Ready for the Classroom, Part III

2019 Alumni and Employer Survey Technical Implementation Analysis

Oregon Association of Colleges for Teacher Education

May 2020

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The Oregon Association of Colleges for Teacher Education (OACTE) is a collaborative committed to excellence in teacher preparation. The membership is composed of public and private colleges and universities and is the state affiliate of the American Association of Colleges for Teacher Education.

Project Advisor: Scott Fletcher, Lewis & Clark College
OACTE Board President: Marvin Lynn, Portland State University
OACTE Immediate Past-President: Alisa Bates, Concordia University

Acknowledgement
This survey was approved by the Lewis & Clark College Institutional Review Board.

Alisha A. Lund-Chaix
Lund-Chaix Consulting
(503) 367-6207
www.lund-chaix.com

Executive Summary

Leaders of the Oregon Association of Colleges for Teacher Education (OACTE)—the statewide coalition of degree-granting, postsecondary teacher education programs—are committed to creating an Oregon that is richer and more equitable by ensuring that all teachers are ready to make the most of Oregon's diverse classrooms.

In 2013, OACTE leaders began a continuous improvement project to evaluate their programs in accordance with the most effective teaching and learning practices. The backbone of this collective evaluation is the InTASC Model Core Teaching Standards (Interstate Teacher Assessment and Support Consortium), describing teacher performances, knowledge and dispositions that support high achievement among all learners. The Standards are organized into four domains:

- *Learner and Learning*,
- *Content Knowledge*,
- *Instructional Practice*, and
- *Professional Responsibility*.

This study operationalizes the InTASC Model Core Teaching Standards as the OACTE Survey Instrument, asking teachers and their supervisors to reflect on teachers' readiness for a range of skills they need as they embark on their careers. This report is a summary and analysis of the OACTE Instrument and survey procedures.

Survey Administration

In 2013, OACTE leaders contracted with an external evaluator to develop a survey instrument to measure teachers' pre-service preparation for the skills and habits required to be highly effective on the job. The survey was first administered in spring 2014, the second time in spring and summer 2016, the third time in summer 2017, and the fourth time in summer 2018. The 2019 survey included 23 discrete items that describe observable practices that effective teachers do when they exhibit the principles outlined by the InTASC Model Core Teaching Standards.

The primary populations for this survey are beginning teachers and their supervisors. Beginning teachers are those who:

- completed their educator preparation degree at an OACTE program, were
- recommended for licensure in 2016-17 or 2017-18, and who were
- working in Oregon public schools within their first two years as contracted teachers during the 2018-19 academic year.

As a supplement to the primary population of beginning teachers, the 2019 Beginning Teacher Survey also included licensed teachers in the same cohort who had out-of-state addresses, but who had no record of a teaching contract in an Oregon public school. In addition, licensed teachers in

this cohort who had in-state addresses but no record of an Oregon teaching contract were included for three of the OACTE member institutions. The supervisors of this supplemental population who did not hold Oregon public school contracts were not included in the population of supervisors. The population of supervisors included 1,780 building administrators in Oregon public schools. The total population of teachers in all categories was 2,534, of whom nearly 80 percent represent the primary population of beginning teachers who worked in Oregon public schools.

Survey Response

Across both surveys, 858 teachers and supervisors of 604 beginning teachers submitted viable responses to the survey. Viable responses are those wherein the respondent completed the first of four sets of questions measuring teachers' preparation for the InTASC Model Core Teaching Standards, with each set of questions spanning one of the four domains: Learner and Learning, Content Knowledge, Instructional Practice, and Professional Responsibility.

Among building administrators, the Supervisor Survey netted a response rate of 34 percent of Oregon beginning teachers. At the school building level, 43 percent of individual administrators who employed one or more beginning teacher responded to the survey. Among the population of supervisors of beginning teachers at the school level, more than half employed more than one beginning teacher, (54 percent), including a small handful of schools that employed at least eight teachers across the two-year cohort. In contrast, administrators from most schools submitted a single survey response (61 percent), with administrators at just 39 percent of schools reflecting on the preparation of more than one beginning teacher.

The Beginning Teacher Survey garnered an overall response rate of 34 percent across the primary and supplemental populations combined, with a response rate of 35 percent among the population of those working in an Oregon public school.

While a record number of teachers and their supervisors submitted viable responses to the respective surveys, many who began the survey failed to reach the end of the survey. In total, 232 teachers who began the survey did not reach the end. The overall teacher attrition rate was 19 percent, nearly a fifth of all eligible respondents who began the survey. Among supervisors, after removing ineligible and unwilling respondents, the overall persistence rate is 95 percent.

Instrument Performance

The OACTE Instrument includes 23 items describing observable teaching practices, and is organized into a four-part structure in accordance with the four InTASC domains. Using a retrospective pre-test

design, the survey asks teachers and one of their supervisors or other supportive educators to estimate teachers' level of preparation for each discrete skill or practice when they first began their positions. The Instrument has developed incrementally, based on results of a three-part analytic process each year: (1) descriptive analysis and select means comparisons; (2) correlation analysis and Cronbach's test of internal reliability; (3) confirmatory factor analysis to examine the measurement model for each domain. Outcomes are also explored in preliminary analyses.

To examine potential differences in teachers' survey response mode and in their primary or supplemental population category, oneway ANOVA analyses were conducted on each of the 23 items measuring teachers' preparation for the InTASC Standards, each of the ten subsequent survey items estimating teachers' satisfaction with specific attributes of their preparation program, and two measures of teachers' overall preparation. Results indicated the mean response across the mode of survey completion was significantly different on four of the 35 items tested. Differences in mean responses were detected across population categories for nine of the 23 InTASC items, two of the ten program satisfaction questions, and both of the overall preparation questions.

Results of Cronbach's coefficient alpha indicated each of the four scales is highly internally reliable, with values ranging from 0.87 (Learning and Learning) to 0.94 (Content Knowledge).

Evaluators examined each of the four scales representing the InTASC domains as latent social constructs. Among teachers' results, individual scale item loadings were strong and statistically significant across all four factors, as were the overall model fit indices.

Results of the Supervisor Survey were examined using multilevel confirmatory factor analysis to account for the variance caused by those who contributed more than one response in reflecting on the preparation of more than one teacher. The intraclass correlation for the 23 InTASC measures clearly indicated strong clustering, with more than 20 percent of the variation in 21 of the 23 items found at the school level. For each of the four factors, individual scale item loadings were strong and statistically significant, both within individual administrators and between school administrators. For the Learner and Learning and the Professional Responsibility factors the between schools value of SRMR exceeded the optimum threshold of good fit, though within individual administrators all fit indices suggested excellent fit.

To understand the relationships among the four InTASC domains to overall

preparation the four factor models were tested as a series of structural models. Teachers' results were examined, though supervisors' results were not tested with this same process. An initial model tested the extent to which teachers' preparation for their new role is influenced by each of the factors as correlated, exogenous constructs. Both the relative and absolute fit indices were strong, though the relationships of Content Knowledge and Instructional Practice with overall preparation were quite small and not statistically significant, suggesting a mediated model might represent the relationships among the constructs more accurately.

Key outcome measures were examined using oneway ANOVAs to learn if teachers' gender, identification as LGBTQ, race, and age are related to their preparation experience. When examining gender as binary, no differences in key outcomes were detected across groups, though as a non-binary variable results suggested group differences. Similar analysis of outcomes by identification as LGBTQ, and by age detected differences across groups. No significant differences in key outcomes were detected by teachers' race.

Future Considerations

Over the life of the Alumni and Employer Survey project the procedures and instrument have developed well. The full value of the collaborative evaluation study has yet to be realized as its potential grows with increased participation and response.

Key to successful data collection is stakeholder engagement and buy-in. With data collection concentrated during the summer and a response rate above 30 percent consistently, re-defining the population to a single cohort of alumni may be appropriate in the future. Redefining the population to a single alumni cohort will require close scrutiny, and should not be considered before the 2022 survey cycle. Amidst a global pandemic, the 2020 survey cycle presents a unique opportunity to receive feedback from beginning teachers whose experiences between their first and second years on the job differed radically and unlike any other beginning teacher cohort in living memory.

The OACTE Instrument is quite stable, though results of the analysis suggest minor revisions to the wording of a few items measuring the InTASC Model Core Teaching Standards could be beneficial. In addition, the questions in the survey that are unrelated to the core questions or their analysis should be evaluated for use and eliminated if possible.

Oregon education leaders were visionaries in launching this collaborative project. Continued reflection and learning, and continued engagement of key primary stakeholders will help to move results into many small, meaningful actions.

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Purpose and Background

Leaders of the Oregon Association of Colleges for Teacher Education (OACTE)—the statewide coalition of degree-granting, postsecondary teacher education programs—are committed to creating an Oregon that is richer and more equitable by ensuring that all teachers are ready to make the most of Oregon's diverse classrooms. In 2013, OACTE leaders began a continuous improvement project to evaluate their programs in accordance with the most effective teaching and learning practices. The collaborative approach provides a glimpse into statewide trends in beginning teachers' experiences, and ensures all programs can meet the same rigorous expectations with the autonomy to develop as unique programs.

The backbone of this collective evaluation is the InTASC Model Core Teaching Standards. Researchers at the Interstate Teacher Assessment and Support Consortium (InTASC) of the Council of Chief State School Officers (CCSSO) defined ten Model Core Teaching Standards through a research synthesis, examining the most effective attributes of teaching and learning (CCSSO, 2011). Effective teaching practices are those that support high achievement among all learners, even those who traditionally may have struggled in U.S. schools.

Grounded in principles of equitable achievement, the Model Core Teaching Standards describe the performances, knowledge, and dispositions that support high performance among all learners in a diverse classroom. In brief, the Standards set expectations for teachers to:

- establish a classroom climate and adapt their practices to support all learners, in response to each student's unique background and learning style (*Learner and Learning* domain);
- impart learners with subject-specific depth of content, along with skills for inquiry, critical analysis, problem solving, and collaboration across subject areas with others who hold unique perspectives (*Content Knowledge* domain);
- employ a range of techniques to foster active learning and measurable progress for all learners to achieve clear, rigorous learning objectives (*Instructional Practice* domain); and
- develop their professional skills, knowledge, and leadership capacity continuously, for the ongoing improvement of learners and the health of the school community (*Professional Responsibility* domain).

This study operationalizes the InTASC Model Core Teaching Standards as the OACTE Survey Instrument, asking teachers and their supervisors to reflect on their

readiness for a range of skills teachers need as they embark on their careers. This report is a summary and analysis of the OACTE Instrument and survey procedures. Teachers and administrators' responses are summarized separately in two, respective companion reports. The surveys that are the basis of this study complement additional information about the strengths and areas for growth in teacher preparation in Oregon.

Survey Administration

In 2013, OACTE leaders contracted with an external evaluator to develop a survey instrument to measure teachers' pre-service preparation for the skills and habits required to be highly effective on the job. The initial instrument drew from a number of sources, including prior surveys, and research and policy documents from the Teacher Standards and Practices Commission (TSPC), Oregon State Board of Higher Education (OSBHE), Council for the Accreditation of Educator Preparation (CAEP), the U.S. Department of Education (USED), and from education agencies in the states of Texas and Florida (CAEP, 2013; CCSSO, 2012; Ewell, 2013; Gray & Brauen, 2013; Milton, Curva & Milton, 2011; OUS 2002a; OUS 2002b; Stevens 2011; Stevens 2012). Project leaders prioritized a list of teaching practices, gleaned the most relevant, most critical, and most commonly used practices, and ensured that all items align with the ten InTASC Model Core Teaching Standards.

The survey was first administered in spring 2014, the second time in spring and summer 2016, and the third time in summer 2017. Results and validation testing during each survey cycle led to improvements in the instrument and in the data collection timing and procedures. Analysis of 2018 survey responses suggested both the instrument and procedures are stable and changes should be minimal to support continuous improvement in the response rate and data quality. Few changes were introduced in the 2019 administration of the survey.

The 2019 survey included 23 discrete items that describe observable practices that effective teachers do when they exhibit the principles outlined by the InTASC Model Core Teaching Standards. The survey was administered as a closed-access instrument so that both administrators' and teachers' responses could later be analyzed in the context of individual preparation programs. For both study populations, the survey instrument and procedures were approved by the Institutional Review Board of Lewis & Clark College.

Study Population

The primary populations for this survey are beginning teachers and their supervisors. Beginning teachers are those who:

- completed their educator preparation degree at an OACTE program, were
- recommended for licensure in 2016-17 or 2017-18, and who were
- working in Oregon public schools within their first two years as contracted teachers during the 2018-19 academic year.

As a supplement to the primary population of beginning teachers, the 2019 Beginning Teacher Survey also included licensed teachers in the same cohort who had out-of-state addresses, but who had no record of a teaching contract in an Oregon public school. In addition, licensed teachers in this cohort who had in-state addresses but no record of an Oregon teaching contract were included for three of the OACTE member institutions whose graduates often are recruited to teach in private, out-of-state, or specialized schools that are not listed as public schools under the purview of the Oregon Department of Education. With no way to identify or locate supervisors, nor even to determine whether these teachers worked in a classroom, school, or district, the supervisors of this supplemental population who did not hold Oregon public school contracts were not included in the population of supervisors. Including these additional teachers provides more robust results to each of the OACTE member institutions, and a more accurate estimate of their graduates' experiences.

The population of supervisors included 1,780 building administrators in Oregon public schools (see Table 1). The total population of teachers in all categories was 2,534, of whom nearly 80 percent represent the primary population of beginning teachers who worked in Oregon public schools (see Table 2).

Data Collection: Supervisors

The Supervisor Survey was administered during summer 2019. In June, after the conclusion of the academic year, OACTE sponsored an exhibit booth at the Confederation of Oregon School Administrators (COSA) annual spring administrator conference to promote the Supervisor Survey. While data collection could not begin until later in the summer due to unanticipated delays, the annual conference provided a forum in which to raise awareness about OACTE as a coalition among individuals in a key stakeholder group, and to discuss the survey goals and past findings. In addition, a number of school and district-level administrators requested information and resources about specific needs in their district or program. While nearly all administrators who visited OACTE's exhibit booth were familiar with one or more of

Table 1

Supervisor Survey Response Change Over Time				
	Survey Cycle			
	2017	2018	2019	Percent Change
	Cohorts 2014-15 & 2015-16	Cohorts 2015-16 & 2016-17	Cohorts 2016-17 & 2017-18	
Population				
Beginning teachers w/ administrators	1,528	1,768	1,780	0.68%
Individual administrators	699	789	835	5.83%
Survey Response				
Beginning teachers w/ administrators	383	537	604	12.48%
Individual administrators	239	287	355	23.69%
Response Rate				
Beginning teachers w/ administrators	25.07%	30.37%	33.93%	11.72%
Individual administrators	34.19%	36.38%	42.51%	16.88%
Oregon districts represented	101	101	109	7.92%

Oregon's educator preparation programs, almost none were aware they worked together as a coalition with an independent identity and organizational structure. Few were familiar with the survey project, though some participants recalled completing the survey in previous years and receiving a thank you gift.

An email invitation was sent to administrators the second week in July, asking recipients to reflect on the pre-service preparation of a specific beginning teacher. Administrators who employed more than one beginning teacher were sent separate email invitations for each teacher, thus enabling evaluators to provide OACTE program leaders with results most germane to their programs. While a number of administrators were out of the office for part or all of the month of July, reminder emails were timed to coincide with their return to work for the summer. Administrators were invited to complete the survey themselves, or to forward the link to another educator who worked closely with the teacher. The survey did not track which responses were submitted from a forwarded email invitation.

OACTE offered all respondents a $5.00 gift card to Amazon.com and selected one supervisor at random to receive an additional $50.00 gift card when the survey closed. Respondents who completed the survey multiple times, reflecting on the preparation of more than one beginning teacher, were offered a gift card for each response submitted, though were only entered into the random draw once enabling all respondents the same opportunity to receive the bonus gift.

Data Collection: Teachers

Data collection for the Beginning Teacher Survey spanned the summer and early fall 2019, employing multiple outreach and recruitment modes. First, a preliminary e-mail announcement was distributed in early July, notifying teachers of the survey with recruitment scheduled for later in the summer. The preliminary announcement included a link to the survey so teachers could complete the survey immediately instead of waiting until later in the summer, garnering nearly half (44 percent) of responses. Second, in mid-August a postcard announcing the survey was mailed to teachers at their homes. The postcard included a shortened link to the survey, a QR code directed at the survey, and the teacher's unique access token. Within one day of the postcard's anticipated delivery date for most teachers, an e-mail invitation was sent to all teachers who had not responded earlier in the summer. Twenty-two teachers completed the survey after the postcard was mailed, but before the accompanying e-mail invitation was distributed. The QR code recorded six unique clicks. A total of 44 percent of all responses were generated from the second phase of data collection.

Finally, after Labor Day, when almost all Oregon teachers had returned to the classroom for the 2019-20 academic year, representatives from a call center contacted teachers by phone during the evenings and weekends, generating an additional 12 percent of teachers' survey responses.

As a thank you, all teachers who completed the survey were offered a $5.00 gift card to Amazon.com, and one teacher was selected at random to receive an additional $50.00 gift card when the survey closed at the end of September.

Table 2

Beginning Teacher Survey Response Change Over Time

	Survey Cycle			
	2017	2018	2019	Percent Change
	Cohorts 2014-15 & 2015-16	Cohorts 2015-16 & 2016-17	Cohorts 2016-17 & 2017-18	
Total Population	1,713	1,767	2,534	43.41%
Survey Response				
Early summer e-mail	188	0	375	
August postcard/e-mail	310	429	378	-11.89%
September phone campaign	88	100	105	5.00%
Total survey response	586	529	858	62.19%
Response Rate	34.21%	29.94%	33.86%	13.10%
Oregon districts represented	101	110	127	15.45%

Survey Response

Across both surveys, 858 teachers and supervisors of 604 beginning teachers submitted viable responses to the survey (see Tables 1 and 2). Viable responses are those wherein the respondent completed the first of four sets of questions measuring teachers' preparation for the InTASC Model Core Teaching Standards, with each set of questions spanning one of the four domains: Learner and Learning, Content Knowledge, Instructional Practice, and Professional Responsibility.

Administrator Response

Among building administrators, the Supervisor Survey netted a response rate of 34 percent of Oregon beginning teachers (see Table 3). At the school building level, 43 percent of individual administrators who employed one or more beginning teacher responded to the survey (see Table 1). Both the teacher-level response and school administrator-level response represent an uptick from prior surveys, likely due to growing familiarity with the project and carefully timed reminder

Table 3

2019 OACTE Alumni and Employer Survey Response Rate by Institution

	Oregon Public School Beginning Teachers			Administrators of Oregon Public Schools		
	Population	Survey Response	Response Rate	Population	Survey Response	Response Rate
Concordia University - Oregon	207	82	**40%**	182	67	**36.81%**
Corban University	59	27	**46%**	54	24	**44.44%**
Eastern Oregon University	103	40	**39%**	100	36	**36.00%**
George Fox University	169	63	**37%**	143	58	**40.56%**
Lewis and Clark College	71	27	**38%**	67	19	**28.36%**
Linfield College	22	13	**59%**	21	3	**14.29%**
Marylhurst University	22	5	**23%**	20	8	**40.00%**
Multnomah University	7	2	**29%**	7	3	**42.86%**
Northwest Christian University	46	16	**35%**	42	18	**42.86%**
Oregon State University	212	78	**37%**	194	65	**33.51%**
Pacific University	153	52	**34%**	134	40	**29.85%**
Portland State University	330	100	**30%**	264	73	**27.65%**
Southern Oregon University	137	40	**29%**	129	35	**27.13%**
University of Oregon	153	62	**41%**	124	37	**29.84%**
University of Portland	62	25	**40%**	51	20	**39.22%**
Warner Pacific University	15	9	**60%**	13	4	**30.77%**
Western Oregon University	246	71	**29%**	235	94	**40.00%**
Total	2014	712	**35%**	1780	604	**33.93%**

The primary survey population of beginning teachers includes those licensed in 2016-17 or 2017-18, who were employed in an Oregon public school, in their first or second year of a teaching contract during the 2018-19 academic year. Administrators could not be identified for some beginning teachers who had a record of a teaching contract with an Oregon public school.

Table 4

Number of Teachers per School				
	Population of Administrators		Survey Response	
	frequency	percent	frequency	percent
1	380	45.51%	216	60.85%
2	220	26.35%	81	22.82%
3	116	13.89%	32	9.01%
4	59	7.07%	10	2.82%
5	23	2.75%	10	2.82%
6	18	2.16%	2	0.56%
7	11	1.32%	4	1.13%
8 or more	8	0.96%	0	0.00%
Total Schools	**835**	**100.00%**	**355**	**100.00%**

messages to coincide with administrators' summer schedules.

At the institutional level, response rates for the Supervisor Survey ranged considerably, from 14 percent at Linfield College to 44 percent at Corban University, two of OACTE's smaller member institutions. More than a quarter of total responses are attributable to supervisors of alumni from Western Oregon University and Portland State University together (28 percent), reflecting the relative size of these teacher preparation programs. With a 37 percent institutional response rate, Concordia University—which is slated for closure at the conclusion of the 2020 spring semester—accounted for 11 percent of the total response to the Supervisor Survey.

Among the population of supervisors of beginning teachers at the school level, more than half employed more than one beginning teacher, (54 percent, see Table 4), including a small handful of schools that employed at least eight teachers across the two-year cohort. In contrast, administrators from most schools submitted a single survey response (61 percent), with administrators at just 39 percent of schools reflecting on the preparation of more than one beginning teacher. Teacher mobility may account for some of the difference between the population and the response. Notably, 31 percent of Oregon beginning teachers who responded to the survey reported working for a different district than their contract of record. However, for each school that employed more than one beginning teacher, the proportionate response lags between the number of teachers employed and the number of responses submitted by supervisors at a school. These responses were not yoked to test the response rate for each school individually, though results suggest that supervisors may experience survey fatigue with each successive response.

Teacher Response

The Beginning Teacher Survey garnered an overall response rate of 34 percent across the primary and supplemental populations combined, with a response rate of 35 percent among the primary population of teachers working in an Oregon public school (see Table 3, Table 4). While the overall response rate is no higher than its peak in 2017, at 34 percent (see Table 2), the population of beginning

Table 5

2019 Beginning Teacher Response by Population Category

	Oregon Public School Teacher			Out-of-State Address, No ODE Employment Record			In-State Address, No ODE Employment Record			Total		
	Population	Survey Response	Response Rate	Population	Survey Response	Response Rate	Population	Survey Response	Response Rate	Population	Survey Response	Response Rate
Concordia University - Oregon	207	82	39.61%	67	16	23.88%	0	1		274	99	36.13%
Corban University	59	27	45.76%	15	5	33.33%	31	13	41.94%	105	45	42.86%
Eastern Oregon University	103	40	38.83%	26	8	30.77%				129	48	37.21%
George Fox University	169	63	37.28%	25	10	40.00%				194	73	37.63%
Lewis and Clark College	71	27	38.03%	20	6	30.00%				91	33	36.26%
Linfield College	22	13	59.09%	7	2	28.57%	16	2	12.50%	45	17	37.78%
Marylhurst University	22	5	22.73%	1	0	0.00%				23	5	21.74%
Multnomah University	7	2	28.57%	3	1	33.33%				10	3	30.00%
Northwest Christian University	46	16	34.78%	5	4	80.00%				51	20	39.22%
Oregon State University	212	78	36.79%	18	5	27.78%				230	83	36.09%
Pacific University	153	52	33.99%	11	2	18.18%				164	54	32.93%
Portland State University	330	100	30.30%	33	9	27.27%				363	109	30.03%
Southern Oregon University	137	40	29.20%	11	2	18.18%				148	42	28.38%
University of Oregon	153	62	40.52%	25	10	40.00%	108	24	22.22%	286	96	33.57%
University of Portland	62	25	40.32%	69	18	26.09%				131	43	32.82%
Warner Pacific University	15	9	60.00%	8	2	25.00%				23	11	47.83%
Western Oregon University	246	71	28.86%	21	6	28.57%				267	77	28.84%
Total	2014	712	35.35%	365	106	29.04%	155	40	25.81%	2534	858	33.86%

teachers was substantially larger in 2019, a difference which could only partially be accounted for by the additional supplemental population of teachers who were not employed in Oregon public schools.

Among the primary population of Oregon public school teachers, the institutional response rate was strong overall, ranging from 23 percent at the recently shuttered Marylhurst University, to 60 percent at Warner Pacific University, perhaps representing the greatest proportionate increase in response rate. In contrast to the low response rate for the Supervisor Survey, at 59 percent the response rate for the primary population of beginning teachers at Linfield College was among the highest of the 15 member institutions. Portland State University and Concordia University combined accounted for the greatest number of responses among the primary population, representing 26 percent of responses submitted.

The primary population of Oregon public school teachers yielded a response rate of 35 percent, representing a higher response rate than that of teachers in the supplemental population (see Table 5). Among teachers for whom a record of a teaching contract at an Oregon public school could not be located, 29 percent of those living outside of Oregon responded to the survey, while 26 percent of those who had an Oregon address responded.

Beginning teachers in the supplemental population who had an Oregon address represented a small sample of alumni from just three educator preparation institutions whose teachers often are recruited into private schools and whose program leaders have provided supplemental contact information for these teachers during previous surveys: Corban University, Linfield College, and University of Oregon. Among the three sample institutions, teachers in the supplemental population with an Oregon address accounted for between 12 percent and 29 percent of the overall teacher response. Different institutions that serve different types of community needs and teacher candidates may realize varying results for this supplemental population in particular.

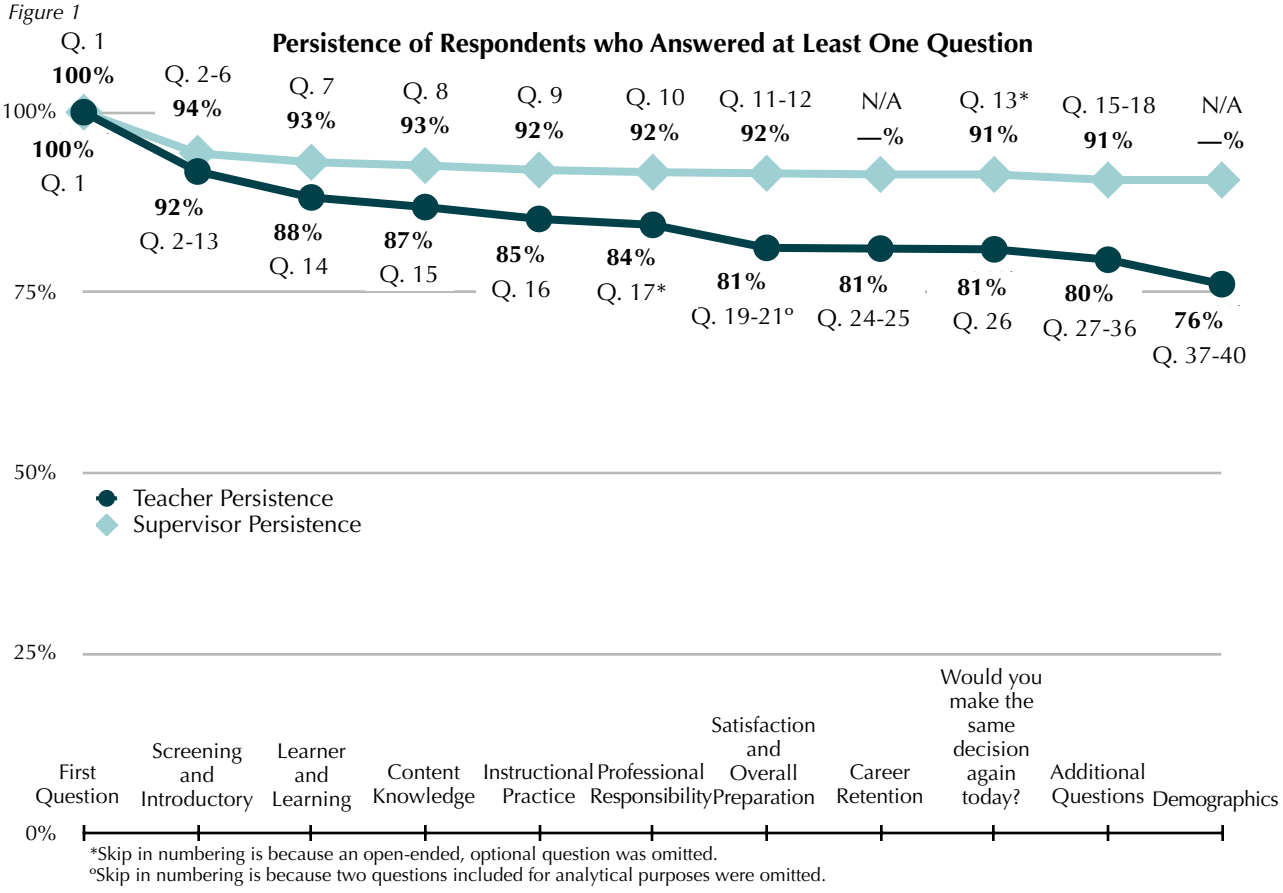
University of Portland benefited substantially by including the new supplemental population, with 42 percent of beginning teacher responses provided by those with out-of-state addresses and no record of an Oregon teaching contract. The supplemental population also appeared to benefit Corban University, where teachers with an Oregon address not working in public schools exhibited a response rate of 42 percent and accounted for 29 percent of all results submitted. At University of Oregon—the only public institution in the sample and the largest of the three sampled—the in-state supplemental population yielded a response rate of 22 percent, accounting for a full quarter of responses (25 percent). In

addition, while the total number of out-of-state responses only accounted for 10 percent of the total submitted from University of Oregon alumni, these teachers responded at a rate of 40 percent, on par with that of the primary population of teachers working in Oregon public schools from this institution. Similarly, at Western Oregon University the response rate of out-of-state teachers was nearly the same as that of the primary population (29 percent), while representing a small number of total responses (eight percent). At Northwest Christian and George Fox universities the response rate for out-of-state teachers exceeded that of the primary population of Oregon public school teachers, while representing just 20 percent and 14 percent of institutional responses, respectively. Theses figures suggest that while many teachers stay in Oregon and apply their practice in Oregon public schools, many of those who find employment out-of-state or in private schools are ready to share their feedback about their preparation.

Attrition

While a record number of teachers and their supervisors submitted viable responses to the respective surveys, many who began the survey did not complete

Figure 1



*Skip in numbering is because an open-ended, optional question was omitted.
ºSkip in numbering is because two questions included for analytical purposes were omitted.

enough questions for their response to be considered viable. And while most who submitted viable responses completed all of the core questions, many failed to reach the end of the survey.

Teacher Attrition

In total, 232 teachers who began the survey did not reach the end. Teachers' responses fall noticeably between the first survey question and the first core question about their preparation for the InTASC Model Core Teaching Standards (see Figure 1), with 973 teachers who answered at least one question, of whom just 858 submitted viable responses. Of the 115 teachers who began the survey but did not submit a viable response, 48 respondents (42 percent) were screened out as ineligible because they reported a teacher preparation program that was not among OACTE's member institutions or because they did not work in a district, school, or classroom. Accounting for ineligible respondents improves the drop rate between the first survey question and the first core question from 12 percent to seven percent, however four percent of eligible respondents who completed all of the introductory and screening questions did not continue to complete any of the core questions.

Similar drop rates are observable at two junctures: (1) when the survey shifts from teachers' preparation for the InTASC Model Core Teaching Standards to their satisfaction with their preparation program, and (2) demographic questions that follow a series of questions about on-the-job teacher development opportunities, and optional open-ended questions about their preparation experience. After removing ineligible responses, the overall teacher attrition rate was 19 percent, nearly a fifth of all eligible respondents who began the survey.

Supervisor Attrition

At 91 percent completion, the overall attrition rate among administrators was much lower than that of teachers. In total, 649 beginning teachers' supervisors completed at least one question, though only 604 completed enough questions for the response to be considered viable, representing a seven percent attrition rate (see Figure 1). The largest single-segment drop rate is between the first survey question and the screening and introductory questions, with 37 initial responses failing to reach the end of the screening and introductory questions (six percent). Of those, eight were screened out as ineligible because they did not work with the teacher, and 20 were screened out because they were not willing to provide feedback about the teacher's pre-service preparation. After removing ineligible and unwilling respondents, the single-segment attrition rate for the introductory and screening questions drops to 1.45 percent and the overall persistence rate improves from 91 percent to 95 percent.

Consider that the true attrition rate among school administrators and others who support beginning teachers may be examined most accurately among those who never begin the survey at all. The Supervisor Survey is considerably shorter than the Beginning Teacher survey, though typically more than half of individual school administrators are asked to complete the survey more than one time, including 14 percent of 2019 administrators who were invited to reflect on the preparation of four or more teachers, making the total number of questions presented nearly double those asked of teachers (see Table 4).

Instrument Performance

The ten InTASC Model Core Teaching Standards that are the basis of the OACTE Instrument are organized into four domains: *Learner and Learning*, *Content Knowledge*, *Instructional Practice*, and *Professional Responsibility*. The OACTE Instrument is organized into a similar four-part structure. The instrument was designed to enable program leaders to examine differences across a range of skills required to be effective within each domain, and to enable evaluators to examine the instrument and estimate the effectiveness of teachers' preparation as four latent social constructs.

Analytic Strategy

The 2019 OACTE Instrument included 23 discrete items describing observable teaching practices that align with the multifaceted InTASC Model Core Teaching Standards describing the practices, habits, knowledge, skills, and dispositions of effective teaching and learning. Using a retrospective pre-test design (Moore & Tananis, 2009; Taylor, Russ-Eft & Taylor, 2009), the survey asks teachers and one of their supervisors or other supportive educators to estimate teachers' level of preparation for each discrete skill or practice when they first began their positions. While teachers may exhibit preparation for any one Standard in an infinite number of ways, the 23 survey items were identified because of their importance as determined by experts, and to ensure that each of the ten Standards is measured by one or more survey item. The 23 survey items are organized into a series of scales measuring each of the four domains.

The Instrument has developed incrementally, based on results of a three-part analytic process each year. First, descriptive analysis and select means comparisons are used to summarize overall results, examine the normality of the sample, and identify general trends in the results. Second, correlation analysis and Cronbach's test of internal reliability are used to examine the relationships between each item within the four scales,

and to estimate the internal consistency of all the items together within each scale. Third, confirmatory factor analysis is used to examine the measurement model for each domain across the two survey populations of teachers and their supervisors, and to estimate the validity of each of the four scales as latent social constructs representing the four domains. Outcomes are also explored in preliminary analyses.

In the time since this survey was first administered in 2014, the OACTE Instrument has evolved from 22 discrete items measured by a four-point scale, to 23 discrete items measured by a 10-point, polar-point defined scale ranging from "no preparation" to "expert level skills with little room for improvement." With an even number of points, the scale does not afford a mid-point or neutral option. Fence-sitters are forced to lean high or low, though the ten-point scale creates an inferred central range. Teachers are not provided an option to select "don't know", "not applicable", or other opt-out or nonresponse for individual items. All 23 items are applicable to all teachers. Effective teaching practice requires all 23 of the skills quite regularly. Teachers who begin their jobs unfamiliar with and thus unprepared for a specific skill still need to perform each of the skills on the job, even if they start with tremendous room for growth. Supervisors, on the other hand, are provided with a "don't know" option. While all teachers should be prepared to employ and continue developing all 23 teaching practices from the start of their careers, not all supervisors may have the opportunity to observe or work with teachers in developing all 23 of the discrete skills during an academic year and may have no basis to know how well prepared a teacher was for a particular skill.

Summary Results

First, evaluators used descriptive analyses to estimate how normally distributed the sample is and to identify patterns that may warrant further investigation, examining the 23 InTASC items for teachers' and supervisors' responses separately. The team also examined mean differences in teachers' responses according the mode through which they completed the survey, and differences according to their population category.

Descriptive Results

For teachers and supervisors alike, at least half of respondents estimated teachers' pre-service preparation as a six or higher—above the mid-point—on all 23 items measuring their preparation for the InTASC Standards (see Figure 2, Figure 4, Tables 6 through 13). For 16 of the items, supervisors' median response was seven; for the remaining seven items supervisors median response was eight.

Figure 2

2019 Beginning Teachers' Percent Response in Each Category

Teachers' Preparation for Skills Measuring InTASC Model Core Teaching Standards

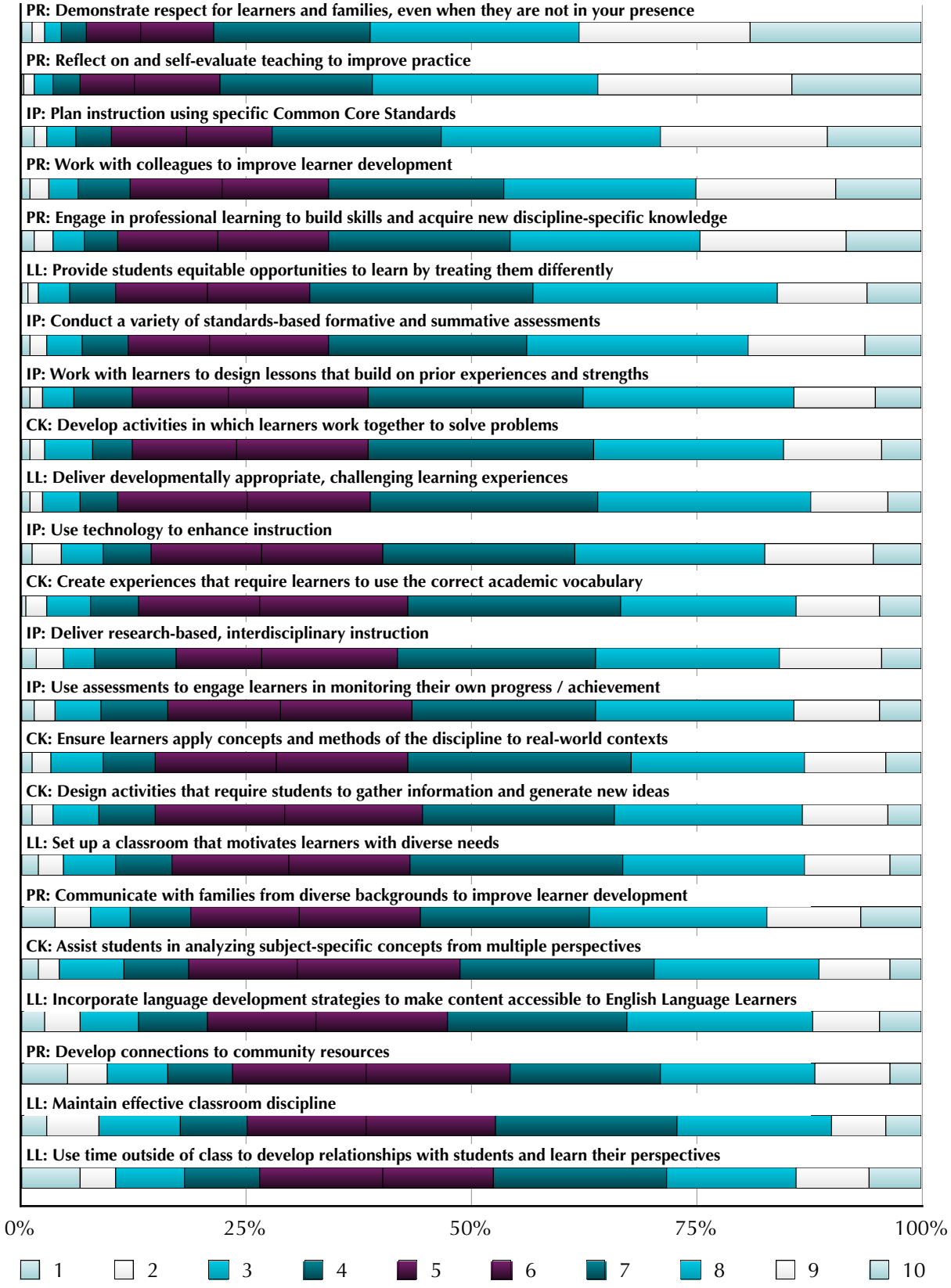


Figure 3

2019 Beginning Teachers' Mean Response

Teachers' Preparation for Skills Measuring InTASC Model Core Teaching Standards

Figure 4

2019 Supervisors' Percent Response in Each Category

Teachers' Preparation for Skills Measuring InTASC Model Core Teaching Standards

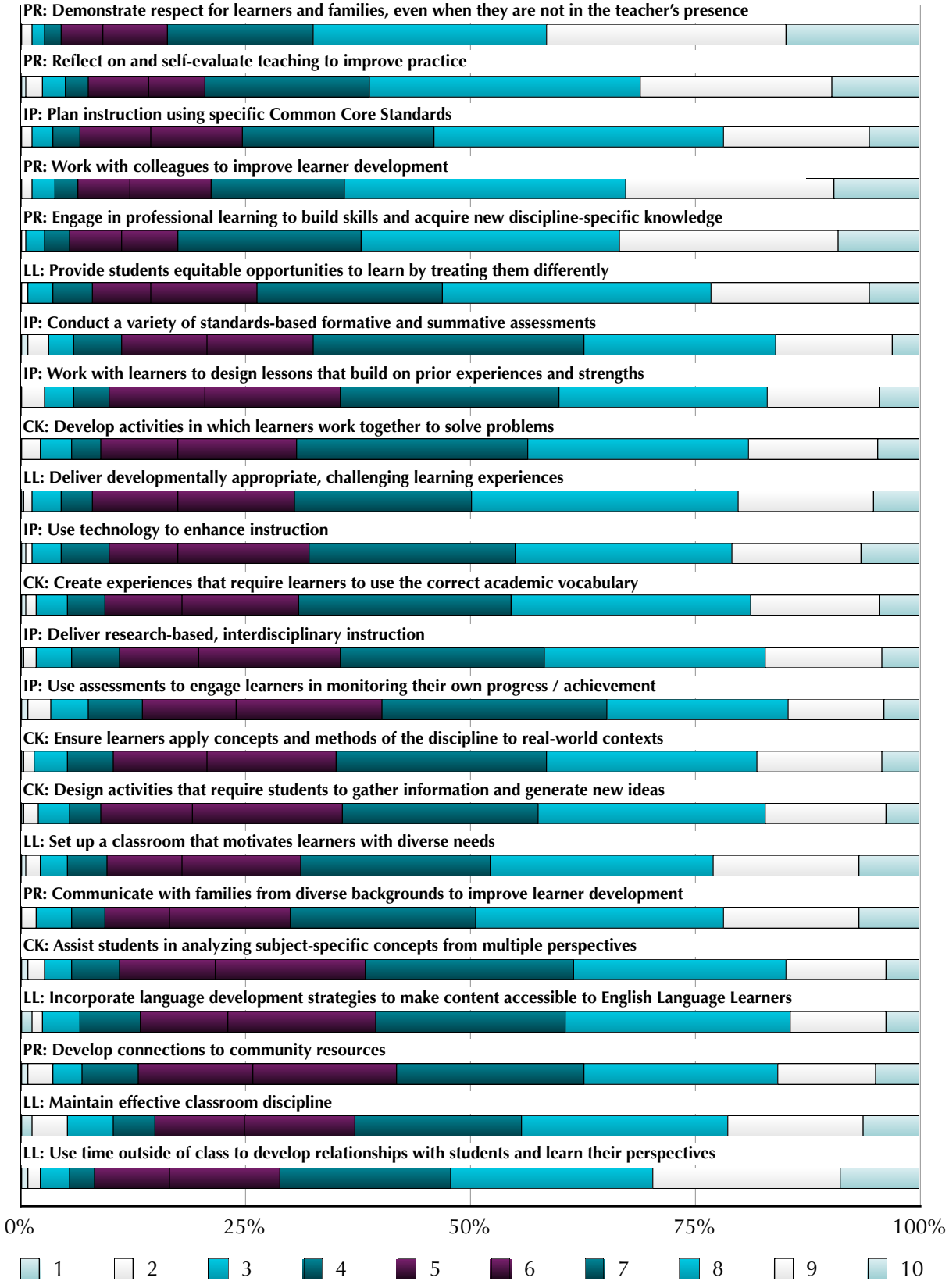


Figure 5

2019 Supervisors' Mean Response

Teachers' Preparation for Skills Measuring InTASC Model Core Teaching Standards

While teachers' responses also exhibited a median of seven for 16 of the InTASC items, their median response was eight for just three items, and six for the remaining three items.

Across the 23 items, teachers' average estimate of their preparation ranged from 5.93 (*Use time outside of class to develop relationships with students and learn their perspectives*, Learner and Learning) to 7.67 (*Demonstrate respect for learners and families, even when they are not in your presence*, Professional Responsibility) (see Figure 3). Supervisors' mean estimate of teachers' pre-service preparation exhibited a narrower range than teachers' estimates of themselves, ranging from 6.63 (*Use assessments to engage learners in monitoring their own progress/ achievement*, Instructional Practice) to 7.89 (*Demonstrate respect for learners and families, even when they are not in the teacher's presence*, Professional Responsibility) (see Figure 5).

For some numeric data that include extreme outliers, the median value can be a more accurate representation of the general population central tendency than would be the mean. Consolidated into a ten-point range, these data are not truly continuous, substantially limiting the possibility of outliers. While each of the 23 items is left-skewed across both populations due to the high estimation of teachers' pre-service preparation, low responses do not stand out as unusual and there is no gap in responses between response options, even among supervisors whose overall responses were higher than teachers for all but two items: *Reflect and self-evaluate teaching to improve practice* (Professional Responsibility), and *Conduct a variety of formative and summative assessments* (Instructional Practice). More notably, for one item no supervisors thought that a teacher began the job with no preparation: *Engage in professional learning to build skills and acquire new discipline-specific knowledge* (Professional Responsibility). Results of previous surveys indicated that some teachers may have have started their first teaching positions with such room for growth on a skill to suggest a small handful of teachers may have had little exposure or opportunity to develop the skill. When leaders at all OACTE member institutions are confident their curricula have been embedded with the InTASC Model Core Teaching Standards at clear and consistent minimal level, the evaluators may consider redefining the lower end-point of the scale.

Data must be normally distributed for reliability and validation testing, with both the skewness and excess kurtosis equal zero. Most analyses have some tolerance for non-normality inherent in social data, though validation testing using confirmatory factor analysis is sensitive both to univariate and multivariate non-normality (Curran, West, and Finch, 1996; Kim 2013).

Among teachers' responses, skewness ranged from -0.37 to -1.10, while kurtosis ranged from -0.01 to 1.22, reflective of the general estimation by most teachers that they were well prepared for most skills. Univariately, these figures are within an acceptable range that should not introduce bias into many analyses. Among supervisors whose responses generally were even more positive than teachers, skewness ranged from -0.56 to -1.19 with kurtosis ranging 0.02 to 1.74. Although these figures may be sufficiently normally distributed univariately to proceed with many analyses, multivariate normality is difficult to detect based on univariate statistics and even this degree of skewness and kurtosis may warrant correction during confirmatory factor analysis.

Mean Differences by Response Mode

Evaluators conducted means comparisons to detect differences in teachers' responses according to when and how they completed the survey: (1) at the beginning of the summer upon receiving the preliminary email announcement; (2) at the end of the summer after receiving a postcard and formal email invitation with follow-up reminders; or (3) after school was in session for fall, by telephone. Differences across response modes may indicate response bias either due to self-administered computer response versus human-administered oral response, or due to timing—interrupting respite after the end of a busy school year, during reflection and preparation for the next school year, or interrupting time at home while otherwise fully-focused on a new class of learners in the fall.

Oneway ANOVA analyses were conducted on each of the 23 items measuring teachers' preparation for the InTASC Standards, each of the ten subsequent survey items estimating teachers' satisfaction with specific attributes of their preparation program, and two measures of teachers' overall preparation. Results indicated the mean response across the mode of survey response was significantly different on four of the 35 items tested (for details see Appendix tables):

- Provide students equitable opportunities to learn by treating them differently (Learner and Learning), $F(2,855) = 4.01$, $p = 0.02$
- Set up a classroom that motivates learners with diverse needs (Learner and Learning), $F(2,855) = 4.03$, $p = 0.02$
- Assist students in analyzing subject-specific concepts from multiple perspectives (Content Knowledge), $F(2,842) = 3.09$, $p = 0.05$
- Preparation to adapt to your current school environment (Overall), $F(2,788)$, 3.64, $p = 0.03$)

Table 6

2019 Beginning Teacher Response Summary Learner and Learning													
	1 or 2	3 or 4	5 or 6	7 or 8	9 or 10	Valid N	Attrition	Median	Mean	Var.	Std. Dev.	Skew.	Kurt.
Provide students equitable opportunities to learn by treating them differently	1.98%	8.74%	21.56%	51.63%	16.08%	858	115	7	6.93	3.35	1.83	-0.72	0.43
t(857) = 5.267534, SE = 0.050226, p < 0.001													
Deliver developmentally appropriate, challenging learning experiences	2.45%	8.51%	27.97%	48.72%	12.35%	858	115	7	6.67	3.32	1.82	-0.66	0.37
t(857) = 4.546716, SE = 0.054088, p < 0.001													
Set up a classroom that motivates learners with diverse needs	4.78%	12.12%	26.46%	43.59%	13.05%	858	115	7	6.42	4.15	2.04	-0.62	-0.06
t(857) =2.40279, SE = 0.068879, p = 0.016													
Incorporate language development strategies to make content accessible to English Language Learners	6.64%	14.10%	26.81%	40.44%	12.00%	858	115	7	6.25	4.69	2.17	-0.51	-0.34
t(857) = 3.522433, SE = 0.08669, p < 0.001													
Maintain effective classroom discipline	8.86%	16.43%	27.51%	37.18%	10.02%	858	115	6	5.95	4.97	2.23	-0.37	-0.61
t(857) = 0.209781, SE = 0.083337, p = 0.834													
Use time outside of class to develop relationships with students and learn their perspectives	10.61%	15.97%	25.87%	33.68%	13.87%	858	115	6	5.93	5.88	2.42	-0.37	-0.63

Table 7

2019 Supervisor Response Summary Learner and Learning														
	1 or 2	3 or 4	5 or 6	7 or 8	9 or 10	Valid N	Don't know	Attrition	Median	Mean	Var.	Std. Dev.	Skew.	Kurt.
Provide students equitable opportunities to learn by treating them differently	0.99%	7.12%	18.38%	50.33%	23.18%	604	—	45	8	7.27	2.94	1.71	-0.87	0.67
Deliver developmentally appropriate, challenging learning experiences	1.32%	6.79%	22.35%	49.34%	20.20%	604	—	45	7	7.13	3.09	1.76	-0.80	0.52
Set up a classroom that motivates learners with diverse needs	2.33%	7.32%	21.63%	45.76%	22.96%	601	3	45	7	7.10	3.49	1.87	-0.79	0.46
Incorporate language development strategies to make content accessible to English Language Learners	2.51%	10.95%	26.03%	46.14%	14.36%	557	47	45	7	6.70	3.55	1.88	-0.71	0.28
Maintain effective classroom discipline	5.32%	9.80%	22.26%	41.36%	21.26%	602	2	45	7	6.77	4.58	2.14	-0.72	-0.09
Use time outside of class to develop relationships with students and learn their perspectives	2.35%	6.03%	20.60%	41.37%	29.65%	597	7	45	8	7.28	3.68	1.92	-0.87	0.57

Table 8

2019 Beginning Teacher Response Summary

Content Knowledge

	1 or 2	3 or 4	5 or 6	7 or 8	9 or 10	Valid N	Attrition	Median	Mean	Var.	Std. Dev.	Skew.	Kurt.
Develop activities in which learners work together to solve problems	2.83%	9.56%	26.21%	46.04%	15.35%	847	11	7	6.69	3.64	1.91	-0.66	0.23
t(845) = 2.342168, SE = 0.049458, p = 0.019													
Create experiences that require learners to use the correct academic vocabulary	3.07%	10.05%	29.91%	43.03%	13.95%	846	12	7	6.58	3.58	1.89	-0.48	-0.03
t(845) = 1.870518, SE = 0.04929, p = 0.062													
Ensure learners apply concepts and methods of the discipline to real-world contexts	3.55%	11.58%	27.90%	44.09%	12.88%	846	12	7	6.48	3.79	1.95	-0.56	-0.01
t(844) = 0.106237, SE = 0.044558, p = 0.915													
Design activities that require students to gather information and generate new ideas	3.67%	11.48%	29.59%	42.01%	13.25%	845	13	7	6.48	3.84	1.96	-0.54	-0.07
t(844) = 4.064043, SE = 0.049212, p < 0.01													
Assist students in analyzing subject-specific concepts from multiple perspectives	4.50%	14.20%	30.06%	39.88%	11.36%	845	13	7	6.28	4.08	2.02	-0.50	-0.16

Table 9

2019 Supervisor Response Summary

Content Knowledge

	1 or 2	3 or 4	5 or 6	7 or 8	9 or 10	Valid N	Don't know	Attrition	Median	Mean	Var.	Std. Dev.	Skew.	Kurt.
Develop activities in which learners work together to solve problems	2.36%	6.58%	21.92%	50.25%	18.89%	593	8	3	7	7.01	3.15	1.77	-0.80	0.57
Create experiences that require learners to use the correct academic vocabulary	1.85%	7.56%	21.68%	50.08%	18.82%	595	6	3	7	7.02	3.18	1.78	-0.83	0.61
Ensure learners apply concepts and methods of the discipline to real-world contexts	1.51%	8.91%	24.87%	46.55%	18.15%	595	6	3	7	6.90	3.22	1.79	-0.63	0.16
Design activities that require students to gather information and generate new ideas	2.18%	6.88%	26.85%	46.98%	17.11%	596	5	3	7	6.91	3.15	1.77	-0.73	0.45
Assist students in analyzing subject-specific concepts from multiple perspectives	2.71%	8.31%	27.46%	46.61%	14.92%	590	11	3	7	6.77	3.30	1.82	-0.69	0.40

Table 10

2019 Beginning Teacher Response Summary

Instructional Practice

	1 or 2	3 or 4	5 or 6	7 or 8	9 or 10	Valid N	Attrition	Median	Mean	Var.	Std. Dev.	Skew.	Kurt.
Plan instruction using specific Common Core Standards	3.02%	7.24%	17.73%	43.06%	28.95%	829	16	8	7.25	4.09	2.02	-0.92	0.60
t(828) = 6.026666, SE = 0.056644, p < 0.001													
Conduct a variety of standards-based formative and summative assessments	3.02%	8.93%	22.32%	46.44%	19.30%	829	16	7	6.91	3.78	1.94	-0.76	0.36
t(828) = 3.416035, SE = 0.052615, p = 0.001													
Work with learners to design lessons that build on prior experiences and strengths	2.65%	9.89%	26.06%	47.17%	14.23%	829	16	7	6.73	3.48	1.87	-0.63	0.33
t(828) = 1.3375, SE = 0.06674, p = 0.181													
Use technology to enhance instruction	4.70%	9.89%	25.69%	42.46%	17.25%	829	16	7	6.64	4.20	2.05	-0.63	-0.05
t(828) = 1.258481, SE =0.07093, p = 0.209													
Deliver research-based, interdisciplinary instruction	4.83%	12.42%	24.61%	42.34%	15.80%	829	16	7	6.55	4.17	2.04	-0.63	-0.03
t(828) = 0.647674, SE = 0.055874, p = 0.517													
Use assessments to engage learners in monitoring their own progress / achievement	3.98%	12.55%	27.02%	42.22%	14.23%	829	16	7	6.52	4.07	2.02	-0.55	-0.13

Table 11

2019 Supervisor Response Summary

Instructional Practice

	1 or 2	3 or 4	5 or 6	7 or 8	9 or 10	Valid N	Don't know	Attrition	Median	Mean	Var.	Std. Dev.	Skew.	Kurt.
Plan instruction using specific Common Core Standards	1.36%	5.27%	18.03%	53.57%	21.77%	588	9	4	8	7.30	2.80	1.67	-0.93	0.92
Conduct a variety of standards-based formative and summative assessments	3.22%	8.14%	21.19%	51.53%	15.93%	590	7	4	7	6.81	3.30	1.82	-0.84	0.64
Work with learners to design lessons that build on prior experiences and strengths	2.71%	7.28%	25.55%	47.55%	16.92%	591	6	4	7	6.86	3.28	1.81	-0.69	0.34
Use technology to enhance instruction	1.35%	8.60%	22.26%	47.05%	20.74%	593	4	4	7	7.06	3.25	1.80	-0.69	0.38
Deliver research-based, interdisciplinary instruction	1.89%	9.28%	24.40%	47.25%	17.18%	582	15	4	7	6.88	3.27	1.81	-0.69	0.25
Use assessments to engage learners in monitoring their own progress / achievement	3.38%	10.30%	26.52%	45.10%	14.70%	592	5	4	7	6.63	3.59	1.90	-0.62	0.15

Table 12

2019 Beginning Teacher Response Summary Professional Responsibility													
	1 or 2	3 or 4	5 or 6	7 or 8	9 or 10	Valid N	Attrition	Median	Mean	Var.	Std. Dev.	Skew.	Kurt.
Demonstrate respect for learners and families, even when they are not in your presence	2.80%	4.51%	14.13%	40.68%	37.88%	821	8	8	7.67	3.97	1.99	-1.10	1.22
t(820) = 0.584114, SE =0.058387, p = 0.559													
Reflect on and self-evaluate teaching to improve practice	1.71%	5.12%	15.35%	41.90%	35.93%	821	8	8	7.64	3.41	1.85	-0.97	0.84
t(820) = 10.848432, SE = 0.058159, p < 0.001													
Work with colleagues to improve learner development	3.29%	8.89%	22.17%	40.68%	24.97%	821	8	7	7.00	4.20	2.05	-0.68	0.06
t(820) = 0.343487, SE = 0.053191, p = 0.731													
Engage in professional learning to build skills and acquire new discipline-specific knowledge	3.78%	7.19%	23.26%	41.17%	24.60%	821	8	7	6.99	4.19	2.05	-0.77	0.31
t(820) = 8.804667, SE = 0.064051, p < 0.001													
Communicate with families from diverse backgrounds to improve learner development	7.80%	11.08%	25.58%	38.37%	17.17%	821	8	7	6.42	5.22	2.29	-0.60	-0.23
t(820) = 7.88733, SE = 0.058219, p < 0.001													
Develop connections to community resources	9.62%	14.01%	30.82%	33.74%	11.81%	821	8	6	5.96	5.21	2.28	-0.45	-0.47

Table 13

2019 Supervisor Response Summary Professional Responsibility														
	1 or 2	3 or 4	5 or 6	7 or 8	9 or 10	Valid N	Don't know	Attrition	Median	Mean	Var.	Std. Dev.	Skew.	Kurt.
Demonstrate respect for learners and families, even when they are not in the teacher's presence	1.35%	3.37%	11.78%	42.09%	41.41%	594	1	2	8	7.89	2.90	1.70	-1.19	1.74
Reflect on and self-evaluate teaching to improve practice	2.52%	5.04%	13.11%	48.24%	31.09%	595	—	2	8	7.51	3.45	1.86	-1.16	1.34
Work with colleagues to improve learner development	1.34%	5.04%	14.96%	46.05%	32.61%	595	—	2	8	7.61	3.04	1.74	-1.08	1.11
Engage in professional learning to build skills and acquire new discipline-specific knowledge	0.67%	4.89%	11.97%	49.24%	33.22%	593	2	2	8	7.67	2.68	1.64	-1.01	1.03
Communicate with families from diverse backgrounds to improve learner development	1.86%	7.63%	20.51%	48.14%	21.86%	590	5	2	7	7.14	3.33	1.82	-0.79	0.40
Develop connections to community resources	3.61%	9.47%	28.74%	42.51%	15.66%	581	14	2	7	6.65	3.73	1.93	-0.56	0.02

Similar analyses of previous surveys have failed to detect mean differences across the timing and mode of response. These differences may have been present from the beginning, though with a very small effect and thus only detectable with a sufficiently large sample (Aberson, 2010). With 858 viable responses for the 2019 survey, teachers' total response grew by 62 percent from 2018.

The significance threshold for these analyses is set at 0.05. Significant findings indicate within 95 percent confidence that results are representative of the survey population overall, and not just by chance of the unique attributes of the present sample. Conversely, that threshold opens a five percent chance that the findings are incorrect and are not representative of the population. Every 20 tests conducted is likely to yield one false positive result.

To examine the findings more closely, Tukey post hoc analyses were conducted for the four items that generated significant findings. The Tukey test compares each set of pairs across the groups, and is more robust to the significance threshold than omnibus ANOVA tests (Keppel & Zedeck, 2000).

Results of Tukey post hoc analyses suggest that teachers who completed the survey in the fall or by phone may have been more optimistic about their preparation on some items. Teachers who responded late in the data collection period though a phone representative after they had already begun the subsequent school year thought they were better prepared to provide equitable learning opportunities than teachers who responded by computer earlier in the data collection period, whether at the beginning of the summer in July or later in the summer in August. These same late participants who responded by phone also reported being better prepared to set up their classrooms and to help students analyze core concepts comprehensively, compared to the earliest participants who responded in July.

Results of the Tukey post hoc analysis did not indicate that respondents who completed the survey via any one particular mode was likely to feel better prepared to adapt to their current school environment than those who completed the survey using either of the other modes.

This analysis cannot explain the source of the difference in average responses, merely that one exists in these specific situations. Teachers' responses may be influenced by the time period during which they completed the survey—early summer, late summer, or fall—which may affect their reflections, focus, feelings about work, or state of mind in the moment. Or, respondents may simply interact differently when by themselves working on a computer or mobile device than they would when talking on the phone with a live human. Alternatively, teachers who feel more or less prepared may self-select

into a specific time period or survey administration mechanism.

Mean Differences by Population Category

To determine whether teachers' responses differed by their population category—Oregon public school teachers, teachers with out-of-state addresses who did not work in an Oregon public school, or teachers with in-state addresses who did not work for an Oregon public school—evaluators compared mean responses across these groups. Oneway ANOVAs were conducted to examine each of the 23 InTASC items, the ten subsequent survey questions regarding satisfaction with their preparation program, and two questions about teachers' overall preparation.

Results of omnibus ANOVA tests indicated the mean response across groups differed on 13 of the 35 items examined. Mean differences were detected between groups for nine of the 23 InTASC items, two of the ten program satisfaction questions, and both of the overall preparation questions (for details see Appendix tables):

- Maintain effective classroom discipline (Learner and Learning), $F(2,855) = 5.75$, $p < 0.01$
- Use time outside of class to develop relationship with students and learn their perspective (Learner and Learning), $F(2,855) = 3.00$, $p = 0.05$
- Create experiences that require learners to use the correct academic vocabulary (Content Knowledge), $F(2,843) = 3.76$, $p = 0.02$
- Assist students in analyzing subject-specific concept from multiple perspectives (Content Knowledge), $F(2, 842) = 3.08$, $p = 0.05$
- Deliver research-based, interdisciplinary instruction (Instructional Practice), $F(2, 826) = 3.56$, $p = 0.03$
- Demonstrate respect for learners and families, even when they are not in your presence (Professional responsibility), $F(2,818) = 4.68$, $p = 0.01$
- Reflect on and self-evaluate teaching to improve practice (Professional Responsibility), $F(2,818) = 3.38$, $p = 0.03$
- Engage in professional learning to build skills and acquire new discipline-specific knowledge (Professional Responsibility), $F(2,818) = 3.38$, $p = 0.04$
- Communicate with families from diverse backgrounds to improve learner development (Professional Responsibility), $F(2,818) = 4.19$, $p = 0.02$
- Satisfaction with the quality of university supervision during student teaching (Program Satisfaction), $F(2,790) = 4.38$, $p = 0.01$
- Satisfaction with the overall quality of the program (Program Satisfaction), $F(2,787) = 3.63$, $p = 0.03$
- Preparation to adapt to your current school environment (Overall), $F(2,788) = 3.52$, $p = 0.03$

- Preparation to adapt to your new role as a practicing teacher (Overall), $F(2,787) = 4.13$, $p = 0.02$

To learn how teachers' responses differed across population categories, this analysis was followed by Tukey post hoc tests for these 13 items.

For one item—satisfaction with the quality of university supervision during student teaching—teachers both in Oregon public schools and those who moved outside of Oregon indicated they were more satisfied with their preparation experience than teachers who remained in Oregon but did not work in a public school.

For five of the nine InTASC items examined with follow-up analysis, results suggest that teachers who found employment outside of Oregon felt better prepared than respondents in the primary population who worked in Oregon public schools, to maintain discipline, to build student relationships outside of class, to demonstrate respect, to reflect on their work, and to communicate with families. However, for one InTASC item, teachers who stayed in Oregon but did not work in a public school reported being more prepared than Oregon teachers who worked in public schools: Assisting students to examine core concepts critically. Results of the Tukey analysis did not detect significant differences between groups for the remaining three InTASC items: Require learners to use the correct vocabulary, interdisciplinary instruction, and professional learning.

Teachers who moved out of state were more satisfied with the overall quality of their preparation program, and felt better prepared to adapt both to their current school environment and to their new teaching role, compared to their counterparts who taught in Oregon public schools.

The perceived difference in preparation and also in overall satisfaction with the program quality may be related to teachers' experiences in their classrooms located throughout the U.S. and overseas. Teachers trained in an OACTE institution may be better prepared than their peers who trained elsewhere, their new classrooms may simply be less challenging than they anticipated, they may be more likely to receive support to apply and develop their skills more easily, or the most successful and satisfied teachers who left Oregon may have been more likely to respond to the survey than their counterparts who did not feel as well prepared in their new communities.

Scale Reliability

To examine the breadth and cohesion of each of the four scales, evaluators conducted correlation analysis and Cronbach's test of internal consistency. Typically all items measuring the same concept are related to one another to some degree as they function with continuity,

though pairs of items that are too highly correlated may be redundant, even if both items in the pair measure skills or other observable phenomena that are clearly distinct from one another.

Correlation Analysis

Correlation matrices were computed for each of the four scales to estimate the strength and direction of the relationship between each pair of items. Across all four domains, all pairs were significantly related, ranging from 0.33 for maintaining discipline and incorporating language development measuring the Learner and Learning domain to 0.79 for requiring students to gather information and generate new ideas with developing activities for collaborative problem solving that measure the Content Knowledge scale (see Tables 14 through 17).

With the exception of the Content Knowledge scale, few pairs exhibited indicators that they may be redundant with one another. Paired item correlations

Table 14

Learner and Learning: 2019 Beginning Teacher Item Corrleations	Provide students equitable opportunities to learn by treating them differently	Deliver developmentally appropriate, challenging learning experiences	Set up a classroom that motivates learners with diverse needs	Incorporate language development strategies to make content accessible to English Language Learners	Maintain effective classroom discipline
Provide students equitable opportunities to learn by treating them differently	1.00				
Deliver developmentally appropriate, challenging learning experiences	0.68	1.00			
Set up a classroom that motivates learners with diverse needs	0.66	0.67	1.00		
Incorporate language development strategies to make content accessible to English Language Learners	0.56	0.51	0.54	1.00	
Maintain effective classroom discipline	0.47	0.59	0.60	0.33	1.00
Use time outside of class to develop relationships with students and learn their perspectives	0.54	0.54	0.55	0.41	0.45

N = 858
All pairs are significantly correlated at $p < 0.01$
Cronbach's Alpha = 0.87

Table 15

Content Knowledge: 2019 Beginning Teacher Item Correlations	Develop activities in which learners work together to solve problems	Create experiences that require learners to use the correct academic vocabulary	Ensure learners apply concepts and methods of the discipline to real-world contexts	Design activities that require students to gather information and generate new ideas
Develop activities in which learners work together to solve problems	1.00			
Create experiences that require learners to use the correct academic vocabulary	0.71	1.00		
Ensure learners apply concepts and methods of the discipline to real-world contexts	0.76	0.72	1.00	
Design activities that require students to gather information and generate new ideas	0.79	0.68	0.78	1.00
Assist students in analyzing subject-specific concepts from multiple perspectives	0.74	0.73	0.78	0.74

N = 845
All pairs are significantly correlated at $p < 0.01$
Cronbach's Alpha = 0.94

Table 16

Instructional Practice: 2019 Beginning Teacher Item Correlations	Plan instruction using specific Common Core Standards	Conduct a variety of standards-based formative and summative assessments	Work with learners to design lessons that build on prior experiences and strengths	Use technology to enhance instruction	Deliver research-based, interdisciplinary instruction
Plan instruction using specific Common Core Standards	1.00				
Conduct a variety of standards-based formative and summative assessments	0.66	1.00			
Work with learners to design lessons that build on prior experiences and strengths	0.60	0.68	1.00		
Use technology to enhance instruction	0.51	0.55	0.52	1.00	
Deliver research-based, interdisciplinary instruction	0.62	0.68	0.71	0.50	1.00
Use assessments to engage learners in monitoring their own progress / achievement	0.58	0.74	0.70	0.50	0.69

N = 829
All pairs significantly correlated at $p < 0.01$
Cronbach's Alpha = 0.91

Table 17

Professional Responsibility: 2019 Beginning Teacher Item Correlations	Demonstrate respect for learners and families, even when they are not in your presence	Reflect on and self-evaluate teaching to improve practice	Work with colleagues to improve learner development	Engage in professional learning to build skills and acquire new discipline-specific knowledge	Communicate with families from diverse backgrounds to improve learner development
Demonstrate respect for learners and families, even when they are not in your presence	1.00				
Reflect on and self-evaluate teaching to improve practice	0.62	1.00			
Work with colleagues to improve learner development	0.65	0.64	1.00		
Engage in professional learning to build skills and acquire new discipline-specific knowledge	0.67	0.66	0.72	1.00	
Communicate with families from diverse backgrounds to improve learner development	0.66	0.56	0.67	0.65	1.00
Develop connections to community resources	0.57	0.52	0.65	0.67	0.73

N = 821
All items correlated at $p < 0.01$
Cronbach's Alpha = 0.91

above 0.80 signal the two items are so highly related they may be multicollinear. If two phenomenon so consistently co-occur—or, alternatively, seldomly occur together—the breadth of items measuring a construct may be better represented by replacing one item in the pair so that both present more variance independent of one another and thus extend the scope of possible indicators that represent the concept uniquely. Methodologically, analyses based on multivariate regression partials out the overlap between predictor items, which may leave little unique information to estimate the true relationship between the outcome of interest and each of two items that are very highly correlated (Cohen, Cohen, West & Aiken, 2003).

Most of the items in the Content Knowledge scale have exhibited high correlations since the project inception, though none have reached 0.80. Efforts to distinguish the items by revising wording to describe specific teaching skills more clearly and to reduce overlapping phrasing resulted in still higher paired item correlations. One hypothesis is that the two Standards that comprise the Content Knowledge domain encapsulate Bloom's Taxonomy of Learning, traditional building blocks of teaching and learning through which complex learning processes depend

consequentially on the success of a series of simpler knowledge acquisition processes. Arguably, the five survey items describing teachers' preparation for the Content Knowledge domain also describe teaching practices that support Bloom's Taxonomy. Under this model, limited skills supporting basic learning processes (e.g., naming concepts and accurate vocabulary, or applying concepts) would interfere with the ability to support students in developing more advanced learning processes (e.g., critical analysis, or problem solving). Conversely, teachers who are skilled in helping students acquire content through complex learning processes have likely been successful in the practices required to guide students through simpler learning processes. In other words, many of the discrete skills through which the Content Knowledge domain manifests may be highly related, inherently. Under this premise, additional revisions of item wording may be warranted, though may not reduce paired-item correlations markedly within the scale.

Reliability Analysis

Based on correlation analysis, Cronbach's Alpha test of internal consistency, coefficient alpha, estimates the extent to which responses to the items within a scale are consistent with one another (Cohen, Cohen, West & Aiken, 2003). Results of Cronbach's coefficient alpha indicated each of the four scales is highly internally reliable, with values ranging from 0.87 (Learning and Learning) to 0.94 (Content Knowledge) (see Tables 14 through 17). Values above 0.80 are acceptable thresholds of high reliability. Results did not suggest any item was inappropriate for its scale, based on estimates of each scale with each item removed individually.

Reliability estimates throughout the lifecycle of this project have demonstrated improved scale reliability, and has consistently demonstrated high internal reliability across each of the four scales, especially since 2016. The potential for continued improvement may have reached a plateau with three of the four scales producing reliability estimates of 0.90 or above since the 2017 administration of this survey. With a reliability estimate at 0.87, the Learner and Learning scale is well within the threshold of highly reliable and has been quite strong consistently since a question was added to the 2016 instrument.

Construct Validity

Evaluators examined each of the four scales representing the InTASC domains as latent social constructs. Latent variable modeling with confirmatory factor analysis measures complex, interrelated, abstract concepts such as the InTASC Model Core Teaching Standards that cannot be enumerated as a finite list of techniques. The four domains that categorize the InTASC Standards provide the structure for broadly defined latent constructs.

Confirmatory factor models estimate the degree to which each item in a scale contributes unique information, and how well the scale items work together to represent the construct. Confirmatory factor analysis combines only the explained variance shared by each measured item, thus eliminating error variance from the coefficients (Maruyama, 1998). Factor models must include a sufficiently wide range of observed variables to indicate the presence of the latent construct, but also the fewest number necessary to represent the underlying construct accurately. Parsimony is essential to stave off survey fatigue among respondents, and to minimize the complexity of the model which affects the computational power required to obtain results.

Factor models were tested using Mplus 8.4 (Muthén & Muthén, 2019). Evaluators used the maximum likelihood robust (MLR) algorithm to adjust for nonnormality and non-independence of observation, per the summary results. The robust algorithm produces standard errors and overall fit indices that reduce bias and are more resilient to overestimating significance and overall fit values.

Teachers' and supervisors' results were examined separately.

Teachers' Measurement Model

Teachers' results were examined as four factor models: Learner and Learning, Content Knowledge, Instructional Practice, and Professional Responsibility. Individual scale item loadings were strong and statistically significant across all four factors, as were the overall model fit indices. Across the four factors, standardized item loadings ranged from 0.629 measuring the strength of technology integration as an indicator of preparation for Instructional Practice, to 0.889 measuring real-world application as an indicator of Content Knowledge (see Figures 6 through 9).

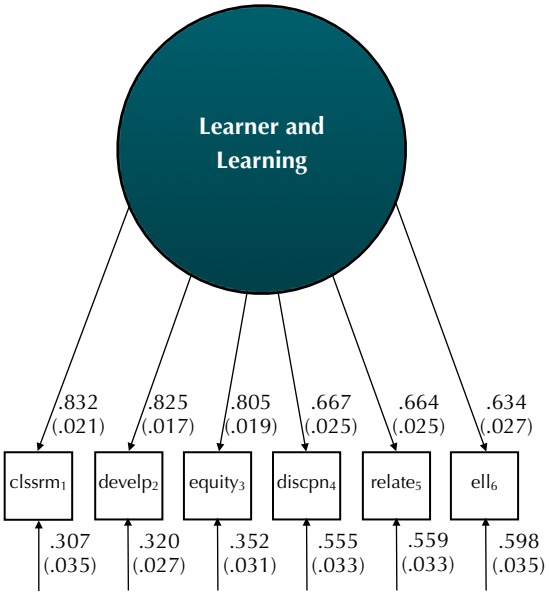
The chi-square test of model fit was statistically significant for three of the four factors. Unlike chi-square tests of independence, significant results for factor analysis chi-square tests of model fit indicate the hypothesized model is significantly different from the data, suggesting the model is of poor fit. Chi-square tests are influenced heavily by sample size. Often samples large enough to yield adequate computational power also produce signifiant chi-square results, even when the model may exhibit good fit otherwise. Alternative fit indices have been developed, including absolute fit indices such as root mean squared error of approximation (RMSEA) and standardized root mean squared residual (SRMR) that estimate the degree of unexplained variance represented in the model results. Relative or incremental fit indices, such as the Tucker-Lewis Index (TLI) and the comparative fit index (CFI), estimate the degree to which the hypothesized model

explains the data relative to a baseline model (Heck & Thomas, 2015; Hu & Bentler, 1999; Kenny, 2015; Maruyama, 1998). Typically, a combination of both absolute and relative fit indices are used to estimate how well the model fits the data. TLI and RMSEA tend to produce more conservative results, and thus are reported with CFI and SRMR.

While all four factors exhibited high goodness of fit, some of the fit indices were not as strong for the Learner and Learning factor (see Table 18). In particular, RMSEA values below 0.06 indicate excellent fit. At 0.079, the RMSEA for the Learner and Learning factor exceeded that threshold. SRMR values below 0.05, and CFI and TLI values of 0.95 or above also indicate excellent fit. Results of these fit indices all indicated good fit for the Learner and Learning factor.

Figure 6

Beginning Teachers Learner and Learning Measurement Model



The model fit could have been improved by including two pairs of correlated errors: maintaining discipline with differentiating practice for equitable learning; and maintaining discipline with language development for second language learners. Correlated errors indicate that two items have something in common in addition to the shared variance they contribute to the

Table 18

Beginning Teachers Learner and Learning Measurement Model Factor Loadings and Model Fit			
		estimate	**SE**
Set up a classroom that motivates learners with diverse needs		0.832	0.021
Deliver developmentally appropriate, challenging learning experiences		0.825	0.017
Provide students equitable opportunities to learn by treating them differently		0.805	0.019
Maintain effective classroom discipline		0.667	0.025
Use time outside of class to develop relationships with students and learn their perspectives		0.664	0.025
Incorporate language development strategies to make content accessible to English Language Learners		0.634	0.027
	Number of freely estimated parameters	18	
	Chi-square Test of Model Fit	56.837, df = 9, p < 0.001, n = 858	
	Scaling Correction Factor	1.282	
	TLI (Tucker-Lewis Index	0.950	
	CFI (Comparative Fit Index)	0.970	
	RMSEA (Root Mean Square Error of Approximation)	0.079	
	SRMR (Standardized Root Mean Square Residual)	0.027	

factor, and can indicate the presence of another latent construct. Correlated errors should only be included if the theory behind the model supports it, or if an obvious link joins two items, such as parallel phrasing of survey questions. The rational for estimating these two additional parameters in the Learner and Learning model is not compelling, and would add unnecessary complexity. These findings, however, are worth noting due to the strong connection between discipline, equity and differentiation, and language development, especially as Oregon's classrooms grow more racially and culturally diverse.

The Content Knowledge factor exhibited good fit based on results of both the absolute and relative fit indices (see Table 19).

When modeled to estimate the loadings for its six measurement items alone, the Instructional Practice factor exhibited good fit based on both the absolute and relative fit indices. However, confirmatory factor results of prior surveys indicated the presence of two pairs of correlated errors: conducting assessments with using assessments as an engagement tool; and conducting assessments with planning from the Common Core Standards.

Figure 7

Beginning Teachers
Content Knowledge Measurement Model

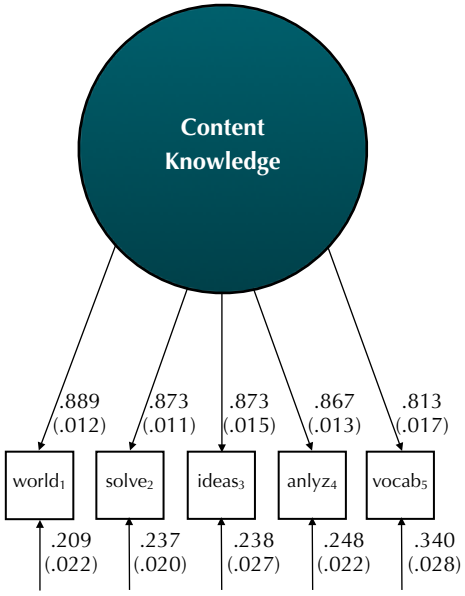


Table 19

Beginning Teachers Content Knowledge Measurement Model Factor Loadings and Model Fit			
		estimate	**SE**
Ensure learners apply concepts and methods of the discipline to real-world contexts		0.889	0.012
Develop activities in which learners work together to solve problems		0.873	0.011
Design activities that require students to gather information and generate new ideas		0.873	0.015
Assist students in analyzing subject-specific concepts from multiple perspectives		0.867	0.013
Create experiences that require learners to use the correct academic vocabulary		0.813	0.017
Number of freely estimated parameters	15		
Chi-square Test of Model Fit	19.245, df = 5, p = 0.002, n = 847		
Scaling Correction Factor	1.5314		
TLI (Tucker-Lewis Index	0.983		
CFI (Comparative Fit Index)	0.992		
RMSEA (Root Mean Square Error of Approximation)	0.058		
SRMR (Standardized Root Mean Square Residual)	0.012		

Table 20

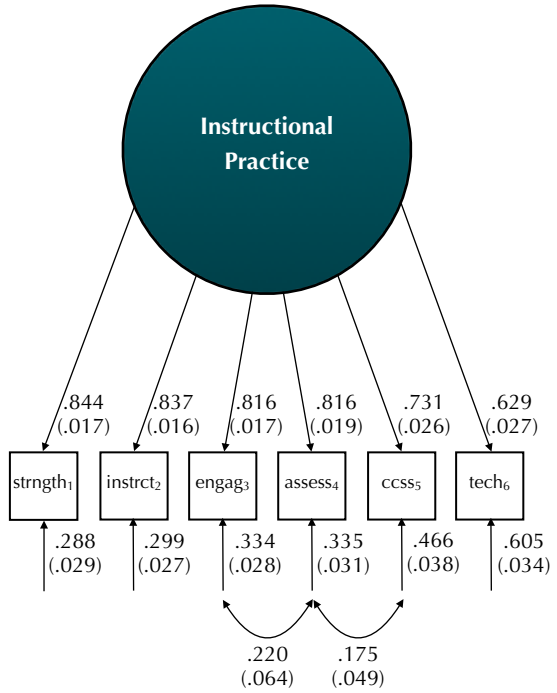
Beginning Teachers Instructional Practice Measurement Model Factor Loadings and Model Fit		
	estimate	**SE**
Work with learners to design lessons that build on prior experiences and strengths	0.844	0.017
Deliver research-based, interdisciplinary instruction	0.837	0.016
Use assessments to engage learners in monitoring their own progress / achievement	0.816	0.017
Conduct a variety of standards-based formative and summative assessments	0.816	0.019
Plan instruction using specific Common Core Standards	0.731	0.026
Use technology to enhance instruction	0.629	0.027
Use assessments to engage learners in monitoring their own progress / achievement *with* Conduct a variety of standards-based formative and summative assessments	0.220	0.064
Plan instruction using specific Common Core Standards *with* Conduct a variety of standards-based formative and summative assessments	0.175	0.049

Number of freely estimated parameters	20
Chi-square Test of Model Fit	11.020, df = 7, p = 0.138, n = 829
Scaling Correction Factor	1.6006
TLI (Tucker-Lewis Index	0.995
CFI (Comparative Fit Index)	0.998
RMSEA (Root Mean Square Error of Approximation)	0.026
SRMR (Standardized Root Mean Square Residual)	0.013

While these items are distinct from one another, the overlapping phrasing is a clear link among the items separate from the Instructional Practice construct they measure. A model that included these two pairs of correlated errors produced even stronger fit indices, and may be a more accurate representation of the construct as the items are phrased (see Table 20). The issue may be revised with slightly revised item wording.

Figure 8

Beginning Teachers Instructional Practice Measurement Model



Similarly, the Professional Responsibility factor exhibited mixed fit results when modeled to estimate just the factor loadings. In the past, the Professional Responsibility factor has indicated the presence of two pairs of correlated errors: working with families with integrating community—two clearly externally focused components of teachers' work;—and demonstrating respect with reflection, two clearly internally focused, interpersonal aspects of the job. With this history, the model was tested again, with these two pairs of error terms. Including

the relationship between working with families and integrating community produced a considerable improvement in the overall model fit by all indices. In contrast, modeling a relationship between the other pair of errors generated no clear improvement. In the interest of parsimony the second pair of correlated errors was omitted from the model, while the relationship between family and community was retained because of the three-tiered focus represented by the Professional Responsibility domain: internal development, school development, and external development (see Table 21).

Overall fit indices merely indicate how well the hypothesized model fits the data, but cannot estimate whether other models could also fit the data well. Different models may represent the same data equally well.

Figure 9

Beginning Teachers
Professional Responsibility Measurement Model

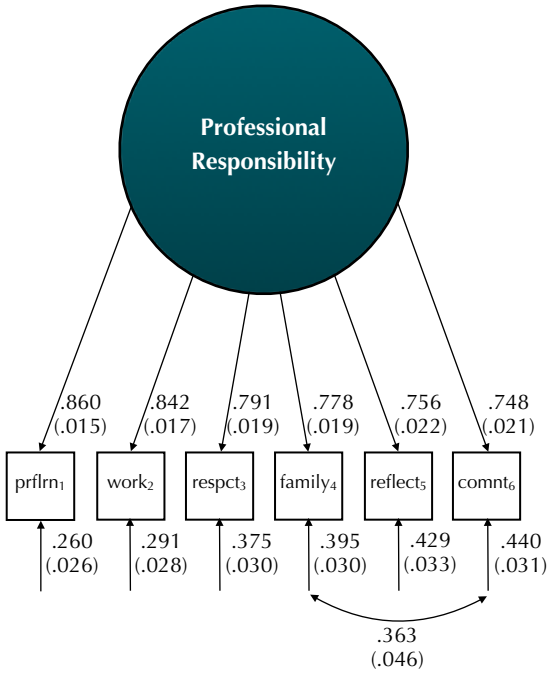


Table 21

Beginning Teachers Professional Responsibility Measurement Model Factor Loadings and Model Fit		
	estimate	**SE**
Engage in professional learning to build skills and acquire new discipline-specific knowledge	0.860	0.015
Work with colleagues to improve learner development	0.842	0.017
Demonstrate respect for learners and families, even when they are not in the teacher's presence	0.791	0.019
Communicate with families from diverse backgrounds to improve learner development	0.778	0.019
Reflect on and self-evaluate teaching to improve practice	0.756	0.022
Develop connections to community resources	0.748	0.021
Communicate with families from diverse backgrounds to improve learner development *with* Develop connections to community resources	0.363	0.046
Number of freely estimated parameters	19	
Chi-square Test of Model Fit	29.933, df = 8, p < 0.001, n = 821	
Scaling Correction Factor	1.8423	
TLI (Tucker-Lewis Index	0.976	
CFI (Comparative Fit Index)	0.987	
RMSEA (Root Mean Square Error of Approximation)	0.058	
SRMR (Standardized Root Mean Square Residual)	0.017	

Administrators' Measurement Model

Results of the Supervisor Survey were examined using a similar confirmatory factor analysis technique, though with multilevel modeling to account for the variance caused by those who contributed more than one response in reflecting on the preparation of more than one teacher. Analyses based on multivariate regression require data to be independently observed, in that responses that are pooled by an ecological-level grouping variable are inherently linked, which contributes noise that can render the findings difficult to interpret accurately. Unaccounted for clustering or grouping—such as households within neighborhoods, teachers within schools, or multiple survey responses within administrators—introduces bias and the risk of overestimating significance values when too much variance is attributed to the influence of individual-level variables, resulting in type one errors (Snijders & Bosker, 1999). Moreover, failing to account for clustering risks an ecological fallacy wherein individual-level outcomes are attributed entirely to individual-level variables when the school or other nested structure is the true source of a substantial amount of variation.

The population of 1,780 teachers with supervisors represented 835 individual school administrators, of whom more than half (54 percent) employed more than one beginning teacher. In turn, the 604 responses were submitted by 355 individual administrators at unique schools. While less than half of administrators submitted more than one survey response (39 percent), this type of repeated response within individuals presents a strong clustering effect. Recent discussion among researchers regarding the minimum threshold of clustering that necessitates multilevel modeling concluded that accurate results require the data structure to be represented accurately in analysis, regardless of the amount of variance that might be attributable to the higher level grouping variable.

The intraclass correlation is an estimate of the ratio of the between group variance (across school administrators) to the total variance of a given variable (Heck & Thomas, 2015; Raudenbush & Bryk, 2002; Snijders & Bosker, 1999). The intraclass correlation for the 23 InTASC measures clearly indicated strong clustering, with more than 20 percent of the variation in 21 of the 23 items found at the school level (see Tables 22 through 25). With minimal clustering effect found relative to other items, nearly 14 percent of the variation in reflection and self-evaluation was at the school administrator level (ρ = 0.135). In contrast, more than 40 percent of the variation in using technology in instruction was at the school level (ρ = 0.418).

Figure 10

Supervisors
Learner and Learning Measurement Model

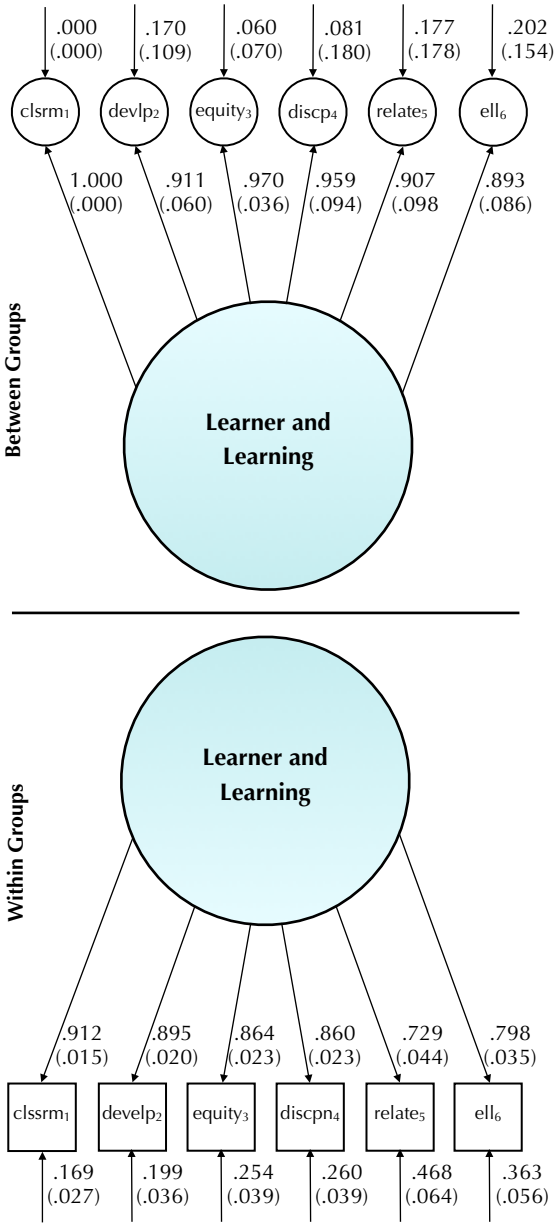
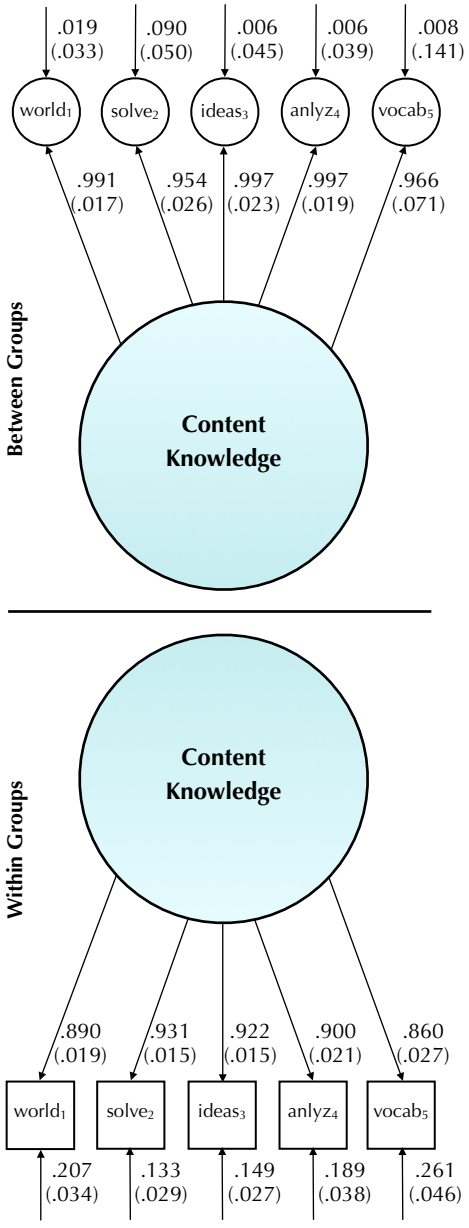


Figure 11

Supervisors
Content Knowledge Measurement Model



Each of the four InTASC scales was tested as a multilevel confirmatory factor model using Mplus 8.4 with the maximum likelihood robust algorithm. For each of the four factors, individual scale item loadings were strong and statistically significant, both within individual administrators and between school administrators. Within administrators, item loadings ranged from 0.707 for technology use measuring Instructional Practice, to 0.994 for conducting

standards-based assessments, also measuring Instructional Practice. Across school administrators, item loadings ranged from 0.824 for technology use measuring Instructional Practice, to 0.997 for supporting multifaceted critical analysis measuring Content Knowledge (see Figures 10 through 13). In addition, chi-square values were not significant for two of the four models, and nearly all fit indices indicated strong goodness of fit overall, both within individual administrators and across school administrators.

Initial testing of the Learner and Learning factor produced a negative residual variance for setting up a classroom, an indicator of very small between group variances or potentially a misspecified model. The negative variance was in the between groups portion of the model and was very small, so to correct this problem the between group item variance was set to zero. Both the absolute and relative fit indices indicated excellent fit within administrators, though at 0.070 the between groups value of SRMR exceeded the optimum threshold of good fit (see Table 22).

The Content Knowledge factor exhibited excellent fit as indicated by both absolute and relative fit indices, including the the four within groups fit indices and also the between groups estimate for SRMR (see Table 23).

Table 22

Supervisors Learner and Learning Measurement Model Factor Loadings and Model Fit			
Between Groups (across school administrators)	**ICC**	**estimate**	**SE**
Set up a classroom that motivates learners with diverse needs	0.213	1.000	0.000
Deliver developmentally appropriate, challenging learning experiences	0.258	0.911	0.060
Provide students equitable opportunities to learn by treating them differently	0.254	0.970	0.036
Maintain effective classroom discipline	0.147	0.959	0.094
Use time outside of class to develop relationships with students and learn their perspectives	0.277	0.907	0.098
Incorporate language development strategies to make content accessible to English Language Learners	0.301	0.893	0.086
Within Groups (within individual school administrators)		**estimate**	**SE**
Set up a classroom that motivates learners with diverse needs		0.912	0.015
Deliver developmentally appropriate, challenging learning experiences		0.895	0.020
Provide students equitable opportunities to learn by treating them differently		0.864	0.023
Maintain effective classroom discipline		0.860	0.023
Use time outside of class to develop relationships with students and learn their perspectives		0.729	0.044
Incorporate language development strategies to make content accessible to English Language Learners		0.798	0.035
Model Fit			
Number of Freely estimated parameters	29		
Number of clusters (school sites)/Number of responses	355/604		
Chi-square Test of Model Fit	34.399, df = 19, p = 0.017		
Scaling Correction Factor	1.1285		
TLI (Tucker-Lewis Index	0.990		
CFI (Comparative Fit Index)	0.994		
RMSEA (Root Mean Square Error of Approximation)	0.37		
SRMR (Standardized Root Mean Square Residual) between groups	0.070		
SRMR (Standardized Root Mean Square Residual) within groups	0.029		

Table 23

Supervisors Content Knowledge Measurement Model Factor Loadings and Model Fit			
Between Groups (across school administrators)	**ICC**	**estimate**	**SE**
Ensure learners apply concepts and methods of the discipline to real-world contexts	0.352	0.991	0.017
Develop activities in which learners work together to solve problems	0.272	0.954	0.026
Design activities that require students to gather information and generate new ideas	0.323	0.997	0.023
Assist students in analyzing subject-specific concepts from multiple perspectives	0.337	0.997	0.019
Create experiences that require learners to use the correct academic vocabulary	0.316	0.996	0.071
Within Groups (within individual school administrators)		**estimate**	**SE**
Ensure learners apply concepts and methods of the discipline to real-world contexts		0.890	0.019
Develop activities in which learners work together to solve problems		0.931	0.015
Design activities that require students to gather information and generate new ideas		0.922	0.015
Assist students in analyzing subject-specific concepts from multiple perspectives		0.900	0.021
Create experiences that require learners to use the correct academic vocabulary		0.860	0.027
Model Fit			
Number of Freely estimated parameters	25		
Number of clusters (school sites)/Number of individual administrators	352/601		
Chi-square Test of Model Fit	7.355		
Scaling Correction Factor	1.5227, df = 10, p = 0.692		
TLI (Tucker-Lewis Index	1.000		
CFI (Comparative Fit Index)	1.000		
RMSEA (Root Mean Square Error of Approximation)	0.000		
SRMR (Standardized Root Mean Square Residual) between groups	0.033		
SRMR (Standardized Root Mean Square Residual) within groups	0.016		

Results of both the absolute and relative fit indices suggest the six indicators of Instructional Practice produced good model fit. Based on the results of prior teacher and supervisor surveys, the model was tested for the presence of two correlated errors: conducting assessments with engaging students in their progress with assessments; and conducting assessments with standards-based planning. Only one of the pairs produced strong evidence of a relationship: conducting assessments with using assessments for engagement, undoubtedly due to the overlapping phrasing. While the relative fit indices had little room for improvement in the initial model, the absolute fit indices improved noticeably from the good fitting initial model (see Table 24).

Initial testing of the Professional Responsibility factor produced a negative residual variance in the between groups portion of the model. The value was very small, so to correct the problem the variance of communicating with families was fixed at zero. While the problem was eliminated, the resulting model did not exhibit good fit clearly. Two pairs of correlated errors were tested, based on results of prior surveys: communicating with families with integrating community; and reflection with demonstrating respect. Only communicating with families and integrating community exhibited evidence

of a clear relationship, which improved the model fit substantially, by all fit indices. While the between group estimate of the SRMR was higher than standards of excellent fit at 0.104, by all other indices the Professional Responsibility factor exhibited high goodness of fit.

Figure 12

Supervisors
Instructional Practice Measurement Model

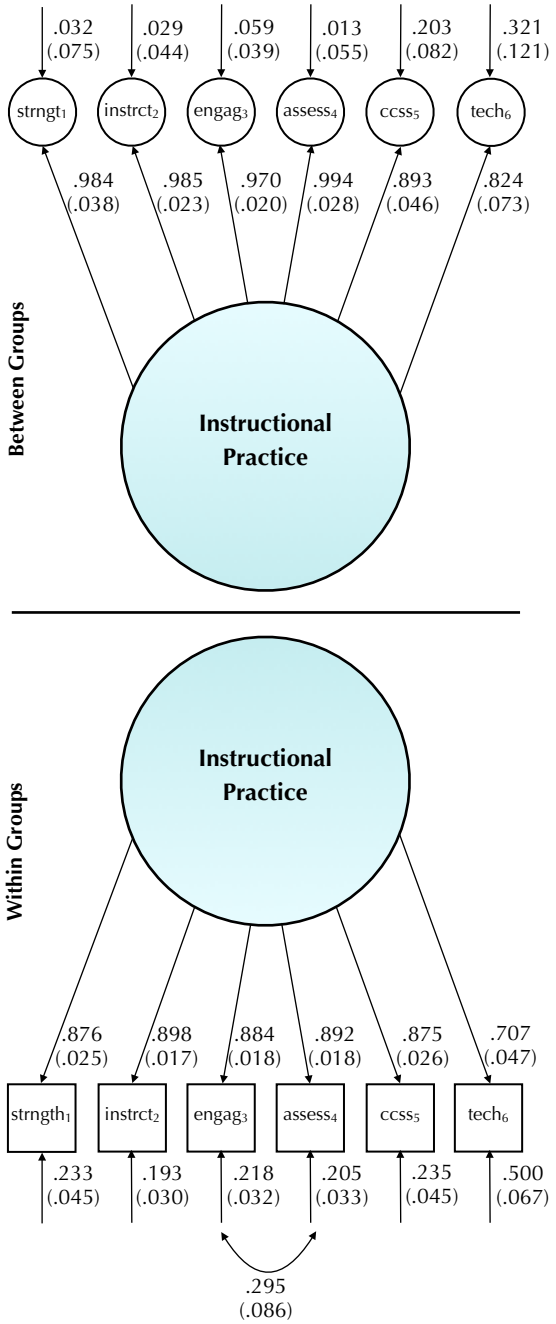


Figure 13

Supervisors
Professional Responsibility Measurement Model

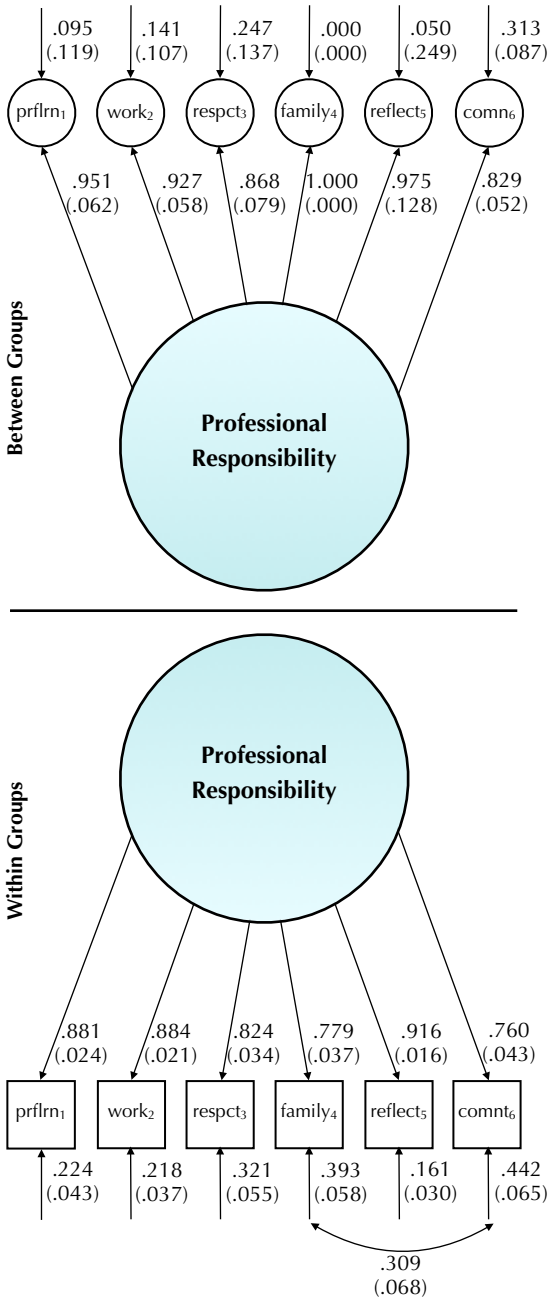


Table 24

Supervisors Instructional Practice Measurement Model Factor Loadings and Model Fit			
Between Groups (across school administrators)	**ICC**	**estimate**	**SE**
Work with learners to design lessons that build on prior experiences and strengths	0.319	0.984	0.038
Deliver research-based, interdisciplinary instruction	0.294	0.985	0.023
Use assessments to engage learners in monitoring their own progress / achievement	0.343	0.970	0.020
Conduct a variety of standards-based formative and summative assessments	0.293	0.994	0.028
Plan instruction using specific Common Core Standards	0.379	0.893	0.046
Use technology to enhance instruction	0.418	0.824	0.073
Within Groups (within individual school administrators)		**estimate**	**SE**
Work with learners to design lessons that build on prior experiences and strengths		0.876	0.025
Deliver research-based, interdisciplinary instruction		0.898	0.017
Use assessments to engage learners in monitoring their own progress / achievement		0.884	0.018
Conduct a variety of standards-based formative and summative assessments		0.892	0.018
Plan instruction using specific Common Core Standards		0.875	0.026
Use technology to enhance instruction		0.707	0.047
Use assessments to engage learners in monitoring their own progress / achievement *with* Conduct a variety of standards-based formative and summative assessments		0.295	0.086
Model Fit			
Number of Freely estimated parameters	31		
Number of clusters (school sites)/Number of individual administrators	348/597		
Chi-square Test of Model Fit	23.416, df = 17, p = 0.136		
Scaling Correction Factor	1.3512		
TLI (Tucker-Lewis Index	0.996		
CFI (Comparative Fit Index)	0.998		
RMSEA (Root Mean Square Error of Approximation)	0.025		
SRMR (Standardized Root Mean Square Residual) between groups	0.023		
SRMR (Standardized Root Mean Square Residual) within groups	0.013		

Table 25

Supervisors Professional Responsibility Measurement Model Factor Loadings and Model Fit			
Between Groups (across school administrators)	**ICC**	**estimate**	**SE**
Engage in professional learning to build skills and acquire new discipline-specific knowledge	0.247	0.951	0.062
Work with colleagues to improve learner development	0.235	0.927	0.058
Demonstrate respect for learners and families, even when they are not in the teacher's presence	0.244	0.868	0.079
Communicate with families from diverse backgrounds to improve learner development	0.301	1.000	0.000
Reflect on and self-evaluate teaching to improve practice	0.135	0.975	0.128
Develop connections to community resources	0.386	0.829	0.052
Within Groups (within individual school administrators)		**estimate**	**SE**
Engage in professional learning to build skills and acquire new discipline-specific knowledge		0.881	0.024
Work with colleagues to improve learner development		0.884	0.021
Demonstrate respect for learners and families, even when they are not in the teacher's presence		0.824	0.034
Communicate with families from diverse backgrounds to improve learner development		0.779	0.037
Reflect on and self-evaluate teaching to improve practice		0.916	0.016
Develop connections to community resources		0.760	0.043
Communicate with families from diverse backgrounds to improve learner development *with* Develop connections to community resources		0.309	0.068
Model Fit			
Number of Freely estimated parameters	30		
Number of clusters (school sites)/Number of individual administrators	346/595		
Chi-square Test of Model Fit	34.605, df = 18, p = 0.011		
Scaling Correction Factor	1.3185		
TLI (Tucker-Lewis Index	0.986		
CFI (Comparative Fit Index)	0.991		
RMSEA (Root Mean Square Error of Approximation)	0.039		
SRMR (Standardized Root Mean Square Residual) between groups	0.104		
SRMR (Standardized Root Mean Square Residual) within groups	0.034		

Outcome Exploration

The primary purpose of this survey is to evaluate the efficacy of teacher preparation in Oregon, along with a compendium of other data sources. As yet, no analysis has attempted to trace the relationships among the four InTASC domains and preparation overall, or to examine potential differences in teachers' preparation as they identify with different racial or gender categories.

Relationships Among InTASC Domains

To understand the relationships among the four InTASC domains to overall preparation the four factor models were tested as a series of structural models, using Mplus 8.4 with the maximum likelihood robust algorithm. Teachers' results were examined, though supervisors' results were not tested with this same process.

The two-level structure of supervisors' data introduces considerable complexity to the model, requiring substantially greater computational power to obtain results. Preliminary structural analysis of the Supervisor Survey using a true two-level structure did not converge. When tested with a cluster analysis that uses a sandwich estimator to compute the standard errors, the models converged though preliminary results suggested the findings may be similar to those of the Teacher Survey. Structural analysis of supervisors results may be beneficial in the future.

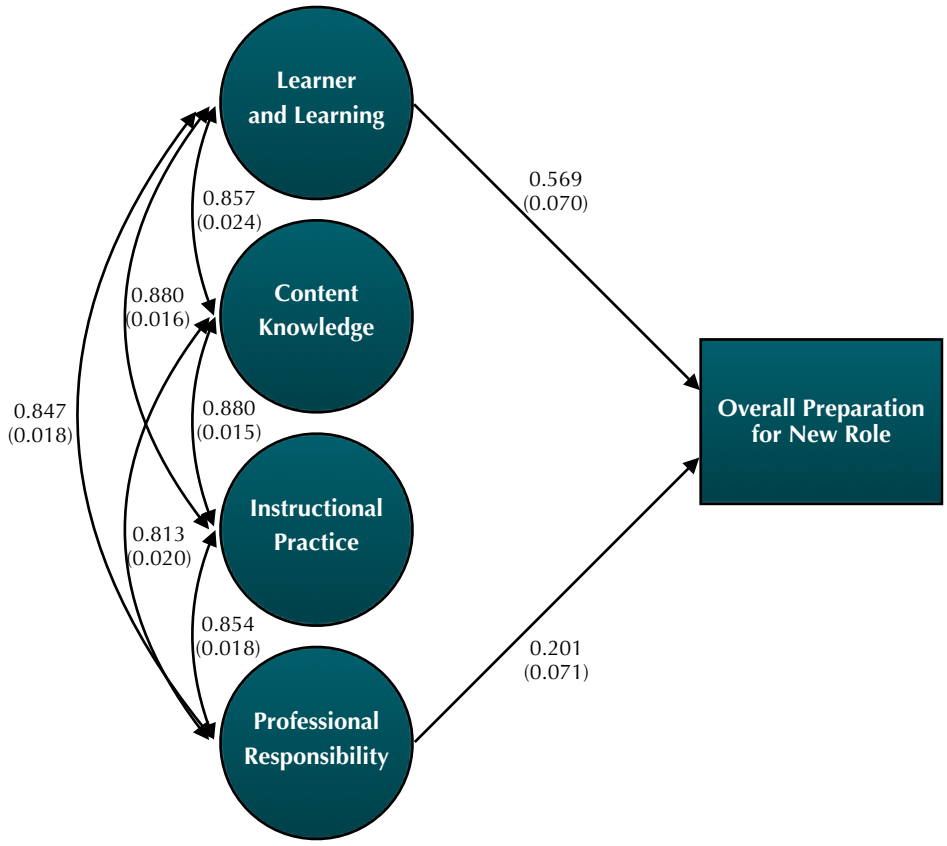
Individually, each of the four factors had a significant influence on teachers' overall preparation. An initial model tested the extent to which teachers' preparation for their new role is influenced by each of the factors as correlated, exogenous constructs. Both the relative and absolute fit indices were strong, though the relationships of Content Knowledge and Instructional Practice with overall preparation were quite small and not statistically significant. These two relationships were, thus, eliminated from the model while retaining the correlations among all four factors (see Figure 14, Table 26).

Table 26

Effects of Learner and Learning, Content Knowledge, Instructional Practice & Professional Responsibility on Overall Preparation for New Role	
Four Exogenous Correlated Factors	
Number of Observations	858
Number of freely estimated parameters	82
Chi-square Test of Model Fit	586.474, df = 242, p < .001
Scaling Correction Factor	1.4201
TLI (Tucker-Lewis Index	0.963
CFI (Comparative Fit Index)	0.968
RMSEA (Root Mean Square Error of Approximation)	0.041
SRMR (Standardized Root Mean Square Residual)	0.028

Figure 14

Effects of Learner and Learning, Content Knowledge, Instructional Practice on Overall Preparation for New Role: Four Exogenous Correlated Factors



Strong indicators of goodness of fit mean only that the proposed model fits the data well and does not eliminate other possible models that might fit equally well or even better. The very strong relationships among the latent variables suggest the effects of Content Knowledge and Instructional Practice on overall preparation may be mediated by the presence of the other two factors.

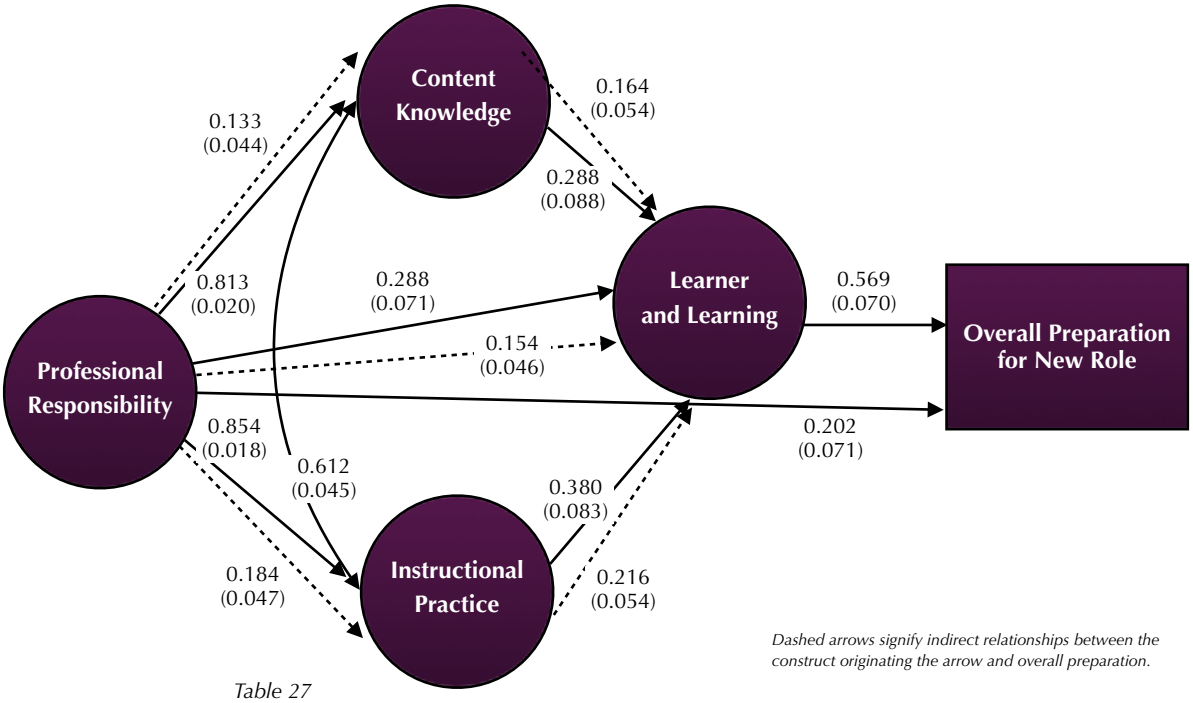
To demonstrate other potential relationships among the latent variables, an alternative model was tested whereby Professional Responsibility was the only exogenous variable, which predicted teachers' preparation for the other three domains. The overall fit indices were virtually identical to the initial model (see Figure 15, Table 27). Again, no direct relationship between overall preparation and either Content Knowledge or Instructional Practice could be detected, however indirect relationships through Learner and Learning were significant. This model suggests that teachers' preparation for Learner and Learning mediates the effects of the other three domains on overall preparation. In this model, teachers' preparation for Professional Responsibility has a direct influence on their preparation for Content

Knowledge, Instructional Practice, and Learner and Learning, which mediates a significant portion of Professional Responsibility's influence on overall preparation. And while Content Knowledge and Instructional Practice also have a direct influence on Learner and Learning, it mediates fully their influence on overall preparation. This model may or may not be theoretically sound, but it fits the data as well as the initial model.

Comprehensive analysis to tease out the underlying causal mechanisms among the relationships of the four InTASC domains and decompose their direct and indirect influence on overall preparation is beyond the scope of this study. Such an analysis in the future could prove valuable in working through the nuances of curriculum development. These preliminary findings highlight the central importance of the relationship between Learner and Learning and overall preparation, over and above the effects of the other domains.

Figure 15

Effects of Learner and Learning, Content Knowledge, Instructional Practice on Overall Preparation for New Role: Mediated through Learner and Learning



Dashed arrows signify indirect relationships between the construct originating the arrow and overall preparation.

Table 27

Effects of Learner and Learning, Content Knowledge, Instructional Practice & Professional Responsibility on Overall Preparation for New Role Mediated through Learner and Learning	
Number of Observations	858
Number of freely estimated parameters	82
Chi-square Test of Model Fit	586.474, df = 242, p < .001
Scaling Correction Factor	1.4201
TLI (Tucker-Lewis Index	0.963
CFI (Comparative Fit Index)	0.968
RMSEA (Root Mean Square Error of Approximation)	0.041
SRMR (Standardized Root Mean Square Residual)	0.028

Subgroups

The state policy priority to recruit and support a diverse teacher workforce to meet learners' needs in Oregon's diverse rural and urban schools warrants monitoring differences in preparation experiences by various demographic indicators. Key outcome measures were

Table 28

Mean Differences in Overall Satisfaction and Preparation by Gender (survey response, non-binary)

		Male	Female	Other	Total	ANOVA		Tukey
Satisfaction with the overall quality of the program	Mean	3.27	3.22	2.71	3.23	F	1.69	N/A
	Std. Dev.	0.81	0.80	1.11	0.81	df	2, 745	
	N	174	567	7	748	sig.	0.19	
How well did your teacher preparation program prepare you to adapt to your current school environment?	Mean	6.83	6.78	4.86	6.77	F	3.21	Male > Other
	Std. Dev.	2.00	2.03	2.04	2.03	df	2, 748	
	N	175	569	7	751	sig.	0.04	Female > Other
How well did your teacher preparation program prepare you to adapt to your new role as a practicing teacher?	Mean	7.00	6.87	5.71	6.89	F	1.57	N/A
	Std. Dev.	1.99	1.96	1.98	1.97	df	2, 748	
	N	175	569	7	751	sig.	0.21	

Table 29

Mean Differences in Overall Satisfaction and Preparation by Gender (TSPC records, binary)

		Male	Female	Total	ANOVA		Tukey
Satisfaction with the overall quality of the program	Mean	3.27	3.23	3.24	F	0.36	N/A
	Std. Dev.	0.79	0.81	0.80	df	1, 788	
	N	192	598	790	sig.	0.55	
How well did your teacher preparation program prepare you to adapt to your current school environment?	Mean	6.82	6.78	6.79	F	0.04	N/A
	Std. Dev.	1.96	2.04	2.02	df	1, 789	
	N	193	598	791	sig.	0.84	
How well did your teacher preparation program prepare you to adapt to your new role as a practicing teacher?	Mean	7.00	6.87	6.90	F	0.62	N/A
	Std. Dev.	1.95	1.97	1.97	df	1, 788	
	N	192	598	790	sig.	0.43	

Table 30

Mean Differences in Overall Satisfaction and Preparation by Identification as LGBTQ							
		No	Unsure	Yes	Total	ANOVA	Tukey
Satisfaction with the overall quality of the program	Mean	3.24	2.67	3.23	3.23	F 2.96	No > Unsure
	Std. Dev.	0.80	0.78	0.87	0.81	df 2, 747	
	N	660	12	78	750	sig. 0.05	
How well did your teacher preparation program prepare you to adapt to your current school environment?	Mean	6.84	5.62	6.46	6.78	F 3.39	no significant pairs
	Std. Dev.	2.00	2.18	2.15	2.02	df 2, 250	
	N	662	13	78	753	sig. 0.03	
How well did your teacher preparation program prepare you to adapt to your new role as a practicing teacher?	Mean	6.93	5.85	6.65	6.88	F 2.54	N/A
	Std. Dev.	1.97	1.72	1.95	1.97	df 2, 250	
	N	662	13	78	753	sig. 0.08	

examined to learn if teachers' gender, identification as LGBTQ, race, and age are related to their preparation experience. One-way ANOVA analyses were conducted to examine group differences in teacher' satisfaction with the overall quality of the preparation program, overall preparation for their school environment, and overall preparation for their new role as a practicing teacher.

Evaluators examined outcome differences by gender in two ways: teachers' response to the survey, and the data they reported to TSPC when they applied for their teaching license. The TSPC records are represented by binary categories, male and female. The survey question provides an open-ended nonbinary option. While the phrasing of this category may not reflect contemporary definitions of gender, it provides an opportunity to respond for those who are not represented by one of the two traditional categories.

When examining gender as binary, no differences in key outcomes were detected across groups (see Table 28).

Just seven teachers of those who responded to the survey question reported a gender other than male or female (0.009 percent). Results of the ANOVA and follow-up Tukey tests indicated that teachers who did not identify as male or female were not as well prepared for their school environment as those who identified as either male or female (see

Table 29). The N for this population of teachers is extremely low, though if these findings are due to a strong effect size these results are likely to be seen in future surveys, in particular as alternative and openly fluid gender identities become more socially acceptable and as gender definitions continue to develop.

Differences were detected in teachers' satisfaction with the overall quality of their preparation program and their preparation for their school environment depending on whether they identified as LGBTQ. The yes/no question was posed to include an in-between unsure option, selected by twelve of the respondents who answered the question (0.016 percent). Results of a Tukey analysis indicated that these respondents were not as satisfied with their program as respondents who did not identify as LGBTQ, though no significant differences were found in comparison with those who did identify as LGBTQ. Post hoc comparisons of teachers' preparation for their school environment did not reveal significant differences across groups. While these findings are suggestive, the question phrasing may need to be updated for more interpretable results. In addition, the four-point program satisfaction scale may be more suitable for analysis as an ordered categorical variable rather than a continuous variable.

Outcome differences by race were examined using data teachers supplied to TSPC when they applied for their teaching

Table 31

Mean Differences in Overall Satisfaction and Preparation by Race or Ethnicity (TSPC records)

		Asian	Black or African American	Hispanic / Latino	American Indian and Alaskan Native	White	Multiethnic	Other	Total	ANOVA		Tukey
Satisfaction with overall quality of the program	Mean	3.05	3.11	3.30	3.60	3.25	3.21	—	3.24	F	0.76	N/A
	Std. Dev.	0.93	0.93	0.91	0.55	0.79	0.77	—	0.80	df	6, 768	
	N	38	9	40	5	639	43	1	775	sig.	0.60	
How well did your teacher preparation program prepare you to adapt to your current school environment?	Mean	7.11	6.78	7.08	6.60	6.78	6.34	—	6.78	F	0.72	N/A
	Std. Dev.	2.37	2.11	2.29	1.95	2.00	1.74	—	2.02	df	6, 768	
	N	38	9	39	5	639	44	1	775	sig.	0.64	
How well did your teacher preparation program prepare you to adapt to your new role as a practicing teacher?	Mean	7.05	6.67	7.03	6.60	6.89	6.73	—	6.89	F	0.21	N/A
	Std. Dev.	2.46	1.94	2.17	2.07	1.94	1.92	—	1.98	df	6, 767	
	N	38	9	39	5	638	44	1	774	sig.	0.97	

license because the records are represented as single-response categories. The survey question allows selection of multiple categories, which requires a more complex analysis. No significant differences in key outcomes were detected by teachers' race. The N for some racial categories was very low, with just nine teachers who identified as Black or African American (0.012 percent) and five who identified as American Indian or Alaska Native (0.006 percent).

Differences by teachers' age were detected in teachers' preparation for their school environment and for their new role as a practicing teacher. Results of Tukey post hoc comparisons indicated teachers who were age 25 or younger at the time they completed the survey felt more prepared both for their new school environment and their new role as a practicing teacher relative to teachers age 31 through 35. In addition, beginning teachers who were age 41 through 50 also felt better prepared for their school environment compared to teachers age 31 through 35.

These data are presented as baseline measures only. With a very small number of responses in several demographic categories, comprehensive analysis of qualitative results may prove more fruitful in understanding the experiences of teachers who identify with an underrepresented or historically marginalized population, or a combination of intersecting categories.

Table 32

Mean Differences in Overall Satisfaction and Preparation by Age											
		25 or younger	26 through 30	31 through 35	36 through 40	41 through 50	51 or greater	Total	ANOVA		Tukey
Satisfaction with the overall quality of the program	Mean	3.32	3.20	3.14	3.18	3.27	3.20	3.23	F	0.97	N/A
	Std. Dev.	0.71	0.86	0.92	0.72	0.78	0.76	0.80	df	5, 746	
	N	231	253	103	66	74	25	752	sig.	0.44	
How well did your teacher preparation program prepare you to adapt to your current school environment?	Mean	6.99	6.77	6.25	6.44	7.22	6.73	6.78	F	3.06	25 or younger > 31 through 35 41 through 50 > 31 through 35
	Std. Dev.	1.97	1.96	2.22	1.88	2.10	1.89	2.02	df	5, 749	
	N	231	253	103	66	76	26	755	sig.	0.01	
How well did your teacher preparation program prepare you to adapt to your new role as a practicing teacher?	Mean	7.07	6.90	6.35	6.79	7.16	6.81	6.89	F	2.32	25 or younger > 31 through 35
	Std. Dev.	1.79	1.97	2.22	1.91	2.05	1.81	1.96	df	5, 749	
	N	231	253	103	66	76	26	755	sig.	0.04	

Future Considerations

Over the life of the Alumni and Employer Survey project the procedures and instrument have developed well, from a pilot year that netted just 220 teacher responses and 94 supervisor responses. The full value of the collaborative evaluation study has yet to be realized as its potential grows with increased participation and response. As social surveys proliferate for consumer marketing, political, research, and other purposes, OACTE's program leaders must ensure the instruments and procedures are inviting and resistant to survey fatigue and other sources of attrition.

Process Guidelines

Key to successful data collection is stakeholder engagement and buy-in. The specific activities will change over time as the population, social conditions, and popular technology evolve. Direct outreach to teachers by familiar colleagues from OACTE member institutions supports participation, as does direct outreach to administrators in their gathering place where they see a face and a smile instead of a series of annoying emails. The lessons taught by the survey results are applicable to this project: make it personal for those we need to reach.

The timing of data collection, bookended by the end and beginning of an academic year, avoids competition with many other educator surveys that require teachers' attention while in the classroom. The retrospective study design requires reflection, not in-the-moment, off-the-cuff responses, making summer a more appropriate opportunity to hear from many teachers who need to step away from the classroom to reflect in stillness and silence.

With data collection concentrated during the summer and a response rate above 30 percent consistently, re-defining the population to a single cohort of alumni may be appropriate in the future. Most teachers who completed their education degree two years prior to the survey cycle have taught professionally for two full years prior to completing the survey. Their first experiences in their own classrooms undoubtedly are emblazoned in their memories, though human memory is imperfect. Memory fades and changes over time. More challenging still, is requesting feedback from administrators and others who supported teachers two full years previously, and have spent the year preceding the survey supporting a brand new cohort of beginning teachers.

The two-cohort population definition was introduced during the pilot year as an emergency solution to an unexpected challenge in the developmental process. Including two cohorts of alumni has

served the project very well, both in generating a sufficient number of responses to test procedures and the instrument, and to provide multiple opportunities for teachers and their supervisors to provide feedback. In addition, including two alumni cohorts has demonstrated that the number of years on the job does not necessarily coincide with the year of licensure or degree completion since some teachers are contracted based on emergency and other temporary licenses while still completing their education program. Consistently, teachers from both alumni cohorts respond in roughly equal numbers. For this reason, redefining the population to a single alumni cohort will require close scrutiny, and should not be considered before the 2022 survey cycle.

Amidst a global pandemic, the 2020 survey cycle presents a unique opportunity to receive feedback from beginning teachers whose experiences between their first and second years differed radically and unlike any other beginning teacher cohort in living memory. Feedback from beginning teachers who lived the experience may be profoundly helpful in reconceptualizing important skills, such as equity and differentiation, technology, communicating with families, integrating community, standards-based planning, assessments, and others. The data will speak. By the 2021 survey cycle, teachers who completed their education degree and clinical practicum experience online will have experienced an unprecedented pre-service practicum, job market, and teaching conditions in Oregon's immensely differing schools and districts. Any permanent effects of the COVID-19 containment policies on Oregon's teacher education programs and school districts should stabilize by the 2022 survey cycle, unless new circumstances emerge that demand additional, swift policy action.

Instrument Improvements

The OACTE Instrument is quite stable, though results of the analysis suggest minor revisions to the wording of a few items measuring the InTASC Model Core Teaching Standards could be beneficial. In addition, the questions in the survey that are unrelated to the core questions or their analysis should be evaluated for use and eliminated if possible.

Item Phrasing

As a latent factor, the Content Knowledge domain is quite strong, exhibiting high reliability and validity as presented. Substantial modifications are not advised. To reduce parallel wording within the Content Knowledge scale, however, simply changing the word from "activity" to "exercise" in one item would avoid inferred repetition by the reader while retaining the meaning of the question.

For example:

Design activities that require students to gather information and generate new ideas

➟

Design exercises that require students to gather information and generate new ideas

In the Instructional Practice scale, the question “Use assessments to engage learners in monitoring their own progress / achievement” can be revised and condensed. The two-fold focus of the question crucially fuses the concepts ‘assessments and achievement’ with ‘student engagement’. The phrasing, however, emphasizes assessments, which is also emphasized in the question to which it is related its factor model. Monitoring progress and achievement should imply the active use of assessments, regardless of whether students are actually monitoring their own success with the teacher, or the teacher is doing so without the student’s interest or participation. Eliminating the words “use assessments to” would re-orient the question to emphasize engagement and should retain the idea that the teacher is employs some tool or activity to assess progress.

Use assessments to engage learners in monitoring their own progress / achievement

➟

Engage learners in monitoring their own progress and achievement

Also in the Instructional Practice factor model, the link between assessments and standards-based planning is apparent in the teacher results but not in the supervisor results, though it was suggested by supervisors’ 2018 results. If the term "standards-based" is inferred and unequivocal in the question as it stands alone and apart from the other items, omitting these two words may be considered, to shorten the question phrasing and reduce the potential association with the item *Plan instruction using specific Common Core Standards*.

Conduct a variety of standards-based formative and summative assessments

➟

Conduct a variety of formative and summative assessments

The optional demographic questions are helpful for monitoring issues such as the representativeness of responses and equity in beginning teachers’ experiences. While TSPC records of important demographic information such as race and gender are more complete than survey results, the survey affords the opportunity to present response options outside of official legal definitions that may not reflect true identities accurately. Moreover, as social constructs, terms and definitions such as gender, race, and sexual orientation are contextual and evolve. Even since the beginning of this survey project the response options for gender and sexual identity may need to be updated, carefully.

Contemporary terms may only be relevant generationally, may offend some respondents, or may not be understood at all.

Overall Survey Structure

The preponderance of the Supervisor Survey is comprised of core questions related to the InTASC Model Core Teaching Standards and overall preparation and has limited potential for further reduction. Two questions about new teacher development practices should be evaluated for potential use by OACTE member institutions and either revised for improved data use or eliminated altogether. The two concluding open-ended questions should be retained to afford supervisors the opportunity to clarify their responses or to discuss concepts not introduced by the survey instrument. Supervisors often express concerns in detail, describe specific examples, or discuss tools, practices, and conditions not addressed specifically by the survey questions.

The Beginning Teacher Survey is longer and has more flexibility to eliminate questions. Minor reorganization could also reduce the number of screening and introductory questions, which may improve the rate that teachers who begin the survey submit viable responses.

In particular, the Beginning Teacher Survey includes a section on teachers' employment and early career. While these questions yield interesting data, the section should be evaluated to determine how leaders of OACTE institutions use the data. Questions should be eliminated if they do not generate compelling data to assist with the interpretation of specific core questions, or to make program development decisions.

Data Potential

The omission of qualitative data from the analytic process should be reconsidered. While the data are useful in understanding results at the institutional level, their true value is lost when the data cannot be combined from participants throughout the state. Oregon is a very small state, with a very small—and growing—population of people of color. In small numbers, trends are invisible. Aggregated qualitative data may be the best opportunity to pool a sufficiently large amount of data with enough nuance to help tell the story of beginning teachers from the perspective of Oregon's teachers of color. Statewide analysis of qualitative data may be of heightened value for smaller educator preparation programs that may not have had many opportunities to support teachers of color, even while taking measures to recruit and train increasing numbers of candidates of color.

Qualitative data will be quite important to interpret accurately the results of the 2020 survey. In recent years a pattern of strengths in average preparation for the InTASC Model Core Teaching Standards

has emerged. We anticipate an interruption in these findings due to the social distancing measures that have mandated virtual learning throughout Oregon, midway through the academic year, with no advance notice or planning. While many open-ended comments have discussed changing behavioral issues and social conditions experienced by students and the implications for new teachers, over the course of five survey cycles no respondent has anticipated a situation in which school buildings would be locked to students for nearly three months. Some effects may be ongoing for a generation of learners as well as teachers, especially the effects on economically challenged families. Should these experiences manifest in the quantitative measures, credible qualitative evidence will be crucial to explain the change, especially to a public audience.

Oregon education leaders were visionaries in launching this collaborative project to map the indicators of effective teaching and learning into their program evaluation and decision making. Change is incremental and may require several years for impacts to manifest in Oregon's classrooms and educator preparation programs. Continued reflection and learning at the state policy and institutional levels, and continued engagement of key primary stakeholders will help to move results into many small, meaningful actions.

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Mean Differences in Teachers' Response by Survey Mode

Mean Differences in Learner and Learning by Survey Mode

		Pre-email (July)	Postcard/ Email (August)	Phone (September)	Total		ANOVA	Tukey
Provide students equitable opportunities to learn by treating them differently	Mean	6.82	6.91	7.39	6.93	F	4.01	Phone > Pre-email Phone > Postcard/Email
	Std. Dev.	1.87	1.76	1.89	1.83	df	2, 855	
	N	375	378	105	858	sig.	0.02	
Deliver developmentally appropriate, challenging learning experiences	Mean	6.62	6.66	6.88	6.67	F	0.84	N/A
	Std. Dev.	1.85	1.83	1.70	1.82	df	2, 855	
	N	375	378	105	858	sig.	0.43	
Set up a classroom that motivates learners with diverse needs	Mean	6.24	6.48	6.85	6.42	F	4.03	Phone > Pre-email
	Std. Dev.	2.03	2.02	2.05	2.04	df	2, 855	
	N	375	378	105	858	sig.	0.02	
Incorporate language development strategies to make content accessible to English Language Learners	Mean	6.21	6.19	6.64	6.25	F	1.90	N/A
	Std. Dev.	2.16	2.16	2.19	2.17	df	2, 855	
	N	375	378	105	858	sig.	0.15	
Maintain effective classroom discipline	Mean	5.85	5.92	6.41	5.95	F	2.66	N/A
	Std. Dev.	2.20	2.25	2.23	2.23	df	2, 855	
	N	375	378	105	858	sig.	0.07	
Use time outside of class to develop relationships with students and learn their perspectives	Mean	5.99	5.82	6.14	5.93	F	0.91	N/A
	Std. Dev.	2.44	2.40	2.47	2.42	df	2, 855	
	N	375	378	105	858	sig.	0.40	

Mean Differences in Content Knowledge by Survey Mode								
		Pre-email (July)	Postcard (August)	Phone (September)	Total		ANOVA	Tukey
Develop activities in which learners work together to solve problems	Mean	6.55	6.75	6.97	6.69	F	2.32	N/A
	Std. Dev.	1.92	1.87	1.98	1.91	df	2, 844	
	N	371	373	103	847	sig.	0.10	
Create experiences that require learners to use the correct academic vocabulary	Mean	6.49	6.57	6.90	6.58	F	1.94	N/A
	Std. Dev.	1.91	1.89	1.82	1.89	df	2, 843	
	N	371	372	103	846	sig.	0.14	
Ensure learners apply concepts and methods of the discipline to real-world contexts	Mean	6.40	6.51	6.68	6.48	F	0.89	N/A
	Std. Dev.	1.95	1.88	2.16	1.95	df	2, 843	
	N	371	372	103	846	sig.	0.41	
Design activities that require students to gather information and generate new ideas	Mean	6.39	6.51	6.69	6.48	F	1.03	N/A
	Std. Dev.	1.94	1.94	2.10	1.96	df	2, 842	
	N	371	372	102	845	sig.	0.36	
Assist students in analyzing subject-specific concepts from multiple perspectives	Mean	6.18	6.25	6.74	6.28	F	3.09	Phone > Pre-Email
	Std. Dev.	1.97	2.07	1.97	2.02	df	2, 842	
	N	371	372	102	845	sig.	0.05	

Mean Differences in Instructional Practice by Survey Mode								
		Pre-email (July)	Postcard (August)	Phone (September)	Total		ANOVA	Tukey
Plan instruction using specific Common Core Standards	Mean	7.30	7.13	7.51	7.25	F	1.61	N/A
	Std. Dev.	1.99	2.03	2.10	2.02	df	2, 826	
	N	364	365	100	829	sig.	0.20	
Conduct a variety of standards-based formative and summative assessments	Mean	6.94	6.84	7.06	6.91	F	0.56	N/A
	Std. Dev.	1.89	1.95	2.13	1.94	df	2, 826	
	N	364	365	100	829	sig.	0.57	
Work with learners to design lessons that build on prior experiences and strengths	Mean	6.62	6.75	7.05	6.73	F	2.16	N/A
	Std. Dev.	1.88	1.82	1.97	1.87	df	2, 826	
	N	364	365	100	829	sig.	0.12	
Use technology to enhance instruction	Mean	6.60	6.69	6.59	6.64	F	0.19	N/A
	Std. Dev.	2.06	2.00	2.21	2.05	df	2, 826	
	N	364	365	100	829	sig.	0.82	
Deliver research-based, interdisciplinary instruction	Mean	6.48	6.61	6.58	6.55	F	0.37	N/A
	Std. Dev.	2.02	2.03	2.18	2.04	df	2, 826	
	N	364	365	100	829	sig.	0.69	
Use assessments to engage learners in monitoring their own progress / achievement	Mean	6.59	6.43	6.54	6.52	F	0.57	N/A
	Std. Dev.	2.01	2.01	2.07	2.02	df	2, 826	
	N	364	365	100	829	sig.	0.57	

Mean Differences in Professional Responsibility by Survey Mode								
		Pre-email (July)	Postcard (August)	Phone (September)	Total		ANOVA	Tukey
Demonstrate respect for learners and families, even when they are not in your presence	Mean	7.58	7.68	7.99	7.67	F	1.70	N/A
	Std. Dev.	2.03	1.95	1.98	1.99	df	2, 818	
	N	360	361	100	821	sig.	0.18	
Reflect on and self-evaluate teaching to improve practice	Mean	7.58	7.62	7.90	7.64	F	1.22	N/A
	Std. Dev.	1.91	1.77	1.86	1.85	df	2, 818	
	N	360	361	100	821	sig.	0.30	
Work with colleagues to improve learner development	Mean	6.84	7.11	7.24	7.00	F	2.34	N/A
	Std. Dev.	2.10	1.97	2.14	2.05	df	2, 818	
	N	360	361	100	821	sig.	0.10	
Engage in professional learning to build skills and acquire new discipline-specific knowledge	Mean	6.92	7.00	7.18	6.99	F	0.65	N/A
	Std. Dev.	2.09	1.99	2.13	2.05	df	2, 818	
	N	360	361	100	821	sig.	0.52	
Communicate with families from diverse backgrounds to improve learner development	Mean	6.30	6.47	6.70	6.42	F	1.33	N/A
	Std. Dev.	2.26	2.29	2.34	2.29	df	2, 818	
	N	360	361	100	821	sig.	0.27	
Develop connections to community resources	Mean	5.78	6.09	6.16	5.96	F	2.16	N/A
	Std. Dev.	2.29	2.23	2.42	2.28	df	2, 818	
	N	360	361	100	821	sig.	0.12	

Mean Differences in Overall Preparation by Survey Mode								
		Pre-email (July)	Postcard (August)	Phone (September)	Total		ANOVA	Tukey
How well did your teacher preparation program prepare you to adapt to your current school environment?	Mean	6.66	7.01	6.52	6.79	F	3.64	no significant pairs
	Std. Dev.	2.07	1.82	2.39	2.02	df	2, 788	
	N	350	346	95	791	sig.	0.03	
How well did your teacher preparation program prepare you to adapt to your new role as a practicing teacher?	Mean	6.89	6.99	6.65	6.90	F	1.10	N/A
	Std. Dev.	1.96	1.85	2.37	1.97	df	2, 787	
	N	350	346	94	790	sig.	0.33	

Mean Differences in Program Satisfaction by Survey Mode								
		Pre-email (July)	Postcard (August)	Phone (September)	Total		ANOVA	Tukey
Effectiveness of instruction	Mean	3.13	3.22	3.21	3.18	F	1.42	N/A
	Std. Dev.	0.77	0.75	0.77	0.76	df	2, 789	
	N	350	347	95	792	sig.	0.24	
Depth of content in teaching methods	Mean	3.09	3.08	3.14	3.09	F	0.17	N/A
	Std. Dev.	0.80	0.83	0.88	0.82	df	2, 790	
	N	350	348	95	793	sig.	0.84	
Depth of coverage in culturally responsive instruction	Mean	3.20	3.29	3.29	3.25	F	1.35	N/A
	Std. Dev.	0.83	0.81	0.78	0.82	df	2, 791	
	N	350	349	95	794	sig.	0.26	
Usefulness of the curriculum in your current role	Mean	2.95	3.05	2.91	2.99	F	1.81	N/A
	Std. Dev.	0.82	0.84	0.80	0.82	df	2, 788	
	N	349	347	95	791	sig.	0.16	
Quality of university supervision during student teaching	Mean	3.32	3.39	3.30	3.35	F	0.82	N/A
	Std. Dev.	0.83	0.82	0.85	0.83	df	2, 790	
	N	350	349	94	793	sig.	0.44	
Support of cooperating classroom teacher during student teaching	Mean	3.47	3.48	3.49	3.48	F	0.04	N/A
	Std. Dev.	0.83	0.85	0.87	0.84	df	2, 790	
	N	350	348	95	793	sig.	0.96	
Responsiveness of university advisors	Mean	3.34	3.42	3.42	3.39	F	0.94	N/A
	Std. Dev.	0.85	0.78	0.85	0.82	df	2, 791	
	N	350	349	95	794	sig.	0.39	
Student support services (e.g., assistance with licensure and testing, special needs accommodations)	Mean	3.21	3.22	3.18	3.21	F	0.08	N/A
	Std. Dev.	0.85	0.80	0.89	0.83	df	2, 791	
	N	350	349	95	794	sig.	0.92	
Assistance in the activities required to obtain a job (e.g., search, resume, interviewing, letters, networking)	Mean	3.04	3.09	3.01	3.06	F	0.37	N/A
	Std. Dev.	0.91	0.88	0.98	0.90	df	2, 790	
	N	349	349	95	793	sig.	0.69	
Satisfaction with the overall quality of the program	Mean	3.20	3.26	3.26	3.24	F	0.61	N/A
	Std. Dev.	0.82	0.78	0.84	0.80	df	2, 787	
	N	350	345	95	790	sig.	0.54	

Mean Differences in Teachers' Response by Population Category

Mean Differences in Learner and Learning by Population Category		Oregon Public School	Out-of-State Address	In-State Address	Total	ANOVA		Tukey
Provide students equitable opportunities to learn by treating them differently	Mean	6.92	6.90	7.23	6.93	F	0.55	N/A
	Std. Dev.	1.82	1.96	1.66	1.83	df	2, 855	
	N	712	106	40	858	sig.	0.58	
Deliver developmentally appropriate, challenging learning experiences	Mean	6.60	6.95	7.08	6.67	F	2.80	N/A
	Std. Dev.	1.79	1.92	2.08	1.82	df	2, 855	
	N	712	106	40	858	sig.	0.06	
Set up a classroom that motivates learners with diverse needs	Mean	6.36	6.74	6.60	6.42	F	1.72	N/A
	Std. Dev.	2.07	1.91	1.77	2.04	df	2, 855	
	N	712	106	40	858	sig.	0.18	
Incorporate language development strategies to make content accessible to English Language Learners	Mean	6.18	6.61	6.55	6.25	F	2.21	N/A
	Std. Dev.	2.20	1.94	2.11	2.17	df	2, 855	
	N	712	106	40	858	sig.	0.11	
Maintain effective classroom discipline	Mean	5.86	6.63	5.80	5.95	F	5.75	Out-of-State > OR Public
	Std. Dev.	2.22	2.06	2.56	2.23	df	2, 855	
	N	712	106	40	858	sig.	0.00	
Use time outside of class to develop relationships with students and learn their perspectives	Mean	5.84	6.40	6.33	5.93	F	3.00	Out-of-State > OR Public
	Std. Dev.	2.43	2.30	2.52	2.42	df	2, 855	
	N	712	106	40	858	sig.	0.05	

Mean Differences in Content Knowledge by Population Category								
		Oregon Public School	Out-of-State Address	In-State Address	Total		ANOVA	Tukey
Develop activities in which learners work together to solve problems	Mean	6.62	7.07	6.88	6.69	F	2.65	N/A
	Std. Dev.	1.92	1.69	2.10	1.91	df	2, 844	
	N	704	103	40	847	sig.	0.07	
Create experiences that require learners to use the correct academic vocabulary	Mean	6.50	6.92	7.08	6.58	F	3.76	no significant pairs
	Std. Dev.	1.90	1.78	1.89	1.89	df	2, 843	
	N	703	103	40	846	sig.	0.02	
Ensure learners apply concepts and methods of the discipline to real-world contexts	Mean	6.41	6.85	6.80	6.48	F	2.90	N/A
	Std. Dev.	1.93	1.95	2.10	1.95	df	2, 843	
	N	703	103	40	846	sig.	0.06	
Design activities that require students to gather information and generate new ideas	Mean	6.42	6.85	6.60	6.48	F	2.32	N/A
	Std. Dev.	1.96	1.88	2.15	1.96	df	2, 842	
	N	702	103	40	845	sig.	0.10	
Assist students in analyzing subject-specific concepts from multiple perspectives	Mean	6.22	6.41	7.00	6.28	F	3.08	In-State > OR Public
	Std. Dev.	2.02	2.09	1.78	2.02	df	2, 842	
	N	702	103	40	845	sig.	0.05	

Mean Differences in Instructional Practice by Population Category								
		Oregon Public School	Out-of-State Address	In-State Address	Total		ANOVA	Tukey
Plan instruction using specific Common Core Standards	Mean	7.21	7.51	7.30	7.25	F	0.92	N/A
	Std. Dev.	2.01	2.14	2.04	2.02	df	2, 826	
	N	690	99	40	829	sig.	0.40	
Conduct a variety of standards-based formative and summative assessments	Mean	6.86	7.32	6.68	6.91	F	2.74	N/A
	Std. Dev.	1.95	1.78	2.08	1.94	df	2, 826	
	N	690	99	40	829	sig.	0.07	
Work with learners to design lessons that build on prior experiences and strengths	Mean	6.67	7.06	6.93	6.73	F	2.12	N/A
	Std. Dev.	1.85	1.88	1.99	1.87	df	2, 826	
	N	690	99	40	829	sig.	0.12	
Use technology to enhance instruction	Mean	6.66	6.67	6.28	6.64	F	0.67	N/A
	Std. Dev.	2.02	2.04	2.55	2.05	df	2, 826	
	N	690	99	40	829	sig.	0.51	
Deliver research-based, interdisciplinary instruction	Mean	6.47	6.96	7.00	6.55	F	3.56	no significant pairs
	Std. Dev.	2.03	2.05	2.06	2.04	df	2, 826	
	N	690	99	40	829	sig.	0.03	
Use assessments to engage learners in monitoring their own progress / achievement	Mean	6.45	6.97	6.50	6.52	F	2.88	N/A
	Std. Dev.	1.98	2.13	2.22	2.02	df	2, 826	
	N	690	99	40	829	sig.	0.06	

Mean Differences in Professional Responsibility by Population Category								
		Oregon Public School	Out-of-State Address	In-State Address	Total		ANOVA	Tukey
Demonstrate respect for learners and families, even when they are not in your presence	Mean	7.57	8.17	8.05	7.67	F	4.68	Out-of-State > OR Public
	Std. Dev.	2.05	1.66	1.48	1.99	df	2, 818	
	N	682	99	40	821	sig.	0.01	
Reflect on and self-evaluate teaching to improve practice	Mean	7.56	8.06	7.83	7.64	F	3.38	Out-of-State > OR Public
	Std. Dev.	1.85	1.76	1.82	1.85	df	2, 818	
	N	682	99	40	821	sig.	0.03	
Work with colleagues to improve learner development	Mean	6.94	7.36	7.30	7.00	F	2.33	N/A
	Std. Dev.	2.09	1.85	1.77	2.05	df	2, 818	
	N	682	99	40	821	sig.	0.10	
Engage in professional learning to build skills and acquire new discipline-specific knowledge	Mean	6.90	7.37	7.45	6.99	F	3.38	no significant pairs
	Std. Dev.	2.05	2.06	1.92	2.05	df	2, 818	
	N	682	99	40	821	sig.	0.04	
Communicate with families from diverse backgrounds to improve learner development	Mean	6.33	7.03	6.55	6.42	F	4.19	Out-of-State > OR Public
	Std. Dev.	2.29	2.10	2.44	2.29	df	2, 818	
	N	682	99	40	821	sig.	0.02	
Develop connections to community resources	Mean	5.88	6.35	6.40	5.96	F	2.63	N/A
	Std. Dev.	2.29	2.23	2.17	2.28	df	2, 818	
	N	682	99	40	821	sig.	0.07	

Mean Differences in Preparation by Employment Category								
		Oregon Public School	Out-of-State Address	In-State Address	Total		ANOVA	Tukey
How well did your teacher preparation program prepare you to adapt to your current school environment?	Mean	6.72	7.30	6.78	6.79	F	3.52	Out-of-State > OR Public
	Std. Dev.	2.02	1.85	2.29	2.02	df	2, 788	
	N	656	98	37	791	sig.	0.03	
How well did your teacher preparation program prepare you to adapt to your new role as a practicing teacher?	Mean	6.82	7.42	7.05	6.90	F	4.13	Out-of-State > OR Public
	Std. Dev.	1.96	1.84	2.17	1.97	df	2, 787	
	N	655	98	37	790	sig.	0.02	

Mean Differences in Satisfaction by Employment Category								
		Oregon Public School	Out-of-State Address	In-State Address	Total		ANOVA	Tukey
Effectiveness of instruction	Mean	3.16	3.27	3.32	3.18	F	1.63	N/A
	Std. Dev.	0.76	0.81	0.71	0.76	df	2, 789	
	N	657	98	37	792	sig.	0.20	
Depth of content in teaching methods	Mean	3.06	3.24	3.19	3.09	F	2.39	N/A
	Std. Dev.	0.83	0.79	0.81	0.82	df	2, 790	
	N	658	98	37	793	sig.	0.09	
Depth of coverage in culturally responsive instruction	Mean	3.25	3.27	3.30	3.25	F	0.09	N/A
	Std. Dev.	0.82	0.77	0.91	0.82	df	2, 791	
	N	659	98	37	794	sig.	0.92	
Usefulness of the curriculum in your current role	Mean	2.97	3.13	3.05	2.99	F	1.85	N/A
	Std. Dev.	0.82	0.81	0.91	0.82	df	2, 788	
	N	656	98	37	791	sig.	0.16	
Quality of university supervision during student teaching	Mean	3.36	3.44	2.97	3.35	F	4.38	OR Public > In-State Out-of-State > In-State
	Std. Dev.	0.81	0.81	1.00	0.83	df	2, 790	
	N	659	98	36	793	sig.	0.01	
Support of cooperating classroom teacher during student teaching	Mean	3.47	3.55	3.35	3.48	F	0.75	N/A
	Std. Dev.	0.86	0.69	0.92	0.84	df	2, 790	
	N	659	97	37	793	sig.	0.47	
Responsiveness of university advisors	Mean	3.37	3.52	3.41	3.39	F	1.49	N/A
	Std. Dev.	0.83	0.75	0.86	0.82	df	2, 791	
	N	659	98	37	794	sig.	0.23	
Student support services (e.g., assistance with licensure and testing, special needs accommodations)	Mean	3.20	3.28	3.30	3.21	F	0.58	N/A
	Std. Dev.	0.83	0.82	0.88	0.83	df	2, 791	
	N	659	98	37	794	sig.	0.56	
Assistance in the activities required to obtain a job (e.g., search, resume, interviewing, letters, networking)	Mean	3.05	3.17	2.81	3.06	F	2.21	N/A
	Std. Dev.	0.91	0.76	1.05	0.90	df	2, 790	
	N	658	98	37	793	sig.	0.11	
Satisfaction with the overall quality of the program	Mean	3.20	3.42	3.35	3.24	F	3.63	Out-of-State > OR Public
	Std. Dev.	0.80	0.75	0.92	0.80	df	2, 787	
	N	656	97	37	790	sig.	0.03	

Recommended OACTE Instrument

Learner and Learning

- Provide students equitable opportunities to learn by treating them differently
- Deliver developmentally appropriate, challenging learning experiences
- Set up a classroom that motivates learners with diverse needs
- Incorporate language development strategies to make content accessible to English Language Learners
- Maintain effective classroom discipline
- Use time outside of class to develop relationships with students and learn their perspectives

Content Knowledge

- Develop activities in which learners work together to solve problems
- Create experiences that require learners to use the correct academic vocabulary
- Ensure learners apply concepts and methods of the discipline to real-world contexts
- Design exercises that require students to gather information and generate new ideas
- Assist students in analyzing subject-specific concepts from multiple perspectives

Instructional Practice

- Plan instruction using specific Common Core Standards
- Conduct a variety of standards-based formative and summative assessments
- Work with learners to design lessons that build on prior experiences and strengths
- Use technology to enhance instruction
- Deliver research-based, interdisciplinary instruction
- Engage learners in monitoring their own progress and achievement

Professional Responsibility

- Demonstrate respect for learners and families, even when they are not in the teacher's presence
- Reflect on and self-evaluate teaching to improve practice
- Work with colleagues to improve learner development
- Engage in professional learning to build skills and acquire new discipline-specific knowledge
- Communicate with families from diverse backgrounds to improve learner development
- Develop connections to community resources

InTASC Model Core Teaching Standards

Learner Development: The teacher understands how learners grow and develop, recognizing that patterns of learning and development vary individually within and across the cognitive, linguistic, social, emotional, and physical areas, and designs and implements developmentally appropriate and challenging learning experiences.

Learning Differences: The teacher uses understanding of individual differences and diverse cultures and communities to ensure inclusive learning environments that enable each learner to meet high standards.

Learning Environments: The teacher works with others to create environments that support individual and collaborative learning, and that encourage positive social interaction, active engagement in learning, and self motivation.

Content Knowledge: The teacher understands the central concepts, tools of inquiry, and structures of the discipline(s) he or she teaches and creates learning experiences that make the discipline accessible and meaningful for learners to assure mastery of the content.

Application of Content: The teacher understands how to connect concepts and use differing perspectives to engage learners in critical thinking, creativity, and collaborative problem solving related to authentic local and global issues.

Assessment: The teacher understands and uses multiple methods of assessment to engage learners in their own growth, to monitor learner progress, and to guide the teacher's and learner's decision making.

Planning for Instruction: The teacher plans instruction that supports every student in meeting rigorous learning goals by drawing upon knowledge of content areas, curriculum, cross-disciplinary skills, and pedagogy, as well as knowledge of learners and the community context.

Instructional Strategies: The teacher understands and uses a variety of instructional strategies to encourage learners to develop deep understanding of content areas and their connections, and to build skills to apply knowledge in meaningful ways.

Professional Learning and Ethical Practice: The teacher engages in ongoing professional learning and uses evidence to continually evaluate his/her practice, particularly the effects of his/her choices and actions on others (learners, families, other professionals, and the community), and adapts practice to meet the needs of each learner.

Leadership and Collaboration: The teacher seeks appropriate leadership roles and opportunities to take responsibility for student learning, to collaborate with learners, families, colleagues, other school professionals, and community members to ensure learner growth, and to advance the profession.

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