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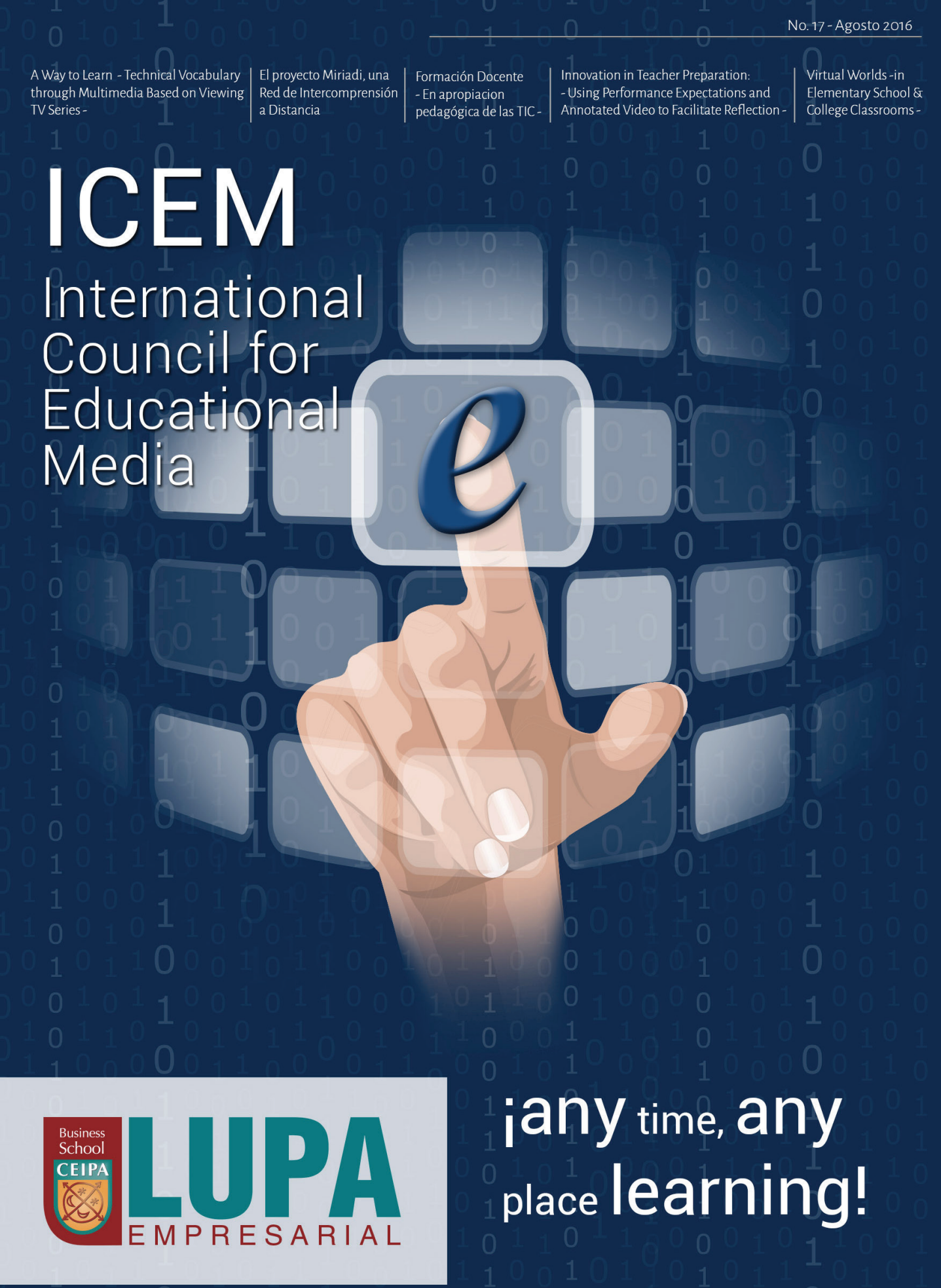

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Innovation in Teacher Preparation:

- Using Performance Expectations and Annotated Video to Facilitate Reflection -

INTRODUCTION

CalStateTEACH (CST) is a California State University statewide, online, site-supported teacher preparation program that prepares candidates primarily for teaching in elementary school. Teacher candidates engage in academic work online and participate in field experiences at a local school each term. The program promotes innovation, technology integration, and reflection (Mishra, Koehler, & Henrikson, 2011) via the Observation Event (OE) in the clinical practice component of the program. Data collected over three terms in the program is used to monitor candidate progress.

The OE is a lesson planning interface that was developed to give teacher candidates greater control over the classroom observation process by determining the lesson focus and pedagogical proficiency levels based on California Teaching Performance Expectations (TPE) (California Commission for Teacher Credentialing [CCTC], 2013). The 13 TPEs are skills a teacher candidate needs to develop by the end of a teacher-training program. These are grouped within the broad range of categories in the Standards for the Teaching Profession: Making Subject Matter Comprehensible to Learners, Assessing Student Learning, Engaging and Supporting Students in Learning, Planning Instruction and Designing Learning Experiences for Students, and Creating and Maintaining Effective Environments for Student Learning (CCTC, 2009). See Figure 1.

Candidates begin preparing for the OE by completing a lesson plan and choosing two or three TPEs indicating which aspects of teaching they intend to demonstrate, providing a rationale for that expectation. The elements of the electronic lesson plan include a preconference self-evaluation rationale for proficiency level performance and a reflective video feedback loop for teacher candidates. In the preconference self-evaluation, candidates rank their pedagogical proficiency levels for the TPEs by selecting *exploring*, *applying*, *proficient*, or *exemplary*, and providing a rationale for the ranking. Faculty mentors provide feedback to the candidate on the lesson plan prior to observing the lesson.

Figure 1

CCTC Standards and TPEs

California Teaching Performance Expectations

A. Making Subject Matter Comprehensible To Students

- TPE 1 Specific Pedagogical Skills for Subject Matter Instruction
  - a. Subject Specific Pedagogical Skills for Multiple Subject Teaching Assignments

B. Assessing Student Learning

- TPE 2 Monitoring Student Learning During Instruction
- TPE 3 Interpretations and Use of Assessments

C. Engaging and Supporting Students in Learning

- TPE 4 Making Content Accessible
- TPE 5 Student Engagement
- TPE 6 Developmentally Appropriate Teaching Practices
  - a. Developmentally Appropriate Practices in Grades K-3
  - b. Developmentally Appropriate Practices in Grades 4-8
  - c. Developmentally Appropriate Practices in Grades 9-12
- TPE 7 Teaching English Learners

D. Planning Instruction and Designing Learning Experiences For Students

- TPE 8 Learning about Students
- TPE 9 Instructional Planning

E. Creating and Maintaining Effective Environments For Student Learning

- TPE 10 Instructional Time
- TPE 11 Social Environments

F. Developing As a Professional Educator

- TPE 12 Professional, Legal and Ethical Obligations
- TPE 13 Professional Growth

When CST faculty mentors visit a classroom, the electronic lesson plan becomes the script for the observation. Feedback to the candidates on the TPEs identified and other TPEs observed is collected electronically from each OE. During an observation visit, the candidate's lesson plan and associated pre-conference information is visible on the faculty member's iPad as the lesson occurs. The observer can make suggestions and observations that relate to what is taking place without having to retype a narration of what is occurring.

Observation visits can also be performed virtually. The candidate creates a video as s/he teaches a lesson and then uses a unique annotation feature to make reflective comments as the recorded lesson plays. S/he then sends the video recorded lesson attached to a lesson plan to a faculty mentor for review. The faculty mentor views the video with the electronic lesson plan open, and can type formative feedback comments on the observation event form, as well as make annotated comments or respond to the candidate's reflective statements. This ability to video record classroom observations facilitates teacher candidate self-reflection and self-assessment (Rich & Hannafin, 2009).

The purpose of this study was to investigate CalStateTEACH faculty ratings of teacher candidate performance using California TPEs with the OE at on-site observations for the duration of the program. Data was collected for the frequency of ratings, the term when the rating took place, and the rating given. The study will contribute to the field by providing TPE ratings of teacher candidate pedagogical proficiency throughout the duration of the teacher-training program.

Research questions

Is the identified number of TPE ratings related to average, maximum, and minimum ratings?

Do the TPE ratings improve linearly and/or quadratically over the number of terms completed in the program?

METHOD

Participants

The data collected were 6,392 faculty ratings of teacher candidate pedagogical proficiency levels for 11 California TPEs for 267 teacher candidates in the CST program during an OE. TPEs 12 and 13 are not evaluated with the OE. Teacher candidates who had data in all three terms of the program were included in the study. The identities of the teacher candidate and faculty member were removed from the data provided to the researcher in the CST database.

Instrumentation

The OE records the student unique identifier, date, timestamp, term, TPE, and faculty rating in the CST course database. The CST Technology Coordinator compiled the data for each TPE observed for every student with rankings in all three terms in Excel spreadsheets. The TPE data collected is existing data in the CST secure website and fits in the Human Subjects Exempt Category.

Procedure

The data from the Excel spreadsheets were downloaded into a MySQL database. Queries of the frequency of ratings, average rating, term, maximum rating, minimum rating, group concatenation of scores by student ID and TPE generated tables that were downloaded in SPSS.

Data Analysis

For each combination of TPEs and terms, correlation coefficients and their probabilities were calculated between the average and maximum ratings, the average ratings and counts, the maximum ratings and counts, and the minimum ratings and counts. These are reported along with the sample sizes for combinations of TPEs 1 through 11, and terms 1 through 3. Repeated measures ANOVAs for the average ratings for TPEs for which sufficient data were available over all three terms were calculated. These TPEs are 1, 2, 4, 5, 6, 9, 10 and 11. For each of these TPEs, means for the three terms and sample sizes are reported. In addition, for the linear and quadratic ANOVA tests, degrees of freedom, F-tests, probabilities, and eta squares are reported. A .05 level of significance was used.

RESULTS

Correlation Coefficients

The correlational results appear in Table 1. The correlation coefficients between average ratings and maximum ratings range from .89 to .99, and all are significant at $p < .001$. This result is not surprising since the maximum rating is part of the average rating.

Two (6%) of the 33 correlations between average ratings and counts of ratings are significant, and both are negative (−.23, $p = .05$) for TPE 10 (Instructional Time) in terms 2 and 3. This indicates that for the TPE in those terms, higher averages are associated with lower counts. The remaining 31 correlations hover near 0, ranging between −.18 and .14, and none of these are significant, suggesting that there isn't a strong relationship between averages and counts.

For the correlation coefficients between the maximum rating and the count of ratings, the range is from −.04 to .35, and only 10 (30%) of the 33 are significant. Only three of these correlations are negative, and these are −.04 for TPE 7 (Teaching English Learners) in term 3, −.05 for TPE 2 (Monitoring Student Learning during Instruction) in term 2, and −.07 for TPE 8 (Learning about Students) in term 3. This suggests that higher maximums are positively related to higher counts, but this is not a strong relationship.

All of the correlation coefficients between the minimum rating and the count of ratings are negative, ranging from −.02 and −.45. Of the 33 correlations, 18 (55%) or a little more than half are significant. These negative correlations suggest that participants with lower minimum ratings repeat OEs more frequently.

Table I.

Correlation coefficients between averages and maximums, averages and counts, maximums and counts, and minimums and counts with probabilities and sample sizes for TPEs I through II.

TPEs	Correlation	Term		
		1	2	3
		r(p) n	r(p) n	r(p) n
1 Pedagogical Skills for Subject Matter Instruction	Ave,Max	**.93 (<.001)** 102	**.96 (<.001)** 119	**.92 (<.001)** 170
	Ave,Cnt	.03 (.72)	.05 (.57)	.09 (.27)
	Max,Cnt	**.25 (.01)**	**.19 (.04)**	**.26 (.001)**
	Min,Cnt	**-.29 (.003)**	-.11 (.22)	-.11 (.17)
2 Monitoring Student Learning during Instruction	Ave,Max	.95 (<.001) 93	**.93 (<.001)** 117	**.99 (<.001)** 28
	Ave,Cnt	.14 (.17)	-.16 (.08)	.08(.67)
	Max,Cnt	**.35 (.001)**	-.05 (.58)	.18 (.37)
	Min,Cnt	-.12 (.24)	**-.37 (<.001)**	-.02 (.94)
3 Interpretations and Use of Assessments	Ave,Max	**.99 (<.001)** 28	**.99 (<.001)** 44	**.95 (<.001)** 89
	Ave,Cnt	.08 (.67)	.05 (.76)	-.11 (.31)
	Max,Cnt	.18 (.37)	.16 (.29)	.12 (.27)
	Min,Cnt	-.02 (.94)	-.11 (.46)	**-.29 (.01)**
4 Making Content Accessible	Ave,Max	**.95 (<.001)** 77	**.92 (<.001)** 131	**.91 (<.001)** 176
	Ave,Cnt	.14 (.22)	-.02 (.84)	-.02 (.77)
	Max,Cnt	**.34 (.002)**	.16 (.06)	**.19 (.01)**
	Min,Cnt	-.12 (.29)	**-.18 (.04)**	**-.19 (.01)**
5 Student Engagement	Ave,Max	**.89 (<.001)** 117	**.91 (<.001)** 149	**.89 (<.001)** 213
	Ave,Cnt	.13 (.15)	-.05 (.52)	-.01 (.86)
	Max,Cnt	**.34 (<.001)**	.12 (.15)	**.23 (.001)**
	Min,Cnt	-.13 (.15)	**-.19 (.02)**	**-.23 (.001)**

6 Developmentally Appropriate Teaching Practices	Ave,Max	**.95 (<.001)** 68	**.92 (<.001)** 96	**.92 (<.001)** 144
	Ave,Cnt	.11 (.40)	-.05 (.64)	-.02 (.82)
	Max,Cnt	.23 (.06)	.14 (.18)	.15 (.07)
	Min,Cnt	-.15 (.21)	**-.21 (.04)**	**-.20 (.02)**
7 Teaching English Learners	Ave,Max	**.96 (<.001)** 43	**.97 (<.001)** 54	**.96 (<.001)** 105
	Ave,Cnt	.02 (.91)	-.07 (.61)	-.18 (.06)
	Max,Cnt	.19 (.21)	.09 (.51)	-.04 (.71)
	Min,Cnt	-.19 (.21)	-.22 (.12)	**-.35 (<.001)**
8 Learning about Students	Ave,Max	**.93 (<.001)** 34	**.95 (<.001)** 50	**.97 (<.001)** 87
	Ave,Cnt	.12 (.50)	-.01 (.96)	-.13 (.25)
	Max,Cnt	.31 (.08)	.12 (.42)	-.07 (.53)
	Min,Cnt	-.07 (.68)	-.13 (.36)	-.20 (.06)
9 Instructional Planning	Ave,Max	**.92 (<.001)** 72	**.95 (<.001)** 99	**.90 (<.001)** 138
	Ave,Cnt	.06 (.65)	-.14 (.18)	-.12 (.17)
	Max,Cnt	**.29 (.01)**	.05 (.61)	.11 (.22)
	Min,Cnt	**-.24 (.05)**	**-.35 (<.001)**	**-.27 (.001)**
10 Instructional Time	Ave,Max	**.94 (<.001)** 79	**.94 (<.001)** 79	**.94 (<.001)** 148
	Ave,Cnt	**-.23 (.05)**	**-.23 (.05)**	-.11 (.19)
	Max,Cnt	.02 (.89)	.02 (.89)	.07 (.38)
	Min,Cnt	**-.45 (<.001)**	**-.45 (<.001)**	**-.25 (.003)**
11 Social Environments	Ave,Max	**.91 (<.001)** 76	**.95 (<.001)** 94	**.93 (<.001)** 161
	Ave,Cnt	-.03 (.79)	-.14 (.17)	-.00 (.96)
	Max,Cnt	.20 (.08)	.10 (.35)	**.18 (.02)**
	Min,Cnt	-.18 (.12)	**-.36 (<.001)**	**-.23 (.004)**

Repeated Measures ANOVAs

The results of the Repeated Measures ANOVAs for both linear and quadratic trends are shown in Table 2. All linear results show significant mean increases over the three terms except for TPE 10 (Instructional Time). TPEs 1 (Pedagogical Skills for Subject Matter Instruction), 2 (Monitoring Student Learning during Instruction), 4 (Making Content Accessible), 5 (Student Engagement), and 9 (Planning Instruction) are significant at $p < .001$. TPEs 6 (Developmentally Appropriate Teaching Practices) and 11 (Social Environments) are significant at $p = .003$. The means for TPE 10 increase from term 1 to term 2, and then decrease slightly for term 3. It should also be noted that this analysis was based on only 15 available participants and still approaches significance ($p = .10$). None of the findings for quadratic changes are significant for any of the TPEs indicating that changes are not curvilinear (see Table 2).

Table 2.
Results for the repeated measures ANOVAs predicting TPE means by the three terms

TPEs	Descriptive Statistics		Regression statistics	Linear	Quadratic
1 Pedagogical Skills for Subject Matter Instruction	Mean Term 1	2.51	df	1,51	1,51
	Mean Term 2	2.81	F	**20.64**	1.84
	Mean Term 3	2.93	p	**<.001**	.18
	N	52	eta^2	**.29**	.04
2 Monitoring Student Learning During Instruction	Mean Term 1	2.46	df	1,36	1,36
	Mean Term 2	2.81	F	**33.59**	.07
	Mean Term 3	3.11	p	**<.001**	.79
	N	37	eta^2	**.48**	.002
4 Making Content Accessible	Mean Term 1	2.61	df	1,39	1,39
	Mean Term 2	3.09	F	**36.51**	1.86
	Mean Term 3	3.33	p	**<.001**	.18
	N	40	eta^2	**.48**	.05

5 Student Engagement	Mean Term 1 Mean Term 2 Mean Term 3 N	2.59 2.91 3.08 75	df F p eta^2	1,74 **35.18** **<.001** **.32**	1,74 1.99 .16 .03
6 Developmentally Appropriate Teaching Practices	Mean Term 1 Mean Term 2 Mean Term 3 N	2.64 2.99 3.03 25	df F p eta^2	1,24 **11.31** **.003** **.32**	1,24 2.86 .10 .11
9 Instructional Planning	Mean Term 1 Mean Term 2 Mean Term 3 N	2.38 2.77 3.10 27	df F p eta^2	1,26 **21.24** **<.001** **.45**	1,26 .07 .80 .003
10 Instructional Time	Mean Term 1 Mean Term 2 Mean Term 3 N	2.63 3.05 2.97 15	df F p eta^2	1,14 3.03 .10 .18	1,14 1.68 .22 .11
11 Social Environments	Mean Term 1 Mean Term 2 Mean Term 3 N	2.69 2.96 3.16 27	df F p eta^2	1,26 **10.34** **.003** **.29**	1,26 .13 .73 .005

Summary

CST faculty mentors and teacher candidates participate in a reflective process using OEs. Teacher candidates develop an electronic lesson plan and identify the aspects of teaching or TPE that they will demonstrate. The lesson plan is shared in a preconference with their faculty mentor and feedback is given to the teacher candidate before the lesson is taught. As faculty mentors later observe lessons taught by teacher candidates, faculty members rate the lessons as *exploring(1), applying(2), proficient(3)*, or *exemplary(4)* for the TPEs identified by the candidate. The final stage of the feedback loop involves reflective comments from the candidates.

Data from 6,392 faculty member TPE ratings collected over the course of the multiple term teacher preparation program were analyzed. The average score and count of scores were not related. Higher maximum scores were positively related to higher counts, but the relationship was not strong. With lower minimum scores, there were more repeated attempts.

The average TPE ratings improved linearly over the three terms. Results were statistically significant for 7 of the 8 TPEs with sufficient data for the analysis. Quadratic growth was not significant.

Results of the statistical analyses indicate that teaching performance consistently improves with each term completed. The number of TPE data points indicates that the mechanics of the OE event process are running smoothly. The OE allows for interactive feedback between faculty and teacher candidates and the analysis of specific TPEs contributes to overall program planning.

The mean averages by term suggest faculty evaluation of performance has some variation within each term and there is discrimination of ratings over the three terms. Overall, data collected from the OE indicate student selection of TPEs and faculty member ratings demonstrate growth over time in teacher candidates' performance in multiple aspects of teaching.

Recommendations

- The recommendations from this study are:
- Maintain the current three-term program to maximize teacher candidate progress in performance.
- Continue with systematic support through the reflective lesson planning practice of the OE.
- Review curriculum and planning prompts for lesson plans for TPEs not often selected by teacher candidates.
- Increase faculty use of OE across all terms.

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