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An examination of K-12 teachers' assessment beliefs and practices in relation to years of teaching experience.

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Abstract

This study compared K-12 teachers' assessment beliefs and practices in relation to their years of teaching experience. The data for this study was collected from 87 public school teachers. The findings suggest that as the teachers' years of experience increases, the value they place in assessment increases as well.

Introduction

Assessment is a critical factor in the teaching and learning process. It enables educators to evaluate student learning and allows them to utilize information in order to improve learning and instruction (Calveric, 2010; Campbell et al., 2002; Harris et al., 2008; Popham, 2005; Stiggins, 2002; Zwick et al., 2008). 'Assessment is the most common form of educational measurement, consuming at least one third of a teacher's time and energy (Brookhart, Walsh & Zientarski, 2006; Stiggins & Conklin, 1992). Building a healthy assessment environment can help instructional decision makers, as well as support student achievement (Stiggins, 2002). The Standards for Teacher Competence in 'Educational Assessment of Students' states that assessment is an essential part of teaching and without good student assessment, teaching cannot exist. Teachers are responsible for interpreting test scores, test results (Airasian, 1997), making ongoing instructional adjustments and informed decisions (Calveric, 2010; Campbell et al., 2002; Popham, 2005; Stiggins, 2002; Zwick et al., 2008), and quality of teaching (Opre, 2015). The ultimate purpose in selecting and designing assessments is to provide students with assessments that measure their understanding of a concept. Assessing students will allow the teacher to get a better picture of what the students know. According to Baldanza, assessments always yield actionable data to guide lesson design (2016). Because they are responsible for evaluating instructions and student learning, (Zhang & Burry-Stock, 2003) teachers need to develop assessment skills (Airasian, 1997; Carey, 1994; O'Sullivan & Chalnick, 1991; Schafer, 1991; Stiggins, 1997; Zhang & Burry-Stock, 2003). However, the most important aspect of assessment is not recognized as a method of improving instruction, student motivation or levels of student achievement. This is primarily due to the lack of exposure assessment fundamentals receive (Mertler, 2006; Stiggins, 2004). In addition, preservice teachers may hold naïve beliefs about assessment based on a limited understanding of the nature of assessment processes beyond their own experiences as students (Barnes, Fives & Dacey, 2017). Teachers' beliefs affect their assessment practices and their practices are not constant (McMillan, 2008; Popham, 2008). In an effort to inform on teacher education practices, this study compared K-12 teachers' assessment beliefs and practices.

Literature Review

Literature shows that years of experience has a positive effect on teaching and learning activities (Hagger & McIntyre, 2000; Unal & Unal, 2012). Research suggests that it takes seven years of experience for a beginning teacher to develop into a competent one (Carter & Doyle 1995; Gonzalez & Carter 1996; Unal & Unal, 2012; Varrella, 2000). Experienced teachers have the ability to prioritize tasks and selectively attend to a number of key classroom matters (Hagger &

McIntyre, 2000). They are able to manage the dynamic nature of a classroom setting and are able to effectively deal with the most salient aspect of a classroom: unpredictability (Doyle, 1986). Compared to experienced teachers, novice teachers tend to be more hesitant (Carter et al., 1988) and less flexible (Kerrins & Cushing, 2000). In addition, novice teachers are sometimes less capable of working with speed, fluidity, and flexibility. According to a study conducted by Winterbottom et al. (2008), due to a lack of teaching opportunities, beginning teachers are having difficulties implementing practices in assessment while qualified teachers use assessment to guide lesson planning more than beginning teachers.

Teacher education programs consider changes regarding the need for program revision, offering stand-alone classroom management courses rather than integrating with other classes, teaching research-based curriculum, helping preservice teachers focus more on unfamiliar strategies and encourage the application during the field work, and framing classroom observations and evaluations as process rather than summative evaluation (Unal & Unal, 2012). When put together, studies show that teachers have a tendency to change their classroom management beliefs at different levels of experience following a certain path. Often, preservice teachers begin their traditional teacher education programs (four- or five-year Bachelor of Education programs) favouring non-interventionism. This approach is based on the belief that the person has his/her own needs and tend to express/accomplish them, so the teacher has minimal control (Cakiroglu & Gencer, 2007; Djigic & Stojiljkovic, 2011; Etheridge, James & Bryant, 1981; Martin & Baldwin, 1994; Savran & Cakiroglu, 2003). However, when they become student teachers (internships and practicum experience), which enables them to interact with real classroom experiences and real classroom students; they change to favour mostly interactionism -focusing on what an individual does in order to change the environment, as well as how the environment affects the individual. In this case, control over the situation in the classroom is shared between the teacher and students (Djigic & Stojiljkovic, 2011; Martin & Baldwin, 1994). Ironically, changes still occur when these teachers are hired for their first teaching positions, causing new teachers to fall between interactionism and interventionism (Celep, 1997; Laut, 1999; Martin, Yin & Mayall, 2007). Finally, experienced teachers are the ones who are found to be the most interventionistic.

Parental involvement is another important aspect of teaching and learning practices. Teachers often have their beliefs about parental involvement shaped by their past and current experiences (Wright, 2009). Epstein (1995) reports that ''most educators enter school without an understanding of family background,

concepts of caring or the framework of partnerships -most teachers are not prepared to understand, design, implement and evaluate practices of partnerships with the families of their students'' (p. 706). Unal & Unal (2014) stated that when teachers become experienced, their beliefs on parental involvement strengthen.

Assessment in the classroom is the process of collecting and analyzing information about students in order to improve their learning (Butler & McMunn, 2006). Assessment helps teachers evaluate the strengths and weaknesses of students, provide proper feedback and improve teaching and learning (Buyukkarci, 2014; Stiggins, 1992; Taras, 2005). Calveric (2010) stated that even though they are limited in exposure to assessment training, teachers have four distinct assessment beliefs within the elementary classrooms: (1) improvement of teaching and learning (McMillan, Myran & Workman, 2002), (2) certification of students' learning (Barnes, Fives & Dacey, 2017), (3) accountability of schools and teachers (Remesal, 2007; Torrance & Pryor, 1998; Warren & Nisbet, 1999), and (4) the irrelevance or rejection of assessment (Airasian, 1997; Brown, 2004). *Assessment as improvement* is meant to inform changes in teaching practices and the student learning process. It is a way to determine how much students have learned from teaching. *Assessment for student accountability* is meant to evaluate and grade student performance. *Assessment for school accountability* uses student assessments and test results to evaluate the quality of teachers and schools. Assessment for school accountability provides information on how well students are doing. *Assessment as irrelevant* is the view that the evaluation processes are inadequate, inaccurate and/or irrelevant to the teachers' ability to improve student learning.

Methodology

This quantitative study compared teachers' assessment beliefs and practices in relation to their years of teaching experience. The following questions guided this study:
- Are there any differences between the beginning and experienced teachers regarding their assessment beliefs?
- Are there any differences between the beginning and experienced teachers regarding their assessment practices?

Participants

The sampling in the study was purposive in nature. Purposive sampling is elected when certain groups are likely to provide rich information (Krathwohl, 1998). Therefore, groups of inservice teachers from a southeastern state participated in this study. The 87 participants were all K-12 teachers seeking their master's degree in the Curriculum and Instruction program at a southern

university. One of the researchers was teaching in this program and distributed online surveys in Fall 2017 and Spring 2018. Out of 126 teachers, 87 of them responded to the survey. Table 1 shows the gender and experiences of the teachers.

Table 1.
Demographics of the participants

Participants	n	Gender	
		Male	Female
Teachers with 0-7 years of experiences	54	11	43
Teachers with 8 and more years of experiences	33	7	26

Instruments

This study utilized a combination of two surveys from the literature: (1) Conceptions of Assessment III (CoA-III) Inventory (Brown, 2006; Calveric, 2010) and (2) Classroom Assessment Practices Survey (Calveric, 2010; McMillan, Myran & Workman, 2002).

Conceptions of Assessment III (CoA-III) Inventory

CoA-III inventory was created by Brown in 2006. It is a valid measurement of teachers' conceptions of assessment and can be used within teacher professional development and research programs around assessment (Brown, 2006). The CoA-III inventory was administered by Brown in various countries such as New Zealand, Queensland (Australia), the Netherlands, Spain, China, Hong Kong and India to investigate teachers' conceptions of assessment within different cultural landscapes (Barnes et al., 2017). The validity of CoA-III inventory was documented in Brown's New Zealand and Queensland studies: New Zealand (x^2= 841.02; df= 311; RMSEA= .057; TLI= .87) and Queensland (x^2= 1492.61; df= 311; RMSEA= .074; TLI= .80). CoA-III inventory was used in this study to examine teachers' beliefs on assessment. The inventory comprised of 27 Likert-scale items scored on a scale from 1 (strongly disagree) to 5 (strongly agree) addressing the beliefs of assessment. The survey can be seen in Appendix A.

Classroom Assessment Practices Survey

Classroom assessment practices survey was created by McMillan, Myran and Workman in 2002 and revised by Calveric in 2010. The survey includes a set of 11 Likert-scale items ranging from 1 (not important) to 5 (very important) on

teachers' classroom assessment practices. McMillan et al. (2002) conducted a pilot study consisting of fifteen teachers to strengthen the content-related evidence for reliability. Fifteen teachers reviewed the 47 assessment practices items. After the revisions twenty-three teachers from outside of the study's sample population were asked for a second pilot test. They reviewed the items for feedback on clarity, relationships among items, item-response distribution, and reliability (p. 206). Items with weak reliability and items with minimal variation or correlations greater than .90 (r>90) were eliminated, resulting in twenty seven remaining items. After four weeks, the same twenty-three teachers retook the questionnaire (McMillan et al., 2002). Reliability was determined by the researchers' use of stability estimates to review the percentage of matches for the items. Items documenting exact matches of 60 % or less were removed or combined with other items. Results confirmed that an average of 46% of participants' responses to items had an exact match, while "89% of the matches were within 1 point on the 6 point scale" (p.206). Calveric (2010) limited the survey with eleven items for her dissertation to those relevant to types of assessments used by teachers. She revised the survey to include a five-point scale ranging from not important to very important to assist participants with documenting levels of importance versus the original scale's goal of reporting results associated with assessment usage. The eleven items can be seen in Appendix B.

In addition to the combination of CoA-III Inventory and Classroom Assessment Practices Survey, the researcher added demographic questions about the participants' background such as gender, age and years of experience at the beginning of the survey.

Results

This study compared the relationship between years of experience of the teachers and their beliefs and practices on assessment. The survey data was analysed using the t-test. The reason to use t-test is to determine if there were significant differences among assessment beliefs and practices by teachers' years of experiences. Research questions were analysed using descriptive statistics such as means and standard deviations. Data was calculated for each subscale related to teachers' assessment beliefs and practices. Inferential statistics were conducted to test for differences among teachers' assessment beliefs and practices and their years of experiences.

The results are provided below:

Research question 1: Are there any differences between the beginning and experienced teachers regarding their assessment beliefs?

The researchers used descriptive statistics to determine the means and standard deviations and percent of the four main assessment beliefs: assessment for student accountability, assessment as irrelevant, assessment for school accountability, and assessment as improvement. The results of the study indicated that beginning and experienced teachers showed significantly differing beliefs on assessment (Table 2).

Table 2.
Comparison of assessment beliefs by teachers' years of experience

Assessment Beliefs	Groups								
	0-7Yearsof Experience (n=54)		8 and more years of experience (n=33)		95% CI for Mean Difference		t	df	p
	M	SD	M	SD	Lower	Upper			
-Student Accountability	4.06	.26	4.51	.33	-.582	-.324	-6.96	85	0.001*
-Irrelevant	3.77	.34	3.25	.27	.376	.661	7.24	85	0.001*
-School Accountability	4.16	.23	4.62	.30	-.575	-.343	-7.90	85	0.001*
-Improvement	4.15	.24	4.59	.30	-.554	-.320	-7.41	85	0.001*

* $p < .05$

The results indicated that both beginning and experienced teachers valued assessment in their classrooms. However, experienced teachers valued assessment more than beginning teachers. Compared to beginning teachers, experienced teachers hold a stronger belief that assessment improves students' learning and it helps to determine students' strengths and weaknesses and provides feedback (*assessment as improvement*).

Experienced teachers also thought that students are responsible for their own learning (*student accountability*) as well as teachers and schools are responsible for students' learning (*school accountability*). On the other hand, beginning teachers believed that assessment is rejected in education and is disconnected from the work of students and teachers. They held that assessment has little use when it comes to informing teachers for the next step in the classrooms (*assessment as irrelevant*).

Research Question 2: Are there any differences between the beginning and experienced teachers regarding their assessment practices?

Statistical differences for assessment practices revealed significant data associated with years of experience. Despite the differences in the mean scores of the survey, the results indicated that both beginning and experienced teachers use assessment practices fairly in their classrooms. Table 3 shows the significant differences on many of the assessment practices used by beginning and experienced teachers.

Table 3.
Comparison of assessment practices by years of experience

| | Groups | | | | | | | | |
| | 0-7 Years of Experience (n=54) | | 8 and more years of experience (n=33) | | 95% CI for Mean Difference | | | | |
Assessment Practices	M	SD	M	SD	Lower	Upper	t	df	p
Designed By Self	4.15	.62	4.67	.47	-.771	-.266	-4.07	85	.001*
Perform Quizzes	4.06	.59	4.76	.43	-.940	-.464	-5.87	85	.001*
Objective Assess	4.11	.57	4.27	.51	-.404	.081	-1.32	85	.189
Short Answers	4.54	.57	4.12	.48	.178	.654	3.47	85	.001*
Perform Assess	4.30	.57	4.73	.45	-.663	-.198	-3.68	85	.001*
Project By Self	4.31	.57	4.67	.47	-.590	-.114	-2.93	85	.004*
Major Exams	4.41	.49	4.45	.50	-.267	.172	-.427	85	.670
Authentic Assess	4.43	.63	4.88	.33	-.690	-.216	-3.80	85	.001*
Project in Teams	4.24	.43	4.55	.50	-.507	-.102	-2.99	85	.004*
Publisher Assess	4.54	.53	4.06	.42	.256	.696	4.30	85	.001*
Oral Presentations	4.11	.66	4.39	.55	-.557	-.008	-2.04	85	.044

* p < .05

Beginning teachers seem to select *short answers* and *publisher assessments* for their assessment practices more than experienced teachers, while experienced teachers prefer assessments *designed by teachers, performance quizzes, project by self, authentic assessments* and *project in teams* more than beginning teachers. In other words, beginning teachers prefer more practical, easy to use assessment tools in their teaching such as short answers, fill-in-the-blank

type of quizzes. These are usually assessments provided by book publisher or are supplied to the teacher by the school. In contrast to beginning teachers, experienced teachers prefer more original, teacher created assessment practices such as performance quizzes, individual student works, real world tasks, group works and projects.

Discussion

Teachers' beliefs are important for understanding and improving educational processes because they are closely linked to teachers' strategies on how they shape students' learning environments, influence student motivation and manage their classrooms (OECD, 2009). Understanding beliefs and attitudes of teachers can also be of great help in the determination of teachers' actual behaviour and practices in the classroom (Unal & Unal, 2012; Wolfgang & Glickman, 1980). For example, Fang (1996) reaches a conclusion in a meta-analysis of research on teachers' belief and actions that "teachers' beliefs always lead to teachers actions that impact students' learning -for better or worse".

Beliefs: As teachers get experienced, they value assessment more.

According to the results of this study, as years of experience increases, teachers' beliefs on assessment increases as well. Compared to beginning teachers, a larger number of experienced teachers agreed that assessment places students into categories when it comes to assessment for *student accountability*. The experienced teachers also agreed that assessment provides information on how well schools are doing for *school accountability* (Brown, 2006). They agreed that school data should be used to determine school quality. Experienced teachers believed that assessment is for *improvement* to optimize the students' learning process (Dana, 2015). Assessment should provide useful feedback and be the process of self and peer assessment (Brown et al., 2015; Dana, 2015; Dayal & Lingam, 2015). The more teachers believe that assessment is for improvement, the more they analyse students' strengths and weaknesses, give feedback and modify teaching plans (Brown et al., 2015). According to the results of this study, beginning teachers believed more than experienced teachers that assessment is *irrelevant*. Assessment negatively affects students, teachers, and teaching activities. 'Assessment can be inaccurate, ignored, and lead to bad outcomes for students and teachers' (Barnes et al., 2017, p.115). When years of experience increases, teachers' beliefs on assessment as irrelevant decrease. The findings of this study support the previous studies conducted by Brown (2003) and Calveric (2010).

Practices: As teachers get experienced, they value self-created performance assessments more.

Additional analysis of data revealed that 'years of experience' plays a significant role on teachers' assessment practices. While teachers get experienced, their assessment practices change from using easy assessment tools to teacher created assessment tools. Experienced teachers prefer assessment practices such as those designed by self, performance quizzes, objective assessments, performance assessments, projects by self, major exams, authentic assessments, team projects and oral presentations more than beginning teachers. Short answers and publisher assessments are the most preferred assessment practices used by beginning teachers. Similar to this study, Calveric (2010) found a positive correlation between teachers' years of experience and assessment practices such as project by teams, project by self and authentic assessments.

Implications

This study points to the important role of the teachers' years of experiences on their classroom assessment beliefs and practices. Simply said, as teachers get more experienced, they value assessment more and practice self-created assessments rather than readily made ones. In other words, beginning teachers do not feel comfortable enough to build and use their own assessment tools. This may indicate that teachers believe in the importance of assessment more so while they are gaining experience, and that they use a variety of assessment techniques during this learning period.

Teacher education programs require minimal coursework when it comes to classroom assessment. It seems apparent that preservice teachers' coursework and experiences affect their beliefs to a certain degree as they progress through the programs. The results of this study support multiple lectures integrated into courses or a specific classroom assessment course or seminars and workshops to help the preservice teachers expand their knowledge on how to effectively use classroom assessment techniques. This would help preservice teachers prepare more and carry positive beliefs during student teaching toward assessment in classrooms. Therefore, class assessment practices would be recommended whenever possible in early field experiences, when preservice teachers have more opportunity to observe and facilitate their classrooms. Combining course instruction and the opportunity to work with inservice teachers during student teachings may create a stronger disposition and tendency to implement classroom assessment techniques when they enter full time teaching. Hence, student teachers should be encouraged to create their own assessments and use them during field experiences to improve their assessment beliefs and practices under the guidance of the inservice teachers and university supervisors.

The concept of classroom assessment with preservice teachers, inservice teachers, university supervisors and students are vital and can produce great rewards for all concerned parties. The results of this study suggests that teacher education programs need to make sure to provide the required knowledge, skills and practices to help preservice teachers improve their classroom assessment beliefs and skills. Each preservice teacher should be able to learn how to use assessment techniques and work with students in order to contribute to their learning.

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Appendix A. Conceptions of Assessment III (CoA-III) Inventory

Please answer the questions using your own understanding of assessment. Please give your rating for each of the following 27 statements based on your opinion about assessment. Indicate how much you actually agree or disagree with each statement. Use the following rating scale and choose the one response that comes closest to describing your opinion.

(1) Strongly Disagree (2) Slightly Disagree (3) Agree (4) Mostly Agree (5) Strongly Agree

1. Assessment provides information on how well schools are doing
2. Assessment places students into categories
3. Assessment is a way to determine how much students have learned from teaching
4. Assessment provides feedback to students about their performance
5. Assessment is integrated with teaching practice
6. Assessment results are trustworthy
7. Assessment forces teachers to teach in a way that is contradictory to their beliefs
8. Teachers conduct assessments but make little use of the results
9. Assessment results should be treated cautiously because of measurement error
10. Assessment is an accurate indicator of a school's quality
11. Assessment is assigning a grade or level to student work
12. Assessment establishes what students have learned
13. Assessment informs students of their learning needs
14. Assessment information modifies ongoing teaching of students
15. Assessment results are consistent
16. Assessment is unfair to students
17. Assessment results are filed & ignored
18. Teachers should take into account the error and imprecision in all assessment
19. Assessment is a good way to evaluate a school
20. Assessment determines if students meet qualifications standards
21. Assessment measures students' higher order thinking skills
22. Assessment helps students improve their learning
23. Assessment allows different students to get different instruction
24. Assessment results can be depended on
25. Assessment interferes with teaching
26. Assessment has little impact on teaching
27. Assessment is an imprecise process

Appendix B. Classroom Assessment Practices Survey

Please give a rating for each of the following 11 statements based on your opinion about assessment practices. Use the following rating scale and choose the response that comes closest to describing each assessment's level of importance.

(1) Not Important (2) Slightly Important (3) Fairly Important (4) Quite Important (5) Very Important

1. Assessments designed primarily by yourself
2. Performance quizzes
3. Objective assessments (e.g., multiple choice, matching, short answer)
4. Essay type questions
5. Performance assessments (e.g., structured teacher observations or ratings of performance such as a speech or paper)
6. Projects completed by individual students
7. Major exams
8. Authentic assessments (e.g., "real world" performance tasks)
9. Projects completed by teams of students
10. Assessments provided by publishers or supplied to teacher (e.g., in instructional guides or manuals)
11. Oral presentations