meet expectation					
2	Identifies weak concept areas					
3	Identifies causes for failure: SES, learning styles, materials, methods and process used, etc.					
B	Objectives					
4	Stated to improve weak concept areas					
5	Stated in terms of improving higher order thinking skills					
6	Stated in terms of helping low achievers to improve					
7	Stated in terms tolerance of differences					
C	Content					
8	Defined in terms of the literal meanings to be conveyed					
9	Defined meanings in terms of higher order thinking skills: Analysis, application, synthesis, inferences, evaluation, inferences, social responsibility, issues of tolerance, etc.					
10	Demonstrates meanings aligned to students' contextual experiences, learning level, etc.					
D	In delivery-transaction process					
11	Explanations and questions are identified to convey text meanings in relation to students' experiences					
12	Questions are identified to probe students' experiences in relation to text concepts and related knowledge					
13	Explanations provided to show how students' answers will be utilized to re-construct textbook knowledge within experiences of learners					
14	Formative evaluation is indicated by posing questions to assess performance on critical higher order thinking skills					
15	If Hands-on or group work, explanations and questions on higher order thinking skills in relation to experiences are shown					
16	If technology is used, explanations and questions on higher order thinking skills in relation to experiences are shown					
E	Summative evaluation					
17	Essay or project assignments include higher order thinking skills as likely to be tested on standardized tests					
18	Multiple choice items, true-false items and short sentence completion based on content taught included					
19	Results on assignments are utilized in needs assessment above					

Administrators Internship Program

Administrators in a Cohort Doctoral Program:

1. Collaboratively work with grade level teacher teams to conduct research on causes for low achievement by each student, plan lesson accordingly to counteract causes, including test construction and use of OBIA to evaluate process
2. Grade Team collaboratively work to plan, teach, assess, evaluate lesson for feedback
3. Each grade teacher conduct (a) Pre-test on OBIA (b) Assess students' performance: CRCT and Teacher made MCQ, (c) Conduct research of Causal variables, (c) Plan lesson to counteract, (e) Plan assessment of lesson to guide sequencing of explanation and questions, etc. in lesson, (f) Use OBIA to guide lesson planning and teaching process, g. Conduct Posttest on OBIA and Assessment
4. Evaluation in progress

Teacher Internship Program

1. Each intern works with a school mentor and a university supervisor as follows:
 - a. Collaboratively works with teacher to determine causes for students performing below grade level
 - b. Plans lesson to counteract causes: Utilize lesson planning format and OBIA to guide planning
 - c. Teach lesson and video-tape it as Pre-Test data
 - d. Video taped teaching is reviewed by intern, mentor, and field supervisor and rated on OBIA = Pre-test results
 - e. Intern prepares lesson based on feed back and re-teach. Lesson as taught is video-tapes = Posttest data
 - f. Post-test video-taped teaching is reviewed by intern, mentor, and field supervisor and rated on OBIA = Posttest results
 - g. Evaluation is in progress

Application and Evaluation of Outcomes in Past Research

The OBIA and the lesson format were utilized by a teacher in a pre-post setting during training to control the social characteristics of learners in a middle school. The results are shown in Table 3 and indicate that the ITBS pre-test scores are inversely related to the gain scores. The inverse relationship indicates that students whose performances were low in the pretest made gains. Students' social characteristics variables did not significantly influence the posttest gains. Therefore, teacher planning and teaching utilizing the dimensions of the OBIA counteracted the SES factors.

Table 3
Results of Regression Analysis: ITBS Language Arts Percentile Gain Scores (dependent) by Selected Independent Variables

Independent Variables	Standardized Coefficients: Beta	T value	Significant Level
ITBS Language Arts Percentile Gain Score	-.754	-5.123	.000
Gender	.028	.248	.806
Race (African American, Other, Caucasian)	.061	.531	.598
Parent Type (Single or Two Family)	-.015	-.138	.891
Parental Occupation	-.024	-.165	.870

Adjusted R Square = .511; F = 9.719; Significant Level = .000

Source: Tanya Persaud White (1996). High definition planning and teaching for student academic achievement, paper presented at the Georgia Educational Research Association, November.

A quasi-experimental study in which he trained a random sample of teachers in an elementary school and compared their post-training data with their pre-training and that of a control group. The data in Table 4 indicate that the post-experimental group has significantly higher mean score (12.3) in higher order thinking skills as compared to the pre-test and the control groups.

Table 4
One-way Analysis of Variances: Teacher Higher Order Thinking Skills Questions (Mean Scores) by Randomly Assigned Control, Pre-Experimental and Post-Experimental Groups

Groups	N	Mean	Standard Deviation	df	F	Significant Level
Control Post-test	14	5.50	8.80	43	19.170	.000
Pre-Experiment	16	2.75	3.97			
Post-Experiment	16	12.31	8.32			

Source: Based on additional analysis of data collected by Reid (2002) as cited in Persaud, G., & Turner, T. (2002). High definition planning for effective schools: reflections from the field. *Educational Planning*, 14(1), 65-76.

Appendix A

Observation Based Instructional Assessment (OBIA) System: Observations of acts: 0 = None; 1 = 1-2; 2 = 3-4; 3 = 5-6; 4 = 7-8; 5 = 9 or more An act = is a complete statement with a meaning: Yes and no are complete statements with meanings. **Lower order skills:** Knowledge = Recall of facts, Comprehension = recalling, literal meanings, paraphrasing. **Higher order thinking skills:** Application, analysis, synthesis, inferences, moralizing, evaluation

Excel, SPSS code	Teacher Task Areas	Lower order thinking Skills: <u>Teacher</u>	Higher Order Think Skills: <u>Teacher</u>	Lower order thinking skills: <u>Student</u>	Higher Order Think Skills: <u>Student</u>
1-4	A. Procedural Communication: Explains, Asks questions, uses answers	0 1 2 3 4 5	0 1 2 3 4 5	0 1 2 3 4 5	0 1 2 3 4 5
5-8	B. Uses student social experiences 1. Explains process 2. Asks question 3. Uses Answers, praises	0 1 2 3 4 5 1 2 3 4 5 1 2 3 4 5	0 1 2 3 4 5 1 2 3 4 5 1 2 3 4 5	0 1 2 3 4 5 1 2 3 4 5 1 2 3 4 5	0 1 2 3 4 5 1 2 3 4 5 1 2 3 4 5
9-12	C. Uses textbook subject-matter: 1. Explains content 2. Asks questions 3. Uses Answers, praises	0 1 2 3 4 5 1 2 3 4 5 1 2 3 4 5	0 1 2 3 4 5 1 2 3 4 5 1 2 3 4 5	0 1 2 3 4 5 1 2 3 4 5 1 2 3 4 5	0 1 2 3 4 5 1 2 3 4 5 1 2 3 4 5
13-16	D. Relates knowledge to previous lesson concepts 1. Explains 2. Asks questions 3. Uses answers, praises	0 1 2 3 4 5 1 2 3 4 5 1 2 3 4 5	0 1 2 3 4 5 1 2 3 4 5 1 2 3 4 5	0 1 2 3 4 5 1 2 3 4 5 1 2 3 4 5	0 1 2 3 4 5 1 2 3 4 5 1 2 3 4 5
17-20	E. Relates knowledge to different subject areas 1. Explains 2. Asks questions 3. Uses answers, praises	0 1 2 3 4 5 1 2 3 4 5 1 2 3 4 5	0 1 2 3 4 5 1 2 3 4 5 1 2 3 4 5	0 1 2 3 4 5 1 2 3 4 5 1 2 3 4 5	0 1 2 3 4 5 1 2 3 4 5 1 2 3 4 5
21-24	F. Assesses performance concepts: 1. Explains 2. Asks questions 3. Uses answers, praises	0 1 2 3 4 5 1 2 3 4 5 1 2 3 4 5	0 1 2 3 4 5 1 2 3 4 5 1 2 3 4 5	0 1 2 3 4 5 1 2 3 4 5 1 2 3 4 5	0 1 2 3 4 5 1 2 3 4 5 1 2 3 4 5
25-28	G. Behavior Management (Positive) : If Rejection, criticisms, etc (=0), If proximity, eye-contact, dialogue, praise, etc (=1-5)	0 1 2 3 4 5	0 1 2 3 4 5	0 1 2 3 4 5	0 1 2 3 4 5

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69. Technology: Overhead, Power-point, etc.: NO___; YES___; 70. Role-playing, groups: No___; YES___; 71. Class size: Below-- 20-; 21--23; 24--27; 28--31; 31--+; 72. Subject area: 1. math___; 2. Science___ 3. Reading/Language___; 4. Social studies___; 73. Other___; 74. Cass ability: Low___; Middle___; High___; 75. Free Lunch-Percent___; 76. K-Grade Level:___; 77. Teacher ID: T1___; T2___; T3___; T4___; T5___; Pre-Test = 1; Posttest = 2

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