TEACHER AND LEADER PERCEPTIONS OF STUDENT LEARNING OBJECTIVES FOR EDUCATOR EVALUATION

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November 2016

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ABSTRACT

Student Learning Objectives (SLOs) have become the primary method to for including indicators of student growth in teacher evaluations for subjects and grade-levels without statewide standardized assessments. The purpose of this study is to better understand how teachers and leaders in one southern state view the validity of results from SLOs as measures of student learning and teacher effectiveness, use results from SLOs for instructional and school improvement, and view the impact of SLOs on instruction and learning. Though quantitative and qualitative results reveal significant variation across districts, informative patterns in teacher and leader views emerge. This study's results are interpreted to identify barriers to teacher and leader engagement as well as provide broader policy recommendations for states or districts seeking to improve SLO development and implementation.

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INTRODUCTION

Student Learning Objectives (SLOs) are intended to provide a measure of teacher effectiveness based on student performance on locally-chosen assessments. SLOs are currently being used in the majority of states throughout the US, in order to incorporate student assessment performance into teacher evaluations for educators in non-tested subjects and grades. The prominence of SLOs can be attributed to federal policies, such as Race to the Top (RTTT) and the No Child Left Behind (NCLB) waivers, which require the inclusion of student growth in all teacher evaluations as an indicator of a teacher's contribution to student academic performance. Despite the widespread use of SLOs, very little is known about the degree to which SLOs are believed to have validity among those whose jobs will be affected by these measures and how educators are responding to and perceiving this new process for gathering evidence of learning.

Teacher and leader perceptions of the validity, utility and impact of SLOs are not inconsequential. SLOs are being used in upwards of 30 states' teacher evaluation systems for the majority of teachers who teach non-tested grades and subjects (Lacireno-Paquet, Morgan and Mello, 2014). In states incorporating SLOs into teacher evaluations, up to 70% of teachers in non-tested subjects and grades have or will have SLOs as part of their teacher evaluation scores (Prince et al., 2009).[1] Moreover, some states intend to weight SLOs up to 50% of the final teacher evaluation score (Lacireno-Paquet, et al., 2014). Teacher and leader buy-in of SLOs is essential for ensuring that SLOs are both implemented correctly, and achieve the primary goal of newly implemented teacher evaluation systems, which is to improve student performance.

To better understand teacher and leader views and use of SLOs, we draw on rich data, including teacher survey data, principal interview responses, and observations of data meetings in one RTTT state located in the southern US.[2] Implementation of SLOs in this one state may not look like implementation of SLOs in other states, since the level of teacher involvement, the types of assessments chosen, the way student growth targets are assigned, and the method for aggregating student performance to the teacher level can and does vary meaningfully across states (Lacireno-Paquet et al., 2014). However, the findings presented in this paper illuminate initial educator perceptions of a newly implemented SLO system that can be useful for informing SLO policy and implementation in other states.

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[1] Throughout this paper, we use the term "non-tested grades and subjects" to refer to those courses that do not contain a standardized test in the current grade and in the prior grade to calculate a score based on a statistical growth model.

[2] The studied state will remain anonymous to protect the identities of those interviewed.

CONTEXTUAL FRAMEWORK

SLOs are not a quick or easy way to provide a measure of teacher performance in non-tested grades and subjects. As Lachlan-Hache, Cushing and Bivona (2012; p. 5) state, "The SLO process will require a significant shift in how educators participate in their evaluation system." It is crucial that teachers, as well as leaders, understand and learn from the SLO process in order for SLOs to be implemented correctly. If teachers are not incorporating the goals of SLOs into their instruction, and if school leaders are not using SLO results to inform changes in teacher practice, improvement in student performance is unlikely to occur (Briggs, Diaz-Bilello, Peck, Alzen, Chattergoon and Johnson, 2015).

As an accountability tool, SLOs are intended to provide a measure of a teacher's contributions to student growth through the process of developing or selecting assessments that measure classroom goals, determining student growth targets that provide evidence that students have met those goals, and then aggregating classroom performance and attributing it to the teacher (Marion, DePascale, Domaleski, Gong, Diaz-Bilello, 2012). As an instructional tool, SLOs are intended to introduce or reinforce practices that can help teachers improve their instruction, such as goal-setting, data-driven decision making, and backwards planning (Slotnick, Smith, Helms, and Quao, 2013).

The studied state's primary rationale for implementing SLOs is to provide an indicator of a teacher's contribution to student growth for educators in non-tested subjects and grades. This indicator is included in an evaluation system designed to inform human resource decisions, including hiring, dismissals, promotion and bonus pay. Because the majority of teachers have an SLO as their measure of student growth, which contributes to half of their final evaluation score, it is important that SLO results are valid and reliable indicators of teacher effectiveness. A main focus of this study is to determine whether teachers view the results of SLOs as valid for their intended uses. That is, to what extent do teachers believe that SLOs provide an accurate measure of student learning, and by extension, teacher effectiveness?

There is also an expectation in the studied state that teachers "create and implement teaching and learning strategies" to ensure students are on track toward goal attainment. In other words, SLOs are intended to be used as a pedagogical tool to inform instruction in addition to their use as an accountability indicator. In a report on lessons learned from the implementation of SLOs in Denver Public Schools, Briggs, et al. (2015; p. 8) assert that using SLOs for instructional improvement is a necessary part of ensuring that the SLO process is meaningful: "Fundamental to any theory of action behind the use of high-stakes accountability is the belief that systemic improvement will come from changes to instructional practice, and much of the rhetoric describing the SLO process places considerable emphasis on this for formative purpose." This view is in line with the theory of action offered by The Reform Support Network, which was developed to help support Race to the Top (RTTT) grantees. The Reform Support Network states:

> "Solid instruction begins with the analysis of student data followed by the development of targeted learning goals and instructional practices aimed at achieving them. SLOs provide schools and districts with a way to make this best practice a common expectation for the whole workforce of teachers and principals." (2012, p. 4).

Several studies on SLOs provide support for this theory of action, finding that SLO implementation can increase teacher data-use and data-driven decision-making (CTAC, 2004; CTAC, 2013; Schmitt, 2014). In Denver, Colorado and Charlotte-Mecklenburg, North Carolina, teachers reported that they were more likely to use data to determine student strengths and weaknesses and plan/modify instruction accordingly after the implementation of SLOs (CTAC, 2004, CTAC, 2013). In Austin, Texas, 75% of teachers surveyed reported that the SLO process improved their instructional strategies and 66% of teachers indicated that SLOs improved their teaching (Lamb, Schmitt, & Cornetto, 2010; Schmitt et al., 2013). Additionally, teachers in schools using SLOs engaged in more data-use than their peers in schools without SLOs (Schmitt et al., 2014). While these findings are promising, and speak to the utility of SLOs in general, it is unclear whether these findings are dependent on the state or district in which the SLO is implemented, given the cross-state variation in SLO implementation. Therefore, a deeper examination of whether teachers are engaging with SLOs to improve instructional practice and data-use, and importantly, under what context, is needed.

Further, given the crucial role administrators play in ensuring accountability reforms are internalized by teachers and incorporated into their daily practice (see Elmore, 2004), this study seeks to understand leader views on SLOs in addition to teacher views. For actual change in student learning to occur as a result of SLO implementation, principals must have confidence in the validity of SLO scores, and use the results to make decisions regarding students and teachers. Therefore, both teacher and principal reports on the perceived validity, use, and impact of SLOs can help inform our understanding of not only how, but how well, SLOs are being implemented.

RESEARCH QUESTIONS

Because policy has pushed forward despite the scarcity of validity studies on SLOs, little is known about whether teachers are buying-in to the SLO process (Lachlan-Hache, 2015). Therefore, this study provides a deeper understanding of teacher and leader views in several districts in one large southern state, and sheds light on barriers that may exist to successful teacher and leader engagement. We address the following four research questions in this paper:

1. Do teachers and leaders believe that SLOs validly measure student learning and teacher performance? How do teacher and leader perceptions on the validity of SLOs vary by district?

2. Do teachers and leaders use SLO results to inform instructional decision making? If so, how often, and how does use vary by district?

3. In what ways do teachers and leaders believe that SLOs have had an impact on the quality of instruction, and by extension, student learning? Do these views vary by district?

4. Based on feedback from teachers and principals, what are some potential barriers to teacher and leader buy-in (or engagement) with SLOs?

DATA AND METHODS

Sample

The study was initiated at the request of the studied state's Department of Education. The research team reached out to several districts, and four districts agreed to participate in this study: one urban district (District 1), one suburban district (District 2), and two rural districts (Districts 3 and 4). District leaders then contacted school leaders to ask if they would be willing to serve as a research site for this study.[3] Fourteen school leaders agreed. As such, the sample of schools from which data was collected is based on districts and schools that were willing to participate in this study (i.e., a sample of convenience) and is not intended to be representative of the entire state.

Table 1: Demographics by District

District	Population	%White	%Poverty	%HS Grad
District 1	677,128	32.97	15.2	86.9
District 2	182,952	62.74	7.2	89.3
District 3	16,464	96.14	16.1	78.2
District 4	22,518	62.71	26.6	78.1

Source: U.S. Census Bureau (2009)

Data

The data for this study come from surveys administered to teachers who were implementing SLOs in their classrooms, semi-structured phone interviews with principals, and in-person observations of teacher and principal data team meetings where SLO data was discussed. All data was collected during the 2014-15 school year.

Teacher surveys. The first mode of data collection was a survey distributed to teachers, which was piloted and refined prior to distribution. The survey contains open-ended, multiple- choice and ordinal scale items. A total of 460 teachers in 14 schools were sent links to the survey through Survey Monkey, and 198 teachers took the survey (for a response rate of 46%).[4] Of the 198 teachers who responded to the survey, 60% had more than 10 years of teaching experience, and nearly 80% of teachers taught at the elementary school level.[5] Because the sample included only RTT districts, all of which had implemented SLOs in some capacity since the 2011-12 pilot year, most of the teachers responding to the survey (80%) had administered an SLO in the prior school year. One teacher who responded to the survey indicated that s(he) did not know what an SLO was, suggesting that s(he) likely taught in a tested grade and subject that did not administer an SLO. See Table 2 for basic descriptive statistics of survey respondents.

[3] All respondents were informed that their participation was voluntary, and that this study was being conducted by researchers at the request of the state's Department of Education, but not by staff affiliated with the state's Department of Education.

[4] No teachers responded from one large urban high school, calling into question whether the email addresses provided by the school were valid. Excluding this school from the initial sample brings the response rate to 50%.

[5] Note that SLOs are primarily administered in the early elementary grades, where there is no pretest and/or posttest with which to calculate a value-added based score, and in select courses at the high school level, where there is no prior course assessment with which to serve as an appropriate pretest.

Table 1: Descriptive Statistics of Survey Respondents

		Percent
School Level	Elementary Middle High	79.3 7.6 12.6
Subjects	Core Areas Specials	85.9 14.1
Teaching Experience (in years)	1-3 44-5 6-10 >10	11.1 8.6 20.2 60.1
Years Administering SLOs	1 2 3 >3	15.7 40.9 32.3 7.1

Principal interviews. The second part of data collection involved qualitative phone interviews with principals to discuss their views on SLO implementation in their school. Interviews were semi-structured, following a protocol that had been refined by the authors. Eight of the 14 principals agreed to a phone interview, resulting in at least one principal from each district (response rate=57%). The phone interviews typically lasted 30 minutes, and were recorded and transcribed through NoNotes.[6]

Data meeting observations. The third collection method involved observations of school data meetings where principals and teachers met to discuss the SLO data. Four of the 14 principals agreed to observations of an SLO data team meeting, but due to scheduling conflicts, observations were only conducted in three schools.[7] After the data meetings, the study authors met informally with groups of teachers in order to inquire directly about their perceptions of SLOs. Importantly, the principals were not included in these conversations to ensure candidness of the teacher comments.

The numbers of participants by data type are shown in Table 3. Pseudonyms are used for school names in order to protect the identity of participants.

[6] NoNotes is a call recording application that is downloaded on one's phone, and can be used to record calls. Users have the option of having all calls transcribed. All interviewees were asked their permission to record the call prior to the start of the interview.

[7] Two observations of data team meetings were conducted in one of the schools.

Table 1: Description of Sample Sizes

District	School Pseudonym	Teachers survey responses	Principal interviews	Observation of data team meetings
1	Anita	0	1	
1	Bell	3		
1	Calily	11	1	
1	Eckert	16	1	
1	Fuller	5		
1	Grovestown	11	1	1
1	Harold	13		2
2	Igloo	3	1	
2	Johnson	7		
3	Kalamazoo	26	1	
3	Montvale	14		
3	Nolan	29	1	
4	Ontario	7		
4	Perry	53	1	1
Total		**198**		

Methods

This study utilizes mixed methods to describe and analyze the data (Cresswell, 2013). Data was analyzed in an integrative fashion (i.e. qualitative and quantitative data was simultaneously and iteratively examined) as themes began to emerge from each independent data source.

Qualitative. Analysis of the interview and teacher observation data proceeded in several steps. The authors reviewed transcribed notes from principal interviews for accuracy and typed hand-written notes from data team observations. For the data meeting observations and follow- up conversations, the two authors attended all meetings as a team and independently took notes on teacher and leader perceptions. The authors independently reviewed their respective notes and drafted memos and profiles for each district. Next, the authors reviewed their analyses from the data meetings and follow-ups in conjunction with the principal transcripts in order to identify themes within the data. After a thorough reading and review of the documents, the authors discussed the themes that emerged, and through consensus, developed a coding scheme to apply to the qualitative data. This coding scheme incorporated a *priori* topics of interest, based on literature and the state's priorities (i.e., *edic* codes), as well as inductive topics based on patterns that emerged across the data sources (i.e., *emic* codes). Coding categories were then used to identify commonalities across all principals and sites as well as variation in responses by district.

Quantitative. Survey data were cleaned prior to data analysis. Descriptive statistics were run (i.e., counts, ranges, frequencies, means and standard deviations) in order to gather summary information on the survey items. Research questions were each addressed separately by looking at the distribution of responses for key survey items. Further analyses were conducted using independent samples *t* tests to understand what types of categorical (or distinguishing) variables are related to teacher responses on the key survey questions. Lastly, one-way ANOVAs were conducted to investigate variability across the four districts. When the omnibus tests were statistically significant, complex contrast post-hoc analyses were conducted to compare District 1 (an urban district) with Districts 3 and 4 (rural districts). Districts 3 and 4 were grouped based on both theory derived from the qualitative analysis, and quantitative confirmation that those districts were more similar to each other and generally different from District 1. Due to the small sample size of District 2 (n = 10), this district was excluded from post-hoc analyses. Because of the low number of post-hoc analyses run, and the theoretical support for the contrasts, no type-1 error correction was necessary.

RESULTS

SLO implementation can vary substantially from state-to-state and even within a state; therefore, SLO implementation in the studied state is briefly described in order to provide context for the findings that follow. In the studied state, districts are primarily responsible for creating an SLO for every grade/subject for which there is no state standardized assessment. Within each district, SLO assessments are the same for all teachers for each grade and subject. For example, every 1st grade teacher within a given district will administer the same pre and post assessments and apply the same target formulation to student scores.[8] There does not appear to be much cross-district collaboration on the development of SLOs; however districts in this state can – and often do – choose to develop their assessments by including items from an item bank developed by the state.

The SLO development process employed in the studied state is markedly different from several other states, where SLOs are created by each individual teacher (Lacireno-Paquet, et al, 2014). These contrasting approaches to SLO development reflect a tension within states between wanting teacher inclusion in the SLO process in order to increase teacher buy-in versus and ensuring that SLO results are comparable across sites and offer a reliable accountability measure (The Reform Support Network, 2014; Lachlan-Hache et al., 2012).

In the studied state, districts are required to submit documentation to the state for final approval of their SLO process. This documentation includes (a) an SLO statement which outlines the standards assessed, the target formulation and the population served; and (b) a Table of Specifications (TOS) for each assessment which lists the standards to which the test items are aligned, including a rating of Depth of Knowledge (DOK). Of note, however, is that actual test items are not provided on the TOS form, nor does the state conduct an audit of the assessments administered for each SLO.

The districts included in this study first piloted their SLOs in the 2011-2012 academic year. Since then, most of the assessments and targets used for SLOs were modified or changed annually. Informal conversations with state and district personnel suggest that these changes were the result of districts seeking to improve either the reliability or usability of the assessments.

Based on the survey data, the proportion of teachers reporting involvement in SLOs, including the selection of standards to be assessed, the goals and targets assigned to students in each classroom, and the creation/selection of the assessments themselves, varied significantly by district. Post-hoc analyses reveal significant differences in teacher involvement across districts, with teachers in the rural districts (Districts 3 and 4) reporting significantly more involvement in the creation/selection of assessments than teachers in the one urban district (District 1). Figure 1 shows district variation in SLO implementation activities.

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[8] Note that this does not mean that every student will have the same target score within a district/course, but rather that every student's target score will be calculated in the same way based on their pretest score, whereby every student within a district/course *with the same pretest score* will have the same target score.

Figure 1. District Variation in Teachers Reporting Involvement in SLO creation/selection
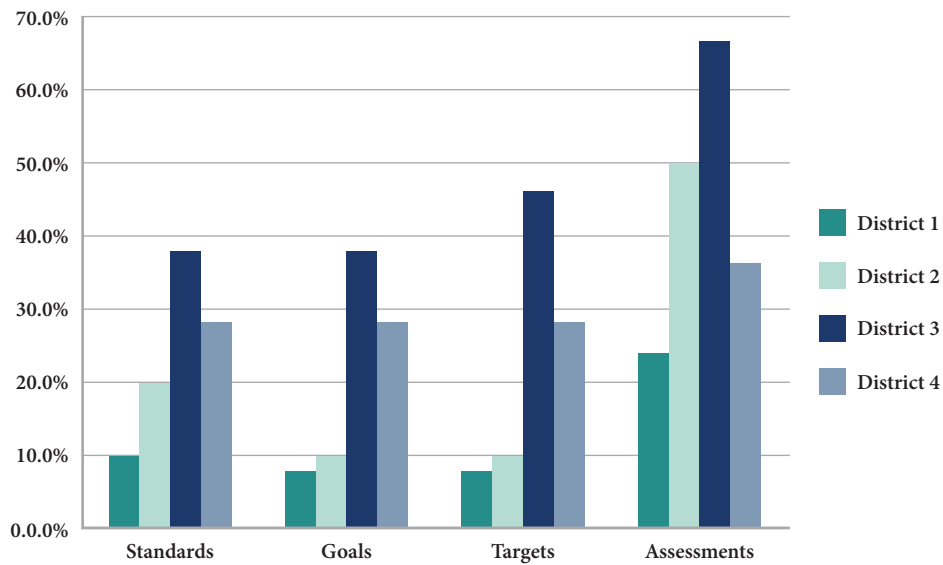
Research Question 1

*Do teachers and leaders believe that SLOs **validly** measure student learning and teacher performance? How do teacher and leader perceptions on the validity of SLOs vary by district?*

Educator perceptions of the validity of SLOs is an important factor in the ultimate success of the SLO process. If teachers and leaders do not believe that SLOs provide a useful measure of student learning, it is unlikely that educators will use the data to respond to students' academic needs and make improvements in their instructional practice. In general, the teachers who were interviewed for this study believed it was important to have a measure of student growth as part of their evaluations. Likewise, principals appreciated having data on students and teachers in grades/subjects in which schools have not traditionally collected growth data. However, teachers and leaders had serious concerns about the validity of SLO results.

Teacher views on validity. The majority of teachers responding to the survey (85.2%) believed that the SLO pre-assessment and post-assessment was capable of capturing academic growth for some or all of their students. However, only 33.3% percent of teachers believed that whether a student meets the SLO target is a strong indication of student learning, and less than one fourth of teachers (18.2%) believed that the percentage of students meeting their SLO target was a good indication of their abilities as teachers. The seemingly contradictory views highlighted by these responses suggest that teachers may agree with the use of assessments as an indicator of student growth, but do not agree with the logic behind using student growth based on SLOs as a measure of teacher effectiveness. As one teacher says, "They [SLOs] are a good representation of student learning, but may not be representing my teaching ability."

There are two potential reasons for the disconnect between the belief in the validity of SLOs for measuring *student growth* and the belief in the validity of SLOs for measuring *teacher effectiveness*. First, based on data from face-to-face meetings and survey responses, there may be special circumstances that teachers believe limit the causal interpretation one can make with students' SLO scores. As one teacher said, "What bothers us is this is going to be 50% of our evaluation and there are some things beyond our control." For example, teachers in one school were concerned by the fact that special education students were pulled out of the classroom for a significant part of the school day, but the classroom teacher is still evaluated based on the performance of those students. Additionally, many teachers expressed concerns about students with limited English proficiency: these students may show low growth on the SLO, which the teachers felt is not necessarily indicative of the quality of instruction but instead due to language barriers.

The second possible reason for the observed disconnect may be due to concerns that teachers have with the fairness of the targets. Teachers generally agreed that SLO assessments are capable of measuring student growth, but had reservations about the validity of using the percentage of students meeting their targets as an indicator of teacher quality. In general, most of the target formulations used by districts require students who score lower on the pretest to make larger point gains in order to achieve 'typical growth', compared to students who score higher on the pretest. Yet, as one teacher remarked, "a little progress takes longer for the really, really low students."

Likewise, another concern among teachers centered on students who came into the academic year below grade level but who are assessed using grade-level assessments. If these students make growth, but not enough to reach the current grade level, that growth is not recognized by targets based on grade-level expectations. One teacher explained that "The jumping in point is the grade level, expecting all students to make 50% gain doesn't take into account special circumstances." Further support for this notion is provided by an analysis of the survey data that reveals that teachers who believe that the targets are fair for all students in their classrooms (47%) are statically significantly more likely to think the SLO results are a good indication of their teaching ability ($t = 2.403$, $p = .017$). Ultimately, teacher doubts regarding the fairness of the targets appear to be tied to their views on the validity of SLOs as indicators of teacher effectiveness.

Another relevant finding based on the teacher survey results is that teachers who were directly involved in creating or selecting the assessments and/or items on the pretest and posttest (43.9% of the sample) were significantly more likely to believe SLOs provide an accurate measure of student learning and also teaching effectiveness (respectively, $t = 2.330$, $p = .021$; $t = 2.493$, $p = .014$). As such, including teachers in the process of creating assessments appears to increase their buy-in of the system. The qualitative data also supports this notion. In District 4, where teachers appeared to have more of a say in the choice/ creation of assessments, teachers felt more involved in the SLO process and spoke more positively about the assessments administered and their links to teacher evaluation as compared District 1, where teachers appeared to be far less involved in the SLO process, and tended to view the SLOs in a more negative manner.

Principal views on validity. When asked whether SLOs provide a valid measure of student learning and by extension, teacher performance, leader responses tended to vary by district. In District 1, three of the four leaders interviewed did not believe that SLOs provided an accurate indication of student performance due to lack of content alignment and the short length of the assessments. One principal said "I believe the test

needs to be written better and they need to have some validity and reliability to them." Another reported "I think that first of all the number of items - I don't think it's….enough to really give us complete picture of the students' achievements".[9]

The principals from District 2, 3, and 4, on the other hand, believed that the assessments provided an accurate measure of student learning and teacher effectiveness. One principal said "I think that [the assessment] is pretty accurate". Another noted, "I think it is quite reflective of the quality of instruction".

Across all districts, two major concerns were brought up by principals that mitigated their perception of SLOs as a valid indicator of teacher effectiveness. The first concern was the potential corruption of the measure due to the fact that teachers typically administered and, in some districts, even scored their own assessments. As one principal said, "I still struggle with…a teacher-administered assessment in which the teacher scores the assessment that has the same weight, if you will, on teacher accountability as one that is not scored by the teachers themselves, and in some cases the instruments that are being used lend themselves in a huge degree of subjectivity… And so I just worry sometimes that unintentionally or intentionally -and I choose to think unintentionally -that there is some margin for error there." Another principal indicated her concerns by noting that, "This is a test that the teachers have developed, the teachers administer, the teachers score, so you know, I'm not just there yet." Finally, one principal reported, "I feel like teachers have seen the test - I mean honestly - if you remember a question or two, I'm sure you try to teach them."

The second major concern was the fact that SLO results lacked comparability from one district to the next due to the lack of standardization of assessments and targets across districts. One principal noted: "I feel good about what we're using [the SLO] for…but I still question… the equity across the state". Another said, "we have fairly high standards, I believe, in our school system and in this school for what we're asking our kids to do even…However, I do know from some contact with some other school districts that those standards are not always in place everywhere." And a third remarked, "I mean, I feel that [the SLO results] show me teacher performance in my school, but I don't think it can compare us to other teachers in other schools since we have different SLOs."

Research Question 2

*Do teachers and leaders **use** SLO results to inform instructional decision making? If so, how often, and how does use vary by district?*

A key component of SLO implementation is the extent to which teachers and leaders use SLO data to improve student learning. Research has found that teachers may use SLO data to determine student strengths and weaknesses, focus more concretely on long-term student achievement, or to make instructional or pedagogical changes (Slotnick et al, 2013). Further, principals may choose to use the data to make decisions about services or programs students should receive, as well as teacher placement or classroom composition, the following year.

Teacher views on use. Figure 2 shows the distributions in reported teacher use of student data to determine

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[9] Ellipses are used within principal quotes to remove extraneous speech and colloquial phrases, such "umm" and "you know".
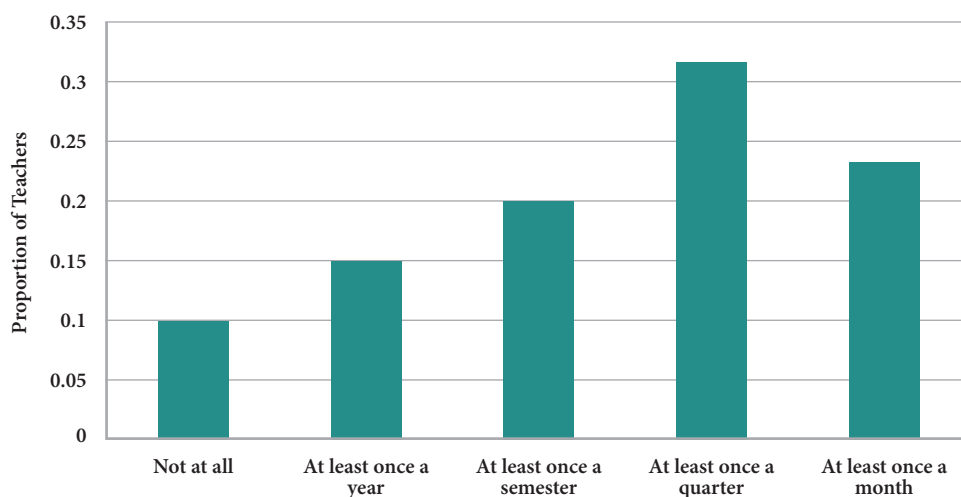
student progress toward meeting SLO goals. The majority of teachers, nearly 55%, reported reviewing data to determine student progress toward meeting the SLO at least once a quarter. Additionally, the number of times teachers reviewed student data to determine if students were on track toward meeting their SLO goals/objectives and targets is significantly correlated with teachers reporting an improved understanding of student data as a result of implementing SLOs ($r = .325$, $p < .001$).

Important to note is that because SLO assessments in this state are only administered once at the beginning of the school year and once at the end of the school year, teacher review of data will likely involve either (a) re-reviewing pre-test data throughout the year to determine whether students are on track, or (b) reviewing data from assessments that are not formally tied to the SLO process and connecting this data to students' SLO goals. It is unclear how much either is occurring. In fact, findings suggest that most teachers do not see a connection between their own assessments and the SLO itself. As one teacher said in response to why she does not like SLOs, "I believe the day in and out lessons and assessments I give are better indicators of student learning. My daily observations are very important as well." Therefore, it will be important for future research to uncover how – not just whether – teachers use SLO data.

Figure 2. Teacher Reported Frequency of Reviewing Student Data to Determine Progress Toward Meeting the SLO

Figure 3 shows that over half of teachers (55%) also report making instructional modifications to ensure

student progress toward meeting the SLO at least once a quarter. The teachers that report having a clear understanding of how SLOs work in their classroom (80.8%) are significantly more likely to use SLOs to plan their teaching ($t = 2.516$, $p = .018$). This suggests that an additional barrier to incorporating SLO results into daily teaching practice may be a lack of understanding of SLOs in general. This is consistent with prior research that has found that poor communication regarding the SLO process is a primary challenge to SLO implementation (Lachlan-Hache, 2015).

Figure 2. Teacher Reported Frequency of Reviewing Student Data to Determine Progress Toward Meeting the SLO
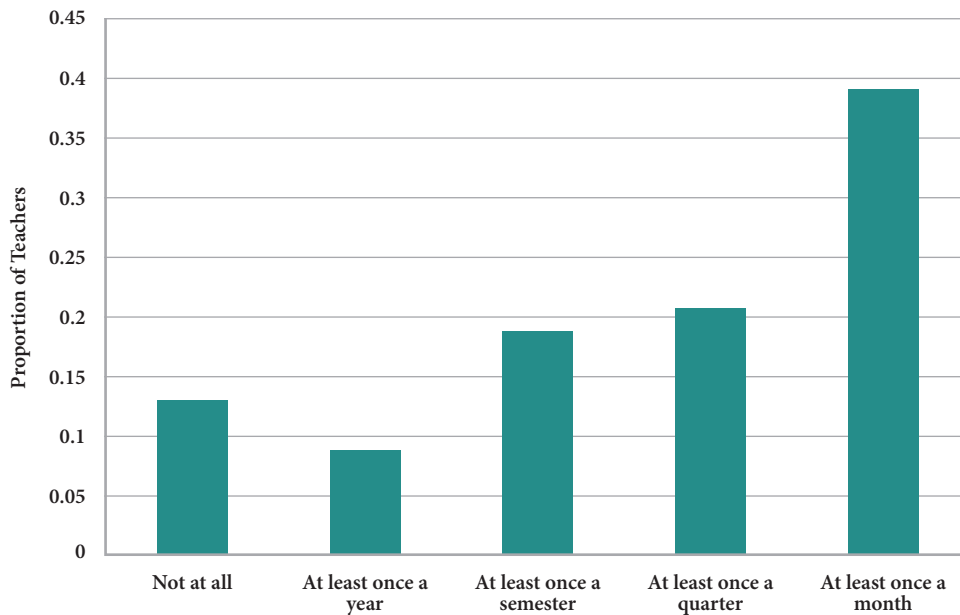
Teacher use of data varied across the participating districts. There was statistically significant variation in teacher use of SLO results across districts, with teachers in Districts 3 and 4 more likely to report using the data for instructional improvement than teachers in District 1 (F=5.573; p=.039).

Leader views on use. School principals in the sample reported using SLO data for student and teacher placement; however, the extent to which SLO data played a role in decision making appears to vary by district. Leaders in three of the four districts (Districts 2, 3, and 4) reported using SLO data to determine student placement for the following year, including enrichment and remediation services, and also for teacher placement. One principal reported, "last year… one of our first grade teachers had really not done well at all with her students under [the] reading part of the SLO: 63% of her kids did not meet their target goal for the SLO in reading. So, I moved her out of first grade. So we definitely do use the data from the SLOs to plan."

Principals in the remaining district (District 1), however, stated they did not use SLO data for two primary reasons: (1) they did not feel that the results were presented in a way to facilitate such decision making; and (2) they did not believe the assessment accurately captured student growth or teacher performance. One principal from District 1 stated plainly, "If the SLOs were accurate, we would use them." Another school leader from District 1 attributed his/her lack of use of SLO results to "all the concerns our teachers have [with the assessments]".

Research Question 3

*In what ways do teachers and leaders believe that SLOs have had an **impact** on the quality of instruction, and by extension, student learning? Do these views vary by district?*

The direct impact of SLOs on teacher instruction and student learning is difficult to measure in that a number of educational reforms (e.g., new assessments, new standards) took place simultaneously. However, quantitative analysis of teacher survey items and leader interview results can reveal educator *perceptions* of the impact of SLOs. The question of SLO impact is an important one. At its core, the theory of action of SLOs relies on teachers integrating SLOs into their instructional plans in order for SLOs to impact student learning (Briggs et al., 2015). If teachers are using data to inform instruction, the SLO theory of action suggests that teacher instruction will improve and therefore student learning will improve. Likewise, if principals are using SLO results to assign students to services/programs and/or are using results to determine teacher and student placement the following year, then school-wide student learning should improve. However, this question of perceived impact is nuanced, in that (a) it is uncertain whether teachers are really using SLO data in the way they indicated (discussed above); (b) it is unclear whether educators associate their use of SLO data with its impact on student learning; and (c) educator beliefs regarding the validity of SLOs as a measure of teacher learning may affect their views on its overall impact. We discuss our findings on educator perception of impact in greater detail below.

Teacher views on impact. Despite reports of widespread use of SLO data, in our sample of teachers, less than half of teachers (40.4%) responded that SLO implementation has helped improve their instruction. One teacher wrote: "It has improved instruction in the sense we have thoroughly examined our standards, learning targets, and common assessments". Another teacher commented similarly, "My instruction has improved as I have focused greatly on covering specific standards." However, 33.8% believe of teachers believed that SLO implementation has had no impact on instruction, and 13.6% believe SLO implementation has negatively impacted their instruction.

There are several reasons why some teachers (13.6%) believe that SLOs have negatively affected their instruction. We found that teachers in the early elementary grades and teachers of special subjects are more likely to report that SLOs have a negative impact on instruction. Both types of teachers have unique issues with the amount of time SLOs take to administer. One second grade teacher stresses, "I am in complete agreement with measures for teacher accountability. However, we spend 2-3 weeks a year administering and scoring SLOs, when we could be settling classroom routines and building relationships with our students." A health teacher believed that SLOs have a negative impact on instruction by cutting into instructional and planning time: "It seems as if more and more emphasis is being placed on standardized testing, which is taking away from instructional time in my already packed curriculum. SLOs also take away from planning time." An art teacher felt forced to narrow instructional content order for his or her students to perform well on the SLOs, saying, "I find that I am removing valuable learning experiences in terms of using art to problem solve and think outside the box and replacing it with memorizing definitions."

The variations in teacher perceptions of SLO impact in this state are in line with prior research that suggests that teacher perceptions of how SLOs affect their practice are mixed (Lachlan-Hache, 2015). Specifically, findings from two studies suggest that teachers perceived the analysis of SLO data as valuable,

but didn't necessarily believe that SLOs impacted their instruction or pedagogical techniques (Donaldson, 2012; Donaldson et al, 2014). It will be important to continue to examine teacher perceptions regarding the impact of SLOs on teacher instruction in future years, since one study (Schmitt, Lamb, Cornetto and Courtemanche, 2013) reported significant increases over time in the percentage of teachers who believed SLOs had improved their teaching, as SLOs became more ingrained into the school culture

In terms of the impact of SLOs on student learning, a similar breakdown was found: just over a third of teachers (36.9%) responded that SLO implementation has improved student learning, nearly half of teachers (43.9%) believe SLO implementation has had no impact on student learning, and 6.6% of teachers believe it has negatively affected students learning. Importantly, there is a statistically significant correlation between the number of times teachers' reported making instructional modifications to ensure student progress toward meeting the SLO target and the teacher perceived impact of SLOs on student learning ($r = .235$, $p = .006$). In other words, the more teachers report modifying their instruction based on the SLO, the more likely they are to believe SLOs have had a positive impact on student learning.

A one-way ANOVA shows that there is significant variation across districts in teacher responses to the extent to which SLOs played a role in what teachers taught and the strategies they used ($F = 8.903$, $p < .001$). Teachers in Districts 3 and 4 reported significantly higher levels of impact on what and how they taught than teachers in District 1. However, a one-way ANOVA reveals no significant differences in teacher responses across districts regarding the impact of SLOs on student learning ($F = .9696$, $p = .409$). As such, even in districts in which teachers report more positive perceptions of the impact of SLOs on instruction, teachers in these districts are not any more likely to believe that the positive impact affects student learning.

Leader Views on Impact. Principal beliefs regarding the impact of SLOs on teacher instruction appeared to vary by district as well: principals from Districts 2, 3, and 4 believed that SLO implementation has improved instruction, whereas responses from District 1 principals were mixed. In general, principals from Districts 2-4 were able to give specific examples of how teachers were using SLOs to improve instruction. One principal from District 3, for example, said "SLOs have had a positive impact of teacher instruction and performance" and gave the following example:

> At the beginning of the year, say we have given the SLO in first grade for math and in numeration some of the skills, 85% of the kids missed it. Then we can look at that, we may have another skill on SLO that's a standard we have to cover and maybe 50% of the kids already knew that on the pretest. So when we plan our instruction we are going to try to provide more support to those standards on the SLOs where the majority of the kids don't know the skill than those standards that the majority of the kids do know and that way we can just stand out the kids that don't know a particular skill and differentiate that by giving them support there when other kids may not need that and may be ready to work on other skills.

Additionally, a principal from District 2 noted:

> The [SLO] data is used in a large part to help teachers differentiate instruction for their students and that happens in different settings if you will. There is the general classroom

instruction in which you are going to be mindful of again students reading levels and students degrees of literacy but then also we have a portion of the day that is called instructional focus and during our instructional focus time this is a, it is not a true pull out time but it is pulled out of the schedule or separated from the schedule where teachers work to either remediate students or enrich and accelerate students, and we do get more flexible with our staff during that portion of the day. So if there are students receiving early intervention services, they that would go to the early intervention teacher during this part to the day to work with them and their areas of need. And, the SLO data is the key starting point for how we would group students and also the sorts of domains and or specific categories of content… we would work with them on. So that data is definitely provided by our SLOs.

On the other hand, two principals from District 1 clearly stated that they did not think SLO implementation has led to any improvement in teacher instruction. When asked "Have you noticed any positive changes among your teachers as a result of implementing SLOs, for example, more involvement in analyzing student data or better understanding of the standards?", a District 1 principal said "No, I wouldn't say that our SLO implementation is helpful for that; there are other things that we do that actually take care of that."

While the remaining two principals from District 1 believed that their teacher's instruction has improved as a result of SLO implementation, both principals spoke in generalities about the value for teachers in having targets for students and data to look at, but failed to point to specific ways in which it has helped improve instruction. For example, one principal said "I think it has helped with teacher accountability and the teachers realizing that they have to meet certain targets and their students also have to meet certain targets and gives some kind of… outline of how they can, with the pre-test, plan instruction and provide resources to meet the needs of their students." Neither of the principals pointed to specific actions teachers were engaging in that suggested an impact of SLOs on teacher instruction. Therefore, it is possible that these views were simply "wishful thinking" on the part of administrators who are not necessarily witnessing the actions that they are being asked to speak of.

Research Question 4
Based on feedback from teachers and principals, what are some potential **barriers** *to teacher and leader buy-in (or engagement) with SLOs?*

Teacher and leader survey and interview responses illuminate several factors which appear to impede the use of SLOs as a valid accountability indicator, a useful instructional tool, and ultimately, an impactful vehicle for improving student achievement. These factors include:
1) lack of teacher and leader involvement in the development and refinement process of the SLOs; 2) teacher/leader concerns about the comparability of assessments; 3) lack of standardization across test administration and scoring; 4) teacher/leader concerns with targets and target setting; and 5) SLO score reporting issues such as format and timing.

Each of these factors is discussed in greater detail below. Importantly, each of these factors can be addressed through policy changes made at the district and/or state level. These changes require mostly small modifications to the SLO process, such as guidelines to the districts to ensure more consistent implementation of SLOs.

Lack of teacher/leader involvement in the assessment refinement process. Based on our findings, a primary factor affecting SLO buy-in is the quality of the test, which was also identified by Lachlan-Hache and colleagues as a primary challenge with SLOs in general (2012, 2015). During the qualitative interviews, teachers in each of the districts took issue with individual items and alignment with grade-level standards. These teachers also expressed the desire to be involved in the review and refinement process of the assessments. The contrast between teacher and leader views in District 1 and 4, in particular, highlights the effect teacher involvement can have on SLO buy-in, despite the unavoidable concerns about test quality in the beginning of SLO implementation. As evident by data collected during team meetings with the principal and teachers in District 4, teachers in this district did express concerns with the assessments and the way they were scored, but teachers felt they were provided with an avenue to voice their concerns and have an impact on assessment refinement. It is likely due to this feeling of efficacy that these teachers were more likely to report on the survey that they believed the results reflected student learning, and indicated that they used the SLO results to talk about specific students' performance throughout the year.

Teachers in District 1 were also concerned about the quality of assessments, but it was evident that they felt disconnected from assessment development. These teachers ultimately viewed the SLOs as detached from what was being taught in the classroom and not reflective of student learning or teacher ability. Further, one principal we spoke to in District 1 expressed feelings of helplessness regarding having a say in the choice and refinement of assessments, and due to her concerns with the test, did not feel that she could foster an environment for her teachers that focused on SLO test score improvement.

The contrast in teacher/leader involvement in SLO creation and variation between District 1 and District 4 suggests the need to find ways, particularly in larger districts, to bring teachers and leaders into the SLO development process and create mechanisms for them to provide feedback to the district. This issue, as discussed in detail in Lachlan-Hache et al. (2012), is nuanced in that educator involvement may be more difficult to ensure in larger districts and states, yet educator buy-in appears to be greater when educators are involved in creating/selecting the assessments.

Concerns about comparability of assessments. Common across districts is a concern among teachers and leaders with the lack of standardization of SLO assessments and the subsequent fairness of results. In an open-ended response on one of the survey items, one teacher summed up this concern: "I believe SLOs are a fair way to show growth of students in each classroom. I question, however, if it is the best way to compare teachers amongst one another." Teachers and leaders appeared to worry that the assessments in their districts are more difficult than the assessments used by other districts. As a result, every teacher interviewed expressed a preference for a system with greater comparability in SLO assessments across the state –even preferring standardized assessments to teacher-created assessments. As one teacher wrote, "It is not fair that some teachers are evaluated only by EOC [standardized end of course assessments] results and others on a SLO that the teacher (in many cases) created. My measure will be based on 4 EOC tested classes and 1 SLO class. Whatever happened to equality in evaluations?". Another wrote "I think that [the state] should require the same SLO be given across the state - the expectations should be the same."

True comparability among assessments is difficult to ensure, in that true psychometric invariance among tests created by local entities will be impossible to achieve (Marion & Buckley, 2016). However, evident in teacher comments is the notion of fairness: inherently teachers do not believe it is fair to be judged by tests

that differ (1) within grades/subjects and across districts (2) within districts, across grades/subjects. As such, designing assessments which teachers believe are both aligned to their curriculum and holding teachers teaching the same course, across districts, to similar standards, will be important to the perceived validity of SLOs, and ultimately, to the successful implementation of the entire SLO process. We believe that this can be accomplished in part, through greater teacher involvement and feedback in the assessment development process.

Lack of standardization with test administration and scoring. Related to issues with the comparability of assessments is a perceived lack of standardization in how tests are being administered and scored within and across districts. As one teacher wrote "Much of the SLOs are subjective...if the teacher is grading their own, are we really getting accurate information?" This was also noted by most principals as a primary concern when asked whether SLOs were capable of producing valid results. The issue, as Marion et al. (2012) describe, is that teacher-led administration and scoring of assessments that will affect teacher jobs offers teachers a built-in incentive to, if not directly cheat, perhaps unconsciously influence the results. As Marion et al. state (2012, p. 5), teachers may feel pressure to "tell their students not to worry too much about the pretest since it 'doesn't count', while knowing that it certainly counts towards their evaluation". Under this scenario, students will be more likely to meet their target scores if their pretest score is biased downward, effectively improving teacher scores. Such issues may be addressed by having teachers swap administration and scoring of their classroom's assessments, as some districts are beginning to do.

Concerns with targets and target setting. Creating realistic yet ambitious growth targets is a difficult endeavor, as is ensuring that teachers and principals understand the process by which student target scores are established. Based on teacher and leader responses from select districts, the process by which districts set student growth targets based on pre-test scores remains somewhat of a "black-box" to almost all of the teachers and even leaders. Teachers who were interviewed either indicated that they did not know how target scores were established, or revealed misconceptions in their understanding of the process. Another factor brought up by teachers during informal focus group conversations was the concern that growth targets, like the assessments, might require greater student growth in their districts compared to other districts.

In addition to the potential lack of clarity and concerns of comparability regarding the calculation of target scores, teachers were also concerned about the fairness of the target for all students. Specifically, some teachers took issue with the fact that all students within a classroom with the same pretest score would have the same target score, regardless of disability status and language proficiency. As one teacher wrote, "While I believe the targets are appropriate for most of the students in my classroom I think it is ridiculous and inappropriate to give the same [SLO] to special ed[ucation] students." Another wrote "I have inclusion students, who may show great progress and still not meet SLO objectives." And a third stated "Some students are way below grade level so it will be extremely difficult for them to perform well on grade level objectives." As such, if a student is entering a grade below grade level, then it is unlikely that he or she will show much growth on a test that is measuring grade level performance.

Ultimately, target setting is a difficult enterprise (Lachlan-Hache et al, 2012; Briggs et al., 2015), and our findings suggest that greater transparency and professional development on the target-setting process is necessary to ensure teachers buy-in to the SLO process.[10]

Issues with how scores are reported. A final factor impeding teacher buy-in of the SLO process was how the SLO scores were reported. In District 1, teachers are only told whether or not their students are proficient on the pretest and posttest, and do not have access to any other information, including whether or not students' target scores have been met. Responding to the survey, one teacher wrote: "The actual data for the SLOs would be more helpful than an overall score. (i.e., Steven got the following standards correct/missed)." Likewise, another wrote "Also, we do not get to keep the pretests, only the scores…if I don't have the specifics, how will I know how my students performed on each standard?" In District 4, on the other hand, teachers are given student pretest scores, target scores and posttest scores, and can calculate for themselves whether each student met their target score. Teachers we spoke to in this district found this to be very helpful for understanding student performance. Nonetheless, teachers in both districts noted that receiving student results at the end of the year made it difficult to make adjustments to their instruction or help individual students before the school year ended.

While little can be done in terms of the timing of the reporting, holding score reports to a standard of quality around how and what information is reported, and when teachers are able to view results, can (a) help teachers to potentially use the data to improve instructional practice in the following year; (b) improve teachers' understanding of actual student growth; and (c) improve teachers' understanding of how that student growth ties into their own evaluation scores. Such changes in district reporting will go a long way toward improving the use and validity of SLOs.

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[10] Briggs et al (2015) offer an innovative approach to setting growth targets in which all students are held to the same standard based on a learning progression framework, and teachers' evaluations are based on how much students learned from baseline toward the ultimate goal. While such an approach may alleviate many of the concerns and issues teachers currently have with target setting, we recognize that it takes considerable work on the part of districts and schools to develop and implement this approach.

DISCUSSION

In what follows, we take the opportunity to re-orient the findings in light of the theory of action, discuss a common theme found across educator comments, and highlight limitations of our analyses and how these limitations affect the interpretations we can draw.

Bringing it All Together: The Theory of Action for SLOs

In order for SLOs to be instructionally useful, teachers need to be monitoring student progress toward SLO goals/targets and modifying their instruction to adapt to student needs. Despite the fact that many teachers reported in the survey that they were making monthly instructional modifications as a result of SLOs, we noticed an incongruence between the way teachers spoke of their day to day practice, and the way they spoke of the SLO process. In other words, it appeared as though teachers viewed SLOs as completely separate from the work of teaching. The reason for this appears to be two-fold: First, the state's pre-post format lacks any connection to the progress-monitoring assessments that are used throughout the school year. As one teacher wrote, "I have used data in previous years that measured student growth that impacted my instruction. This data was continuously collected and impacted my instruction throughout the year. I feel that there could be better assessments given [than the SLO assessments]." Second, the measure is viewed as purely a top-down accountability tool that hasn't been integrated into teachers' day to day practices. As one teacher succinctly commented, "SLOs have nothing to do with learning in the classroom."

Given these issues, one of the challenges with SLO implementation will be creating a seamless connection between SLO results and the progress monitoring that occurs with school- and district-determined measures as well as naturally throughout the school year by good teachers. For example, lacking formal interim assessments tied to the SLO, teachers we spoke to in District 4 were beginning to create their own interim assessments based on items tied to the curriculum (and from which the SLO assessments were derived) in order to assess student performance toward SLO targets throughout the year. However, no teacher discussed the connection between the results from school- and district-created interim assessments and SLO results. Therefore, district supports for SLO progress monitoring, based on interim assessments tied to the end of year SLO assessments, or practice items teachers can use to create their own formative assessments to monitor progress towards SLO targets, may allow teachers to see the connection between their daily practice and the SLO assessments that are given only at the beginning and end of the school year.

The theory of action of SLOs breaks down when teachers do not see a connection between progress-monitoring assessments administered throughout the year and SLOs. As soon as teachers begin seeing the SLOs as relevant to, and reflective of, their practices in the classroom, the perceived utility of the SLO process and results will likely increase. Along with an increase in perceived validity should come greater returns in the form of teacher buy-in and engagement with the entire process. Ultimately, it will be difficult for any state to fulfill the goal of improving instructional practice through the use of SLOs if teachers and leaders do not see the connection between their routine progress monitoring and the SLO process.

A Focus on Fairness

In general, teachers and leaders are supportive of the idea of using measures of student learning in courses without standardized assessments as a component of a comprehensive educator evaluation system. However, educators had concerns about how SLOs were being implemented that appear to affect their perceptions and use of SLOs. At their core, these concerns were about fairness. Teachers and leaders, especially those that felt removed from the test development process, had concerns with the quality of the pre- and post-test measures, and consequently, the trustworthiness of SLO results. Teachers did not feel it was fair to be held accountable for test results that they did not view as accurate measures of student learning. They were also skeptical about the fairness of the learning targets, particularly for students with special considerations, such as special education students, students with limited English proficiency, and those coming in far below grade level.

Another concern regarding fairness, voiced by all principals and teacher groups that we interviewed, is related to the comparability of teacher SLO results across districts in the states. Teachers and leaders were worried that since tests varied across districts, they cannot be assured that students and teachers are held to the same standard of rigor across the state. Relatedly, educators were concerned about the potential corruption of results since tests were often administered and graded by the same teacher who would be evaluated by the SLO score. Further, teachers were concerned about the the fairness of an evaluation system that compared their results, which were based on assessments with serious quality issues, to that of teachers in tested grades and subjects, whose results were based on standardized assessments. Concerns about fairness are not unique to the studied state and need to be a continual area for refinement as we continue to learn more about SLOs and their impact on teaching and student learning.

Limitations

There are three main limitations to the design and results of this study: 1) a limited response rate from principals and teachers, 2) small sample size of districts, and 3) timing of study. First, because of the low survey response rate, one concern is that those who chose to respond are not representative of the entire population of teachers. In this case, it may be that those who chose to respond to the survey are teachers who are particularly dissatisfied with the SLO system and therefore had more motivation to take the time to voice their concerns. Likewise, principals were interviewed only if they chose to be part of the study. Therefore, it is possible that those who chose to be part of the study had more negative perceptions of the SLO system. This would mean that results regarding the general favorability of SLOs are downwardly biased. This possibility should be taken into account when considering the results we present.

Secondly, since only four districts participated in this study, this research provides only a snapshot of teacher and leader perceptions of the validity, utility and impact of SLOs. Importantly, since SLOs are created at the district level, it is not possible to generalize to the nearly 200 districts in the studied state. However, given the variation in SLO implementation illuminated by our case study of these four districts, findings from this report provide insight into the variability of perceptions that may exist in the state. This means that while the results presented in this report should not be interpreted as representative, it is still possible to make inferences about the relationships that exist between district processes and educator perceptions.

A final limitation is that principals and teachers were interviewed in 2014-15, when districts were still in the process of refining their SLO system and SLOs were not yet used for high-stakes decisions. While teachers and leaders were generally familiar with SLOs and the SLO results, they were being asked about SLO components that may have not been finalized. Further, teachers and leaders had not yet seen how the SLO score would be tied to personnel decisions. Because educator opinions are likely to evolve as SLOs are finalized and have an influence on teachers' jobs, the findings of this study should be viewed as preliminary. We recommend that further research be conducted to monitor teacher and leader implementation and perceptions as SLOs are finalized and the results become more personally relevant.

CONCLUSION

Though Student Learning Objectives have been growing in popularity as an indicator of student growth in teacher evaluation systems, little research exists on teacher and leader views of SLOs as both an accountability tool and an instructional tool. This study provides much needed insight into how teachers and leaders perceive and engage with SLOs across districts in ways that affect SLO implementation. We found that educators have a nuanced view of SLOs. While teachers appreciate having a measure of student growth in their classroom, issues around assessment quality, comparability, and usability of results shape their views and ultimately use of the SLOs as a tool for instructional improvement. Further, we found that educators in the studied sample perceive SLOs as separate from their teaching due to a lack of involvement in the process, and a lack of data throughout the year connecting results from SLO assessments to student growth in their classroom.

This study reinforces the notion that SLOs are not a simple fix to the problem of a lack of student growth data in non-tested grades and subjects. Investments of time and effort are required for planning, communicating, and training educators in order to ensure that SLOs are connected in systematic ways to teachers' daily practice and to ensure that there is fairness in outcomes across teachers. Moreover, simply requiring SLOs is not going to lead to the desired improvements in teaching and learning unless teachers feel more involved in the process of creating the SLO. One way to do this is through a human-centered design approach, which puts the focus of SLO development and implementation on the needs of the teachers and students rather than on district or state-level administrators (see Mehta, 2016). Ultimately, the issues raised in this report deserve serious attention, especially as states continue to refine their educator evaluation systems and related supports, and move forward with including SLOs as part of their high-stakes teacher and school accountability systems.

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