

edTPA INTERDISCIPLINARY MODULE SERIES

TPA-TOOLS: A Web-Based edTPA Support Tool

Purpose of the edTPA Tool

The purpose of the Web-Based edTPA-Tool (tpa-tools.com) is to provide support for students and faculty involved in preparing to meet the Teacher Performance Assessment (edTPA) requirement for licensure or certification as part of a preservice teacher education programs.

More than 20 states have adopted or are considering the adoption of the edTPA model developed at Stanford University as a measure of teaching proficiency of preservice teachers. If the present model in North Carolina is representative, the edTPA would be administered through Colleges of Education to senior preservice candidates (i.e., teacher education students) at the end of their undergraduate programs. As part of this process, Colleges of Education must necessarily initiate, document, and establish the validity of explicit components within their teacher education programs that provide students with the foundations necessary for successfully addressing the edTPA. The edTPA Tool outlined here would guide candidate progress for designing and implementing different steps of the edTPA requirements and, for pre-edTPA practice tasks, support reporting of student progress on such practice experiences to instructors.

Issues in Preparing Teacher Education Students for edTPA Success

Despite its potential value as a measure of teaching effectiveness, the edTPA task faced by teacher education candidates in developing a 3-5 lesson/hour learning sequence is a daunting one. As a group, the edTPA rubrics used in the evaluation of teaching effectiveness are helpful in calling candidate attention to possible lesson flaws. However, these same edTPA evaluation rubrics do not provide candidates with the detailed form of guidance necessary to design and develop instructionally-sound, multi-day lessons.

In considering the amount of guidance needed by novice teachers in preparing their edTPA tasks, teacher educators can and should provide preservice teachers with practice experiences in building and implementing edTPA tasks. Engaging in such practice tasks with the support of faculty would facilitate edTPA preparation. At the same time, approaching edTPA within an interdisciplinary framework of instructional design and development allows the edTPA task to be addressed as an application of what has been learned within teacher education programs rather than approaching many aspects of the edTPA task in a trial and error fashion.

Applying an Instructional Systems Development (ISD) Perspective to edTPA Tasks

In providing guidance to students engaged in edTPA task development, the edTPA Tool follows and applies the major steps of an ISD development process to the design, development, implementation, and reflective evaluation of edTPA instructional sequences.

ISD Development Model Applied to edTPA

The following describes each step of the ISD model as applied to edTPA tasks. A graphic overview of the eight-step model is shown in Figure 1.

Step 1: Select Content Focus. The first step in designing an instructional unit is to specify the content to be taught and learned and the grade level of the student learners. Consistent with the edTPA instructional task, you should assume the instructional unit will consist of 3-5 one-hour lessons implemented over consecutive days. In Step 1, the content focus of the lesson is tentatively selected. The selection is tentative because whether it can be addressed within the scope of a 3/5 lesson/hour lesson depends on the status of student prior knowledge. Since the edTPA task is conducted in an authentic classroom setting, the effectiveness of previous classroom instruction in engendering student mastery of such prior knowledge is a critical factor in designing edTPA learning sequences.

Step 2: Identify Measurable Goals. Measurable conceptual or performance goals specify the learner outcomes that indicate that the content taught has or has not been learned to mastery. Measureable goals provide the focus for lesson design. Before reporting Step 2 as completed, the prior knowledge of student learners required as a foundation for the design of the instructional unit should be identified and confirmed (see Figure 1: Step 2.1). When Step 2 is completed, explicit (measurable) targeted learning goals have been identified and the status of student prior knowledge has been determined (or estimated).

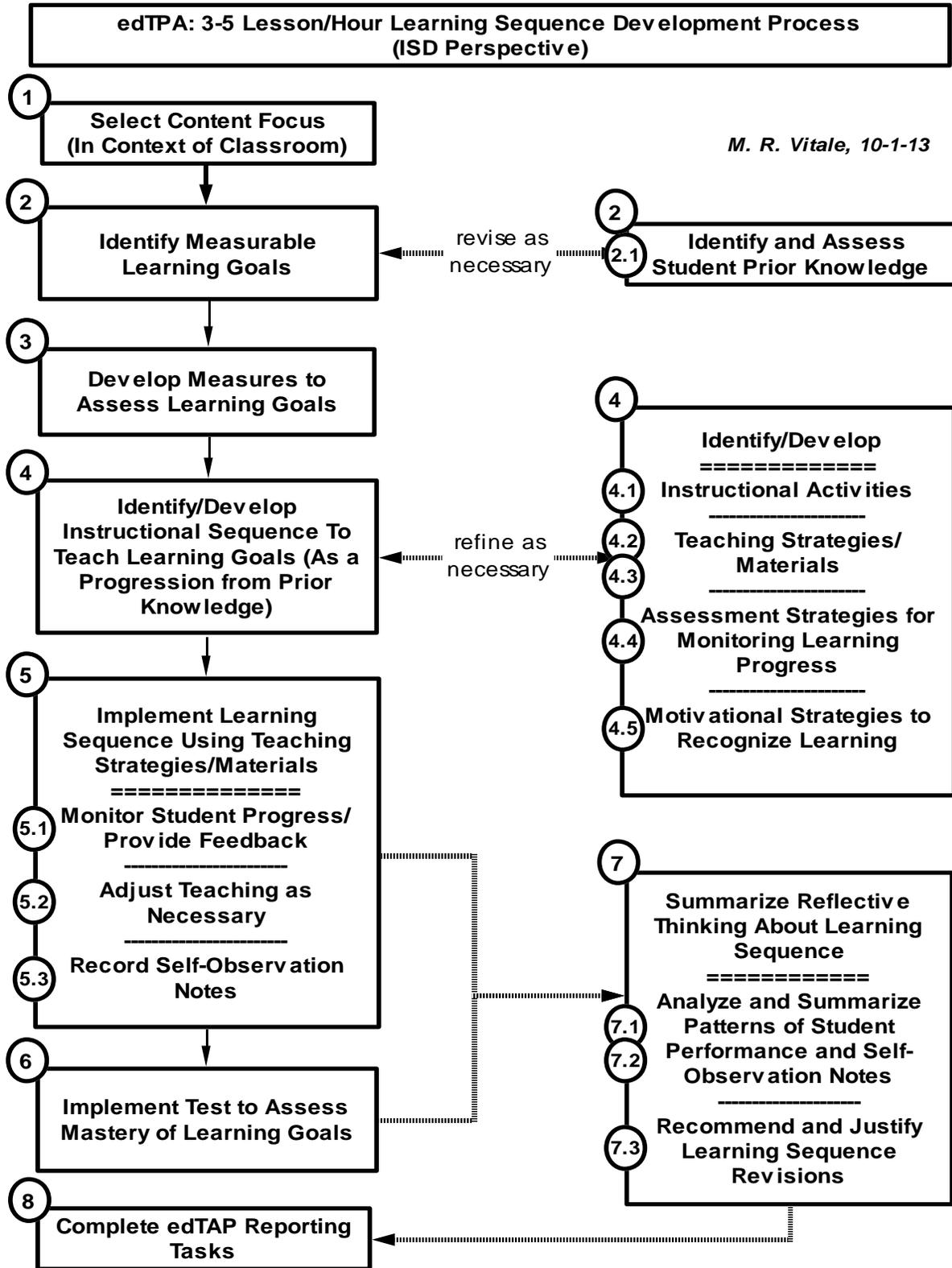


Figure 1. An Instructional Systems (ISD) perspective on major steps of edTPA tasks. Circled numbers indicate order of steps of the development process.

Step 2 is presented as an iterative process which allows the final set of learning goals for the selected content to be “time scaled” within the 3-5 lesson/hour edTPA instructional lesson framework (see Step 4). Operationally, in Step 4, such a “time scale” is defined as the amount and distribution of instructional time needed to implement the edTPA learning sequence beginning with student prior knowledge and ending with student mastery of the targeted learning goals. Step 2 is a critical step in the lesson development process because effective edTPA instruction is dependent on the degree of student prior knowledge on which the learning sequence to be developed is based. If students do not have the necessary prior knowledge, then any edTPA lesson requiring such prior knowledge cannot be effective within the allocated 3-5 lesson/hour instructional time.

Step 3. Develop Measures to Assess Learning Goals. At this point of the design process, measurable lesson goals have been finalized and the necessary prior knowledge of student learners has been confirmed or, as necessary, identified for instruction. The purpose of developing measures of learning outcomes is to distinguish students who have mastered instructional goals from those who have not. In developing tests or performance tasks, a sound approach is to ask yourself what questions (or tasks) could students who have mastered learning goals do correctly that students who have not mastered learning goals could not. When Step 3 is completed, measures have been developed to assess learning goals.

Step 4. Identify/Develop an Instructional Sequence to Teach Learning Goals. In Step 4, a curricular sequence is outlined that represents how student progress is to be developed from a state of prior knowledge to mastery of targeted learning goals. As an iterative development process, such a curricular sequence is framed in terms of an ordered set of instructional activities (and their estimated instructional time) in which students would be engaged, along with the supporting teaching strategies and materials to be used. Once finalized, the curricular sequence should also include embedded formal (e.g., written mini-tests, artifacts) or informal (e.g., oral) strategies for assessing student learning progress. As formative measures of student progress, these embedded assessments can be developed through the same process in Step 3.

Within Step 4, the instructional sequence is composed of the five major sub-step components shown in Figure 1: Step 4.1: Student instructional activities, Step 4.2: Teaching strategies for activities, Step 4.3: Materials for activities, Step 4.4: Assessment strategies for monitoring student learning progress, and Step 4.5: Motivational strategies for recognizing/encouraging student learning. In the lesson design, these should be identified and allocated across the five instructional days, as necessary. All of these sub-steps must be done before Step 4 is completed overall.

Step 5. Implement the Learning Sequence Using Teaching Strategies/Materials. Step 5 focuses on the implementation of the 3-5 day learning sequence that was designed in Steps 1 through 4. The key element in Step 5 is to implement the learning sequence using the ordered set of components developed in Step 4. As part of the implementation process, the three sub-steps shown in Figure 1 should be applied on a continuing basis throughout the 3-5 day edTPA lesson. These sub-steps are: Step 5.1: Monitoring student progress/providing feedback, Step 5.2: Adjusting teaching based on student progress (as necessary), and Step 5.3: Recording self-observation notes.

As a key part of the edTPA task, self-observation notes are used analytically for developing recommendations for revision in a later edTPA step (Step 7). Although not part of the edTPA task itself, it is important to recognize that from a systems development perspective, a large number of necessary lesson “adjustments” implies that the learning sequence implemented requires significant iterative refinement and re-teaching within a new classroom setting for validation.

Step 6. Implement Test to Assess Mastery of Learning Goals. In Step 6, the criterion-referenced, end-of-unit (summative) test developed in Step 3 should be administered to assess student mastery of targeted learning goals. This assessment of student mastery of learning goals should occur at the end of the 3-5 day learning sequence. The resulting student performance data should be summarized in meaningful manner, including the percent of student correct responses on test questions and on the overall test scores.

Step 7. Summarize Reflective Thinking About the Learning Sequence. In Step 7, information in the form of student performance patterns and trends obtained in Steps 5 and 6 and complemented by self-observations and notes should be used as a basis for reflective analysis regarding the effectiveness of the learning sequence. Your reflective thinking about your learning sequence should report strengths and weaknesses of the lesson that would lead toward strengthening the effectiveness of the learning sequence. Before reporting Step 7 as completed, all sub-steps shown in Figure 1 must be done. These sub-steps consist of: Step 7.1: Analysis of the patterns of student performance and self-observation notes, Step 7.2: Development of an organized summary of Learning Sequences

Strengths/Weaknesses, and Step 7.3: Recommendations of learning sequence revisions (with justification of each recommendation).

Reflective thinking leading to recommendations for future revisions of the learning sequence is an important part of complete teaching. The reason is that instructional development is a process that typically involves repeated (iterative) sequences of try-outs and revisions. Although not part of the edTPA task, an instructional systems perspective would require the recommended revisions be completed and the revised learning sequence field-tested with a new group of similar students, an underutilized but important teacher development skill.

Step 8. Completion of All edTPA Reporting Tasks. The focus of this tool is to provide a guide for the core elements of edTPA learning sequence development. In this sense, the design, implementation, and reflective processes addressed in this guide provide a sound foundation for all other edTPA tasks. At the same time, the overall edTPA process includes a number of ancillary requirements. In Step 8, all of the edTPA reporting text and video tasks detailed in edTPA Manuals should be reviewed, addressed, edited in final form, and submitted for evaluation. .

In general, the eight major steps of the ISD model in Figure 1 address the essential components of the edTPA development/ implementation/reflection process in a manner that can serve as an explicit framework/guide for teacher education candidates.

Design and Use of the Web-Based Support Tool

The web-based support tool has been designed for two major purposes. The first is to provide a guide for candidates developing edTPA learning sequences that follows the framework of the ISD model in Figure 1. The second is to provide a means for candidates to document their edTPA instructional development progress and, for edTPA practice tasks, to support the reporting of their edTPA development progress to instructors.

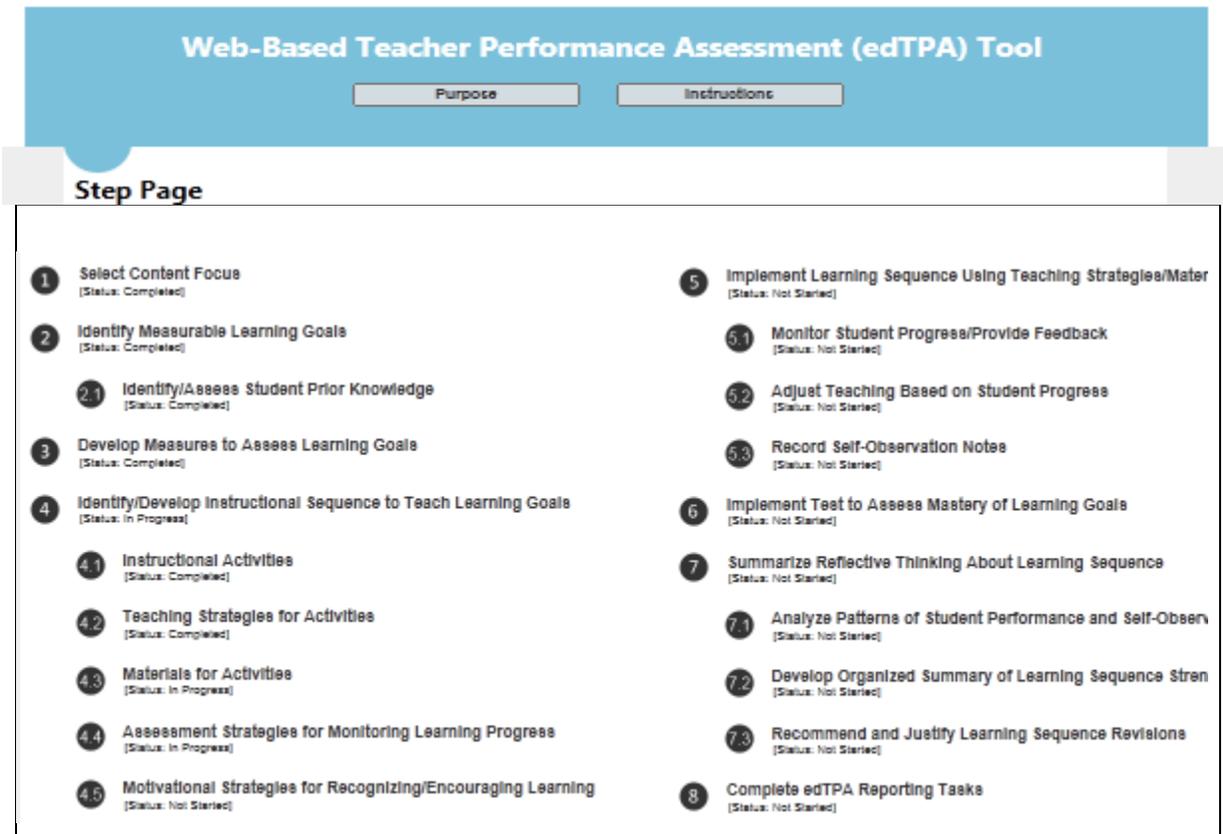


Figure 2. Web-based format of the eight-step ISD model for edTPA instructional development.

Figure 2 shows the web-based format of the eight-step ISD model with which candidates implementing a edTPA project would interact. As Figure 2 shows, this screen presents the status of each major step and of sub-steps

(associated with Steps 2, 4, 5, 7). To enter status information for a project, candidates simply click on the step they want to access to enter or update information for that Step. A common format across all steps is shown in Figure 3 (the illustration shown is for Step 1).

Figure 3. Detailed formatting of the step information page illustrated by Step 1. In Step 1, candidates enter their content focus, indicate their status, and, as an option, note any problems experienced with this specific step. The same format is used for all step and sub-step information pages.

Use by Teacher Education Candidates. Candidates using the Tool are able to record their progress as they complete each step of the underlying ISD model shown in Figure 1. In doing so, their progress is guided through the eight steps of the ISD Model. In the Tool (Figure 2), the required status information has been chosen to minimize the amount of data entry. As the Tool itself is refined, specific guidance and strategies will be added to offer students additional support.

At any point in using the Tool, candidates will be able to obtain a status report summarizing their progress on the designated steps of the edTPA task following either (a) the detailed information format shown in Figure 3, (b) the short format shown in Figure 2, or (c) the list format shown in Figure 4.

Select Type of Report: Summary View Detailed View List View Cancel

Step#	Step Focus	Date Started	Date Completed	Optional: Notes, problems, or help needed for this step
Step1		16/10/2013	16/10/2013	
Step2		16/10/2013	16/10/2013	
Step2a		16/10/2013	16/10/2013	
Step3		16/10/2013	16/10/2013	

Figure 4. Example of List View option of a student report.

Teacher Education Faculty. Candidates using the Tool are able to register as individuals or as members of a class/section having a specific instructor. When candidates are enrolled as members of a class/section, the instructor is able to query the Tool database to obtain status reports for individual students or for all students in a class/section on specified Steps. As with candidates, instructors may request reports for designated steps following (a) the detailed information format shown in Figure 3 or (b) the classroom-student list format shown in Figure 5.

Select Type of Report: Detailed View List View Cancel

NS = Not Started; IP = In Progress; C = Completed

Name	1	2	2.1	3	4	4.1	4.2	4.3	4.4	4.5	5	5.1	5.2	5.3	6	7	7.1	7.2	7.3	8
Jane Smith	C	C	C	C	IP	C	C	IP	IP	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Bill Jones	C	IP	C	C	NS	IP	NS	IP	IP	C	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Carol Jones	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

Figure 5. Example of an instructor List View option of a classroom report. The instructor List View report option allows the selection of detailed reports (see Figure 3) by column (Steps) or by rows (Candidates). In addition, a detailed report for a specific student on a specific step can be obtained by clicking an individual cell.

Linkage of the ISD/TPA-TOOLS Model to edTPA Rubrics

The purpose of the TPA-TOOLS model is to facilitate candidate development and implementation of a 3-5 lesson edTPA learning sequence. Specifically, TPA-TOOLS follows an ISD model to provide candidates with an “operational backbone” for the design of effective learning sequences. In doing so, the TPA-TOOLS model deemphasizes some requirements presented in the in edTPA Handbook/ Manuals that are not relevant to the overall instructional sequence design process. The rationale of the TPA-TOOLS model is that any edTPA requirements that are ancillary to the lesson design and implementation process can be added easily once a sound learning sequence has been developed.

At the same time, it is important to recognize that the effectiveness of the edTPA lesson sequence will be evaluated using the rubrics in the edTPA Handbook/Manuals. This section addresses this question of correspondence between edTPA rubrics and the TPA-TOOLS by summarizing how the TPA-TOOLS model addresses edTPA rubrics. Because the rubrics are similar to some degree across different edTPA content areas, the summary presented here will focus on the rubrics in the area of Middle Childhood Mathematics as a representative example. However, the findings for Middle Childhood Mathematics reported in Table 1 would be similar to that for other edTPA areas (i.e., for different content areas for elementary and middle school grades.)

Overview of edTPA for Middle Childhood Mathematics.

The edTPA Handbook/Manual states that the assessment design is based on research findings that successful teachers (a) have knowledge of subject matter, content standards, and subject-specific pedagogy, (b) apply knowledge of varied student needs, (c) consider research and theory about how students learn, and (d) reflect and analyze the effects of their instruction on learning.

The Handbook/Manual also states that the edTPA task is composed of three tasks: (a) planning for instruction and assessment, (b) instructing and engaging students in learning, and (c) assessing student learning. Following recent Mathematics Standards, the Handbook/Manual further states that learning tasks should include opportunities for students to develop (a) conceptual understanding, (b) procedural fluency, (c) mathematical reasoning and problem solving skills, and (d) content-area communication skills.

Consistent with the preceding, the edTPA Handbook/Manual presents a “Cycle of Effective Teaching” consisting of Planning, Instruction, and Assessment along with two sub-topic emphases: (a) academic language and (b) justifying planning decisions, using data to inform instruction, and analyzing teaching.

Overall, the TPA-TOOLS model is consistent with these major edTPA guidelines.

edTPA Rubrics Addressed in TPA-TOOLS

In Middle Childhood Mathematics, edTPA candidate performance is measured by rubrics in the three major areas: Planning (Rubrics 1-5), Instruction (Rubrics 6-10), and Assessment (Rubrics 11-15). Table 1 (below) summarizes

the degree to which the TPA-TOOLS model addresses each rubric in the sense that if the steps in the TPA-TOOLS model are completed as designed, then, would a specific rubric be addressed. In doing so, meeting Level 3 of each five-level rubric is considered in Table 1 as successful candidate performance. In interpreting Table 1, it is important to keep in mind that the ISD model on which TPA-TOOLS is based specifies the steps for instructional development and how different steps are linked together. However, TPA-TOOLS does not specify the content or content-based components needed to complete each step in lesson sequence development, implementation, and refinement.

Table 1. Linkage of TPA-TOOLS and edTPA Rubrics for Middle Childhood Mathematics

Planning

- Rubric 1 Planning for Mathematical Understanding
Linkage- Plans support student learning of facts and procedures with clear connection to concepts and to mathematical reasoning and/or problem solving skills. (Addressed.)
- Rubric 2 Planning to Support Varied Student Learning Needs
Linkage- Planned instruction is tied to learning objectives with attention to characteristics of the class as a whole (Note- In TPA-TOOLS, relevant characteristics are prior knowledge of students).
- Rubric 3 Using Knowledge of Students to Inform Teaching and Learning
Linkage- Candidate justifies why learning tasks are appropriate, using examples of student prior learning. (Addressed.)
- Rubric 4 Identifying and Supporting Language Demands
Linkage- Candidate identifies vocabulary-symbols and additional language demands/function. (Note- In TPA-TOOLS, language demands/function are tied closely to the content to be learned and would emphasize students describing/explaining what they have learned.)
- Rubric 5 Planning Assessments to Monitor and Support Student Learning
Linkage- Assessments provide evidence of student conceptual understanding, procedural fluency, and/or mathematical reasoning or problem solving during the learning segment. (Note- In TPA-TOOLS, this would be a formative assessment process that is developed the same way as the test for learning mastery.)

Instruction

- Rubric 6 Learning Environment
Linkage- Candidate demonstrates (positive) rapport with and respect for students. (Addressed.)
- Rubric 7 Engaging Students in Learning
Linkage- Students are engaged in learning tasks that address understanding mathematical concepts procedures and mathematical reasoning and/or problem solving. (Addressed.)
- Rubric 8 Deepening Student Learning
Linkage- Candidates elicit student responses related to understanding mathematical concepts, procedures, or mathematical reasoning and/or problem solving skills. (Addressed.)
- Rubric 9 Subject-Specific Pedagogy: Using Representations
Linkage- Candidates use representations that help students understand mathematical concepts and procedures. (Addressed.)
- Rubric 10 Analyzing Teaching Effectiveness
Linkage- Candidates proposes changes (in instruction) that relate to collective learning needs related to central focus. (Addressed.)

Assessment

- Rubric 11 Analysis of Student Learning
Linkage- The analysis focuses on what students did right and wrong and is supported with evidence from summary and work samples. Should also address whole-class learning, (Addressed.)
- Rubric 12 Providing Feedback to Guide Learning
Linkage- Feedback is accurate and focuses on errors or strengths related to specific learning objectives. Feedback is provided consistently. (Addressed.)
- Rubric 13 Student Use of Feedback
Linkage- Candidate describes how students will use feedback to revise their current work, as needed. (Note- Not explicitly specified in TPA-TOOLS, but easily added to learning sequence.)
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Table 1 (Continued). Linkage of TPA-TOOLS and edTPA Rubrics for Middle Childhood Mathematics

Assessment (Continued)

Rubric 14	<u>Analyzing Students' Language Use and Mathematics learning</u>
<u>Linkage-</u>	Candidate explains and provides evidence of student use of language function as well as vocabulary or additional language demands. (Note- In TPA-TOOLS, specific language goals would be stated in the learning sequence objectives and then addressed and assessed in instruction.)
Rubric 15	<u>Using Assessment to Inform Instruction</u>
<u>Linkage-</u>	Candidate proposes "next steps" in instruction that consist of planning for future student learning related to conceptual understanding, procedural fluency, and/or mathematical reasoning or problem solving skills (loosely connected with research and theory). (Note- In TPA-TOOLS this is not specifically addressed.)

Summary: Linkage of the ISD/TPA-TOOLS Model to edTPA Rubrics

As Table 1 shows, following the steps in the ISD-based TPA-TOOLS model to develop a 3-5 day learning sequence would result in a framework within which the majority of edTPA rubrics would be addressed. At the same time, it is important to recognize that while the TPA-TOOLS model does provide a sound framework for lesson sequence development, the specific content focus and associated activities, strategies and materials will be selected by the edTPA candidates.

Additional Interdisciplinary Support for edTPA that Enhances the ISD/TPA-Tools Model

The purpose of a recently developed edTPA Interdisciplinary Module Series is to help undergraduate teacher education candidates to prepare for and successfully pass the edTPA. This module series is presently available in "hard copy", but is in the process of being implemented electronically as a guide following the same format as the TPA-TOOLS web-based application.

The rationale for the module series is that gaining informal perspectives and skills based on interdisciplinary research that complements traditional teacher education programs will facilitate candidate edTPA performance. The module series is based on consensus approaches to instructional development that reflect the combination of instructional systems design (ISD), cognitive science research, and applied learning theory principles that are well-established and directly applicable to the edTPA task. In doing so, the module series identifies perspectives and strategies that are directly relevant to the design, implementation, and reflective evaluation of the 5-lesson edTPA instructional sequence students must plan and implement in authentic K-12 classrooms.

The individual modules in the series (see Table 2) are designed to address: (a) teaching for learning through curricular analysis, (b) formative and summative assessment of learning outcomes, (c) propositional concept mapping as a technique for representing curricular knowledge, (d) concept introduction strategies, (e) verbal formats for motivating and recognizing student learning outcomes, and (f) providing an overall web-based guide for the lesson development/implementation process for edTPA learning sequences.

The design of the module series allows each individual module to be used independently of the others. However, as a group, the module series provides expanded guidance for candidates developing edTPA instructional learning sequences in a manner that is extensible to future school teaching settings (Contact. vitalem@ecu.edu for additional information).

Table 2. *Overview of the Interdisciplinary Module Series*

Module	Focus	Application
1. Teaching for Learning ^a	Learning sequence identification	Determining what to teach
2. Mastery Assessment ^a	Assessment of learning outcomes	Distinguishing student mastery from non-mastery
3. Propositional Concept Mapping ^a	Representation of curricular knowledge	Insuring instructional coherence
4. Concept Introduction Strategies ^a	Strategies for introducing concepts/skills	Concept-focused instruction
5. Motivating Student Learning ^a	Strategies for recognizing learning	Classroom instructional engagement

6. Web-Based TPA Support Tool ^b	ISD guide for edTPA lesson development	
6.1 Small Group edTPA Practice		Small group lesson development
6.2 Individual edTPA Practice		Individual lesson development
6.3 edTPA Task		edTPA learning sequence

^a Web-based support tools for this module is presently under development

^b Presently implemented in prototype form as a general web-based ISD guide for edTPA learning sequences