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Using Sibme to Provide Meaningful Feedback to Elementary and Secondary Teacher Candidates

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Presented at the California Council on Teacher Education Conference, Oct. 2018, San Diego, CA

Introduction & Purpose

Clinical practice plays a critical role in preparing teacher-candidates (Koerner, Rust, & Baumgartner, 2002). That is perhaps why the California Commission on Teacher Credentialing (CCTC) updated its standards on student-teaching supervision. In response to new CCTC requirements, our teacher-education program adopted an online video coaching tool (Sibme) to supplement in-person supervisor observations.

Sibme allows supervisors to virtually watch teacher-candidates while providing time-specific feedback about teaching practice. Feedback includes detailed commentary and “tags” to specify “essential pedagogical skills” to guide supervisors’ feedback (see Table 1). These skills are based on CCTC’s Teacher Performance Expectations and are connected to edTPA Instructional Rubrics, a nationally recognized teaching-performance assessment. With this Sibme-based structured feedback, teacher-candidates can review their teaching and supervisors’ comments at critical moments when incidents occurred on video. For example, if supervisors notice teacher-candidates utilizing particularly useful scaffolds, supervisors can select corresponding pedagogical skills, and write comments at specific video locations.

Prior to program-wide adoption of Sibme, we conducted a pilot study with a cohort (30 teacher-candidates). We asked teacher-candidates to evaluate effectiveness of Sibme feedback relative to traditional forms of feedback. Candidates reported that Sibme-based feedback from supervisors helped them see strengths and weaknesses that were difficult to identify during face-to-face feedback (Chizhik et al., 2017; Chizhik & Chizhik, in press). The current research study examined which “essential pedagogical skills” supervisors selected for feedback with elementary and secondary teacher candidates. In addition, the research also examined how the sections changed as teacher-candidates gained experience over the course of an academic year.

Central Research Questions

- 1) What “essential pedagogical skills” are university-supervisors targeting when providing feedback to elementary and secondary teacher-candidates through Sibme?
- 2) To what extent do “essential pedagogical skills” targeted by university-supervisors change as teacher-candidates gain experience over the course of an academic year?

Relevant Literature & Theoretical Framework

Being able to pause and repeatedly watch video-recorded teaching affords opportunities for focused analysis (Tan & Towndrow, 2009), where teacher-candidates can notice, reflect, and reconsider specific moments and aspects of their practice (Hamilton, 2011; van Es & Sherin, 2008). Opportunities to deconstruct any lessons have potential benefits of gaining insight into challenges of teaching, prompting problem-solving and changes in practice (Marsh & Mitchell, 2014). Research focusing on video-based coaching has typically examined its effects on teacher performance (Sun & van Es, 2015). Our research aims to focus specifically on examination of the feedback offered through video-based coaching tools. The proposed research is based on a combination of two theoretical frameworks. The first framework draws upon research on feedback, defined as, “information provided by teachers concerning performance or understanding of

students, with reference to a goal and aimed at improving learning” (Voerman et al., 2012). Effective feedback can be positive and/or critical as long as it is specific (Hattie & Timperley, 2007; Shute, 2008; Voerman et al., 2012). The level of specificity is framed by our second theoretical framework, professional vision, (Goodwin, 1994) and noticing (Mason, 2002). These similar constructs suggest that experts mediate novices’ development by “highlighting” key concepts or by helping candidates “notice” undetected aspects of their teaching or classroom environments. These theoretical frameworks afford PI’s the lens to examine pedagogical skills that supervisors target in providing feedback to help teacher-candidates notice instructional activities and behaviors that support construction of their own teaching knowledge (Wu & Lee, 2004). Specificity of feedback in student teaching plays a role in developing teacher-candidates’ pedagogy. Defining that specificity and determining to what extent it is different for elementary and secondary teacher candidates over the course of an academic year are our research goals.

Research Methods

One-hundred-twenty-four elementary teacher-candidates and their 16 university supervisors as well as 169 secondary teacher-candidates and their 15 university supervisors participated in this research.

University supervisors are required to provide feedback to teacher-candidates using the Sibme online platform. This process entails supervisors providing annotations (feedback) on three videos of each teacher-candidate’s instruction per semester. Supervisors were provided with a list of pedagogical skills that supervisors are able to “tag” videos with. These skills, designed to highlight key teaching behaviors and interactions, are associated with the California Teacher Performance Expectations (TPEs) and support four Instructional Rubrics of the edTPA (a national performance assessment for teacher-candidates) (see Table 1). Recommendations (comments) are then given within each video for pedagogical skills viewed by the university supervisor.

Table 1

Link between edTPA Instructional Rubrics and Sibme Essential Pedagogical Skills

edTPA Instructional Rubrics	Sibme Essential Pedagogical Skills
Learning Environment	Rapport, Positive Language, Restorative practices, Behavior expectations, Redirection, Scans Room, Strong Voice
Engaging Students in Learning	Maintains student attention, Modeling, Relevant Connections, Asking Questions/Checks for Understanding, Wait time, Student-to-Student Interactions, Peer-Evaluation, Technology, Many Participate, Positive Feedback
Deepening Student Learning	Builds on Students’ Responses, Student Self-Reflection, Asking Questions/Checks for Understanding, Peer-Evaluation, Student-to-Student Interactions, Practice Opportunities, Challenging Learning Environment, Feedback to Many, Timely Feedback, Teachable Moments
Subject Specific Pedagogy	Technology, Academic Language, Integrated and Designated English Language Development, Sequencing, Teachable Moments, Pacing, Instructional Activities

Analyses and Results

In the first phase of analyses researchers recorded the number of times each “essential pedagogical skill” was recorded by the university supervisor using *Sibme* video recordings of the teacher-candidates. We, then, calculated the number of events per teacher-candidate for each university supervisor. We conducted data reduction of these skills through factor analysis to determine feedback associated with essential pedagogical skills that load together on latent variables. Factor analysis with Verimax rotation extracted 5 factors in 8 iterations with Kaiser Normalization (see Table 2).

In examining the component matrix, the authors determined that conceptually, four reduced variables can validly be generated from these results that focus on the following aspects of essential pedagogical skills: Engagement, Learning Environment, Leadership, and Student-Centered (see Table 2 for components within each of these variables; two components did not fit into any of the four variables).

Table 2
Component Matrix of Essential Pedagogical Skills for Factor Analysis

Components	Factors				
	Engagement	Factor 2	Learning Environment	Leadership	Student Centered
Engagement					
Student to Student Interactions	.827*	.174	.306	.160	.309
Asking Questions	.964*	.149	.038	.142	-.040
Builds on Students' Responses	.870*	.379	.040	.080	.093
Modeling	.838*	.231	.179	.292	.285
Relevant Connections	.813*	.327	.159	.066	.228
Practice Opportunities	.461*	.312	.319	.178	.310
Challenging Learning Environment	.939*	.087	.091	.186	.050

Table 2 Continued

Components	Factors				
	Engagement	Factor 2	Learning Environment	Leadership	Student Centered
Learning Environment					
Rapport	.218	.565*	.534*	.414	.145
Positive Language	.137	.703*	.599*	.226	-.021
Restorative Practice	.050	.577*	.594*	.095	.405
Behavior Expectations	.203	.240	.868*	.128	.186
Acquires/Maintains Student Attention	.103	.484	.687*	.217	.314
Redirection	.159	.117	.856*	.063	.291
Scans Room	.191	.335	.737*	.434*	.025
Leadership					
Strong Voice	.199	.722*	.252	.504*	-.009
Moves Around Room	.289	.450*	.244	.483*	.031
Positive Feedback	.182	.481*	.100	.704*	.323
Feedback to Many	.084	.477*	.103	.593*	.293
Timely Feedback	.230	.104	.046	.434*	.189
Sequencing	.490	.167	.190	.776*	.121
Pacing	.232	.120	.223	.877*	.221
Instructional Activities	.302	-.011	.298	.569*	.178

Table 2 Continued

Components	Factors				
	Engagement	Factor 2	Learning Environment	Leadership	Student Centered
Student Centered					
Academic Language Expectations	.304	.626*	.244	.285	.448*
Many Participate	.376	.460*	.351	.145	.460*
Student Self-Reflection	.091	.154	.157	.197	.795*
Peer Evaluation	.198	-.044	.347	-.059	.497*
SDAIE/UDL	.210	.213	.285	.169	.750*
Teachable Moments	.222	.042	.089	.348	.597*
Components Not Included in the Four Compound Variables					
Technology	.181	.900*	.157	.017	.013
Wait Time	.309	.801*	.202	.184	.261

*Substantial Loading of Component within a Factor

To determine any differences among “essential pedagogical skills” that university-supervisors target when providing feedback to elementary and secondary teacher-candidates through Sibme as well as any changes over the course of an academic year, we conducted a Repeated-Measures MANOVA with associated ANOVAs, such that the four reduced “essential pedagogical skills” variables served as dependent (repeated) variables, elementary vs secondary served as a between-subjects variable, and semester (fall vs spring) served as a within-subject repeated variable.

Results indicate a statistically significant interaction effect between type of credential and semester for Engagement [$F(1,29)=5.71, p<.05$] and Student Centered [$F(1,29)=5.09, p<.05$] (see Table 3 and Figure 1). In both cases, feedback for elementary teacher-candidates increased from Fall to Spring semesters, while feedback for secondary teacher-candidates stayed relatively stable. Moreover, elementary teacher-candidates received statistically significantly more feedback for both of these variables than did secondary teacher-candidates, [$F(1,29)=5.50, p<.05$] and [$F(1,29)=16.06, p<.001$].

In addition, elementary teacher-candidates received statistically significantly more feedback than did secondary teacher-candidates for Learning Environment and Leadership pedagogical skills, [$F(1,29)=13.55, p<.001$] and [$F(1,29)=4.46, p<.05$], respectively (see Table 3 and Figure 1). Feedback associated with Leadership pedagogical skills statistically significantly increased for all teacher-candidates, [$F(1,29)=4.00, p<.05$] (see Table 3 and Figure 1)

Table 3

Means (SD) of Feedback Per Teacher Candidate by University Supervisors Associated with Four Categories of Pedagogical Skills for Elementary and Secondary Teacher Candidates During an Academic Year

Pedagogical Skill	Credential	Fall Semester	Spring Semester	N
Engagement	Elementary	6.94 (10.51)	10.34 (11.67)	16
	Secondary	1.73 (2.54)	2.03 (3.44)	15
Learning Environment	Elementary	8.06 (6.00)	7.98 (8.31)	16
	Secondary	2.13 (2.41)	1.48 (2.62)	15
Leadership	Elementary	4.98 (4.88)	7.41 (6.59)	16
	Secondary	1.65 (2.83)	2.76 (7.74)	15
Student Centered	Elementary	2.57 (2.18)	4.90 (3.93)	16
	Secondary	0.54 (0.76)	0.86 (1.59)	15

Figure 1

Visual Representation of Statistically Significant Interactions and Main Effects Associated with Essential Pedagogical Skills



Discussion, Inquiry Questions, and Implications

The availability of video-based coaching tools and the empirical research suggesting that its use is effective at developing teaching behaviors (Kennedy & Lees, 2016) and improving K-12 student behaviors (Gregory et al., 2017). Our research examined the feedback provided by university supervisors to elementary and secondary teacher-candidates over the course of an academic year. Each teacher-candidate received feedback from a university supervisor on a minimum of six video-recorded lessons; university supervisors labeled each feedback as associated with one of 30 “essential pedagogical skills” that were aligned with CTC standards (see Table 1). The purpose of identified “essential pedagogical skills” was to aid university supervisors in identifying important teaching behaviors or student-teacher interactions that teacher-candidates should notice. Findings indicate that elementary and secondary teacher candidates received different feedback from university supervisors. The implications of these findings raise the following inquiry questions:

1) Why do university supervisors of elementary and secondary teacher-candidates notice different pedagogical skills? Wolters’s and Daugherty’s (2007) study on elementary and secondary teacher-candidates’ differing feelings of teaching efficacy indicates that this difference may be attributed to the structure of the two credential programs. Elementary credential programs, they posit, focus on classroom management, unlike secondary credential programs. Our findings are in line with findings of that research. In our study, university supervisors of elementary teacher-candidates made more tags associated Learning Environment skills (i.e., maintaining attention, behavior management) than did university supervisors of secondary teacher-candidates. At our university, only elementary teacher-candidates take a separate class that focuses on classroom management. Perhaps university supervisors of elementary teacher-candidates feel compelled to address these skills explicitly. Another possibility is that the secondary teacher-credential program focuses on more content-driven skills rather than classroom management (Shippen et al., 2011). Certainly, classroom management and content-driven skills are required for both academic levels. Teacher-education programs may consider whether these differences in educating elementary and secondary teacher-candidates are essential parts of professional development or do these differences reflect a bias in expectations?

2) Why does feedback seem to be time sensitive? University supervisors of elementary teacher-candidates increased their feedback of Engagement and Student-Centered skills from fall to spring, whereas feedback from university supervisors of secondary teacher-candidates remained relatively constant. Again, these findings highlight possible differences between elementary and secondary programs. University supervisors may give more classroom management feedback at the beginning of the program. As teacher candidates gradually acquire more skills, university supervisors of elementary teacher-candidates may focus on more content-driven skills. All university supervisors increased their feedback on Leadership skills from fall to spring. These findings suggest that university supervisors are modulating their feedback as teacher-candidates gradually acquire more experience. What drives this modulation? Are the shifts driven by teacher-candidate (reflecting their mastery) or supervisor-driven?

3) Finally, findings raise the question as to whether supervisors should be targeting specific pedagogical skills based on academic level? It is important to note that CCTC has one set of TPEs for all K-12 teachers. How should these skills be scaffolded to support teacher candidate’s performance? How can teacher preparation programs intentionally structure supervision to maximize pedagogical development?

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