An Analysis of the Survey of Schools of Education on Use of Data in their Teacher Preparation Programs:

An Interim Report

Submitted to: The Michael and Susan Dell Foundation

Date: August 13, 2013

WestEd

Contents

BACKGROUND COMMENTS

This report documents the work of one component of a larger research effort. The objective of the project is to understand what schools of education are doing to prepare teachers to use data in their practice. The issue is multifaceted, complex, and systemic. Schools of education do not act alone to suddenly introduce courses on data-driven decision making into their curricula because they have a whim to do so, or because policymakers say that data literacy among educators is important. Schools of education must come to realize on their own that building the human capacity to use data among their teacher candidates is a response to needs from the field, stimulated in part by policymakers' rhetoric that education must become an evidence-based field. The study contains three distinct, but interconnected components that, in combination, provide a depiction of the landscape of teacher preparation and data literacy. The components include a survey to schools of education, a review of selected syllabi, and an analysis of state licensure documents and requirements. This document focuses on the survey component.

RELEVANT LITERATURE

The field has struggled to define what it means to be a data literate educator (Mandinach & Gummer, 2011, 2013a). We brought together 55 experts in the field, with the specified objective of achieving a common definition. Yet the best we were able to achieve was roughly 95 percent agreement, with the remaining 5 percent rather amorphous. Others have posited variations on definitions (Data Quality Campaign Data Literacy Group, 2013; North Carolina Department of Public Instruction, 2013). In terms of applicability specifically for teaching, it is our belief that the following definition approaches the construct in the most comprehensive manner possible:

> Pedagogical data literacy or data literacy for teaching is the ability to transform information into actionable instructional knowledge and practices by collecting, analyzing, and interpreting all types of data (assessment, school climate, behavioral, snapshot, etc.) to help determine instructional steps. It combines an understanding of data with standards, disciplinary knowledge and practices, curricular knowledge, pedagogical content knowledge, and an understanding of how children learn.

WHAT DO POLICY AND RESEARCH SAY?

Much attention from policymakers has been given to the importance of teachers using data. Secretary of Education Arne Duncan (2009a, 2009b, 2009c, 2010a, 2010b, 2012) has spoken widely about the need for teachers to use data and the importance of such evidence-driven practice. In fact, Duncan (2012) publically challenged schools of education to step up and begin to train educators at a national conference sponsored by the Data Quality Campaign. Further, data use is one of the four pillars in the American Recovery and Reinvestment Act (ARRA, 2009) and in the Race to the Top (U.S. Department of Education, 2009).

Professional organizations such as the National Council for Accreditation of Teacher Education (NCATE) and the Council of Chief State School Officers (CCSS0) have included data literacy or the

capacity to use data among their recommendations and standards. The National Board of Professional Teaching Standards also has been a strong proponent of improving teachers' capacity to use data (Aquerrebere, 2009). A Blue Ribbon Panel (2010) report released by NCATE and endorsed by Duncan (2010b) recommended that teacher candidates know how to make decisions. It further recommends that teacher candidates must be able to analyze student learning needs and make instructional adjustments by using student performance data and other sources of data to inform their practice.

CCSSO (2011) released the InTASC standards for teaching that laid out 10 recommendations, each with knowledge, dispositions, and performance skills that are required of teachers. The document identifies "using data to support learning" as one of the cross-cutting themes. It further specifies that the data theme occurs in 43 of the knowledge, dispositions, and performance components. We analyzed the document further and noted an additional 24 components. Suffice it to say that the components of data literacy are well represented in the InTASC standards.

In some ways, policymakers are further along in their thinking about data literacy among educators than are researchers. Policymakers and researchers in the area of data-driven decision making have focused on teachers in a number of ways, but has rarely addressed teacher preparation. Many articles and studies have noted the importance for teachers to know how to use data effectively to inform their practice and the need to build educators' capacity to use data (Baker, 2003; Choppin, 2002; Feldman & Tung, 2005; Hamilton, Halverson, Jackson, Mandinach, Supovitz, & Wayman, 2009; Ikemoto & Marsh, 2007; Mandinach, 2009, 2012; Mandinach & Honey, 2008; Mason, 2002; Miller, 2009). There have been numerous calls for high-quality and sustained professional development to facilitate data literacy (Baker, 2003; Mandinach, Rivas, Light, & Heinze, 2006; Means, Padilla, & Gallagher, 2010; Schafer & Lissitz, 1987; Wise, Lukin, & Roos, 1991). Yet preparing educators to use data only goes so far. Having good professional development is important, but there also is a pressing need for the infrastructure to support the infusion of data use into schools and districts (Marsh, Pane, & Hamilton, 2006).

While the existing literature focuses on the current cohort of teachers, in-service training, and professional development, little, if any attention has been devoted to teacher preparation and pre-service. Recognizing the dearth of knowledge about the role of teacher preparation in developing data literacy, early in 2011, we convened a meeting of key stakeholders to discuss what schools of education can do to prepare educators to use data[1]. The outcome of that meeting was a white paper (Mandinach & Gummer, 2011) and a call to action that appeared in the *Educational Researcher* (Mandinach & Gummer, 2013b). The white paper reported on the varying perspectives of different stakeholder groups, as well as a clear picture of many of the challenges. It outlined a research agenda needed to inform the field, including a comprehensive survey to schools of education to better understand the landscape of course offerings. The journal article laid out the systemic nature of the problem and took the perspective that professional development providers can only go so far as to train some of the current cohort of teachers. It was clear that something must be done to improve the pipeline of educators, looking to schools of education to respond by integrating data use into their course offerings to address the need at the pre-service level.

[1] This work was sponsored by the Spencer Foundation.

PROJECT DESCRIPTION

This report is formally about the responses from schools of education to a survey they received asking about how data use was implemented in their teacher preparation program. This examination provides only part of the needed information by which to understand, interpret, and draw conclusions about the state of data education in teacher training programs. Conclusions should be made only about the set of schools which opted to complete the survey. Any conclusions from the results about the state of teacher preparation programs as a whole should be made with caution.

METHODS

The Current Study

The current study, with the focus on what schools of education are doing to build educators' capacity to use data, includes three different analytic components. It includes a survey to schools of education, an analysis of syllabi for data courses of related courses, and an examination of states' licensure documents. The component that pertains to this article is the survey.

The Survey

The survey sought to understand in detail if, and if so, how, different schools of education from across the country were preparing the teaching candidates to use data for educational decision making. This was accomplished by asking a series of detailed questions about the school; the school's teacher preparation program including stand-alone data courses and courses where data use was integrated; the school's plans for new courses; and opinions of the emphasis on data use from the department of education and accreditation organizations. The survey was endorsed by the National Board of Professional Teaching Standards, the American Association of Colleges of Teacher Education (AACTE), the Council for the Accreditation of Teacher Preparation (NCATE), and the National Association of State Directors of Teacher Education and Certification (NASDTEC). It was open from March 7 until June 30, 2013 through an online survey program. In total, 836 schools of education from across the United States and territories were invited to participate in the survey. Schools invited to participate were identified in one of two ways:

1) A stratified randomized sample of 503 schools of education, created by Dr. Jon Miller and his colleagues at the University of Michigan;
2) All of the land grant and state schools in the 50 states, District of Columbia, and Territories that were not part of the original sample[2].

Methodology

The stratified sample created by Dr. Miller's team used the most recent IPEDS file, which originally identified 1,514 post-secondary schools that offered a baccalaureate or higher degree in education. On further examination, it was noted that some of these institutions were located outside the 50 states and the District of Columbia (Guam or the Virgin Islands, for example) and were excluded those to produce a final universe of institutions of 1,474 institutions.

[2] For the purposes of this report, the District of Columbia will be considered a state.

The primary question in constructing the sample was whether the institutions are homogenous or if there are clusters of institutions with analytically important characteristics. It was ultimately decided that there is a good argument to be made that there are at least two factors that should be taken into account in the selection of the sample.

First, the institutions differ in the level of degrees that they offer. Some post-secondary colleges offer only a baccalaureate in education and the institution does not offer any graduate-level courses or degrees. Other institutions offer a baccalaureate and a master's degree in education but no doctoral or other advanced courses or degrees. Comprehensive universities offer baccalaureate, masters, and doctoral degrees. Some institutions offer only graduate-level degrees in education. Because these institutions differ in their involvement in educational research and the empirical methods courses associated with educational research, it is reasonable to think of these four clusters as involving institutional distinctions that should be examined analytically.

A second important dimension is the type of control or ownership of each institution. In most national studies of higher education, institutions are grouped into (1) public institutions, (2) private non-profit institutions, and (3) private for-profit institutions. It was decided that this was also a worthy distinction.

The combination of these two dimensions created a 12-cell sampling matrix or design (see Table 1 below). For the reasons outlined above, these 12 cells reflect important variations in program scope and in control. A probability-proportionate-to-size (PPS) sample was run of the 1,474 institutions to match the characteristics of Table 1.

Table 1: Allocation of Sample of 500 Institutions, by Level of Education Degrees Offered and Control

	Public	Non-profit	For-profit	Total
Baccalaureate only	5	11	1	17
Baccalaureate + Masters	109	107	8	224
Bacc., Masters, + Doctorate	139	55	8	202
Graduate degrees only	21	23	16	60
Total	274	196	33	503

A number of these institutions have multiple campuses but only one dean or chief academic officer. In short, there were multiple listings for what the study deemed one institution. However, this was not realized until after the first sampling. After removing the duplicate institution entries from the population, the universe of institutions dropped to 1,428. Though the duplicate removal only impacted three strata in the population, removing these schools impacts the number of schools that need to be sampled in all other strata using PPS sampling. For those strata with no records removed it was necessary to add schools to be sampled. With the originally sampled schools already contacted or recruited, it was impractical and costly to redraw the entire sample. Instead we opted to randomly add schools to the sample where necessary. Based on the need to maintain an approximately PPS sample, we needed to add between one to four schools to 7 strata. By also removing the 14 duplicate

sampled institutions from the original sample, our final sample resulted in 503 institutions. This final sample roughly maintained the original PPS design without having institutions being sampled more than once.

The second sample group was added in order to oversample schools with higher enrollments of teacher candidates and schools with a greater ability to effect change. The second group was also added after reviewing the stratified, random sample and noting the preponderance of small, religious, technical, and unrelated institutions that were drawn into the survey which would prevent us from obtaining the desired information from the survey.

One person from each institution was identified as the individual best suited to receive the survey. A web search of each school's department of education page was conducted in order to locate the best recipient. In most instances, this was the dean or chair of the department of education, or the chair of the teacher preparation program, when such a position existed. For smaller sectarian and liberal arts schools as well as for-profit schools, it was often times difficult to find either an active email address or a title or role of faculty members beyond a listing of the departments in which they served. In those instances, additional web searches were conducted to try and identify the best fit or, at least, the senior-most person in the department. Since the survey was so detailed and it was unlikely that any one person would have all the information needed to complete the survey, it was decided that deans or chairs would be the best people to email. Despite it being unlikely that a dean or department chair would know the specifics of what happens in each classroom, they were identified as the best recipients because they are most likely to know which faculty have the knowledge needed to complete the survey and they would be most able to pull together the appropriate faculty to complete the survey. In essence, the goal was for "trickle-down" survey dissemination. Survey invitations were sent out over the first two weeks of March 2013. A series of reminder emails were sent out to all invitees, and two batches of calls to schools that had partially completed the survey were conducted between March and June, when the survey closed.

The survey was comprised of 49 questions divided into eight sections: General Demographic Information About the School of Education; Stand-Alone Courses that Address Data Use for Educational Decisions; About the Course; Integration of Data Use Concepts and Skills into other Courses; Integration of Data Use Concepts and Skills into Field Experiences; Integration of Data Use Concepts and Skills Across Program; Plans to Develop or Implement New Courses or Emphases on Data Use Concepts and Skills; and State and Federal Issues. Many questions are in table form and ask about a series of related items, have sub-questions, or both. With the exception of the first question which asks for name, email address, and role/position, all of the questions are close-ended, with select questions offering an "other" option and allowing the user an open-ended sub-question to specify the "other" response. For example, question 24 is both a table with a series of related items and has a sub-question to specify "other."

Question 24

24. Does the course address the following *measurement topics*?

Select one per row.

	A prominent part of the course	*Addressed only peripherally*	*Not addressed at all*	*Don't know*
Measurement concepts such as reliability and validity	○	○	○	○
Differences in grain size (cohorts, courses, grades)	○	○	○	○
Reporting levels (scaled scores, percentiles, performance levels)	○	○	○	○
How to use elementary statistics (e.g., central tendency and dispersion)	○	○	○	○
How to use descriptive verses inferential statistics	○	○	○	○
Other (Please specify below)	○	○	○	○

24.1 If other, please specify:

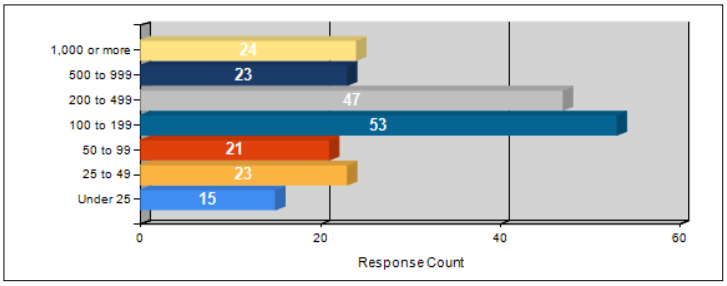
While there was a concern that such a robust, detailed survey might cause a lower response rate, it was decided that a detailed survey was necessary to truly dig in deep and understand what schools of educations report are and are not components of their teacher preparation programs. The level of depth in the survey allowed us to garner meaningful results about the participating institutions.

SUMMARY OF FINDINGS

Respondent Overview

In all, respondents from 208 of the 836 schools completed the survey, for a response rate of 24.9 percent. The responding schools employ between 5,581 and 10,776 full-time and 4,245 and 10,749 part-time faculty members involved in the educator preparation of between 51,840 and 96,543 pre-service teacher candidates at a time. The schools were diverse and ran the gamut in respect to size and geographic location. The oversampling of state schools helped to increase the number of larger colleges and universities that responded to the survey, which led to a solid representation of all school sizes. For instance, nearly 23 percent of responding schools enroll 500 or more pre-service teacher candidates each year. As Graph 1 shows, the enrollment of pre-service candidates is well distributed, with all ranges fairly well represented. Furthermore, respondents represented school in 47 states, as well as the District of Columbia and the Virgin Islands. California was the most represented state with 18 responding colleges and universities.

Graph 1 – How many pre-service teacher candidates do you enroll per year?



There was an over-representation of public schools, which can be attributed to the second sample of state schools. As Table 2 shows, over two-thirds of responding college and universities identified as public institutions. Given the examination of state licensure documents as part of the project and desire to get responses from institutions with the capacity to make changes, this over-representation was desirable.

Table 2 – Is your institution (select all that apply):

Choice	Response Percent
Public	68.0%
Private – for-profit	2.9%
Private – not-for-profit	28.6%
Land grant	12.6%
Traditional state teachers college	8.3%
Sectarian	2.9%
Non-sectarian	3.4%

Data Use Course Offerings

The main focus of the survey was to poll respondents about whether or not they offered stand-alone courses on data use for educational decisions or if the topic was subsumed or integrated into an existing set of courses offered by the institution. If the respondent indicated that his or her school did have stand-alone and/or integrated courses on the use of data for educational decisions, they were asked a series of follow up questions about which data and assessment topics, tools, systems, and processes were taught and to what extent they were a focus of the class. 62.4 percent of respondents claimed that their school offered at least one stand-alone course on data use to inform educational decisions, while 92.0 percent of respondents said that data use for educational decisions was subsumed or integrated within a least one existing course. Public colleges and universities were slightly more likely to offer at least one stand-alone course than were other types of institutions (65.7 percent versus 55.2 percent).

If a respondent's college or university offered more than one stand-alone course on data use, he or she was asked to answer only for the one course with the strongest emphasis on using data to inform educational decisions. We found that the typical stand-alone course is most likely to:

- Be a requirement for a teaching degree (80 percent of the time).

- Be intended for the target audience of pre-service teacher candidates (84.6 percent of the time).
- Be taught at the undergraduate level (71.6 percent of the time).
- Be delivered in a face-to-face setting (83.8 percent of the time).
- Have a tenure track professor as the instructor of record (58.1 percent of the time).
- Include a component in which student may access and examine authentic data from K-12 students for who they can make educational decisions (72.4 percent of the time).
- Include a component in which the student may access and examine simulated data (78.3 percent of the time).

Data Use Course Content

The respondents from institutions with stand-alone and/or integrated data use classes were asked a series of questions on how prominently a series of different data and assessment topics, tools, systems, and processes were addressed in the relevant class or classes. Some identical questions were asked for both the section on the stand-alone course as well as the section on the integrated course or courses. These questions asked the user to rate how prominently a specific topic, tool, system, or process was integrated in the class. The options were "A prominent part of the course", "Addressed only peripherally", "Not addressed at all", and "Don't know." Each question focused on a specific set of skills including kinds of data, data topics, and data systems. This was done in order to gauge the depth and breadth at which data use was taught in the classes.

Tables three and four illustrate the aggregate totals for each of the questions in which the user was asked to rate how prominently a specific skill was addressed in the stand-alone and/or integrated course or courses. Table three shows the results for the stand-alone courses, while table four displays the results for the integrated courses. In both instances, respondents identify data topics (e.g., how different kinds of data are collected, data quality) and assessment and assessment topics (e.g., summative assessment process, diagnostic assessment process) as being most commonly a prominent part of the course. Conversely, the more modern data systems (e.g., data warehouses, student information systems) and data tools (e.g., student dashboards, behavioral tracking) were in both instances most commonly not addressed at all. It is no surprise that data tool and data systems were also the questions with the highest rates of "Don't know" responses, as it is possible that sometimes a respondent did not know if that skill was being addressed because it was not being addressed.

Table 3 – Data and Assessment Topics, Tools, Systems, and Processes in Stand-Alone Courses

Stand Alone Data and Assessment Topics, Tools, Systems, and Processes	A prominent part of the course	Addressed only peripherally	Not addressed at all	Don't know
Question 21: Kinds of Data (n=1,545)	51.8% n=800	32.3% n=499	9.3% n=143	6.7% n=103
Question 22: Data Topics (n=437)	78.9% n=345	18.3% n=80	0.9% n=4	1.8% n=8
Question 23: Assessments and Assessment Topics (n=979)	65.2% n=638	24.4% n=239	4.0% n=39	6.4% n=63
Question 24: Measurement Topics (n=557)	47.9%	32.7%	9.5%	9.9%

	n=267	n=182	n=53	n=55
Question 25: Data Systems (n=445)	20.0% n=89	37.8% n=168	27.9% n=124	14.4% n=64
Question 26: Data Tools (n=654)	16.5% n=108	33.2% n=217	30.3% n=198	20.0% n=131
Question 27: Teacher Processes (n=1,459)	52.3% n=763	31.5% n=459	9.0% n=132	7.2% n=105
Question 28: Teacher Action and Decisions Making Processes (n=943)	59.6% n=562	26.3% n=248	8.0% n=75	6.2% n=58
Total (n=7,019)	**50.9% n=3,572**	**29.8% n=2,092**	**10.9% n=768**	**8.4% n=587**

Note: Totals may not sum to 100% because of rounding.

Table 3 – Data and Assessment Topics, Tools, Systems, and Processes in Integrated Courses

Integrated Data and Assessment Topics, Tools, Systems, and Processes	A prominent part of the course	Addressed only peripherally	Not addressed at all	Don't know
Question 36: Kinds of Data (n=2,110)	46.1% n=973	36.6% n=772	9.5% n=201	7.8% n=164
Question 37: Data Topics (n=600)	47.7% n=286	42.0% n=252	2.8% n=17	7.5% n=45
Question 38: Assessments and Assessment Topics (n=1,373)	55.1% n=757	32.1% n=441	5.0% n=68	7.8% n=107
Question 39: Measurement Topics (n=783)	29.2% n=229	43.9% n=344	14.9% n=117	11.9% n=93
Question 40: Data Systems (n=627)	15.2% n=95	40.0% n=251	26.3% n=165	18.5% n=116
Question 41: Data Tools (n=921)	14.3% n=132	35.2% n=324	29.8% n=274	20.7% n=191
Question 42: Teacher Processes (n=2,096)	38.0% n=796	42.2% n=884	11.5% n=242	8.3% n=174
Question 43: Teacher Action and Decisions Making Processes (n=1,359)	50.4% n=685	35.0% n=476	8.6% n=117	6.0% n=81
Total (n=9,869)	**40.1% n=3,953**	**37.9% n=3,744**	**12.2% n=1,201**	**9.8% n=971**

Note: Totals may not sum to 100% because of rounding.

As mentioned earlier there is persisting confusion among educators, researchers, and policy makers between data literacy and assessment literacy. Most of the aforementioned questions ask about assessment and non-assessment components of the topics, tools, systems, and processes which they are addressing. In order to examine how prominently assessment items are addressed compared to non-assessment items, an analysis was conducted between the levels at which each category was reported. For each question 21 through 28 the item responses were broken down into two categories: assessment items and non-assessment items. Assessment items are items where "assessment" is part of the description (e.g., benchmark or interim assessment data, diagnostic assessment data), and non-assessment items are the rest (e.g., attendance data, behavioral data)[3]. It

[3] "Other" is excluded from this analysis.

was found that, on average, assessment items were reported at a substantially greater level to be a more prominent part of the course than similarly categorized non-assessment items. It is clear from the results that the responding schools focus more on assessment data than on the other types of data. Tables five through nine below illustrate that in every instance where there was both assessment and non-assessment items in a question, that the assessment items were more frequently a prominent part of the course, often times at double the rate of non-assessment items.

Table 5 – Assessment verses Non-Assessment *Kinds of Data*

Kinds of Data (Question 21)	A prominent part of the course	Addressed only peripherally	Not addressed at all	Don't know
"Assessment" Data (n=540)	68.1% n=368	23.9% n=129	4.4% n=24	3.5% n=19
Non-"Assessment" Data (n=973)	43.5% n=423	37.7% n=367	11.6% n=113	7.2% n=70

Table 6 – Assessment verses Non-Assessment *Assessments and Assessment Topics*

Assessments and Assessment Topics (Question 23)	A prominent part of the course	Addressed only peripherally	Not addressed at all	Don't know
"Assessment" Assessment and Assessment Topics (n=845)	71.1% n=601	22.4% n=189	2.1% n=18	4.4% n=37
Non-"Assessment" Assessment and Assessment Topics[4] (n=107)	30.8% n=33	43.9% n=47	15.9% n=17	9.3% n=10

Table 7 – Assessment verses Non-Assessment *Data Systems*

Data Systems (Question 25)	A prominent part of the course	Addressed only peripherally	Not addressed at all	Don't know
"Assessment" Data Systems[5] (n=106)	34.9% n=37	37.7% n=40	16.0% n=17	11.3% n=12
Non-"Assessment" Data Systems (n=315)	15.9% n=50	40.0% n=126	31.1% n=98	13.0% n=41

[4] There is only one non-"assessment" item in this question. Interpret with caution.
[5] There is only one "assessment" item in this question. Interpret with caution.

Table 8 – Assessment verses Non-Assessment *Data Tools*

Data Tools (Question 26)	A prominent part of the course	Addressed only peripherally	Not addressed at all	Don't know
"Assessment" Data Tools (n=316)	25.3% n=80	33.2% n=105	23.4% n=74	18.0% n=57
Non-"Assessment" Data Tools (n=311)	8.7% n=27	35.4% n=110	36.3% n=113	19.6% n=61

Table 9 – Assessment verses Non-Assessment Teacher *Processes Important for Data Use*

Teacher Processes Important for Data Use (Question 27)	A prominent part of the course	Addressed only peripherally	Not addressed at all	Don't know
"Assessment" Teacher Processes (n=205)	57.6% n=118	25.4% n=52	12.7% n=26	4.4% n=9
Non-"Assessment" Teacher Processes (n=1,231)	52.3% n=664	32.8% n=404	8.0% n=98	6.9% n=85

External Factors on Data Use Courses

There appears to be a decent amount of confusion among respondents as to whether or not their state has licensure or certification requirements regarding teachers' knowledge and skills to use data to inform educational decisions. In 16 states at least one respondent answered "yes", their state has licensure or certification requirements while at least one other respondent in the state answered "no", their state does not have licensure or certification requirements. Each respondent in a state should have the same answer. It is clear that communication on the subject needs to be improved.

It is unclear, though, to what extent external factors have an influence on data use course offerings in the respondents' teacher preparation programs. However, it appears that outside sources may have less impact on a school's decision to change than does their own opinion of what is important. 45.7 percent of respondents with knowledge about their institutions future course plans stated that their school planned on developing and implementing a new course or courses on the use of data. A crosstab analysis between whether or not a respondent's school plans on developing and implementing a new course or courses and the respondent's opinion about the influence the federal emphasis on use of data, shows a correlation between the influence felt and whether or not a school plans on developing a course or courses around data use. The majority of respondents believe the federal emphasis on use of data has just about right influence. Yet, those who believe the federal emphasis on data use has too small an influence were nearly twice as likely to belong to an institution planning on developing and implementing a new course or courses on use of data as those who believed it has too great an influence (67 percent to 37 percent). While the sample size is small, since the majority of respondents felt that the federal emphasis has the correct level of influence, this shows that institutions may be more likely to change when they believe something to be important. Schools that felt the federal emphasis had too strong an influence were less likely to plan on adding a course or courses than those who felt it was not strong enough. In order for change to occur, the schools must want to change; and for that to happen, the conversation should be a encouraging instead of judging.

Table 10 – Relationship Between Opinions of Federal Influence and Plans to Develop a New Course or Courses

		How strong an influence do you think the federal emphasis on the use of data to inform educational decisions have on your teacher preparation program?		
		Too great an influence	Too small an influence	**Total**
Does your institution have any plans for developing and implementing a new course or courses on the use of data to inform educational decisions?	Yes	15	8	**23**
	No	26	4	**30**
Total		**41**	**12**	

CONSIDERATIONS TO TAKE AWAY

It is difficult to come to clear conclusions and take-away messages on the survey results without also examining the results of the other two components of the study. However, some important points for further examination and discussion have come to light from the survey results.

Respondents overwhelmingly report that data use is at least somewhat integrated into their teacher preparation program. Nearly two-thirds (62.4 percent) of respondents indicated that their institution has at least one stand-alone course whose primary educational objective is to improve teachers' knowledge and skills to use data to inform educational decisions, while 92.0 percent of respondents stated that use of data is integrated or subsumed within at least one existing course. Overall, 93.4 percent of respondents said that use of data to inform teaching and learning is a sustained component of at least part of their school's teacher preparation program. The survey responses indicate that responding colleges and universities claim that the subject of data use for educational decisions is a strong element of their teacher preparation program.

However, just because a school claims to be teaching data use does not mean that they are teaching data use at all or doing it well. The survey shows that respondents report assessment items as being more prominent components of their data use courses than are non-assessment items. This finding is to be expected because one of the most frequent sources of data for teachers are assessment results. Further, many educators fail to consider other sources of data, thinking only of test results and quantitative data. In fact, quantitative data are rarely considered (see the licensure report). It also is unclear how assessment data are being defined. If defined broadly, they could include summative, formative, diagnostic, and classroom-based assessments. That still leaves multiple sources of data unconsidered, including portfolios, projects, reports, demographics, attitudes, behavior, health, and others. A preliminary review of the syllabi from the respondents confirms this. It shows that in many instances schools are conflating data use and data literacy for assessment use and assessment literacy. Again, this is not uncommon, considering that professional organizations such as the Council of Chief State School Officers (CCSSO, 2012) have demonstrated similar confusion. Additionally, schools are commonly only touching the surface of use of data, covering the subject superficially, or are not using the best resources to teach the material. The syllabi review with help to sort through the findings with more detail, and will help to answer how well and to

what extent schools of education are making data use a component of their teacher preparation programs.

CONCLUDING THOUGHTS

Limitations

At 24.9 percent, the response rate is a bit low, but is realistic for an online survey. The low response rate limits the breadth of the claims that can be made from the analysis. The findings and takeaway messages from the survey are not, by themselves, enough to speak in generalities about teacher preparation programs. Rather, they are intended to add another set of findings and point of conversation to the field. They are also a component of a larger study, along with the licensure and syllabi reviews. Together, the three pieces of the study paint a larger, clearer picture about the state of data literacy education in teacher preparation programs and the components must be examined and interpreted together.

We know for a fact that the response rate was depressed because of the intense reaction schools of education are having to the ratings conducted by the National Council of Teacher Quality (NCTQ). Many invitees were hesitant to partake in the survey because they feared that it was a "witch hunt" or a "gotcha" survey, akin to the NCTQ survey on teacher preparation programs. We received calls from deans asking if we had anything to do with NCTQ, stating that if we did, they would not participate in the survey. Follow-up calls, even to deans whom we know yielded candid concerns about how the results would be used; that is, as a means of rating or sticking it to the schools of education. Several invitees stated that they felt wronged by the NCTQ survey and feared that this one sought to make the same claims. Invitees were informed numerous times that this was not the case, but some were still hesitant or not interested in participating. One invitee stated that he knew for a fact that most of the deans in his state who were invited to participate deleted the initial survey email, thinking that it was another NCTQ-type survey, and blocked follow up emails for the same reason. The NCTQ survey severely hurt this survey's response rate.

Identifying the best person to receive the survey at each school was a challenge. It was often not clear from the school website what courses were taught by which professors and who would have the desire and ability to pull together their colleagues to complete the survey. As mentioned earlier, in most instances the dean or chair of the school's department of education or teacher preparation program was the one invited to complete the survey. In many cases, deans and chairs receive more emails then they can keep up with. Our emails were never opened by several invitees or got lost among all the other emails and requests. It is possible that our response rate would have been higher if different people were emailed at certain schools.

Additionally, we were warned that deans of schools of education are bombarded with requests for surveys and other information and that they are not likely to respond. It was clear that we had a challenge to obtain even a barely acceptable response rate. That said, we received probably two dozen calls from schools of education with legitimate questions about the survey because the respondents wanted to get it right. So some respondents took very seriously their answers.

This was a long and detailed survey. Multiple people in a school were often required to complete parts of the survey in order to fully and accurately respond. Some respondents completed the survey

without involving additional colleagues, instead opting to respond only to what they knew. Several people who were invited to participate responded that their school is over-surveyed and they do not have the time or capacity to complete every survey received. Furthermore, the time needed to complete the survey ranged from just under four minutes to over 104 days for respondents. Several respondents experienced survey fatigue as evidenced by the fact that 206 respondents answered the first question, compared to 171 who answered the last question. Because multiple busy people were often required to complete the survey, many respondents started and stopped their participation in the survey and then never re-started.

It is also possible that there was a bias in who chose to respond to the survey. Since schools of education receive an overabundance of survey invitations and have plenty of competing priorities, they must often self-select which surveys to complete and which priorities to pursue. It was made clear in all communications from the initial invitation email on that the survey was about how the schools are building the capacity of their teaching candidates to use data. It is possible that schools with little to no focus on use of data in their teacher preparation programs decided not to participate in the survey, as they likely did not view this survey as a priority. That, coupled with their possible fear of an NCTQ-type dissemination of results, could very well have led to an under-representation of schools which do not cover data use as a component of their teacher preparation program.

Next Steps

This is a starting point for analysis of the survey. There are over 50,000 cells of survey results on which analysis is being conducted; and as additional questions and thoughts arise, additional analysis will be conducted. As all three components of the study come together, the next step will be to triangulate the data sources to gain a comprehensive understanding of the current landscape: examine what are the state requirements for teachers, what schools report, how that looks in the classrooms, and how the three impact one another. This will lead to further survey analysis as more questions are brought to the forefront by the combination of the three components. We will cross examine the three sources as a credibility check, and also as a means to identify other interesting or potentially suspicious data. Additionally, we will examine the DQC's list of 20 states that have teacher licensure requirements and the 25 states that have program requirements and compare the teacher standards and survey results from those states.

Further, our future analyses will need to "read between the lines" of the data obtained from the survey, particularly in combination with the collected syllabi. We need to understand what schools of education actually consider as data courses or data integration, beyond reporting that they do so. This is an interpretive task. It also is an alignment task. Respondents may legitimately believe their course pertains to data use and data literacy, but not as defined by experts or licensure requirements. We need to align the surveys and the state requirements to determine the level of awareness of schools of education about their licensure documents.

There needs to be discussions among key stakeholders to determine how to make actionable real data integration into schools of education, finding the appropriate leverage point to effect change. There should be conversations among licensure staff, representatives from schools of education, professional organizations, and experts in providing training in data use. Representatives from PRAXIS also should be at the table as Educational Testing Service considers including data literacy as a component of the test. The outcome of these conversations should be concrete steps toward integrating data use into courses and curricula. Further, just as states need to reevaluate their

licensure requirements, schools of education need to rethink if they have the capacity, faculty, and room to teach data literacy.

Finally, a limitation of this study was that we were not able to include administrators the survey. We know anecdotally that stand-alone courses do exist for principals, superintendents, and other administrators. Such courses may make sense for administrators, whereas an integrated approach may make more sense for teacher candidates. Therefore, two components that we were not able to accommodate in the current study should be considered. First, we should examine courses for administrators from which we can learn about data literacy more generally. We may be able to better understand the need for stand-alone courses versus the integrated approach and for whom the different types of courses are best suited. Second, we should conduct selected case studies of successful implementation of actual data literacy to document what it looks like, how it is taught, how integrated, what materials are used, and what capacities are needed for the faculty and institution.

We have much more to learn before definitive recommendations can be made. The triangulation among the three components provides us with significant information, some of which requires additional verification. The information we do have provides us with fruitful directions for future inquiry.

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Appendix A

Survey of Schools of Education

1. Please enter your contact information:	
Name:	
Email Address:	
Role/Position:	

GENERAL DEMOGRAPHIC INFORMATION ABOUT THE SCHOOL OF EDUCATION
This section of the survey requests information about your institution so we can understand the relationship to institutional characteristics and course offerings.

2. Is your institution? (check all that apply)

Select all that apply.

☐	Public
☐	Private – for-profit
☐	Private – not-for-profit
☐	Land grant
☐	Traditional state teachers college
☐	Sectarian
☐	Non-sectarian
☐	Other (Please specify):

3. Does your institution offer courses:

Select one.

○	Only in a face-to-face format
○	In both face-to-face and online formats
○	Only in online formats

4. How many full-time equivalent faculty does your institution have that are involved in educator preparation?

Select one.

○	Under 15
○	15 to 24
○	25 to 49
○	50 to 99
○	100 or more

5. How many part-time faculty does your institution have that are involved in educator preparation?

Select one.

○	Under 25
○	25 to 49
○	50 to 99
○	100 to 199
○	200 or more

6. How many pre-service teacher candidates do you enroll per year?

Select one.

○	Under 25
○	25 to 49
○	50 to 99
○	100 to 199
○	200 to 499
○	500 to 999
○	1,000 or more

7. What levels of degrees are offered to the teacher candidates? (check all that apply)

Select all that apply.

☐	Bachelors
☐	Dual degree – the students get both an undergraduate degree in a discipline and an undergraduate teaching degree
☐	Masters
☐	Other (Please specify):

8. For your teacher candidates who are obtaining their teaching certification after they have finished their undergraduate degrees, is the program:	
Select one.	
○	For licensure only
○	Both licensure and Masters level in the same program
○	Both licensure and Masters level in separate programs

9. Please indicate where you place the majority of your teacher candidates into jobs:	
Select one.	
○	Locally (within 50 miles)
○	Within the state
○	Nationally
○	Internationally
○	Don't know

COURSES THAT ADDRESS DATA USE FOR EDUCATIONAL DECISIONS

This piece of the survey pertains to courses that address the use of data for decision making, both stand-alone courses and those that integrate a data component into other course content. Data can be used for instructional purposes or other educational decisions. The survey seeks to obtain information about the courses, their content, and how they address data knowledge and skills for teacher candidates. The first section addresses stand-alone courses only. The second section addresses an integrated suite of courses or simply other courses that include data-related concepts among the course content. Please complete the section or sections that pertain to the courses offered by your institution.

Stand-Alone Courses

10. Does your institution have stand-alone courses whose primary educational objectives are to improve teachers' knowledge and skills to use data to inform educational decisions?

Select one.

○	Yes, we have one such course	(Go to question number 11.)
○	Yes, we have multiple courses	(Go to question number 11.)
○	No, we do not have a stand-alone course	(Go to question number 29.)

11. Please list the title(s) of the course(s):

13. Are you interested in being part of a case study?

Select one.

○	Yes
○	No

ABOUT THE COURSE

Although you have indicated that you have multiple stand-alone courses on using data to inform educational decisions, please only answer the following section of questions for the one course with the strongest emphasis on using data to inform educational decisions.

14. Is this course? (check all that apply)

Select all that apply.

☐	An elective for a teaching degree
☐	A requirement for a teaching degree
☐	A requirement for an advanced degree

15. Who is the target audience for the course? (check all that apply)

Select all that apply.

☐	Pre-service teacher candidates
☐	Post-graduate teachers
☐	Other (Please specify):

16. At what level is this course taught? (check all that apply)

Select all that apply.

☐	Undergraduate
☐	Graduate
☐	Continuing education

17. By what mechanisms is the course delivered? (check all that apply)

Select all that apply.

☐	Face-to-face class
☐	Online course
☐	Blended
☐	Other (Please specify):

18. Who is the course instructor of record?

Select all that apply.

☐	Tenure track professor
☐	Tenured professor
☐	Adjunct
☐	School district staff person
☐	Other (Please specify):

19. Does the course include a component in which the students may access and examine authentic data (i.e., actual data) from K-12 students with whom they can interact – from K-12 students for whom they can make educational decisions?

Select one.

○	Yes
○	No
○	Don't know

20. Does the course include a component in which the students may access and examine simulated (fictitious) data sets?

Select one.

○	Yes
○	No
○	Don't know

21. What kinds of data are addressed in the course? (Are they a prominent part of the course associated with both lecture/readings and an assignment? Are they addressed only peripherally in a lecture or readings?)

Select one per row.

	A prominent part of the course	*Addressed only peripherally*	*Not addressed at all*	*Don't know*
Attendance data	○	○	○	○
Behavioral data	○	○	○	○
Attitudinal data (data that pertains to students' attitudes about specific topics)	○	○	○	○
Demographic data	○	○	○	○
School environment (climate) data	○	○	○	○
Longitudinal data	○	○	○	○
Snapshot (specific point-in-time) data	○	○	○	○
Large-scale summative (state or end of course) assessment data	○	○	○	○
Small-scale summative (end of unit or end of chapter) assessment data	○	○	○	○
Benchmark or interim assessment data	○	○	○	○
Diagnostic assessment data	○	○	○	○
Data collected in the moment in the classroom	○	○	○	○
Formative assessment data	○	○	○	○
Classroom assignments, tests, and projects	○	○	○	○
Other (Please specify below)	○	○	○	○

21.1 If other, please specify:

22. Does the course address the following *data topics*?

Select one per row.

	A prominent part of the course	*Addressed only peripherally*	*Not addressed at all*	*Don't know*
How different kinds of data are collected	○	○	○	○
Data quality (accuracy, completeness)	○	○	○	○
Knowing what data to use for what actions/decisions	○	○	○	○
Knowing about data standards, data sharing, and data privacy	○	○	○	○

23. Does the course address the ways in which the following *assessments and assessment topics* are used?

Select one per row.

	A prominent part of the course	*Addressed only peripherally*	*Not addressed at all*	*Don't know*
Summative assessment processes (state or end of course)	○	○	○	○
Summative assessment processes (end of unit or chapter)	○	○	○	○
Diagnostic assessment processes	○	○	○	○
Formative assessment processes	○	○	○	○
Classroom (teacher-generated) assessments, such as tests and quizzes	○	○	○	○
Benchmark assessment processes	○	○	○	○
Interim assessment processes	○	○	○	○
The purposes of different kinds of assessments (summative, formative, diagnostic, benchmarks, classroom)	○	○	○	○
Value-added models for determining longitudinal growth of groups of students	○	○	○	○
Other (Please specify below)	○	○	○	○

23.1 If other, please specify:

24. Does the course address the following *measurement topics*?

Select one per row.

	A prominent part of the course	*Addressed only peripherally*	*Not addressed at all*	*Don't know*
Measurement concepts such as reliability and validity	○	○	○	○
Differences in grain size (cohorts, courses, grades)	○	○	○	○
Reporting levels (scaled scores, percentiles, performance levels)	○	○	○	○
How to use elementary statistics (e.g., central tendency and dispersion)	○	○	○	○
How to use descriptive verses inferential statistics	○	○	○	○
Other (Please specify below)	○	○	○	○

24.1 If other, please specify:

25. Does the course address the following on different *data systems*?

Select one per row.

	A prominent part of the course	*Addressed only peripherally*	*Not addressed at all*	*Don't know*
Data warehouses	○	○	○	○
Student information systems	○	○	○	○
Instructional management systems	○	○	○	○
Assessment systems	○	○	○	○
Other (Please specify below)	○	○	○	○

25.1 If other, please specify:

26. Does the course address any of the following *data tools*?

Select one per row.

	A prominent part of the course	*Addressed only peripherally*	*Not addressed at all*	*Don't know*
Student dashboards with demographic/longitudinal data	○	○	○	○
Student dashboards with summative assessment/benchmark assessment data	○	○	○	○
Student dashboards with item assessment analysis information	○	○	○	○
Behavioral tracking	○	○	○	○
School culture tracking	○	○	○	○
Standards-based formative assessment mastery tracking	○	○	○	○
Other (Please specify below)	○	○	○	○

26.1 If other, please specify:

27. Does the course address the following *teacher processes* important for data use?

Select one per row.

	A prominent part of the course	*Addressed only peripherally*	*Not addressed at all*	*Don't know*
How to frame questions to which data can be applied for instructional purposes	○	○	○	○
How to access data from data systems	○	○	○	○
How to collect other forms of data beyond what are provided in data systems	○	○	○	○
How to organize data	○	○	○	○
How to read different data displays and reports	○	○	○	○
How to draw inferences from data	○	○	○	○
How to engage in collaborative inquiry	○	○	○	○
How to engage colleagues in examining data	○	○	○	○
How to discuss data with other teachers and data teams	○	○	○	○
How to discuss data with students	○	○	○	○
How to discuss data with parents	○	○	○	○
How to design summative assessments	○	○	○	○
How to design interim assessments	○	○	○	○
How to collect data at multiple levels (e.g., item, standards, student, class)	○	○	○	○
Other (Please specify below)	○	○	○	○

27.1 If other, please specify:

28. Does the course address the following *teacher action and decision making processes* important for data use?

Select one per row.

	A prominent part of the course	*Addressed only peripherally*	*Not addressed at all*	*Don't know*
Use data to make instructional decisions	○	○	○	○
Use data to differentiate instruction	○	○	○	○
Engage in collaborative inquiry with other educators	○	○	○	○
Make presentations grounded in data to students or parents	○	○	○	○
Make presentations grounded in data to principals, colleagues, and other audiences	○	○	○	○
Use research and evidence to inform decisions	○	○	○	○
How to determine re-teaching strategies	○	○	○	○
Use data to make changes in instructional programs and outcomes	○	○	○	○
Use data to determine student placement	○	○	○	○
Other (Please specify below)	○	○	○	○

28.1 If other, please specify:

Integration of Data Use Concepts and Skills into other Courses

This section pertains to integrated suites of courses in which data-related concepts are included in course content. It also would pertain to other existing courses in which data use has been integrated into the content.

29. Is the topic of use of data to make educational decisions subsumed or integrated within some existing course(s)?

Select one.

○	Yes	(Go to question number 30.)
○	No	(Go to question number 44.)
○	Don't know	(Go to question number 44.)

30. In which course(s) are data use concepts and skills addressed?

Select one per row.

	A prominent part of the course(s)	*Addressed only peripherally*	*Not addressed at all*	*Don't know*
Pedagogy	○	○	○	○
Teaching methods	○	○	○	○
Educational philosophy	○	○	○	○
Measurement	○	○	○	○
Statistics	○	○	○	○
Educational psychology	○	○	○	○
Instructional psychology	○	○	○	○
Other (Please specify below)	○	○	○	○

30.1 If other, please specify:

30.2 For Pedagogy courses in which data use concepts and skills are a prominent part of the course, do you have exercises, readings, or discussions focusing on use of data? (Check all that apply)

Select all that apply.

☐	Exercises
☐	Readings
☐	Discussions

30.3 For Teaching Methods courses in which data use concepts and skills are a prominent part of the course, do you have exercises, readings, or discussions focusing on use of data? (Check all that apply)

Select all that apply.

☐	Exercises
☐	Readings
☐	Discussions

30.4 For Educational Philosophy courses in which data use concepts and skills are a prominent part of the course, do you have exercises, readings, or discussions focusing on use of data? (Check all that apply)

Select all that apply.

☐	Exercises
☐	Readings
☐	Discussions

30.5 For Measurement courses in which data use concepts and skills are a prominent part of the course, do you have exercises, readings, or discussions focusing on use of data? (Check all that apply)

Select all that apply.

☐	Exercises
☐	Readings
☐	Discussions

30.6 For Statistics courses in which data use concepts and skills are a prominent part of the course, do you have exercises, readings, or discussions focusing on use of data? (Check all that apply)

Select all that apply.

☐	Exercises
☐	Readings
☐	Discussions

30.7 For Educational Psychology courses in which data use concepts and skills are a prominent part of the course, do you have exercises, readings, or discussions focusing on use of data? (Check all that apply)

Select all that apply.

☐	Exercises
☐	Readings
☐	Discussions

30.8 For Instructional Psychology courses in which data use concepts and skills are a prominent part of the course, do you have exercises, readings, or discussions focusing on use of data? (Check all that apply)

Select all that apply.

☐	Exercises
☐	Readings
☐	Discussions

30.9 For Other courses in which data use concepts and skills are a prominent part of the course, do you have exercises, readings, or discussions focusing on use of data? (Check all that apply)

Select all that apply.

☐	Exercises
☐	Readings
☐	Discussions

31. Who are the course(s) instructor(s) of record? (check all that apply)

Select all that apply.

☐	Tenure track professor
☐	Tenured professor
☐	Adjunct
☐	School district staff member
☐	Other (Please specify):

32. By what mechanisms are the course(s) delivered? (check all that apply)

Select all that apply.

☐	Face-to-face class
☐	Online course
☐	Blended
☐	Other (Please specify):

33. At what level(s) are these course(s) taught? (check all that apply)

Select all that apply.

☐	Undergraduate
☐	Graduate
☐	Continuing education

34. Do the course(s) include a component in which the students may access and examine authentic data (i.e., actual data) from K-12 students with whom they can interact – from K-12 students for whom they can make educational decisions?

Select one.

○	Yes
○	No
○	Don't know

35. Do the course(s) include a component in which the students may access and examine simulated data sets?

Select one.

○	Yes
○	No
○	Don't know

36. What kinds of data are addressed in the course(s)? (Are they a prominent part of the course associated with both lecture/readings and an assignment? Are they addressed only peripherally in a lecture or readings?)

Select one per row.

	A prominent part of the course(s)	*Addressed only peripherally*	*Not addressed at all*	*Don't know*
Attendance data	○	○	○	○
Behavioral data	○	○	○	○
Attitudinal data (data that pertains to students' attitudes about specific topics)	○	○	○	○
Demographic data	○	○	○	○
School environment (climate) data	○	○	○	○
Longitudinal data	○	○	○	○
Snapshot (specific point-in-time) data	○	○	○	○
Large-scale summative (state or end of course) assessment data	○	○	○	○
Small-scale summative (end of unit or end of chapter) assessment data	○	○	○	○
Benchmark or interim assessment data	○	○	○	○
Diagnostic assessment data	○	○	○	○
Data collected in the moment in the classroom	○	○	○	○
Formative assessment data	○	○	○	○
Classroom assignments, tests, and projects	○	○	○	○
Other (Please specify below)	○	○	○	○

36.1 If other, please specify:

37. Do the course(s) address the following *data topics*?

Select one per row.

	A prominent part of the course(s)	*Addressed only peripherally*	*Not addressed at all*	*Don't know*
How different kinds of data are collected	○	○	○	○
Data quality (accuracy, completeness)	○	○	○	○
Knowing what data are actionable	○	○	○	○
Knowing about data standards, data sharing, and data privacy	○	○	○	○

38. Do the course(s) address the ways in which the following *assessments and assessment topics* are used?

Select one per row.

	A prominent part of the course(s)	*Addressed only peripherally*	*Not addressed at all*	*Don't know*
Summative assessment processes (state or end of course)	○	○	○	○
Summative assessment processes (end of unit or chapter)	○	○	○	○
Diagnostic assessment processes	○	○	○	○
Formative assessment processes	○	○	○	○
Classroom (teacher-generated) assessments, such as tests and quizzes	○	○	○	○
Benchmark assessment processes	○	○	○	○
Interim assessment processes	○	○	○	○
The purposes of different kinds of assessments (summative, formative, diagnostic, benchmarks, classroom)	○	○	○	○
Models for determining longitudinal growth of groups of students	○	○	○	○
Other (Please specify below)	○	○	○	○

38.1 If other, please specify:

39. Do the course(s) address the following *measurement topics*?

Select one per row.

	A prominent part of the course(s)	*Addressed only peripherally*	*Not addressed at all*	*Don't know*
Measurement concepts such as reliability and validity	○	○	○	○
Differences in grain size (cohorts, courses, grades)	○	○	○	○
Reporting levels (scaled scores, percentiles, performance levels)	○	○	○	○
How to use elementary statistics (e.g., central tendency and dispersion)	○	○	○	○
How to use descriptive verses inferential statistics	○	○	○	○
Other (Please specify below)	○	○	○	○

39.1 If other, please specify:

40. Do the course(s) address the following on different *data systems*?

Select one per row.

	A prominent part of the course(s)	*Addressed only peripherally*	*Not addressed at all*	*Don't know*
Data warehouses	○	○	○	○
Student information systems	○	○	○	○
Instructional management systems	○	○	○	○
Assessment systems	○	○	○	○
Other (Please specify below)	○	○	○	○

40.1 If other, please specify:

41. Do students in the course(s) use or learn about any of the following *data tools*?

Select one per row.

	A prominent part of the course(s)	*Addressed only peripherally*	*Not addressed at all*	*Don't know*
Student dashboards with demographic/longitudinal data	○	○	○	○
Student dashboards with summative assessment/benchmark assessment data	○	○	○	○
Student dashboards with item assessment analysis information	○	○	○	○
Behavioral tracking	○	○	○	○
School culture tracking	○	○	○	○
Standards-based formative assessment mastery tracking	○	○	○	○
Other (Please specify below)	○	○	○	○

41.1 If other, please specify:

42. Do the course(s) address the following *teacher processes* important for data use?

Select one per row.

	A prominent part of the course(s)	*Addressed only peripherally*	*Not addressed at all*	*Don't know*
How to frame questions to which data can be applied for instructional purposes	○	○	○	○
How to access data from data systems	○	○	○	○
How to collect other forms of data beyond what are provided in data systems	○	○	○	○
How to organize data	○	○	○	○
How to read different data displays and reports	○	○	○	○
How to draw inferences from data	○	○	○	○
How to engage in collaborative inquiry	○	○	○	○
How to engage colleagues in examining data	○	○	○	○
How to discuss data with other teachers and data teams	○	○	○	○
How to discuss data with students	○	○	○	○
How to discuss data with parents	○	○	○	○
How to design summative assessments	○	○	○	○
How to design interim assessments	○	○	○	○
How to collect data at multiple levels (e.g., item, standards, student, class)	○	○	○	○
Other (Please specify below)	○	○	○	○

42.1 If other, please specify:

43. Do the course(s) address the following *teacher action decision making processes* important for data use?

Select one per row.

	A prominent part of the course(s)	*Addressed only peripherally*	*Not addressed at all*	*Don't know*
Use data to make instructional decisions	○	○	○	○
Use data to differentiate instruction	○	○	○	○
Engage in collaborative inquiry with other educators	○	○	○	○
Make presentations grounded in data to students or parents	○	○	○	○
Make presentations grounded in data to principals, colleagues, and other audiences	○	○	○	○
Use research and evidence to inform decisions	○	○	○	○
How to determine re-teaching strategies	○	○	○	○
Use data to make changes in instructional programs and outcomes	○	○	○	○
Use data to determine student placement	○	○	○	○
Other (Please specify below)	○	○	○	○

43.1 If other, please specify:

Integration of Data Use Concepts and Skills into Field Experiences

44. To what extent is a focus on the use of data to inform teaching and learning for educational decisions integrated into the following aspects of your teacher preparation program?

Select one per row.

	Integrated across the initial student teaching or internships	*Focused in one episode*	*Not at all*	*Don't know*
Initial field experience	○	○	○	○
Initial practica	○	○	○	○
Student teaching	○	○	○	○
Student internships	○	○	○	○
On-the-job work	○	○	○	○

Integration of Data Use Concepts and Skills Across Program

45. To what extent is a focus on the use of data to inform teaching and learning for educational decisions a sustained component of your teacher preparation program?

Select one.

○	Integrated into all courses across the program
○	Integrated into multiple courses
○	Integrated into one course
○	Not a sustained focus
○	Don't know

Plans to Develop or Implement New Courses or Emphases on Data Use Concepts and Skills

46. Does your institution have any plans for developing and implementing a new course or courses on the use of data to inform educational decisions?

Select one.

○	Yes
○	No
○	Don't know

State and Federal Issues

47. Does your state have licensure or certification requirements regarding teachers' knowledge and skills to use data to inform educational decisions?

Select one.

○	Yes
○	No
○	Don't know
○	Not applicable/No influence

48. How strong an influence do you think the federal emphases on the use of data to inform educational decisions have on your teacher preparation programs?

Select one.

○	Too great an influence
○	Just about the right influence
○	Too small an influence
○	Don't know
○	Not applicable

49. How strong an influence do you think NCATE's clinical recommendations in which data literacy is a key part for educators and schools of education have on your teacher preparation programs?

Select one.

○	Too great an influence
○	Just about the right influence
○	Too small an influence
○	Don't know
○	Did not know NCATE had recommendations around data use

Thank you for your participation. This completes the survey!

Appendix B

GENERAL DEMOGRAPHIC INFORMATION

Question 1 – Please provide your contact information

Responses are confidential and contact information will not be shared.

Question 2 – Is your institution?

School Type (select all that apply)	Respondents (n = 206)
Public	67.3% n = 140
Private – for-profit	2.9% n = 6
Private – not-for-profit	28.4% n = 59
Land grant	12.5% n = 26
Traditional state teachers college	8.2% n = 17
Sectarian	2.9% n = 6
Non-sectarian	3.4% n = 7
Other	1.5% n = 3
Other responses: • Newly designated State College. Was previously a 2-year college • DEA Grant • Catholic university	

Question 3 – Does your institution offer courses:

Response	Respondents
Only in a face-to-face format	10.2% n = 21
In both face-to-face and online formats	89.3% n = 184
Only in online formats	0.5% n = 1
Total	n = 206

Question 4 – How many full-time equivalent faculty does your institution have that are involved in educator preparation?

Response	Respondents
Under 15	29.8% n = 61
15 to 24	18.5% n = 38
25 to 49	22.4% n = 46
50 to 99	21.5% n = 44
100 or more	7.8% n = 16
Total	n = 205

Question 5 – How many part-time faculty does your institution have that are involved in educator preparation?

Response	Respondents
Under 25	58.8% n = 120
25 to 49	21.1% n = 43
50 to 99	13.2% n = 27
100 to 199	5.4% n = 11
200 or more	1.5% n = 3
Total	n = 204

Question 6 – How many pre-service teacher candidates do you enroll per year?

Response	Respondents
Under 25	7.3% n = 15
25 to 49	11.2% n = 23
50 to 99	10.2% n = 21
100 to 199	25.7% n = 53
200 to 499	22.8% n = 47
500 to 999	11.2% n = 23
1,000 or more	11.7% n = 24
Total	n = 206

Note: Totals do not sum to 100% because of rounding.

Question 7 – What levels of degrees are offered to the teacher candidates?

School Type (select all that apply)	Respondents (n = 207)
Bachelors	84.1% n = 174
Dual degree – the students get both an undergraduate degree in a discipline and an undergraduate teaching degree	27.1% n = 56
Masters	76.8% n = 159
Other	14.5% n = 30
Other responses: • Post-Baccalaureate (n=9) • Credentials only/additional endorsements (n=6) • Ed.S./Ed.D (n=5) • Reading Specialist and ESL Certification/Non-degree certification (n=4) • Doctorate (n=3) • Post-Masters • Combined credential/Masters program • Undergraduate discipline and minor for teaching • Masters of Arts in Teaching • Graduate certificate in teaching	

Question 8 – For your teacher candidates who are obtaining their teaching certification after they have finished their undergraduate degrees, is the program:

Response	Respondents
For licensure only	28.4% n = 56
Both licensure and Masters level in the same program	54.3% n = 107
Both licensure and Masters level in separate programs	17.3% n = 34
Total	n = 197

Question 9 – Please indicate where you place the majority of your teacher candidates into jobs:

Response	Respondents
Locally (within 50 miles)	35.3% n = 73
Within the state	52.2% n = 108
Nationally	6.8% n = 14
Internationally	1.9% n = 4
Don't know	3.9% n = 8
Total	n = 207

Note: Totals do not sum to 100% because of rounding.

STAND-ALONE COURSES THAT ADDRESS DATA USE FOR EDUCATIONAL DECISIONS

Question 10 – Does your institution have stand-alone courses whose primary educational objectives are to improve teachers' knowledge and skills to use data to inform educational decisions?

Response	Respondents
Yes, we have one such course	24.2% n = 50
Yes, we have multiple courses	38.2% n = 79
No, we do not have a stand-alone course	37.7% n = 78
Total	n = 207

Note: Totals do not sum to 100% because of rounding.

Question 11 – Please list the title(s) of the course(s):

For identification purposes only, but may be coded as a next step. Specific names of course will not be shared in order to protect the confidentiality of the responding institutions.

Question 12 – We would greatly appreciate it if you would attach the syllabus here or send a copy of the syllabus to emandin@wested.org

See syllabi review report for details.

Question 13 – Are you interested in being part of a case study?

Response	Respondents
Yes	29.7% n = 35
No	70.3% n = 83
Total	n = 118

ABOUT THE COURSE

Question 14 – Is this course?

Response (select all that apply)	Respondents (n = 115)
An elective for a teaching degree	8.7% n = 10
A requirement for a teaching degree	80.0% n = 92
A requirement for an advanced degree	26.1% n = 30

Question 15 – Who is the target audience for the course?

Response (select all that apply)	Respondents (n = 117)
Pre-service teacher candidates	84.6% n = 99
Post-graduate teachers	26.5% n = 31
Other	7.7% n = 9

Other responses:

- Teachers seeking a master's or other advanced degree (n=6)
- Administrators or those seeking licenses as administrators (n=2)
- Teacher leaders
- Education policy students

Question 16 – At what level is this course taught?

Response (select all that apply)	Respondents (n = 116)
Undergraduate	71.6% n = 83
Graduate	56.0% n = 65
Continuing education	5.2% n = 6

Question 17 – By what mechanisms is the course delivered?

Response (select all that apply)	Respondents (n = 117)
Face-to-face class	83.8% n = 98
Online course	18.0% n = 21
Blended	28.2% n = 33
Other	1.7% n = 2
Other responses: • Some online courses, but predominately face-to-face • Completed out in the public schools as part of their internship	

Question 18 – Who is the course instructor of record?

Response (select all that apply)	Respondents (n = 117)
Tenure track professor	58.1% n = 68
Tenured professor	54.7% n = 64
Adjunct	18.8% n = 22
School district staff person	6.0% n = 7
Other	20.5 n = 24

Other responses:

- Non-tenured faculty including term faculty, Assistant Professors, Senior Lecturers, and graduate students (n=10)
- A combination of graduate students, adjunct, tenured, and tenured track (n=6)
- Clinical faculty (n=4)
- School psychologist or other P-12 educators (n=3)
- Different weekly guest speakers (n=2)
- Retired tenured professor

Question 19 – Does the course include a component in which the students may access and examine authentic data (i.e., actual data) from K-12 students with whom they can interact – from K-12 students for whom they can make educational decisions?

Response	Respondents
Yes	72.4% n = 84
No	21.6% n = 25
Don't know	6.0% n = 7
Total	n = 116

Question 20 – Does the course include a component in which the students may access and examine simulated (fictitious) data sets?

Response	Respondents
Yes	78.3% n = 90
No	11.3% n = 13
Don't know	10.4% n = 12
Total	n = 115

Question 21 – What kinds of data are addressed in the course?

Data	A prominent part of the course	Addressed only peripherally	Not addressed at all	Don't know
Attendance data (n=109)	9.2% n=10	44.0% n=48	32.1% n=35	14.7% n=16
Behavioral data (n=108)	28.7% n=31	50.0% n=54	15.7% n=17	5.6% n=6
Attitudinal data (data that pertains to students' attitudes about specific topics) (n=107)	21.5% n=23	53.3% n=57	16.8% n=18	8.4% n=9
Demographic data (n=109)	48.6% n=53	40.4% n=44	7.3% n=8	3.7% n=4
School environment (climate) data (n=107)	35.5% n=38	47.7% n=51	10.3% n=11	6.5% n=7
Longitudinal data (n=107)	33.6% n=36	38.3% n=41	14.0% n=15	14.0% n=15
Snapshot (specific point-in-time) data (n=108)	67.6% n=73	23.1% n=25	2.8% n=3	6.5% n=7
Large-scale summative (state or end of course) assessment data (n=108)	55.6% n=60	31.5% n=34	7.4% n=8	5.6% n=6
Small-scale summative (end of unit or end of chapter) assessment data (n=110)	73.6% n=81	17.3% n=19	5.5% n=6	3.6% n=4

Benchmark or interim assessment data (n=108)	64.8% n=70	29.6% n=32	2.8% n=3	2.8% n=3
Diagnostic assessment data (n=110)	65.5% n=72	24.5% n=27	6.4% n=7	3.6% n=4
Data collected in the moment in the classroom (n=108)	64.8% n=70	28.7% n=31	2.8% n=3	3.7% n=4
Formative assessment data (n=104)	81.7% n=85	16.3% n=17	0.0% n=0	1.9% n=2
Classroom assignments, tests, and projects (n=110)	80.9% n=89	14.5% n=16	2.7% n=3	1.8% n=2
Other (n=32)	28.1% n=9	9.4% n=3	18.8% n=6	43.8% n=14

Other responses:

- A prominent part of the course
  - Nom-referenced academic achievement tests (n=2)
  - Qualitative/quantitative data
  - Student constructed assessment and data analysis
  - Observational data
  - Learning styles, multiple intelligences
  - Current educational issues related to assessment
  - Portfolios and performance tasks
- Addressed only peripherally
  - State report card data
  - Predictive/diagnostic data

Note: Totals may not sum to 100% because of rounding.

Question 22 – Does the course address the following *data topics*?

Data topics	A prominent part of the course	Addressed only peripherally	Not addressed at all	Don't know
How different kinds of data are collected (n=109)	84.4% n=92	13.8% n=15	0.0% n=0	1.8% n=2
Data quality (accuracy, completeness) (n=109)	79.8% n=87	18.3% n=20	0.0% n=0	1.8% n=2
Knowing what data to use for what actions/decisions (n=110)	88.2% n=97	10.9% n=12	0.0% n=0	0.9% n=1
Knowing about data standards, data sharing, and data privacy (n=109)	63.3% n=69	30.3% n=33	3.7% n=4	2.8% n=3

Note: Totals may not sum to 100% because of rounding.

Question 23 – Does the course address the ways in which the following *assessments and assessment topics* are used?

Assessments and assessment topics	A prominent part of the course	Addressed only peripherally	Not addressed at all	Don't know
Summative assessment process (state or end of course) (n=106)	79.2% n=84	17.9% n=19	0.9% n=1	1.9% n=2
Summative assessment process (end of unit or chapter) (n=106)	78.3% n=83	16.0% n=17	2.8% n=3	2.8% n=3
Diagnostic assessment process (n=106)	65.1% n=69	27.4% n=29	2.8% n=3	4.7% n=5
Formative assessment process (n=104)	83.7%	13.5%	0.0%	2.9%

	n=87	n=14	n=0	n=3
Classroom (teacher-generated) assessments, such as tests and quizzes (n=104)	76.0% n=79	16.3% n=17	2.9% n=3	4.8% n=5
Benchmark assessment processes (n=107)	59.8% n=64	35.5% n=38	0.9% n=1	3.7% n=4
Interim assessment processes (n=105)	42.9% n=45	38.1% n=40	6.7% n=7	12.4% n=13
The purpose of different kinds of assessments (summative, formative, diagnostic, benchmarks, classroom) (n=107)	84.1% n=90	14.0% n=15	0.0% n=0	1.9% n=2
Value-added models for determining longitudinal growth of groups of students (n=107)	30.8% n=33	43.9% n=47	15.9% n=17	9.3% n=10
Other (n=27)	14.8% n=4	11.1% n=3	14.8% n=4	59.3% n=16

Other responses:

- A prominent part of the course
  - Authentic assessment and performance assessment
  - Assessment of standards based, multiple integrated
  - Action Research project in a K-6 classroom
- Addressed only peripherally
  - Teacher effectiveness data
  - Behavior intervention

Note: Totals may not sum to 100% because of rounding.

Question 24 – Does the course address the following *measurement topics*?

Measurement topic	A prominent part of the course	Addressed only peripherally	Not addressed at all	Don't know
Measurement concepts such as reliability and validity (n=106)	69.8% n=74	25.5% n=27	0.9% n=1	3.8% n=4
Differences in grain size (cohorts, courses, grades) (n=107)	25.2% n=27	47.7% n=51	16.8% n=18	10.3% n=11
Reporting levels (scaled scores, percentiles, performance levels) (n=106)	62.3% n=66	28.3% n=30	3.8% n=4	5.7% n=6
How to use elementary statistics (e.g., central tendency and dispersion) (n=107)	55.1% n=59	25.2% n=27	8.4% n=9	11.2% n=12
How to use descriptive verses inferential statistics (n=106)	35.8% n=38	40.6% n=43	13.2% n=14	10.4% n=11
Other (n=25)	12.0% n=3	16.0% n=4	28.0% n=7	44.0% n=11

Other responses:

- A prominent part of the course
  - Qualitative data
  - Curriculum-based measurements
- Addressed only peripherally
  - Basic correlational statistics

Note: Totals may not sum to 100% because of rounding.

Question 25 – Does the course address the following on different *data systems*?

Data systems	A prominent part of the course	Addressed only peripherally	Not addressed at all	Don't know
Data warehouses (n=105)	8.6% n=9	38.1% n=40	41.0% n=43	12.4% n=13
Student information systems (n=104)	21.2% n=22	42.3% n=44	25.0% n=26	11.5% n=12
Instructional management systems (n=106)	17.9% n=19	39.6% n=42	27.4% n=29	15.1% n=16
Assessment systems (n=106)	34.9% n=37	37.7% n=40	16.0% n=17	11.3% n=12
Other (n=24)	8.3% n=2	8.3% n=2	37.5% n=9	45.8% n=11

Other responses:

- Addressed only peripherally
  - Course management gradebook platforms
- Don't know
  - Electronic gradebooks

Note: Totals may not sum to 100% because of rounding.

Question 26 – Does the course address any of the following *data tools*?

Data tools	A prominent part of the course	Addressed only peripherally	Not addressed at all	Don't know
Student dashboards with demographic/longitudinal data (n=104)	11.5% n=12	36.5% n=38	29.8% n=31	22.1% n=23
Student dashboards with summative assessment/benchmark assessment data (n=106)	18.9% n=20	34.0% n=36	27.4% n=29	19.8% n=21
Student dashboards with item assessment analysis information (n=105)	18.1% n=19	32.4% n=34	30.5% n=32	19.0% n=20
Behavioral tracking (n=105)	8.6% n=9	41.0% n=43	32.4% n=34	18.1% n=19
School culture tracking (n=102)	5.9% n=6	28.4% n=29	47.1% n=48	18.6% n=19
Standards-based formative assessment mastery tracking (n=105)	39.0% n=41	33.3% n=35	12.4% n=13	15.2% n=16
Other (n=27)	3.7% n=1	7.4% n=2	40.7% n=11	48.1% n=13

Other responses:

- None

Note: Totals may not sum to 100% because of rounding.

Question 27 – Does the course address the following *teacher processes* important for data use?

Teacher processes	A prominent part of the course	Addressed only peripherally	Not addressed at all	Don't know
How to frame questions to which data can be applied for instructional purposes (n=102)	70.6% n=72	17.6% n=18	7.8% n=8	3.9% n=4
How to access data from data systems (n=102)	24.5% n=25	45.1% n=46	21.6% n=22	8.8% n=9
How to collect other forms of data beyond what are provided in data systems (n=103)	48.5% n=50	34.0% n=35	8.7% n=9	8.7% n=9
How to organize data (n=101)	60.4% n=61	27.7% n=28	5.9% n=6	5.9% n=6
How to read different data displays and reports (n=103)	66.0% n=68	26.2% n=27	1.0% n=1	6.8% n=7
How to draw inferences from data (n=103)	70.9% n=73	19.4% n=20	4.9% n=5	4.9% n=5
How to engage in collaborative inquiry (n=104)	50.0% n=52	33.7% n=35	6.7% n=7	9.6% n=10
How to engage colleagues in examining data (n=102)	40.2% n=41	44.1% n=45	9.8% n=10	5.9% n=6
How to discuss data with other teachers and data teams (n=103)	50.5% n=52	36.9% n=38	5.8% n=6	6.8% n=7
How to discuss data with students (n=103)	44.7% n=46	41.7% n=43	6.8% n=7	6.8% n=7
How to discuss data with parents (n=103)	43.7% n=45	41.7% n=43	5.8% n=6	8.7% n=9
How to design summative assessments (n=102)	60.8% n=62	23.5% n=24	12.7% n=13	2.9% n=3
How to design interim assessments (n=103)	54.4% n=56	27.2% n=28	12.6% n=13	5.8% n=6
How to collect data at multiple levels (e.g., item standards, student, class) (n=102)	57.8% n=59	25.5% n=26	10.8% n=11	5.9% n=6
Other (n=23)	4.3% n=1	13.0% n=3	34.8% n=8	47.8% n=11

Other responses:

- Addressed only peripherally
    - Designing learning outcome progress monitoring

Note: Totals may not sum to 100% because of rounding.

Question 28 – Does the course address the following *teacher action and decision making processes* important for data use?

Teacher action and decision making processes	A prominent part of the course	Addressed only peripherally	Not addressed at all	Don't know
Use data to make instructional decisions (n=103)	94.2% n=97	3.9% n=4	0.0% n=0	1.9% n=2
Use data to differentiate instruction (n=103)	83.5% n=86	13.6% n=14	0.0% n=0	2.9% n=3
Engage in collaborative inquiry with	53.4%	34.0%	5.8%	6.8%

other educators (n=103)	n=55	n=35	n=6	n=7
Make presentations grounded in data to students or parents (n=103)	35.9% n=37	39.8% n=41	16.5% n=17	7.8% n=8
Make presentations grounded in data to principals, colleagues, and other audiences (n=103)	35.0% n=36	39.8% n=41	16.5% n=17	8.7% n=9
Use research and evidence to inform decisions (n=103)	70.9% n=73	20.4% n=21	4.9% n=5	3.9% n=4
How to determine re-teaching strategies (n=102)	65.7% n=67	23.5% n=24	4.9% n=5	5.9% n=6
Use data to make changes in instructional programs and outcomes (n=102)	69.6% n=71	22.5% n=23	4.9% n=5	2.9% n=3
Use data to determine placement (n=103)	38.8% n=40	42.7% n=44	11.7% n=12	6.8% n=7
Other (n=18)	0.0% n=0	5.6% n=1	44.4% n=8	50.0% n=9
Other responses: • None				

Note: Totals may not sum to 100% because of rounding.

INTEGRATION OF DATA USE CONCEPTS AND SKILLS INTO OTHER COURSES

Question 29 – Is the topic of use of data to make educational decisions subsumed or integrated within some existing course(s)?

Response	Respondents
Yes	92.0% n = 173
No	4.3% n = 8
Don't know	3.7% n = 7
Total	n = 188

Question 30 – In which course(s) are the data use concepts and skills addressed?

Courses	A prominent part of the course	Addressed only peripherally	Not addressed at all	Don't know
Pedagogy (n=150)	58.7% n=88	40.0% n=60	0.0% n=0	1.3% n=2
Teaching methods (n=164)	70.7% n=116	28.0% n=46	0.6% n=1	0.6% n=1
Educational philosophy (n=126)	10.3% n=13	44.4% n=56	28.6% n=36	16.7% n=21
Measurement (n=124)	57.3% n=71	16.9% n=21	8.1% n=10	17.7% n=22
Statistics (n=116)	33.6% n=39	21.6% n=25	16.4% n=19	28.4% n=33

Educational psychology (n=135)	27.4% n=37	52.6% n=71	8.9% n=12	11.1% n=15
Instructional psychology (n=114)	14.0% n=16	31.6% n=36	12.3% n=14	42.1% n=48
Other (n=38)	44.7% n=17	13.2% n=5	7.9% n=3	34.2% n=13

Other responses:

- A prominent part of the course(s)
  - Assessment/evaluation (n=6)
  - Student teaching/internship/practicum/field experience (n=3)
  - Inclusion (ESOL/SPED) (n=3)
  - Teacher leadership/seminar (n=2)
  - Instructional technology (n=2)
  - Adapted PE
  - Disciplined inquiry
  - Research methods
  - Diagnostic reading
- Addressed only peripherally
  - Survey of exceptional learners
  - Student teaching
  - Content courses
  - Assessment, Planning, and Teaching course

Note: Totals may not sum to 100% because of rounding.

Questions 30.2-30.9 – If in Question 30 you selected data use as a prominent part of (a) course(s), do you have exercises, readings, or discussions focusing on use of data?

Courses	Exercises	Readings (select all that apply)	Discussions
Pedagogy (n=88)	84.1% n=74	86.4% n=76	97.8% n=86
Teaching methods (n=116)	91.4% n=106	86.2% n=100	95.7% n=111
Educational philosophy (n=13)	61.5% n=8	92.3% n=12	92.3% n=12
Measurement (n=65)	92.3% n=60	89.2% n=58	87.7% n=57
Statistics (n=32)	90.6% n=29	81.3% n=26	81.3% n=26
Educational psychology (n=35)	82.9% n=29	91.4% n=32	91.4% n=32
Instructional psychology (n=15)	86.7% n=13	100.0% n=15	100.0% n=15
Other (n=15)	86.7% n=13	86.7% n=13	86.7% n=13

Question 31 – Who are the course(s) instructor(s) of record?

Response (select all that apply)	Respondents (n = 165)
Tenure track professor	80.6% n =133
Tenured professor	77.6% n =128
Adjunct	51.0% n =84
School district staff member	12.7% n =21
Other	17.6% n =29

Other responses:

- Non-tenured faculty including term faculty, Assistant Professors, Senior Lecturers, and graduate students (n=17)
- Clinical professors (n=5)
- Graduate students (n=4)
- Tenured, tenure track, and fixed-term
- Field-based faculty
- SELPA director

Question 32 – By what mechanisms are the course(s) delivered?

Response (select all that apply)	Respondents (n = 163)
Face-to-face class	93.3% n = 152
Online course	28.2% n = 46
Blended	46.6% n = 76
Other	2.5% n = 4

Other responses:

- Student teaching practicum
- Modules developed by SAS
- Interactive TV
- Add-on endorsements use on-line or blended courses; teacher preparation initial endorsements is all face-to-face

Question 33 – At what level(s) are these course(s) taught?

Response (select all that apply)	Respondents (n = 165)
Undergraduate	84.2% n = 139
Graduate	69.7% n = 115
Continuing education	4.2% n = 7

Question 34 – Do the course(s) include a component in which the students may access and examine authentic data (i.e., actual data) from K-12 students with whom they can interact – from K-12 students for whom they can make educational decisions?

Response	Respondents
Yes	66.7% n = 110
No	20.0% n = 33
Don't know	13.3% n = 22
Total	n = 165

Question 35 – Do the course(s) include a component in which the students may access and examine simulated data sets?

Response	Respondents
Yes	70.9% n = 117
No	12.1% n = 20
Don't know	17.0% n = 28
Total	n = 165

Question 36 – What kinds of data are addressed in the course(s)?

Data	A prominent part of the course	Addressed only peripherally	Not addressed at all	Don't know
Attendance data (n=148)	9.5% n=14	45.3% n=67	27.7% n=41	17.6% n=26
Behavioral data (n=150)	32.0% n=48	47.3% n=71	14.0% n=21	6.7% n=10
Attitudinal data (data that pertains to students' attitudes about specific topics) (n=148)	15.5% n=23	52.7% n=78	15.5% n=23	16.2% n=24
Demographic data (n=149)	53.7% n=80	35.6% n=53	6.0% n=9	4.7% n=7
School environment (climate) data (n=148)	31.8% n=47	45.9% n=68	11.5% n=17	10.8% n=16
Longitudinal data (n=147)	21.1% n=31	44.2% n=65	19.0% n=28	15.6% n=23
Snapshot (specific point-in-time) data (n=149)	55.7% n=83	32.2% n=48	7.4% n=11	4.7% n=7
Large-scale summative (state or end of course) assessment data (n=150)	36.7% n=55	47.3% n=71	8.7% n=13	7.3% n=11
Small-scale summative (end of unit or end of chapter) assessment data (n=150)	62.0% n=93	28.7% n=43	5.3% n=8	4.0% n=6

Benchmark or interim assessment data (n=151)	53.6% n=81	35.1% n=53	6.6% n=10	4.6% n=7
Diagnostic assessment data (n=148)	64.2% n=95	30.4% n=45	3.4% n=5	2.0% n=3
Data collected in the moment in the classroom (n=151)	63.6% n=96	29.8% n=45	3.3% n=5	3.3% n=5
Formative assessment data (n=148)	73.0% n=108	23.0% n=34	2.0% n=3	2.0% n=3
Classroom assignments, tests, and projects (n=149)	77.9% n=116	19.5% n=29	2.0% n=3	0.7% n=1
Other (n=24)	12.5% n=3	8.3% n=2	16.7% n=4	62.5% n=15

Other responses:

- A prominent part of the course(s)
  - Language proficiency assessment results
  - Current educational issues related to assessment
  - Action research project data

Note: Totals may not sum to 100% because of rounding.

Question 37 – Do the course(s) address the following *data topics*?

Data topics	A prominent part of the course	Addressed only peripherally	Not addressed at all	Don't know
How different kinds of data are collected (n=151)	58.3% n=88	35.8% n=54	0.7% n=1	5.3% n=8
Data quality (accuracy, completeness) (n=151)	51.0% n=77	41.7% n=63	2.0% n=3	5.3% n=8
Knowing what data are actionable (n=150)	40.7% n=61	44.0% n=68	4.0% n=6	11.3% n=17
Knowing about data standards, data sharing, and data privacy (n=148)	40.5% n=60	46.6% n=69	4.7% n=7	8.1% n=12

Note: Totals may not sum to 100% because of rounding.

Question 38 – Do the course(s) address the ways in which the following *assessments and assessment topics* are used?

Assessments and assessment topics	A prominent part of the course	Addressed only peripherally	Not addressed at all	Don't know
Summative assessment process (state or end of course) (n=152)	55.9% n=85	37.5% n=57	1.3% n=2	5.3% n=8
Summative assessment process (end of unit or chapter) (n=150)	65.3% n=98	30.0% n=45	0.7% n=1	4.0% n=6
Diagnostic assessment process (n=148)	61.5% n=91	28.4% n=42	4.7% n=7	5.4% n=8
Formative assessment process (n=149)	72.5% n=108	21.5% n=32	2.0% n=3	4.0% n=6
Classroom (teacher-generated) assessments, such as tests and quizzes (n=152)	75.7% n=115	31.1% n=32	0.0% n=0	3.3% n=5
Benchmark assessment processes (n=151)	44.4% n=67	43.0% n=65	5.3% n=8	7.3% n=11
Interim assessment processes (n=147)	36.7%	42.9%	7.5%	12.9%

	n=54	n=63	n=11	n=19
The purpose of different kinds of assessments (summative, formative, diagnostic, benchmarks, classroom) (n=153)	71.2% n=109	24.8% n=38	0.7% n=1	3.3% n=5
Models for determining longitudinal growth of groups of students (n=149)	18.8% n=28	44.3% n=66	20.8% n=31	16.1% n=24
Other (n=22)	9.1% n=2	4.5% n=1	18.2% n=4	68.2% n=15
Other responses: • A prominent part of the course(s) ○ Portfolio collections of authentic student work				

Note: Totals may not sum to 100% because of rounding.

Question 39 – Do the course(s) address the following *measurement topics*?

Measurement topic	A prominent part of the course	Addressed only peripherally	Not addressed at all	Don't know
Measurement concepts such as reliability and validity (n=153)	43.8% n=67	45.8% n=70	5.9% n=9	4.6% n=7
Differences in grain size (cohorts, courses, grades) (n=151)	15.9% n=24	51.0% n=77	17.9% n=27	15.2% n=23
Reporting levels (scaled scores, percentiles, performance levels) (n=148)	37.8% n=56	44.6% n=66	8.8% n=13	8.8% n=13
How to use elementary statistics (e.g., central tendency and dispersion) (n=152)	30.3% n=46	43.4% n=66	17.8% n=27	8.6% n=13
How to use descriptive verses inferential statistics (n=152)	20.4% n=31	42.8% n=65	23.7% n=36	13.2% n=20
Other (n=27)	18.5% n=5	0.0% n=0	18.5% n=5	63.0% n=17
Other responses: • A prominent part of the course(s) ○ Landscape for development of conceptual math ○ Curriculum-based measurement ○ Action research and qualitative data				

Note: Totals may not sum to 100% because of rounding.

Question 40 – Do the course(s) address the following on different *data systems*?

Data systems	A prominent part of the course	Addressed only peripherally	Not addressed at all	Don't know
Data warehouses (n=152)	2.0% n=3	35.5% n=54	42.1% n=64	20.4% n=31
Student information systems (n=150)	14.0% n=21	46.7% n=70	24.7% n=37	14.7% n=22
Instructional management systems (n=151)	19.9% n=30	40.4% n=61	23.8% n=36	15.9% n=24
Assessment systems (n=150)	27.3% n=41	42.0% n=63	16.0% n=24	14.7% n=22

Other (n=24)	0.0% n=0	12.5% n=3	16.7% n=4	70.8% n=17

Other responses:

- None

Note: Totals may not sum to 100% because of rounding.

Question 41 – Do the course(s) address any of the following *data tools*?

Data tools	A prominent part of the course	Addressed only peripherally	Not addressed at all	Don't know
Student dashboards with demographic/longitudinal data (n=151)	9.3% n=14	38.4% n=58	31.1% n=47	21.2% n=32
Student dashboards with summative assessment/benchmark assessment data (n=151)	13.2% n=20	36.4% n=55	30.5% n=46	19.9% n=30
Student dashboards with item assessment analysis information (n=149)	12.1% n=18	34.9% n=52	32.2% n=48	20.8% n=31
Behavioral tracking (n=151)	13.9% n=21	39.7% n=60	29.1% n=44	17.2% n=26
School culture tracking (n=150)	6.0% n=9	30.7% n=46	40.0% n=60	23.3% n=35
Standards-based formative assessment mastery tracking (n=147)	34.0% n=50	35.4% n=52	17.0% n=25	13.6% n=20
Other (n=22)	0.0% n=0	4.5% n=1	18.2% n=4	77.3% n=17

Other responses:

- None

Note: Totals may not sum to 100% because of rounding.

Question 42 – Do the course(s) address the following *teacher processes* important for data use?

Teacher processes	A prominent part of the course	Addressed only peripherally	Not addressed at all	Don't know
How to frame questions to which data can be applied for instructional purposes (n=149)	50.3% n=75	37.6% n=56	6.0% n=9	6.0% n=9
How to access data from data systems (n=147)	19.7% n=29	41.5% n=61	23.8% n=35	15.0% n=22
How to collect other forms of data beyond what are provided in data systems (n=148)	31.1% n=46	41.9% n=62	14.9% n=22	12.2% n=18
How to organize data (n=148)	36.5% n=54	48.0% n=71	10.1% n=15	5.4% n=8
How to read different data displays and reports (n=147)	38.1% n=56	43.5% n=64	11.6% n=17	6.8% n=10
How to draw inferences from data (n=150)	51.3% n=77	38.7% n=58	4.0% n=6	6.0% n=9
How to engage in collaborative inquiry (n=150)	40.0% n=60	40.7% n=61	11.3% n=17	8.0% n=12
How to engage colleagues in examining data (n=149)	31.5% n=47	42.3% n=63	17.4% n=26	8.7% n=13

How to discuss data with other teachers and data teams (n=147)	36.7% n=54	40.8% n=60	15.0% n=22	7.5% n=11
How to discuss data with students (n=150)	26.0% n=39	54.0% n=81	13.3% n=20	6.7% n=10
How to discuss data with parents (n=146)	24.7% n=36	53.4% n=78	13.0% n=19	8.9% n=13
How to design summative assessments (n=149)	58.4% n=87	35.6% n=53	3.4% n=5	2.7% n=4
How to design interim assessments (n=148)	48.6% n=72	34.5% n=51	7.4% n=11	9.5% n=14
How to collect data at multiple levels (e.g., item standards, student, class) (n=150)	42.7% n=64	42.0% n=63	9.3% n=14	6.0% n=9
Other (n=18)	0.0% n=0	11.1% n=2	22.2% n=4	66.7% n=12
Other responses: • Don't know ○ Interim Assessments – formative or benchmark				

Note: Totals may not sum to 100% because of rounding.

Question 43 – Do the course(s) address the following *teacher action and decision making processes* important for data use?

Teacher action and decision making processes	A prominent part of the course	Addressed only peripherally	Not addressed at all	Don't know
Use data to make instructional decisions (n=151)	79.5% n=120	19.2% n=29	0.0% n=0	1.3% n=2
Use data to differentiate instruction (n=149)	77.9% n=116	20.1% n=30	0.7% n=1	1.3% n=2
Engage in collaborative inquiry with other educators (n=147)	38.8% n=57	49.0% n=72	6.1% n=9	6.1% n=9
Make presentations grounded in data to students or parents (n=149)	23.5% n=35	45.6% n=68	19.5% n=29	11.4% n=17
Make presentations grounded in data to principals, colleagues, and other audiences (n=148)	20.3% n=30	45.3% n=67	24.3% n=36	10.1% n=15
Use research and evidence to inform decisions (n=151)	60.9% n=92	33.1% n=50	4.0% n=6	2.0% n=3
How to determine re-teaching strategies (n=150)	62.0% n=93	32.7% n=49	2.7% n=4	2.7% n=4
Use data to make changes in instructional programs and outcomes (n=148)	58.8% n=87	31.8% n=47	5.4% n=8	4.1% n=6
Use data to determine placement (n=150)	36.7% n=55	42.7% n=64	14.0% n=21	6.7% n=10
Other (n=16)	0.0% n=0	0.0% n=0	18.8% n=3	81.3% n=13
Other responses: • None				

Note: Totals may not sum to 100% because of rounding.

INTEGRATION OF DATA USE CONCEPTS AND SKILLS INTO FIELD EXPERIENCES

Question 44 – To what extent is a focus on the use of data to inform teaching and learning for educational decisions integrated into the following aspects of your teacher preparation program?

Aspects	Integrated across the initial student teaching or internships	Focused in one episode	Not at all	Don't know
Initial field experience (n=162)	42.6% n=69	30.2% n=49	17.3% n=28	9.9% n=16
Initial practica (n=153)	51.0% n=78	30.7% n=47	7.2% n=11	11.1% n=17
Student teaching (n=169)	89.9% n=152	4.1% n=7	2.4% n=4	3.6% n=6
Student internships (n=134)	61.9% n=83	9.0% n=12	6.7% n=9	22.4% n=30
On-the-job work (n=130)	40.8% n=53	8.5% n=11	7.7% n=10	43.1% n=56

Note: Totals may not sum to 100% because of rounding.

INTEGRATION OF DATA USE CONCEPTS AND SKILLS ACROSS PROGRAM

Question 45 – To what extent is a focus on the use of data to inform teaching and learning for educational decisions a sustained component of your teacher preparation program?

Response	Respondents
Integrated into all courses across the program	10.6% n = 18
Integrated into multiple courses	80.0% n = 136
Integrated into one course	1.8% n = 3
Not a sustained focus	7.1% n = 12
Don't know	0.6% n = 1
Total	n = 170

Note: Totals may not sum to 100% because of rounding.

PLANS TO DEVELOP OR IMPLEMENT NEW COURSES OR EMPHASES ON DATA USE CONCEPTS AND SKILLS

Question 46 – Does your institution have any plans for developing and implementing a new course or courses on the use of data to inform educational decisions?

Response	Respondents
Yes	37.4% n = 64
No	44.4% n = 76
Don't know	18.1% n = 31
Total	n = 171

Note: Totals may not sum to 100% because of rounding.

STATE AND FEDERAL ISSUES

Question 47 – Does your state have licensure or certification requirements regarding teachers' knowledge and skills to use data to inform educational decisions?

Response	Respondents
Yes	67.5% n = 114
No	18.3% n = 31
Don't know	11.2% n = 19
Not applicable/No influence	3.0% n = 5
Total	n = 169

Question 48 – How strong an influence do you think the federal emphasis on the use of data to inform educational decisions have on your teacher preparation programs?

Response	Respondents
Too great an influence	28.8% n = 49
Just about the right influence	52.4% n = 89
Too small an influence	8.2% n = 14
Don't know	9.4% n = 16
Not applicable	1.2% n = 2
Total	n = 170

Question 49 – How strong an influence do you think NCATE's clinical recommendations in which data literacy in a key part for educators and schools of education have on your teacher preparation programs?

Response	Respondents
Too great an influence	14.6% n = 25
Just about the right influence	66.1% n = 113
Too small an influence	4.1% n = 7
Don't know	8.8% n = 15
Did not know NCATE had recommendations around data use	6.4% n = 11
Total	n = 171