



Appendix C:

Methodology to analyze coursework

For this report, we analyzed coursework for teacher preparation courses in a sample of 33 institutions. In a subset of seven institutions, the analysis includes average course grades for all courses analyzed. In a subset of five of those institutions, the analysis includes average course grades, teacher preparation coursework and coursework from other academic disciplines.

To evaluate the potential connection between the characteristics of course assignments and average course grades, we used the following sources of data:

- To analyze assignments: course syllabi dated between 2009 and 2014.
- To study the relationship between course assignments and grades: average course grades specific to a course section gathered either from data posted on institutions' websites or through open records requests.
- To identify all required and elected courses that a student with a given major would be required to take: degree plans.

Scope of analysis for course syllabi and course grade analysis for teacher preparation and other academic disciplines

We conducted an in-depth examination of nearly all the coursework required to complete selected majors at a subset of seven institutions using course syllabi along with each course's average grade. The purpose was to investigate any correlation between assignment characteristics and average grades earned in the course. This investigation involved both teacher preparation coursework and coursework from other academic departments.

To the extent possible, we examined all courses required by a degree plan, as well as a random sample of electives based on the number required. Student teaching courses and other purely field-based courses taken in the student's final semester were omitted from analysis because all assignments completed in those courses are assumed to be criterion-deficient (with good reason, given that they are meant to be completed in individual student teaching placements and are unique to the circumstances of those placements). In a few cases, we could not obtain some of the syllabi for courses required for a major; we note the number of missing syllabi in Appendix F.

Majors outside of teacher preparation included in this investigation were selected for a variety of reasons.¹ Nursing programs were included based on the theory that nursing assignments might share assignment features with teacher preparation due to the prevalence of clinical practice and the possibility of teaching to mastery in both. Similarly, if a business program was offered, it was chosen because of the possibility that, being a professional program, business school coursework might have features analogous to teacher preparation. In contrast, several majors in the liberal arts and hard sciences (biology, economics, history and psychology) were chosen precisely because they were presumed not to share features such as clinical practice or identify-formation assignments with teacher preparation. Table 1 illustrates the academic disciplines for which we evaluated course syllabi and GPA data at seven institutions.

Table 1. Academic disciplines included in each institution's analysis

	Teacher preparation	Nursing	Business/ Management	Biology	Economics	History	Psychology
Institution A	X	X		X	X	X	X
Institution B	X	X	X			X	X
Institution C	X	X	X	X	X	X	X
Institution D	X	X		X	X	X	X
Institution E	X		X				X
Institution F	X						
Institution G	X						

Scope of course syllabi analysis for teacher preparation

For a larger sample of 33 institutions, we examined teacher preparation syllabi without accompanying grade information. We examined the assignments given in all of the coursework required to complete a degree plan in elementary, secondary, and special education to assess the prevalence of assignments found to correlate with higher grades in the first investigation.² The institutions selected for this sample, listed below and identified by number, are among the top 200 most prolific producers of teachers. Information on average course grades was not available for courses for these institutions (with the exception of the seven institutions in the subset discussed above).

- 1 If multiple paths for a major existed, one pathway was randomly selected. If the major contained elective courses, we randomly selected from the elective options the number of courses a student would have to take to fulfill credit requirements for the major. If multiple sections for a course existed, one section was randomly selected.
- 2 Secondary coursework was selected based on the content pathway NCTQ evaluated in the *Teacher Prep Review*. Programs often offer a number of content areas for secondary teachers (e.g., one can become a math teacher, or an English teacher, and so on). Our *Teacher Prep Review* has traditionally randomly selected one of those pathways and collected a degree plan and coursework based on that pathway. For this analysis, we use the same content pathway that we used in the *Review*. We did not review special education programs for all institutions in the sample because we have fewer full sets of syllabi on file for these programs. We did not look at any assignments made in student teaching courses and other purely field-based courses. If multiple sections for a course existed, one section was randomly selected for evaluation.

Table 2. Teacher preparation programs for institutions included in coursework analysis

Institution	Elementary	Secondary	Special Education
1	X	X	X
2	X	X	X
3	X	X	
4	X	X	
5 (A)**	X	X	
6	X	X	
7	X	X	
8	X	X	
9	X	X	
10	X	X	
11	X	X	X
12	X	X	
13	X	X	
14	X	X	
15	X	X	
16 (F)*	X		
17	X	X	
18	X	X	
19	X	X	X
20 (B)**	X		X
21	X	X	
22	X	X	
23	X	X	
24	X	X	
25 (C)**	X	X	X
26	X	X	
27	X	X	
28 (D)**	X	X	X
29	X	X	
30	X	X	
31 (E)**	X	X	
32 (G)*	X	X	
33		X	

* Institutions with average course grades included in Section 3.

** Institutions with average course grades and syllabi for both teacher preparation programs and other academic disciplines included in Section 3 (letter indicated in parentheses).

Analysis of syllabi

In the subset of seven programs with average course grade data, course syllabi and corresponding grades were paired by semester and course section. For example, a syllabus from the course EDUC 101, section 501, taught in the fall of 2012, was matched to the average course-level GPA information of that same course and section taught in the fall of 2012. GPA information was obtained in one of two ways: 1) from public postings by the institution's registrar, or 2) via open records requests. NCTQ applauds the commitment to transparency demonstrated by institutions that publicly post grade information.

Coding whether an assignment is criterion-referenced or criterion-deficient

For the entire sample of institutions, analysts coded assignments along a number of domains. Initially, two analysts coded each syllabus. Discrepancies between the two analyses were reconciled by a third party. After the analysts had reached a high overall level of inter-rater reliability, individual analysts coded syllabi for additional institutions.

In both investigations, data on course assignments were gathered from course syllabi. Codes, listed in Table 3, were established for analyzing each type of assignment. The code that plays the largest role in this analysis is whether an assignment is criterion-referenced or criterion-deficient. This code is explained briefly below and in much more detail in Section 2 of the report.

Table 3. Codes for assignment types

Assignment code description	Code options
<p>Criterion</p> <p><i>An assignment is considered criterion-referenced when it is focused on a clearly circumscribed body of knowledge and the assignment is limited so that the instructor can compare students' work on the same assignment.</i></p> <p><i>Qualities that indicate an assignment is criterion-referenced include</i></p> <ul style="list-style-type: none"> ■ a limited scope; ■ evaluation based on objective criteria; ■ students' work products similar enough to allow comparison. <p><i>Qualities that indicate an assignment is criterion-deficient include</i></p> <ul style="list-style-type: none"> ■ an unlimited or very broad scope; ■ evaluation based on subjective criteria; ■ students' work products that differ too much to be compared. <p><i>When syllabi were vague or unclear about the assignments, it was assumed that assignments are not criterion-referenced.</i></p>	<ul style="list-style-type: none"> ■ Criterion-referenced ■ Criterion-deficient



Examples of assignments

CRITERION REFERENCED:

You will learn how to critique science lessons utilizing a given tool. You will use this instrument to critique 5 different videotaped lessons.

- Everyone uses the **same instrument** to critique lessons.
- The critiqued lessons are videotaped so that the **instructor knows the content of the lessons**.
- Because everyone responds to the **same lesson**, the professor can tell **who is correctly applying the tool and who is not**.

CRITERION DEFICIENT:

Your group must teach something – anything to the class. When you teach this topic to the class, you must do so utilizing the information in your section of *Educational Psychology*. In this way, you demonstrate the teaching strategies or content in your methods of instruction.

- Every group **teaches something different**.
- **Even though there is one reference text**, each group will apply different education psychology skills and information since they have each been assigned a different section of the textbook.
- **Due to the range of topics that can be taught**, it is unlikely that either the instructor or the other teacher candidates will be able to discern **who is applying the best techniques to convey the content**.

Proportions of course grades

Syllabi generally describe how much an assignment counts toward a student’s grade. Some syllabi use percentages and others assign raw point values. We based our analysis on the percent of course grades attributed to assignments, rather than on the number of assignments.

In the following example, all but one assignment is criterion-deficient. The weight of all criterion-deficient assignments in the course equals 96.67 percent of the total course grade.³

Table 4. Example of assignment weights

Assignment	Percent of Final Grade	Criterion-Deficient?	Percent of Grade based on Criterion-Deficient Assignments
Class Postings	20%	Yes	96.67%
Class Discussions	25%	Yes	
Quizzes	3.33%	No	
Surveys and Polls in each Module	6.67%	Yes	
Book Review Assignment	25%	Yes	
Interview Assignment	20%	Yes	

3 In courses where the percents of assignments are not given, we divide the course grades evenly among all assignments. In courses where the percents for course grades do not total 100 percent, we add all percents and divide by that new total to recalculate percents.

Coding additional information

Several alternative hypotheses that have been advanced to explain the higher grades in teacher preparation focus on opportunities to revise one's work or to work in groups. To test these alternative hypotheses, we coded whether assignments could be revised and whether assignments could be completed in groups.

Table 5. Codes for revisions and individual work

Assignment code description	Code options
<p>Opportunities for revisions (assignment)</p> <p><i>An assignment is considered to have opportunities for revision if teacher candidates are able to revise an assignment for a higher grade after it has already been graded, or if the teacher candidate is able to complete the required work and receive substantial feedback from a course authority figure (e.g., instructor, teaching assistant, course-assigned tutor) before handing in the assignment for a final grade.</i></p> <p><i>An assignment is not considered to have opportunities for revisions if the course designates separate grades for an initial and final draft. Optional or required opportunities for peer revisions also do not qualify an assignment as having opportunities for revisions.</i></p> <p><i>In the absence of any clear indication that an assignment could be revised after initial grading, it is assumed that revisions are not permitted.</i></p>	<ul style="list-style-type: none"> ■ Yes ■ No
<p>Opportunities for revisions (course)</p> <p><i>A course is considered to offer opportunities for revisions if the syllabus states that all assignments may be revised for an improved grade. A course syllabus that contains language suggesting that all assignments are completed to mastery is also considered to provide opportunities for revisions.</i></p> <p><i>In the absence of such language, it is assumed that revisions are not permitted.</i></p>	<ul style="list-style-type: none"> ■ Yes ■ No



Assignment code description	Code options
<p>Individual/Group work</p> <p><i>Assignments are assumed to be completed individually unless there is explicit evidence from the syllabus that the work may be completed in a group.</i></p> <p><i>When an assignment requires that most of the work be completed collaboratively, but grades are assigned individually, the assignment is still considered to be “group work.” If work is completed in a group, but individuals each produce their own distinct products, the assignment was coded as “individual work.” Assignments that include the option for group work, but do not require it, are considered to be “group work.”</i></p>	<ul style="list-style-type: none"> ■ Individual ■ Group

Additionally, we coded each assignment by category based on the type of work product the assignment required. This analysis also helped identify whether criterion-referenced assignments were more prevalent in some categories of work than in others. While the examples given come from teacher preparation coursework, the assignment categories are also applicable to assignments in other academic disciplines.

Table 6. Codes and examples of assignment categories

Assignment category codes and description	Example
<p>Participation/in-class assignments</p> <p><i>Includes attendance, participating in class or online discussions, reading assigned texts, and other administrative and in-class activities.</i></p>	<p>Attendance</p> <p>Attendance is expected and encouraged for this class. To help ensure that this is the case, there will be 5 in-class assignments given at random during the semester. These will be short exercises involving some form of participation on your part & will be used to determine your class attendance, preparedness, and participation. Each will be worth 6 points apiece and cannot be made up, unless you have an approved university excuse for your absence.</p>
<p>Exam</p> <p><i>Includes in-class, take-home, online, open and closed note exams and quizzes.</i></p>	<p>Midterm and final examinations</p> <p>Most of the items will call for application of class content, not just memorization.</p>

Assignment category codes and description	Example
<p>Reflection Includes writing about personal opinions, perception, or experiences, such as blog/journal entries, personal philosophies, and autobiographical essays.</p>	<p>Schooling/Cultural Autobiography Understanding how your personal and schooling experiences have shaped your own assumptions about teaching and learning is essential to the aims of the course. To help you examine these experiences analytically, you will compose an autobiography in two parts in which you reflect on your own identity and the ways in which identity markers (such as social class, race, ethnicity, language, ability, gender, sexual orientation, etc.) informed your schooling experiences. Consider in your essay what your schooling experiences might have taught you about your own identity.</p>
<p>Portfolio Often a culminating assignment in a course or preparation program, referring to the completed body of work that would make up a portfolio, not the individual components. Often includes an array of work products such as lesson plans and unit plans, samples of student work, and personal reflections.</p>	<p>Portfolio Review your semester's work; choose the best evidence of your growth and development. Make your portfolio unique and powerful by carefully selecting and creatively sharing your best work in a ½ inch binder with a creative cover, a content page, and labeled dividers: (1) Final Reflection, (2) Reflections: weekly learning logs, fieldwork journal, self and peer assessments, (3) Articles and essay for your inquiry project, (4) LS-Lesson Plan, (5) MI-Choice Chart</p>
<p>Field experience Real-world activities that are relevant to a "field" or career path that the class is addressing. Includes such activities as classroom observations, student case studies, teacher interviews, observation of school activities, and teaching a lesson in a K-12 class.</p>	<p>Interactive Read Aloud Plan and Reflection Together with your clinical teacher, select a book to read aloud that is appropriate for creating a conversation with your students. Plan and carry out an interactive read-aloud lesson within your clinical setting.</p>
<p>Academic writing/research assignment Assignments that are more in-depth than a homework assignment and that have some basis in fact, research, etc. Includes gathering research on a specified topic, writing a research paper, writing a literature review, and conducting or reporting on a statistical analysis.</p>	<p>Literacy Assessment Research Assignment Students will collaborative select one of the 5 components of reading instruction and assessment to research from the choices below:</p> <ul style="list-style-type: none"> ■ Phonological Awareness/Phonemic Awareness ■ Phonics/Word Recognition/Alphabetic Principle ■ Fluency ■ Vocabulary ■ Comprehension <p>Students will collaboratively write a 15-20 page paper with not less than 15 peer reviewed references in groups of not more than 5. Students will summarize 15-20 articles and share what they learned from each article on the topic.</p>



Assignment category codes and description	Example
<p>Class presentation <i>Presenting to the college class. Includes presenting on topics such as an instructional strategy or content area, or leading discussion on course readings.</i></p>	<p>Presentation Teacher candidates will be assigned to research and present an intervention strategy/activity. Teacher candidates may work alone or with a partner. Teacher candidates will design a Prezi-tation to present the activity and provide a handout (using template provided) for classmates.</p>
<p>Other written assignments <i>Written assignments that are neither strictly reflections nor academic writing. Includes cultural analysis papers, applying course content to non-academic materials such as an analysis of a movie or book using course concepts, or other written assignments that do not fit into another category.</i></p>	<p>Letters to the Editor Keeping abreast of current issues in education contributes to being an informed professional. Read <i>The New York Times</i> daily to keep up to date with developments in the schools. Select and read articles related to issues in education. Prepare and submit two Letters to the Editor based on two articles from <i>The New York Times</i>. Submit the article with the letter to the editor.</p>
<p>Planning and teaching/ developing resources <i>Assignments that mirror the work of teaching. Includes writing a lesson plan or unit plan, developing an IEP, developing an assessment, designing the layout of a classroom, or creating a resource file of books or websites.</i></p>	<p>Lesson Plan You are required to write a standards-based lesson plan that includes both state math standards and Common Core math standards. A lesson plan template will be provided to you and explained in class.</p>
<p>Action research <i>Designing and conducting a study to test a particular hypothesis, often in one's own classroom or field placement.</i></p>	<p>Action Research Project You will conduct an action research project examining your own attitudes and actions concerning racial consciousness. You will collect data on the role of diversity in your instructional and non-instructional practices and the impact of such practices on student attitudes toward learning using guiding questions. Participant observations and reflections will be the primary source of data collection used to deconstruct teacher identity and its role in educational equity.</p>
<p>Assignment for students <i>Assignments that would typically be given to students in a K-12 class setting. Includes creating artwork, presenting a puppet show, bringing in a snack related to a storybook.</i></p>	<p>Vocabulary Parade Students will participate in a class vocabulary parade based on the book <i>Miss Alaineus: A Vocabulary Disaster</i>. Students will choose a vocabulary word from a class brainstormed list and create a "costume" to represent their selected word. Vocabulary words will be presented during class.</p>

Assignment category codes and description	Example
<p>Other activities <i>Activities that are not directly related to teaching but may help teacher candidates understand their students' life experiences, such as to experience having a disability, to conduct a service learning project, or to attend a workshop or professional development event.</i></p>	<p>Disability Simulation Choose one of the following disabilities and simulate it for a two hour block of time: blindness, hearing impairment, or physical disability that would require you to use a wheelchair. Your summary of this situation should 1) provide a description of activities in which you engaged while you participated in the simulation, 2) describe what you learned about the specific disability you simulated, 3) describe how you will apply the knowledge you gained in your classroom.</p>
<p>Produce media <i>Includes producing a video and creating a virtual site to teach media.</i></p>	<p>Digital Video Produce a digital video/podcast presenting a topic of your choice. Each group will also design and create a "movie" poster using Word to advertise your upcoming production.</p>
<p>Homework assignments <i>Includes most brief (e.g. would only take 1 night to complete) assignments completed outside of class. Includes administrative tasks, responding to reading, problem sets.</i></p>	<p>Focus Questions You are required to complete focus questions from many chapters, which will be the basis for your group discussions. Bring them to class; they will be collected and graded.</p>
<p>Career search activities <i>Includes any career search activities such as writing a resume or practicing interviewing.</i></p>	<p>Employment Strategies Notebook The student will develop a notebook of helpful topics, tips, and strategies in gaining employment as a professional educator/classroom teacher. Materials will be obtained from assigned class activities, online research, and handouts given by course instructor.</p>
<p>Other <i>Includes assignments that do not fit in above categories. Typically used with lack of a detailed description prevents placement in another category.</i></p>	<ul style="list-style-type: none"> ■ "Independent assignments" ■ "Projects" ■ "Application assignment"

Pass/Fail Assignments

A number of assignments in both nursing and teacher preparation programs are graded on a pass/fail basis and are not designated in the syllabus with a percent of course grade. These assignments were not factored into the GPA or grade breakdown of a course.