# Impact of Instructional Alignment Workshop on Teachers' Experience with and Beliefs on State Standards

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**Abstract.** In a school district in Florida, student performance from 2011 to 2017 had been inconsistent from year to year across all grade levels, as measured by the state's standardized assessments. Instructional misalignment to state standards is deemed a significant cause. The purpose of this study was to examine the extent to which teachers' experiences were affected and beliefs about instructional alignment changed after they receive a professional development workshop on instructional alignment. The professional development was expected to expand teachers' understanding of (a) lesson plan alignment, (b) the value of alignment between state standards and the standardized assessment and instruction, and (c) the best instructional practices that can be aligned with the state standards. Designing a professional development program on instructional alignment and utilizing cross-sectional surveys to obtain changes on 41 teachers' perceptions before and after the training, results indicated that the professional development workshop has a positive impact on teachers' experiences and beliefs on aligning instructions with state standards. Given this, more schools especially in Florida, are recommended to implement professional development programs to aid teachers in designing their lesson plans to make sure that the instructional practices they will engage in, as well as the tests they will give, are aligned with state standard.

**Keywords:** instructional alignment, lesson plan alignment, professional development, state standards, standardized assessment.

## 1. Introduction

Student performance from 2011 to 2017 had been inconsistent from year to year across all grade levels in a school district in Florida, as measured by the state's standardized assessments (Florida Department of Education, 2017). These rates are disappointing and alarming considering the fact that the motivation behind the last three decades of standards-based reform, led by the education-in-action

theory, is for teachers to align their instruction with the standards as a measure of student learning (Abrams, Varier, & Jackson, 2016). "There is a widespread belief that the content of instruction matters; otherwise, why have content standards?" (Polikoff & Porter, 2014, p. 2). However, most researchers have agreed that the misalignment between classroom instruction and the state standards contributes to low levels of student achievement. For them, the alignment between teachers' instructional practices and standards should serve as the main strategy of the standards-based reform to increase students' learning gains or proficiency (Polikoff, 2012b). They also described instructional alignment as one of the factors necessary for students to achieve the learning-gain expectations of Every *Student Succeeds Act* (2015). They believed that continuous misalignment is due to lack of professional development programs for teachers on instructional alignment and training.

The purpose of this study was to examine the extent to which teachers' experiences were affected and beliefs changed after they receive a professional development workshop on instructional alignment. The professional development was expected to expand teachers' understanding of (a) lesson plan alignment, (b) the value of alignment between state standards and the standardized assessment and instruction, and (c) the best instructional practices that can be aligned with the state standards. The professional development program was expected to provide information on how to align the lesson plans with the state standards, the class objective, the classroom activities, home learning, and in-classroom informal and formal testing, ultimately resulting in better student outcomes (Drost & Levine, 2015).

Two research questions were raised:

RQ1. In what ways does a professional development workshop on alignment impact teachers' experience and familiarity with state standards?
RQ2. In what ways does a professional development workshop on alignment impact teachers' beliefs about the benefit of standards to instruction?

## 2. Literature Review

Several studies have highlighted the importance of professional development and instructional alignment. The alignment of the state standards, the state standardized assessment, and classroom instructional practice is the foundation of standards-based reform. According to Polikoff and Porter (2014), since the late 1980s, accountability for U.S. kindergarten to Grade 12 education has been based on two main policies that are part of standards-based reform: standards assessment and teacher quality. The teacher quality section, Title II of the ESSA (2015) assumes that teacher preparation and effectiveness must associate directly with student achievement on standardized assessments (Hirsch, 2017). The ESSA described evaluation based in part on evidence of student academic achievement and referred to providing training, technical assistance, and capacity-building in local educational agencies to assist teachers, principals, or other school leaders with selecting and implementing formative assessments, designing classroom-based assessments, and using data from such assessments

to improve instruction and student academic achievement, which may include providing additional time for teachers to review student data and respond, as appropriate (Urick et al., 2018)

The ESSA is designed to support performance evaluation of teachers. This evaluation is based at least in part on the results of the standardized assessments on a specific group of students that are assigned to the teacher and the school, using mainly the value-added model. Proponents of standards-based reform assume that strong alignment between teachers' instruction and content standards may provide an effective standard assessment at the classroom level and improve teacher performance evaluations. The alignment of the instruction with national standards is the central focus of national standards policies (Polikoff & Porter, 2014). Poor alignment among the standards, the instruction, and the assessment has consequences for schools and teachers, as they are required to achieve progressive student learning gains on standardized assessments (Polikoff, 2012a).

Polikoff (2012b) stated that the alignment among instruction, the content of standards, and assessments are necessary to achieve the goals of standards-based reform, as well as the required yearly learning gains by students. According to Porter, Polikoff, Barghaus, and Yang (2013), standards-based reform focuses on the alignment between the state's standardized assessment and state content standards. First, based on standards-based instruction theory, Polikoff et al. (2013) outlined that the alignment between content standards and assessments is the first venue to obtain accurate results of students' learning gains. Second, the alignment between classroom instruction and standards is the key factor to achieve standards-based learning expectations and improve students' proficiency level. The results of the proposed study on the professional development of instructional alignment for teachers would contribute to the field of education by drawing conclusions related to the influence of professional development on classroom instructional practices aligned with state standards. The results of this study may help teachers and policymakers understand professional development and instructional alignment practice. Furthermore, findings may impact decisions to increase the budget for professional development at the school level to improve student learning.

## 3. Proposed Alignment Assessment Method

The quest to find an alignment method for the proposed professional development study led to four main models: (a) Porter's (2002) method using the SEC; (b) the Council for Basic Education's method (as cited in Bhola, Impaira, & Buckendahl, 2003); (c) Webb's (2007); and (d) Organization Achieve's method (as cited in Bhola et al., 2003) requiring a group of expert judges to evaluate the content alignment between assessment and standards. From all these models, Webb's and Porter's models had a better fit for the design of the professional development study. The researcher did not select the Webb method because it requires the alignment of multiple domains and access to various raters, which were not feasible for this study. Also, the researcher did not select the Webb method because the method cannot determine an individual teacher alignment

index; instead, it was designed to compute the degree of alignment of a specific assessment to a unique group of content standards (Porter et al., 2013).

In this study, the researcher used Porter's (2002) method because the model allows easy illustration of alignment between two variables and the comparison of two categorical documents as a variable for coding — (a) instructions and standards or (b) assessment and standards (Shivraj, 2017). The researcher used Porter's method in professional development to explain how to estimate critical alignment values. Porter developed a mathematical expression where the two variables for alignment can be directly related to calculating Porter's alignment index (*I*). Fulmer (2011) reported that this alignment approach has "numerical methods corresponding to alpha levels .05 and .10. Thus, the researchers can determine whether their alignment measures are likely to have occurred by chance" (p. 383). This method also limits the range of the alignment index for comparison between documents 0 and 1. According to Fulmer, the alignment value indicates how close the distribution of categorical points is between two tables (documents). In content analysis, the tables are related to the amount of time used to teach a topic and to the relative emphasis placed on each content standard during instruction. Fulmer indicated that Porter's method has four mathematical steps to compute the alignment index.

The researcher used Porter's (2002) method during the professional development to show teachers how to align the standards with the standardized assessments as well as the rules of the instructional practices. Porter's method has the mathematical flexibility to address the alignment estimations of standards assessment and instruction for the present research.

## 4. Methods

The researcher asked teachers from three charter schools: an elementary school (School A, the target school), a middle school (School B), and a school serving kindergarten through middle school (School C) to participate in a professional development training focusing on how to align their lesson plans with the state standards. School A has about 14 teachers, School B has about 10, and School C has 18 teachers, for a population of 42. The minimum education of the teachers is a bachelor's degree, and all the teachers received certification in the state of Florida. The sample participants agreed to participate in the study voluntarily.

This study is a nonexperimental quantitative study that utilized cross-sectional surveys to obtain the data. Cross-sectional survey questionnaires are one of the most efficient and popular design methods in education to compile data from participants to examine current attitudes, beliefs, opinions, and practices (Creswell, 2008; Gay, Mills, & Airasian, 2006). The researcher used a cross-sectional survey to evaluate the teachers' professional development and administered the instrument before and after the professional development training.

The Teacher Assessment Efficacy Scale (TAES) was used to measure the impact of the professional development programs. According to Yoo (2016), researchers have widely used the TAES instrument in the education field to evaluate teacher competence to evaluate instructional and assessment approaches in their

classrooms. Developed by Wolfe et al. (2007), the TAES is a paper questionnaire with 42 items designed for elementary, middle, and high school teachers. These items are rated on a 5-point Likert-type scale, from 1 = *strongly disagree* to 5 = *strongly agree*. The TAES has five subscales.

1. Experiences to indicate teacher familiarity with state standards.

2. Impact to reveal teachers' beliefs about the benefit of aligning classroom instructions and assessment with standards.

3. Confidence to reveal teachers' confidence in implementing standards for classroom lessons and assessments.

4. Students to reveal teacher belief of the benefit to students of alignment among standards, classroom instruction, and evaluation.

5. Training to indicate whether teachers felt the training was adequate to create effective lesson plans aligned with standards.

Wolfe et al. (2007) supported the validity of the TAES instrument in measuring teacher efficacy in standards-aligned classroom assessment. The initial finding indicated that the dimensional configuration provides the best descriptive way to estimate the parameters of the scale. Wolfe et al. (2007) also reported high internal consistency of this instrument. Subscale reliability estimates were .94 for Confidence, .91 for Impact, .94 for Use, .86 for Utility, .82 for Experiences, and .77 for Students.

The professional development took place for over two days and lasted 3 hours Day 1 and 1 hour on Day 2. Before completing the professional development training, the teachers filled out the TAES to indicate their level of agreement with the items on a 5-point, Likert-type scale from 1 = *strongly disagree* to 5 = *strongly agree*. Day 1, the professional development covered common language including terms for instructional alignment. The instructor described Porter's (2002) alignment method and mapping, so teachers understand the mathematical and illustrative (mapping) concept of alignment among the standards, the standardized assessment, and the instructions. Also, the instructor addressed the depth of knowledge as one of the alignment indicators for classroom instruction adopted during the construction of the state standards. The depth of knowledge is one of the necessary concepts when teachers write their aligned lesson plans. Teachers became familiar with the construction of standards and their use in writing the objectives, classroom work activities, and homework. On Day 2, the teachers discussed how to align the standards with the classroom assessments. Lastly, teachers applied their new knowledge and understanding of alignment by writing a lesson plan aligned with a standard. According to Drost and Levine (2015), students demonstrate higher scores on standardized assessments when lesson plans are aligned to the standards. Teachers completed the TAES as a post-survey to obtain the final data of the research. The TAES data was analyzed to answer the research questions.

For data analysis, the researcher conducted a paired-sample *t*-test to analyze the pre- and post-training survey data. Means comparison and standard deviations were computed to determine the teachers' efficacy change after the training. The researcher also performed a *t*-test to explore whether teachers' scores on the

TAES were significantly different following the professional development, using a significance level of .05 for the analyses. Comparisons were made by a section on the survey to match the research questions. The professional development was designed to provide teachers with knowledge and understanding of alignment and thus, was hypothesized to increase teachers' experience when they write their lesson plans after the training. The researcher compared the mean score of the TAES before the professional development with the mean score of the TAES after the professional development to determine if any changes are evident and significant.

## 5. Findings

The projected number of participants was 42 which included 14 participants from School A, 10 participants from School B, and 18 participants from School C. However, after data collection, a total of 41 teacher participants completed the survey questionnaire. Based on the sample size calculation conducted through G*Power v3.1.0, at least 34 participants are necessary to achieve 80% power for the statistical analyses. Because more than 34 participants were collected, the dataset considered for this study is sufficient to achieve statistical validity of results considering paired samples $t$-tests.

Table 1 presents the demographic characteristics of the 41 teacher participants in the study. The demographic characteristics collected for the study were years as an educator, age, gender, and education level. For years as an educator, 15 participants were teaching for less than three years (36.6%), nine participants were teaching for 4 to 8 years (22%), while eight participants were teaching for 20 to 30 years (19.5%). Regarding age groups, 15 participants were 30 to 39 years old (36.6%), nine participants were 40 to 49 years old (22%), while six participants were 21 to 29 years old (14.6%) and another six participants were 50 to 59 years old (14.6%). For gender, majority of participants were females ($n$ = 37, 90.2%). Regarding education level, majority completed at least a Bachelor's degree ($n$ = 23, 56.1%), 15 participants completed a Master's Degree (36.6%), and two participants completed a Doctoral Degree (4.9%).

Table 1
*Demographic Characteristics of Participants (N = 41)*

|  |  | Frequency | Percent |
|---|---|---|---|
| Years as an educator | 0-3 years | 15 | 36.6 |
|  | 4-8 years | 9 | 22.0 |
|  | 9-12 years | 3 | 7.3 |
|  | 13-18 years | 3 | 7.3 |
|  | 20-30 years | 8 | 19.5 |
|  | 31 years and above | 3 | 7.3 |
|  | Total | 41 | 100.0 |
| Age Group | 21-29 years old | 6 | 14.6 |
|  | 30-39 years old | 15 | 36.6 |

| | | | |
|---|---|---|---|
| | 40-49 years old | 9 | 22.0 |
| | 50-59 years old | 6 | 14.6 |
| | 60 years old or above | 5 | 12.2 |
| | Total | 41 | 100.0 |
| Gender | Female | 37 | 90.2 |
| | Male | 4 | 9.8 |
| | Total | 41 | 100.0 |
| Education Level | Associate Degree | 1 | 2.4 |
| | Bachelor | 23 | 56.1 |
| | Master | 15 | 36.6 |
| | Doctoral | 2 | 4.9 |
| | Total | 41 | 100.0 |

Data analysis revealed the following findings for the respective research questions raised. For the first research question, of "In what ways does a professional development workshop on alignment impact teachers' experience and familiarity with state standards?" the result showed that the professional development workshop on alignment has a significant positive impact on teachers' experiences and familiarity with state standards.

Teachers' experiences and familiarity with state standards were measured using the experiences subscale. Table 2 presents the descriptive statistics of pretest and post-test scores for experiences subscale. It can be observed that the mean of post experiences scores (M = 17.39, SD = .43) is higher than the mean of pre experiences scores (M = 15.27, SD = .43). In the paired samples $t$-test result presented in Table 3, it can be observed that there is a significant difference from pre=test to post-test ($t(40)$ = -6.398, $p$-value < .01). The negative mean difference value indicated that the mean post experiences score significantly higher than the mean pre-experiences score (Mean Difference = -2.12, SD = 2.12).

Table 2.
*Descriptive Statistics of Pre and Post Experiences Scores (N = 41)*

| | | Mean | N | SD | SE Mean |
|---|---|---|---|---|---|
| Pair 1 | Pre Experiences | 15.27 | 41 | 2.78 | 0.43 |
| | Post Experiences | 17.39 | 41 | 2.78 | 0.43 |

Table 3
*Paired Samples t-test of Pre and Post Experiences Scores (N = 41)*

| | | | | Paired Differences | | | | |
| | | | Std. | 95% Confidence Interval of the Difference | | | | Sig. (2- |
| | Mean | Std. Deviation | Error Mean | Lower | Upper | T | df | tailed) |
|---|---|---|---|---|---|---|---|---|
| Pre Experiences - Post Experiences | -2.12 | 2.12 | 0.33 | -2.79 | -1.45 | -6.398 | 40 | .000 |

For the second research question, "In what ways does a professional development workshop on alignment impact teachers' beliefs about the benefit of standards to instruction?" results revealed the professional development workshop on alignment has a significant positive impact on teachers' beliefs about the benefit of standards to instruction.

Teachers' beliefs about the benefit of standards to instruction were measured using the impact subscale. Table 4 presents the descriptive statistics of pre-test and post-test scores for impact subscale. It can be observed that the mean of post-impact scores (M = 70.44, SD = 9.56) is higher than the mean of pre-impact scores (M = 63.68, SD = 9.08). In the paired samples *t*-test result presented in Table 5, it can be observed that there is a significant difference from pre-test to post-test ($t(40)$ = -5.738, *p*-value < .01). The negative mean difference value indicated that the mean post impact score is significantly higher than the mean pre-impact score (Mean Difference = -6.76, SD = 7.54).

Table 4
*Descriptive Statistics of Pre and Post Impact Scores (N = 41)*

| | | Mean | N | SD | SE Mean |
|---|---|---|---|---|---|
| Pair 2 | Pre Impact | 63.68 | 41 | 9.08 | 1.42 |
| | Post Impact | 70.44 | 41 | 9.56 | 1.49 |

Table 5
*Paired Samples t-test of Pre and Post Impact Scores (N = 41)*

| | | | | Paired Differences | | | | |
| | | | Std. | 95% Confidence Interval of the Difference | | | | Sig. (2- |
| | Mean | Std. Deviation | Error Mean | Lower | Upper | T | df | tailed) |
|---|---|---|---|---|---|---|---|---|
| Pre Impact - Post Impact | -6.76 | 7.54 | 1.18 | -9.14 | -4.38 | -5.738 | 40 | .000 |

## 6. Implications

The result of the current study may help administrators decide whether they need to focus school resources on providing professional development related to the alignment of state standards, instructional practice, and standardized assessment. Furthermore, the results of the professional development alignment research for teachers may affect school decisions to increase the budget for professional development or provide more or less professional development.

## 7. Limitations

The cross-sectional design of this study represents a limitation, which means that the study only represents a small amount of time when the teachers took an alignment training. A longitudinal study could produce a better understanding and interpretation of the data. This training occurred two days after school. The teachers' ability to concentrate could affect their grasp of the concept, as the training is after school. The study is strictly quantitative; the addition of qualitative data might expand the knowledge and understanding of an alignment study. The nonprobability sample did not allow the researcher to generalize the results from the sample to the population. The findings would only be valid for the three schools.

## 8. Recommendations

The professional development workshop has a positive impact on teachers' experiences and beliefs on aligning instructions with state standards. Given this, more schools especially in Florida, are recommended to implement professional development programs to aid teachers in designing their lesson plans to make sure that the instructional practices they will engage in, as well as the tests they will give, are aligned. The findings also led to the recommendations that teachers take it upon themselves to know more about how to align standardized tests with the standards because otherwise, misalignment can lead to inaccurate and wrong measures of student achievement of standards, affecting decisions with regard the accountability of schools, teachers, as well as the students themselves.

## 9. Conclusion

What the current study did was to show valuable professional development is, based on the perceptions of the target trainees themselves. The findings can serve as an impetus to change the reality of deficient professional development opportunities. The results of this study may provide valuable information to administrators and teachers. If from the perceptions of the teachers themselves, instructional alignment can help teachers create more effective lessons aligned with the standards, it is possible that more professional development workshops can be created out of this finding alone. Moreover, the results of the study can be used as motivation to engage in more investigations of relationships that exist between teacher professional development on alignment and the effects of state standardized assessments.

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