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Career and Technical Education Teachers' Perceptions on The Use of Student Data in Teacher Evaluation: A Comparative Study

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Abstract:

The study determined Career and Technical Education teachers' perceptions on the use of student growth data in teacher evaluation, as aligned with the Personnel Evaluation Standards developed by the Joint Committee on Standards for Educational Evaluation, and as compared to results from a similar nation-wide study of K-12 teachers. Research methods included a web-based survey and semi-structured interviews. Findings revealed teachers believed the use of student growth data in teacher evaluation was useful for identifying student/teacher strengths and weaknesses. Teachers did not believe in the accuracy of student growth data used in their teaching evaluations citing issues with assessment validity and student contextual factors. Nonetheless, teachers agreed that student data should be a component of CTE teacher evaluation, if valid and reliable measures of student academic growth were available. Study findings and author recommendations may be useful to educational leaders from other schools with career and technical education programs.

Keywords: Career, education, teacher, evaluation, data, policy, assessment, standards

1. Introduction

In an effort to have highly effective teachers in the classroom, many states in America have recently developed teacher evaluation systems that include student growth data as a substantial portion of teacher evaluation. Reading and math teachers have access to data from student growth models such as value-added estimates or student growth percentiles calculated from standardized assessments. These statistical calculations use data to "track individual students' academic growth over several years and in different subjects in order to estimate the contributions that teachers make to that growth" (Braun, 2005. p.3).

The use of such models in research has yielded unprecedented findings about teacher effectiveness (Hanushek, Kain, & Rivkin, 1998; Jordan, Mendro, & Weerasinghe, 1997; Kane, McCaffrey, Miller, & Staiger, 2013; Nye, Konstantopoulos, & Hedges 2004; Rockoff & Speroni, 2011; Sanders & Rivers, 1996; Wright, Sanders, & Horn, 1997). While there is some scholarly discussion on the reliability and validity of the results produced from these systems (Amrein-Beardsley, 2008; Koedel & Betts, 2005; McCaffrey, Sass, Lockwood, & Mihaly, 2009; Schochet and Chiang, 2010), these models are widely supported as effective measures of teacher effectiveness.

Yet, unlike reading and math teachers who have access to data from student growth models based on standardized assessments, Career and Technical Education teachers, in this study, taught subjects for which no value-added measures or state-level standardized assessments existed. For this reason, these CTE teachers struggled to identify valid and reliable student growth measures where no standardized assessments existed. The lack of valid and reliable growth measures may be a concern for most teachers. According to a 2009 study by Prince et al., approximately 69 percent of K-12 teachers, surveyed nationwide, taught subjects that were not tested by a state-level or nation-wide standardized test and therefore, did not have access to student growth models. Nevertheless, most states require these same teachers to produce evidence of student growth just like those teachers who have available value-added data.

When it comes to assessing student growth, the stakes are higher now than in the past because administrators may use results not only for instructional decision-making but also for human resources decision-making concerning teachers' jobs. Assessment results must hold up to rigorous scrutiny from administrators during the teacher evaluation process. In addition, teachers must accept the selected measures as a fair representation of student growth and teaching contributions (Guskey, 2007; Lane, Parke, & Stone, 1998). If teachers do not view selected measures as a fair representation of student growth and teaching contributions, then they are not likely to view the use of student growth data in teacher evaluation as a fair and reasonable requirement.

The Association for Career and Technical Education (ACTE, 2014) does not take an official position on the use of student growth data in teacher evaluation (C. Imperatore, personal communication, July 9, 2014). However, the organization has advocated that states should "involve CTE educators in any new processes related to teacher effectiveness, ensuring that the unique needs of these educators are considered" (ACTE, 2012, p.1). The organization has also shown support for the use of

student growth measures, in general, for accountability purposes as evidenced by their recent policy recommendations (ACTE, 2013) for the reauthorization of the No Child Left behind Act of 2001. Among other recommendations, they proposed that the federal government require states to “more accurately reflect student learning progress” through the use of “multiple assessments to measure student progress, including the use of CTE [industry] credentials and measurements” (p. 1). An examination of literature published in ACTE’s news magazine, *Techniques*, from 1996 to 2014, revealed two articles that addressed teacher evaluation as an important aspect of developing effective teachers (Jacques, 2014; Rhodes, 2014). One of these addressed the use of student growth data in teacher evaluation (Jacques, 2014). This indicates that the use of student growth data in CTE teacher evaluation is an area ripe for future attention by the ACTE.

1.1. Purpose of the Study

The purpose of the study was to gain CTE teachers’ perceptions on the use of student growth data in teacher evaluation. Findings provided CTE leaders, teachers, and other stakeholders in a large American school district in Virginia, serving 26,000 students annually, with evidence-based judgments about the perceived effectiveness of the use of student growth data in a recently state-mandated teacher evaluation program, specifically as related to CTE. A secondary goal of the study was not only to analyze CTE teachers’ views on the use of student growth data in teacher evaluation, as mandated by the state, but to also compare their views with those of K-12 teachers from Hopkins (2013) nationwide study.

1.2. Conceptual Framework

The Joint Committee on Standards for Educational Evaluation (JCSEE, 2009) developed the Personnel Evaluation Standards to guide the evaluations of educational professionals, including teachers. The Standards represent a set of principles mutually agreed to by the Committee “that, if met, will enhance the quality and fairness of that professional practice” (p.3) and when applied, may provide educational organizations a solid foundation for meeting the high standards in teacher evaluation. The Standards provide a set of principles based on the four essential attributes of sound evaluation practice: propriety, utility, feasibility, and accuracy. States and school districts continue to rely on these performance standards to develop, implement, and assess teacher evaluation systems (Ahmady et al., 2009; Ellett, Wren, Callender, Loup, & Lui, 1996; Reineke, Willeke, Walsh, & Sawin, 1988). The standards, often referred to as the PUFA Standards, guided the research questions in this study (JCSEE, 2014). Below is a brief synopsis of each standard.

- Propriety - Teacher evaluation systems should carry out evaluations that are legal and ethical, specifically as related to the welfare of the evaluate and others involved in the evaluation.
- Utility - Teacher evaluation systems should provide evaluations that are informative, timely, and influential with a focus on professional growth toward achieving their organizations’ missions and goals.
- Feasibility - Teacher evaluation systems should strive to be easy to implement, efficient, adequately funded, and politically viable. Evaluation systems should involve practical procedures that do not disrupt the daily functioning of the organization.
- Accuracy - Teacher evaluation systems should produce evidence-based and defensible personnel evaluation results in regards to expectations for job performance, evaluation results, data processing and storage, and soundness of the evaluation process overall.

1.3. Research Questions

The study answered four primary questions related to teachers’ perceptions on the use of student growth data in their teacher evaluations as aligned with the JCSEE (2009) Personnel Evaluation Standards. To what degree do CTE teachers perceive the use of student growth data in their teacher evaluations as aligned with?

- The propriety standard of the JCSEE Personnel Evaluation Standards?
- The utility standard of the JCSEE Personnel Evaluation Standards?
- The feasibility standard of the JCSEE Personnel Evaluation Standards?
- The accuracy standard of the JCSEE Personnel Evaluation Standards?

The study also compared the findings from the above questions with the findings from Hopkins (2013) nationwide study of K-12 teachers using the same survey.

2. Review of Related Literature

Teacher effectiveness is key to student academic achievement. Growing evidence over the past two decades confirmed that the teacher is the most important school-based factor in determining the level of student achievement (Hattie, 2009; Nye et al., 2004; Rivkin, Hanushek, & Kain, 2005; Sanders & Horn, 1998). These studies showed that teacher effects on student achievement are powerful. Teacher effects on student gains were both cumulative and residual (Gordon, Kain, & Staiger, 2006; Jordan, Mendro, & Weerasinghe, 1997; Sanders & Rivers, 1996). As teaching effectiveness increased, student gains were realized with the lowest achieving students first, followed by average achieving students. The highest achieving students showed acceptable gains only when they had a highly effective teacher. Such findings suggest that “student achievement can, and indeed should be, an important source of feedback on the effectiveness of...teachers” (Tucker & Stronge, 2005, p. 102).

Federal initiatives in the early 21st Century awarded funding to states and schools that linked teacher effectiveness with evidence of increased student achievement (American Recovery and Reinstatement Act of 2009; Steele, Hamilton & Stecher, 2010; U.S. Department of Education, 2010). Furthermore, school districts were encouraged to use student achievement data "to inform human capital decisions such as: professional development, compensation, promotion, retention, tenure, and removal" of teachers (US DOE, 2010, p. 34 as cited in Silva-Mangiante, 2011). These initiatives led to widespread restructuring of America's teacher evaluation systems. At the time of the study, almost 35 states and the District of Columbia Public Schools had made policy changes in their teacher evaluation systems to include objective evidence of student growth as a substantial component, or the most heavily weighted component, in teacher evaluation; up from 15 states in 2009 (Doherty & Jacobs, 2013).

In most cases, school districts calculate student growth using statistical models based on results from standardized tests. Yet, CTE teachers are challenged to identify valid and reliable student growth measures for courses where no standardized assessments exist (Prince et al. 2009). This lack of valid and reliable assessments may lead teachers to believe that the use of student growth data is an unfair measure of their teaching contribution (Guskey, 2007; Lane et al., 1998).

Organizations should base their teacher evaluation systems on quality educational evaluation standards such as those established by the JCSEE (1988). Organizations should also include the perspectives of teachers when adopting new teacher evaluation systems (Stronge & Tucker, 1999) because the success or failure of a new teacher evaluation system, such as those based substantially on student growth data, may depend on the teachers' level of support for the new initiative (Lane et al., 1998; Peterson & Peterson, 2006). Moreover, the high-stakes nature of many new systems makes teachers the primary stakeholders when using student growth data in teacher evaluation because they will reap the consequences of accountability (Guskey, 2007).

In spite of this information, teacher perceptions on changes at the organizational level have been largely unexplored (Richardson & Placier, 2001). "Measuring teachers' perceptions on the new policy helps both policy makers and school principals to analyze the problems teachers expect caused by the policy and to provide solutions for these problems" (Tuytens & Devos, 2009, p. 929). By doing so, educators and educational professional are ultimately more likely to achieve their goal of increasing student academic growth. Teacher perceptual data provides a unique source of knowledge about what works, what does not work, and what simply need adjustment in teacher evaluation (Avalos & Assael, 2007; Flores, 2012; Zimmerman & Decker-Pelton, 2003).

3. Methods

The study utilized mix-methods approach designed to yield quantitative and qualitative data useful for program decision-making. There were two data collection approaches: a survey and interviews. Quantitative data from the survey were analyzed using descriptive statistics; mean and standard deviation were calculated for each item. Qualitative data from the two open-ended survey questions and interview responses were analyzed using a priori codes for propriety, utility, feasibility, and accuracy as well as emergent themes.

3.1. The Survey

One hundred ninety-eight CTE teachers were invited to take an online survey that included 30 forced-choice items with responses in a Likert-type scale where participants indicated whether they strongly disagreed (= 1), disagreed (= 2), agreed (= 3), or strongly agreed (= 4), with statements focused on perceptions of propriety, utility, feasibility, and accuracy of the use of student performance data in teacher evaluation. A four-point scale was selected in order to force participants to respond in either a favorable or non-favorable direction, rather than taking a neutral stance, as might be the case given a five-point scale. The survey also asked participants to identify three things they favored and three things they feared with respect to the use of student performance data in their teacher evaluations. The survey collected demographic information on the (a) teacher's educational setting; (b) years of teaching experience; (c) type of teacher licensure; and (d) type of student growth measures (assessments) being implemented at the time of the study. The survey was a modified version of Hopkins (2013) survey and used with permission from the author. Finally, teachers were invited, via the survey, to participate in a follow-on interview.

3.2. The Interviews

Four teachers with "pro" perspectives and four teachers with "con" perspectives, as identified by the four highest and four lowest survey response averages, participated in individual face-to-face interviews lasting approximately 30 minutes each. Six interview questions yielded qualitative data that provided answers to the evaluation questions. Two demographic items and the first two interview questions provided context for the teachers' responses.

3.3. Demographic Data

CTE teachers' survey participation, 14.5% of the CTE population, resulted in solid representation of teachers from each educational setting and type of selected student assessment compared to the CTE population as a whole. Solid representation in these areas increased the validity of findings. However, survey participants had more years of teaching experience and higher levels of education than the school district's CTE population as a whole. Greater participation of more

experienced and well-educated teachers is consistent with research on survey participation by Clarke and Rees (1989) as discussed previously.

4. Findings

Overall, the quantitative and qualitative data were aligned and supported findings from Hopkins' (2013) nation-wide study of K-12 teachers.

4.1. Quantitative Data

Four survey items related to CTE teacher perceptions on the use of student growth data in their teacher evaluations as aligned with the propriety standard (JCSEE, 2009). The majority of CTE teachers believed the new evaluation system would not: a) lead to more accurate evaluations (62%), b) lead to a more meaningful process (74%), c) help administrators more accurately evaluate performance (74%), nor help administrators identify poor performing teachers (67%).

Ten survey items related CTE teacher perceptions on the use of student growth data in their teacher evaluations as aligned with the utility standard (JCSEE, 2009). Evaluation question two produced varied results. Overall, CTE teachers did not believe that the use of student growth data would provide useful information toward improving instruction or identifying professional development opportunities. While 58% of teachers believed their new teacher evaluation system would cause them to focus more attention on assessment data and allow them to identify student academic strengths and weaknesses, only one-third of participants believed the use of student growth data in their evaluations would provide useful information for instructional improvements or lead to meaningful professional development. Figure 1 provides comparison data related to the utility standard.

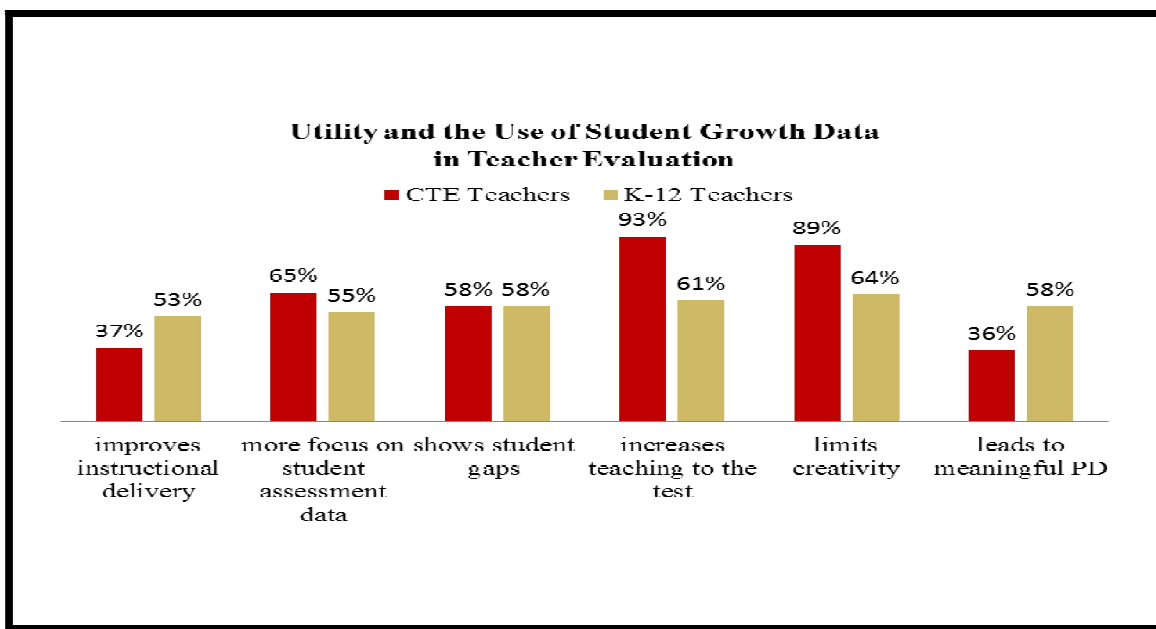


Figure 1: A Comparison of CTE Teacher Responses to K-12 Teacher Responses (Hopkins, 2013) in Regards to Utility, the Graph Shows Teachers That Agreed/Strongly Agreed with the Statement

Four survey items related to CTE teacher perceptions on the use of student growth data in their teacher evaluations as aligned with the feasibility standard (JCSEE, 2009). Teacher perceptions in the area of feasibility produced mixed results. When asked whether student growth data as one performance standard in teacher evaluation, is a responsible use of such data, CTE teachers were evenly-split and less likely than K-12 teachers to agree with this statement (52% CTE/61% K-12). When asked if teacher evaluation should include data on how students performed on appropriate and valid performance assessments, 74% of CTE teachers agreed or strongly agreed, compared to 61% of K-12 teachers, that teacher evaluations should include such data. Teacher perceptions in the area of accuracy may provide some insight into these mixed findings.

Twelve survey items related to CTE teacher perceptions on the use of student growth data in their teacher evaluations as aligned with the accuracy standard (JCSEE, 2009). Overall, teachers did not believe that their new teacher evaluation system provided accurate and reliable evaluations of teaching performance. Three-fourths (75% or more) of the survey participants believed that the new system did not increase the objectivity of evaluations, improve the process through justifiable and documented performance, or help administrators rank teachers by identifying teacher strengths and weaknesses. However, the fact that 74% of teachers believed that teacher evaluations should include student growth data suggests that teachers believed that such evaluation systems can provide accurate and reliable evaluations of teacher performance but that their

current system, based on faulty student growth measures and resulting data, did not result in accurate and reliable evaluations of their teaching performance.

Figure 2 provides a visual comparison of CTE teacher responses to K-12 teacher responses (Hopkins, 2013) in regards to the accuracy of the use of student growth data in teacher evaluation.

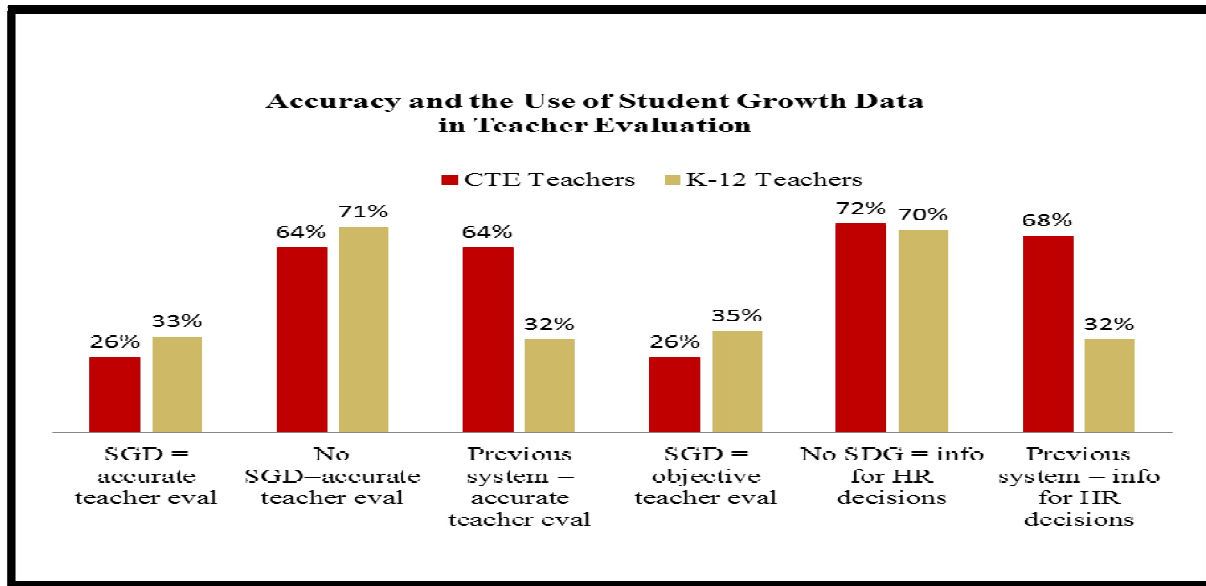


Figure 2: A Comparison of CTE Teacher Responses to K-12 Teacher Responses (Hopkins, 2013) in Regards to Accuracy, the Graph Shows Teachers That Agreed/Strongly Agreed with the Statement, SGD = Student Growth Data

4.2. Common Themes from Qualitative Data

Two open-ended survey items and in-depth interviews provided teachers opportunities to discuss and expand on what they favored and feared in regards to the use of student growth data in teacher evaluation. Favorable themes centered on the service and utility nature of the use of student growth data in teacher evaluation. Interview responses revealed teachers clearly valued the formative nature, rather than the summative nature, of the use of student growth data for improving instruction. Teachers believed the use of student data in teacher evaluation provided information about strengths and weaknesses in individual students' academic performance (propriety & utility). They also believed that student data in teacher evaluations, if accurate, would allow beneficial comparisons between teachers and across schools (propriety & accuracy) as well as allowing comparison of teacher performance from one year to the next (accuracy).

Unfavorable themes related to the propriety, utility, and accuracy of the use of student growth data in teacher evaluation. Teachers perceived a lack of validity of the student assessments and/or resulting data being used in their teacher evaluations, reporting that a) student assessments did not accurately gauge the students' skills and abilities, specifically related to the authentic nature of CTE classes; b) CTE industry credential assessments and district-developed assessments often lacked curricular alignment; and c) the aggregate student data did not provide a true picture of the CTE teacher's instructional capabilities. Teachers believed that student factors such as apathy, chronic absenteeism, and poor attitudes toward CTE testing, among some students, negatively impacted the aggregate student data, and ultimately, teachers' evaluations.

Teacher interview responses suggested that teachers believed the use of student growth data was a top-down mandate over which they have little input or control. Responses from CTE teachers in middle and high schools suggested that the use of student growth data was something teachers do for administrators rather than a tool that teachers and administrators might use collaboratively to drive instructional decisions. Finally, teachers expressed uncertainty in the areas of propriety and utility with concerns on how evaluation results that included student growth data would ultimately be used, by whom, and for what purposes.

There were several areas where CTE teacher perceptions differed from K-12 teachers. CTE teachers were more likely to agree that the use of student growth data increased "teaching to the test" (93% CTE/68% K-12) and limited instructional creativity in their classes (89% CTE/64% K-12). CTE teachers were less likely to agree that the new system would result in meaningful professional development (36% CTE/58% K-12). Unlike teachers nation-wide, the CTE teachers in this study expressed more faith in their old teacher evaluation system that did not include the use of student data than in their new system that did include the use of student data.

5. Recommendations for Practice

Based on the findings from this study, there were seven recommendations for practice. These recommendations may be useful for any school district that finds their CTE department grappling with the use of student growth data in teacher evaluation.

5.1. Recommendation #1

The state and school district should ensure teachers have valid and reliable assessments clearly aligned to each CTE course curriculum that can be used to measure student growth. Since CTE teachers are required to teach from an established state-wide curriculum, the state department of education bears a responsibility to assemble test development teams consisting of teachers, specialists, and test development experts to develop valid and reliable pre- and post-assessments for each CTE course. Course assessments should include a component of authentic assessment to measure CTE knowledge and skills. Additionally, a test-item data bank would allow teachers to create interim assessments used for formative assessment purposes (Brindley, 2001; Stronge & Grant, 2009; Tanner 2001). Several states have implemented similar CTE assessment practices (Arkansas Department of Career Education, 2015; North Carolina Department of Public Instruction, 2015; Ohio Department of Education, 2015).

State-level standardized pre- and post-course CTE assessments would: a) support CTE teachers across the state as well as provide the ability to compare data across teachers, schools, and districts (Oliva & Gordon, 2013); b) improve teachers' favorable perceptions of assessment reliability and validity and ultimately their perceptions of the fairness of using the assessment results in their teacher evaluations (Lane et al., 1998; Stronge & Grant, 2009); c) potentially reduce student apathy about testing because students may be more likely to see the link between what they are learning in the classroom, real-world applications, and what is tested (Kozol, 2005; Thompson & Allen, 2012); and d) reduce "teaching to the test" because test developers would clearly align the assessment to the pre-established course curriculum.

Educational leaders must invest the necessary time and resources to ensure accurate and reliable student growth measures for appropriate use in teacher evaluation (Lukin, Bandalos, & Eckhout, 2004).

5.2. Recommendation #2

Address teachers' concerns about student contextual variables that teachers perceived skew student growth data. Teachers expressed concerns and uncertainty about how to handle certain contextual variables, such as chronic absenteeism, student learning disabilities, and student apathy in regards to testing, that they perceived impacted the accuracy of student growth data. Whenever possible, the school district should provide guidelines or policy to address recurring and commonly cited issues. School districts should provide an avenue for teachers to provide administrators with information about extenuating student circumstances and abnormalities they believed unfairly impacted aggregate student growth data. Teachers' supplementary information may help evaluators draw more accurate and justifiable conclusions about teacher performance and provide teachers a level of satisfaction that they can provide context for decision-making purposes.

5.3. Recommendation #3

School principals should have quality conversations with CTE teachers surrounding their student growth data. Principals must be skilled in assessment leadership and drive quality conversations with teachers surrounding student data in order to support student achievement and teacher improvement (Hellsten, Noonan, Preston, & Prytula, 2013). School districts should provide professional development to those who lack assessment knowledge and skills. Such knowledge and skills would help strengthen principals' justifiable conclusions about CTE teacher performance during summative evaluations.

5.4. Recommendation #4

School districts and CTE departments should work to close perceived CTE teacher support gaps. CTE leaders should meet frequently with teachers to hear and address concerns, clarify procedures, and collaborate with teachers on the effective use of student growth data for formative as well as summative purposes. When it is not feasible for CTE leadership to provide all necessary support, CTE leaders must collaborate with school principals to provide quality data feedback and teacher support. Content specialists should be a source of support during data conversations with school administrators and teachers.

5.5. Recommendation #5

Train CTE teachers in the effective use of student growth data for instructional decision making toward increased student growth. Several teachers expressed that their lack of knowledge in using assessment data played a role in their fears concerning the use of student growth data in their teacher evaluations. Teachers need training in selecting or developing appropriate assessments, documenting student progress throughout a course of instruction and at the end of instruction, using resulting data to make inferences about student learning, and using data to structure better teaching procedures and correct deficiencies in student learning. Educational assessment skills must be learned.

5.6. Recommendation #6

Focus more attention on the formative uses of student growth data in teacher evaluation, in addition to the summative uses. School districts should focus time and resources toward helping CTE teachers become competent in not only analyzing data to identify students' and teachers' strengths and weaknesses but also using that information to make instructional and professional improvements toward increased student achievement. Evaluations of a formative nature led to greater changes in classroom practices and improved instruction while evaluations of a summative nature were not helpful for improving instruction (Flores, 2012; Marks, 2005; Sutton, 2008). Moreover, evaluation systems that focused on improvement were more likely to be rated by teachers as "effective in promoting both professional development and accountability" (Levandowski, 2000, p. 137). Teachers positively associated teacher accountability with: (a) leadership behaviors, (b) multiple sources of data, (c) focus on improvement, and (d) in-service training. Further, the more experience teachers had with teacher evaluations that included student growth data, the more likely they were to agree with the usefulness of such data (Hopkins, 2013). Formative and summative components of teacher evaluation are not opposing perspectives but rather a marriage of two components necessary for dynamic teacher evaluation.

5.7. Recommendation #7

Review and address areas of teacher uncertainty. Teacher evaluation systems "should be planned and conducted with the anticipation of questions from evaluatees and others with a legitimate right to know, so that their questions can be addressed and their cooperation obtained" (JCSEE, 2014, para. 2). Uncertainty is a good indicator that the developers should clarify the practical value of a teacher evaluation policy and streamline processes (Tuytens & Devos, 2009). School districts that ignore teacher concerns may find the political viability of the system in jeopardy. However, if system developers and school leaders are able to address stakeholder questions and provide adequate teacher and administrator training in the effective use of student growth data in teacher evaluation, the teacher evaluation system is likely to thrive.

5.8. Recommendations for Future Research

One study cannot encompass all there is to know and understand on a given topic. Study findings revealed several areas worthy of further research. Teachers often cited student apathy about CTE assessments as a concern (18 survey comments; all interviewed). Teachers believed some students did not give their best effort when testing. Therefore, the results did not reflect the students' actual level of CTE knowledge and skill. Teachers believed that student apathy contributed to skewed results that may negatively impact their evaluations. Future researchers should conduct student surveys and focus groups to gain students' perceptions on the value of CTE assessment to their academic and career success as well as to their teachers' evaluations. Only through student feedback can CTE educational professionals begin to understand and properly address student apathy toward CTE assessment.

The study also revealed that teachers were underutilizing CTE Industry Credential Assessments as student growth measures even though the school district regularly administered such assessments. State and national CTE agencies and organizations advocate for the use of CTE industry credentials as a sound measure of student performance and growth (ACTE, 2013; Virginia Department of Education, 2016). Available 2015 data from the school district in the study showed that 3,764 students had taken and passed one or more CTE industry credentials. In this regard, the use of CTE Industry Credential Assessments was highly successful. Yet, when given the option to use available credentialing data in their teacher evaluations, only 23 out of 198 CTE teachers in the study elected to do so. By selecting two other student growth measures, rather than CTE Industry Credential Assessments already administered, the teachers actually compounded the number of high-stakes assessments students were required to take in a given year from two to three. Teachers commonly reported "too much testing" as a concern but still elected to use other measures of growth rather than the CTE Industry Credential Assessments, already set in place. This incongruent finding creates questions for further inquiry. Research conducted at the state or national level would provide data to determine if other CTE professionals have made similar decisions and if so, how and why those CTE professionals came to their ultimate decisions. Such findings may be of interest to educational professionals at the school, district, state, or national levels.

This study also led to questions on whether Virginia's mandate that student growth data should be 40% of a teacher's evaluation is an appropriate percentage. Seventy-four percent of the CTE teachers believed that student growth data should be part of a teachers' evaluation even though most voiced concerns in regards to responsible and fair use of such data. A future study might ask teachers to share their perceptions about what percentage of student growth data they believe is an appropriate and fair use in regards to their evaluations.

Finally, only 36% percent of CTE teachers believed that the use of student growth data would lead to improved professional development, compared to 58% of K-12 teachers. This raised further questions about CTE teachers' perceptions on the effectiveness of their professional development opportunities overall. Future research focused on the quality of CTE professional development might provide answers to this disparity of findings.

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