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Are Agriculture Teachers Teaching to the Test? The Use of Test Item Banks in North Carolina Agricultural Education Classrooms

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Abstract

With current education reforms, teachers feel pressure to educate students who can successfully perform on standardized tests. To help prepare students, many teachers access test item banks that contain questions similar to those on the standardized tests. A census study investigated the extent North Carolina agriculture education teachers used test item bank questions on both formative and summative assessments, the internal and external motivating factors that influenced test item bank usage, and their perceptions regarding the test item bank. Findings showed that test item bank questions are overly used on both formative and summative assessments for a variety of reasons. Both internal and external factors influenced teachers' use of test item bank questions on assessments. Overall, teachers have a positive viewpoint regarding the use of test item banks in the classroom setting; however, did not have a positive viewpoint of the CTE Post Assessment.

Keywords: Test banks, standardized test, testing, assessment, agricultural education

Introduction

With the implementation of many education reforms focused on standardized testing, teachers today are pressured to educate students who can successfully pass standardized tests given at the end of the semester or year. These reforms and increased focus on standardized tests led to classroom assessments becoming a key component of tasks required of teachers in addition to content knowledge, a strong skill base, the ability to plan and deliver effective instruction, an understanding of diverse learners, and willingness to participate in professional development (Witte, 2012). These external assessments are given as a result of accountability measures and pressure teachers to produce desired outcomes that are focused on high standardized test scores (Anderson, Krathwohl, Bloom, Airasian, Cruikshank, Mayer, Pintrich, Raths, & Wittrock, 2001).

Within a school system, high expectations are placed on all parties for students to successfully perform on these assessments (Levinson, 2011). In the past, teachers were evaluated on their general classroom effectiveness, personal qualities, community service, professional activities, attitude, and their professional contributions (Ovard, 1975). Today, teachers are also evaluated on student achievement on standardized tests. These high expectations combined with the analysis of assessment performance data has influenced hiring decisions, pressured school leaders to address ineffective teachers and make other personnel decisions, and increased pay for teachers who had significant performance gains (Bergeson, 2004; Haladyna, Nolen, & Hass, 1991; Levinson, 2011).

Assessments are not new components of education, but have been used in a variety of ways for centuries. In 1916, John Dewey stood firm in his belief that an education system that served all students was needed in order for the society to grow and meet the needs of all citizens. Prior to this concept,

schooling was based on social status rather than grades or scores on assessments. When equity was demanded, the idea of achievement based on assessment of merit was viewed as a fair way to sort students (Stiggins, 2001). For example in England, exams assigned youth at the age of 11 to their social fate of attending a grammar school or local comprehensive school. Where a "friends at court" system was once required to enter the University of England, now success on an exam was needed. Canada, France, and the United States followed with the development of different exams such as exit exams, Baccalaureate, and SAT's due to their credibility, and ability to be mass produced, administered, and scored easily (Stiggins, 2001). These standardized tests used secure test item banks to house their questions which allowed for multiple variations of the test and assisted with the classifying of individuals in an effective and efficient manner (Weiss, 2011).

Standardized assessments within academic classes in grades kindergarten through high school are common; however, many elective classes now have mandated end of the year assessments as well. Career and technical education classes, which serve as an elective option, provide students with the technical knowledge and skills while promoting academic achievement that allows graduates of CTE programs to be competitive in today's ever changing global society (Rojewski, 2002). These courses contain both cognitive and performance based objectives which are designed to integrate the experiential learning component and incorporate critical thinking skills into the curriculum. In 2006, the Carl D. Perkins Career and Technical Education Act required states to measure technical skill attainment, using valid and reliable instruments that also included industry recognized standards (Meeder, 2008).

To meet this requirement, North Carolina chose to use a posttest as a way to measure a student's technical attainment. Regional coordinators who assisted with writing the agricultural curriculum were asked to write test item bank questions that would be reviewed by a panel to measure their reliability and validity. Once the questions were deemed reliable and valid, these item bank questions would then be housed in two different banks: one secure for the end of course posttest and one non-secure bank for teacher use. To prepare students for the posttests, teachers were given access to test items in the non-secure test item bank to use with their curriculum. These test item banks also served as a method to promote career success for CTE teachers through the use of pre and posttests measuring student growth and teacher effectiveness.

Furthermore, test item banks generate more data to teachers than simply if a student correctly selected an answer. Teachers are encouraged to incorporate these item bank questions into their course material and assessments to familiarize students with the testing process in hopes of preparing them for success. Depending on the technology in a classroom, all students can submit test item bank quizzes and tests electronically which will then create data reports for the teachers instantly. These data reports allow the teacher to check curriculum understanding, overall averages, objective percentages, and other statistics related to specific questions or units of instruction as well as engage in analyzation and reflection of their instruction to increase learning, motivate students, and raise test scores in the future (Sindelar, 2011).

Conceptual Framework

A model by Morrison, Ross, Kemp, and Kaliman (2013) related to instruction, assessments, and motivation was revised and modified by the researcher to develop the conceptual framework for the study.

Morrison, Ross, Kemp, and Kaliman's model was presented as an oval to emphasize that there is no one specific sequence for completing instructional design, but explained that effective instructional design promotes learning and improves performance. In their oval model, items such as internal and external factors, planning, implementation, evaluations, and instructional strategies, were all discussed and interrelated. "Knowing the basic principles of instructional design can help to ensure that what is produced serves a necessary purpose, meets the needs of students, is delivered in an appropriate mode, and is continually evaluated and improved" (Morrison, Ross, Kemp, & Kaliman, 2013, p. 5). The overall theme of the model promoted the above stated principles.

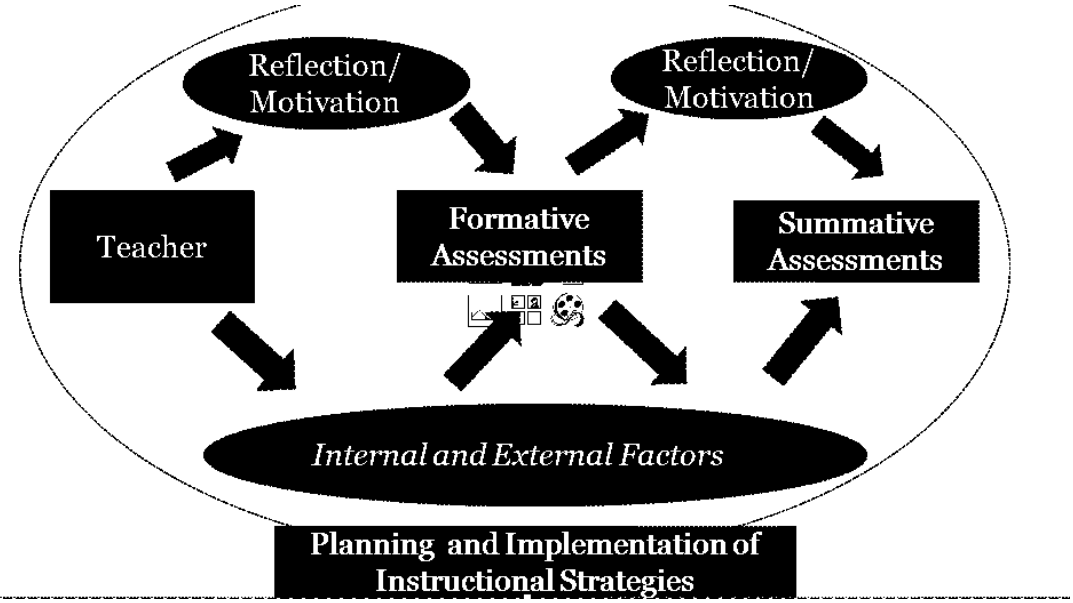

Figure 1. Revised and modified of planning and implementation of instructional strategies adapted from Morrison, Ross, Kemp, and Kaliman (2013).

The researcher took their original model and developed the model found in Figure 1. Planning and implementing instructional strategies within a classroom is a daily practice for teachers and requires teachers to engage in a variety of decisions. These decisions are considered when developing assessments that will adequately measure student knowledge on a daily basis while being influenced by an assortment of internal and external factors. Some of these factors include: school pressure, parental involvement, student learning styles, class size, student ability levels, etc. Through the use of reflection and the teacher's motivation, formative assessments, summative assessments, and instructional activities are planned and implemented. This reflection process allows for teachers to modify their assessment strategies to improve learning while taking into account the internal and external motivations that also affect student performance. The outcomes of these assessments continue to influence the planning and implementation of instructional strategies because the data identifies areas of success and improvement (Guskey, 2003). The continuation of influencing factors and

data combined with high expectations creates a cycle that is used frequently by teachers in their classroom. Earl (2003) further emphasized this point by stating, "Using assessment for optimum learning for students is a process of growth, change monitoring, and more changes for teachers along with their students. Teachers need to understand their own learning habits, including what motivates and influences them. The process never ends" (p.119).

With the increased amount of pressure on teachers to prepare students for standardized tests, motivating factors can greatly influence classroom instructional practices. Vroom's (1964) expectancy theory stated that a person will choose a certain behavior based on their motivations and desired outcomes with his or her performance and effort associated with the desired outcome (Borkowski, 2009). Lindner (1998) found that knowing the motivations of employees and using that knowledge to develop a reward system will help identify, recruit, employ, train, and retain a productive workforce. This same concept can be used by the education system to determine those key motivating factors and their association with possible rewards, and in turn how those rewards impact performance and effort. If high test scores are the desired outcome, what are those performance measures and efforts that teachers implement in their classroom to achieve high test scores?

Test Item Banks and Standardized Testing

The high stakes nature of state testing programs is a motivating factor for some teachers while having the reverse effect on others including decreased morale and increased stress levels (Abrams, Pedulla, & Madaus, 2003; Jones, Jones, Hardin, Chapman, Yarborough, & Davis, 1999). However, teachers are not the only ones impacted with the high stakes nature of testing. The strong focus on achieving high test scores can impact the educational experiences students are exposed to and the instructional skills taught throughout the year (McNeil, 2000; Smith, 1991). Teachers utilize test item banks during assessments because research shows that students who encounter instructional activities similar to assessments often perform better on external assessments due to their familiarity with the set up and format (Anderson, et. al., 2001). Kulik, Kulik, and Bangert (1984) conducted a meta-synthesis evaluation of forty studies that were all related to the use of practice tests and achievement scores, and found the following indicators as having an impact on achievement: practice tests similar to the test given, the number of practice tests taken prior to assessment, and the ability level of the student. This practice of "item teaching" (clone items, practice tests, actual items on tests) to prepare students for the standardized test is often used because teachers felt there was no other option (Popham, 2001).

Test item bank questions are a useful tool in the classroom when used to project higher academic goals or compare progress between students; however, a small yet statistically significant amount of students will often receive grades that are not indicative of their true knowledge because of question format on end of the year assessments (Simkin & Kuechler, 2005). Multiple choice questions, which are what item banks and end of course assessments are mainly comprised of, allow students to increase the probability of the right answer through elimination and often do not require a deep understanding of the content. Test items only testing basic factual knowledge do not provide teachers with information regarding the student's ability to apply their knowledge to real world problems (Zimmerman, Sudweeks, Shelley, & Wood, 1990). When multiple choice questions are properly developed and evaluated, higher level thinking and their understanding of

application to real world experiences can be tested (Killoran, 1992).

In a study to determine the relationship between the level of cognitive performance and critical thinking, Cano and Martinez (1991) found that agricultural education students scored lowest on critical thinking abilities compared to basic and application abilities on assessments, emphasizing the need for agricultural educators to promote critical thinking skills and seek out higher level instructional activities. When incorporated into instruction and both formative and summative assessments, 21st century skills such as critical thinking and creativity produced significant learning gains among students (Black & Wiliam, 1998; Crooks, 1988; Natriello, 1987). The data produced from assessments allows teachers to reflect on instruction and make justified grading decisions. For justifying grading decisions, teachers may feel more comfortable relying on fairly traditional tests of factual knowledge using multiple choice questions as summative assessments since only one answer is correct and there is little room for interpretation (Anderson, et.al, 2001).

Studies also found that teachers change their curriculum to meet test standards by specifically changing the order in which the content is introduced and emphasizing tested concepts more while eliminating those non-tested concepts (Brown, 1992; Firestone, Mayrowetz, & Fairman, 1998). With the stress to increase test scores, teachers indicated they were less likely to use "innovative" strategies because of the belief that more traditional strategies better prepare students (Brown, 1992). Studies conducted with teachers in Arizona, Kentucky, Virginia, and North Carolina found standardized testing had impacted their instruction of content and daily planning (Brown, 1992; Jones et al., 1999; Koretz, Mitchell, Barron, & Stecher, 1996; McMillan, Myran, & Workman, 1999; Smith, Edelsky, Draper, Rottenberg, & Cherland, 1989). Abrams, Pedulla, and Madaus (2003) found that teachers in high stakes states were more likely to use test prep materials and state developed test items and teach in ways that contradict "good" education practices. Some education professionals highly discourage using intended summative assessment formatively because the results can no longer serve as an indicator of student understanding (Anderson, et. al, 2001).

Urdan and Paris (1994) conducted a study of 153 kindergarten through eighth grade teachers to determine teachers' perceptions of standardized testing. The majority of teachers had negative feelings about the test and questioned the test's usefulness because of their belief that the test did not accurately reflect what students know. Participating teachers also indicated using class time and practices that threaten the validity of the results as well as quality of learning to prepare students for the tests.

Purpose and Research Questions

The National Council for Accreditation of Teacher Education (2012) reported that effective teaching requires teachers to possess an understanding of content knowledge and educational psychology as well as the ability to encourage student learning and achievement. In addition, an understanding of how to develop well-constructed assessments that are aligned between standards, curriculum, and formative assessments is needed (Soloman, 2002). To aid in the preparation of end of course tests, the majority of states created test item banks for teachers to use throughout the year. The purpose of this study was to investigate the usage of test item banks by agriculture education teachers in North Carolina. This study was guided by four questions:

1. To what extent, do North Carolina agriculture education teachers utilize test item bank questions for both formative and summative assessments?
2. What internal and external motivating factors influence teachers' use of test item banks?
3. What other types of assessments are used by agriculture education teachers?
4. What are the perceptions of agriculture education teachers regarding the test item bank?

Methodology

Because this study and the use of a specific test item bank system is unique to North Carolina agriculture teachers, the study can only be generalized about North Carolina agriculture teachers. However, with the increase in standardized testing and focus on higher test scores throughout the country, this study could benefit other agriculture and CTE programs who utilize standardized tests and test item banks.

At the time of the study, North Carolina was home to 427 agriculture teachers with 39 of those teaching at the middle school level. Middle school teachers were excluded from the population since standardized testing was not used for agriculture classes at the time as well as first year teachers due to their lack of experience using test item banks and assessments. Because the population consisted of 338 agriculture teachers, survey research was viewed as the best way to collect a large amount of information regarding their practices, beliefs, motivations, and other specifics related to test item bank usage.

Instrumentation

Due to the absence of directly related studies to agricultural education and test item banks, an instrument was developed based on teacher discussions, articles related to assessments, and specific objectives pertaining to the purpose of the study. The instrument was reviewed by a panel of experts to determine the face validity and piloted with twenty high school Career and Technical Education (non-agriculture) teachers since they had access to the test item banks for their courses. The suggestions provided by pilot participants were taken into consideration and needed changes were made. Pilot participants also assisted in testing the reliability of the instrument through a test-retest design. Pilot participants were sent the questionnaire and then resent the questionnaire fourteen days later. No significant differences were found between the two tests allowing data collection to proceed.

Using the directory, teacher email addresses were collected and emailed the link for the questionnaire. Follow up email messages were sent to those participants who had not responded after 7 days, 14 days, 21 days and 28 days. Within *Qualtrics*, a spreadsheet identified those individuals that had started, were in progress, or completed the survey. Phone calls or personal email messages were made to any non-respondents after 30 days as a means of controlling non-response. To help participants only focus on one class, participants were asked to provide the name of the class in which they were completing the questionnaire. Mean scores, descriptive statistics and the measure of variance were used to compare the results and analyze findings related to the research objectives.

Results

Out of 338 teachers, 225 teachers completed the survey instrument for a 67% response rate. The population consisted of 55% with a master's degree, 40% with a bachelor's degree, and 2% possessing a six year certificate. In addition, eight individuals indicated taking graduate classes beyond

their bachelor's degree. The majority (76%) of the participants in this study were not considered lateral entry teachers. Table 1 shows the years of experience as a high school agriculture teacher. The largest percentage of participants were beginning teachers (0-3 years) and veteran teachers (21 plus years).

Table 1

Years of Experience (n = 225)

Years Employed as a High School Agriculture Teacher	N	%
Less than one year	21	9
1-3 years	49	22
4-6 years	31	14
7-10 years	34	15
11-15 years	24	11
16-20 years	26	12
21 or more years	40	18

Research question one sought to determine the extent North Carolina agriculture teachers utilized test item bank questions for both formative and summative assessments. Instrument questions focused on the frequency of test item bank questions on formative assessments in their named agriculture course. The majority (47%) of teachers indicated that test item bank questions are used for formative assessments once a week and a smaller percentage (2% and 3% respectively) indicated using the item bank questions four or five times a week on formative assessments. Only 23% stated that the test item bank questions were used on formative assessments before the CTE Post Assessment test; however, a larger percentage (31%) indicated the use of test item bank items as a formative assessment before class tests. While the majority of teachers do incorporate these item bank questions into their formative assessments, ten teachers responded that test item bank questions were not used at all for formative assessments.

Table 2 displays the data collected regarding the percentage of test item bank questions on both formative and summative assessments. The majority of teachers responded that test item bank questions were used in their assessments. Some teachers (46) indicated using test item bank questions on every formative assessment; however, an even larger group (105) use test item bank questions on every summative assessment. The majority of teachers use test item bank questions on more than 51% of both their summative and formative assessments.

Table 2

Frequency of Use of Test Item Bank Questions on Assessment

Assessment Type	1	2	3	4	5	6	*N*	*M*	*SD*
Formative	12	32	33	36	60	46	219	4.09	1.53
Summative	6	14	15	27	48	105	215	4.92	1.39

Scale: 1) Never, 2) 1-25%, 3) 26-50%, 4) 51-75%, 5) 76-99%, 6) Every

A separate question asked teachers to estimate the percentage of summative test questions that were test item bank questions. A majority (36%) responded that 100% of their summative test was comprised of test item bank questions while only twelve percent indicated test item bank questions make up less than 50& of their test. Fifty-two percent of agriculture teachers use the test item bank questions for 51% to 75% of their overall tests.

Research question two sought to determine the internal and external motivating factors that influence teachers use of test item banks. A teacher's instructional strategies and assessment practices are often internally and externally motivated with self, student, and administrator expectations playing a role. A series of statements were presented to teachers asking them to: 1) Strongly Disagree, 2) Disagree, 3) Agree, and 4) Strongly Agree. Table 3 reports the mean and standard deviation for each of the statements. The majority (92%) of agriculture teachers reported feeling comfortable developing their own tests; however, based on the table there are influences that promote the use of test item bank questions. Ninety-nine percent of teachers indicated that the CTE Post Assessment scores were important to their county combined with 66% indicating that principal and other administration expectations influenced their usage of the test item banks and 77% indicating that CTE coordinator expectations influenced their use of test item bank questions.

Directly related to the curriculum, 59% of the teachers acknowledged that the cognitive and performance level of objectives were an influencing factor in their decision to use test item banks. Often modifications and accommodations need to be made for students with an individualized education plan. These modifications and accommodations are required and a majority (52%) of teachers do not feel that the test item bank allows for student modifications to be made. Furthermore, time was a major influence in teachers' usage of test item banks. Teachers agreed or strongly agreed that the time available to grade tests influenced their use of test item banks (77%), using test item bank questions reduced the amount of time spent on developing tests (85%), and making tests using the test item bank was easier than developing their own tests (80%).

Teachers were also asked a series of questions regarding their training on test item banks. Only one teacher indicated receiving training in a college class about how to use the test item banks. Approximately half (51%) of the teachers attended some type of LEA development and 43% attended some type of school workshop. Ranking third highest (44%) teachers reported that they trained themselves on how to use the test item banks. Others reported learning during student teaching experience, from another teacher, or some other type of training.

The number of professional development training hours varied among the teachers. The majority (53%) received between two and four hours of training, 25% less than one hour, 10% received no training, 7% received between 5-8 hours, and 5% of teachers reported attending nine or more hours of professional development training on how to use the test item banks.

Research question three explored the other types of assessments being used by agriculture teachers in addition to test item banks. Table 4 displays the other types of formative assessments that are used by North Carolina agriculture teaches. Based on the instrument responses, teachers use questioning, lab activities, discussion, and worksheets as a formative assessment the most. Think/Pair/Share, learning logs, and exit cards were used the least.

Table 3

Internal and External Motivating Factors Influencing Test Item Bank Usage

Statement	*N*	*M*	*SD*
CTE Post Assessment scores are important to my county.	207	3.55	0.54
I am comfortable with developing my own tests.	210	3.29	0.70
My performance as a teacher is based on the student performance on the CTE Post Assessment.	209	3.24	0.81
Using test-item bank questions reduces the amount of time spent on developing my own questions.	210	3.20	0.74
The objectives of my course influence my use of test item bank questions.	207	3.14	0.69
Making tests using the test item bank is easier than developing my own tests.	209	3.06	0.82
The time I have available to grade tests influences my use of the test item bank.	210	3.06	0.71
My CTE coordinator expectations influence my use of test item bank questions.	208	2.97	0.85
The technology at my school is sufficient and allows me to use the test item bank.	210	2.90	0.85
The data provided by the test item bank influences my instructional design.	209	2.82	0.70
My principal or other administration expectations influence my use of test item bank questions.	206	2.75	0.87
My county or school has policies that require me to use the test item bank.	209	2.75	0.82
The cognitive level associated with each objective influences my use of the test item bank.	204	2.60	0.62
The performance level associated with each objective influences my use of the test item bank.	206	2.59	0.63
There is an increase in student learning when the test item bank is used in the classroom.	208	2.49	0.74
Test item bank questions allow for individual student modifications to be made.	210	2.48	0.78

Scale: 1) Strongly Disagree, 2) Disagree, 3) Agree, and 4) Strongly Agree

Summative assessments are a key evaluation tool for both teacher and student accountability in the classroom. A strong majority (86%) utilize unit tests as a summative assessment. Table 5 displays the different types of summative assessments that are used in North Carolina agriculture classrooms. A large majority (86%) use unit tests, followed by 66% using major projects. The lowest percentages were linked to final tests that were not the CTE Post Assessments and major papers. While the majority of teachers do use some type of summative assessment in their class, six teachers indicated not using any other summative assessment other than the CTE Post Assessment.

Table 4

Types of Formative Assessments Used (N=218)

Formative Assessment	*N*	%
Questioning	181	83
Worksheets	176	81
Lab Activities	172	79
Discussion	150	69
Observations	120	55
Exit Cards	63	29
Other	64	29
Think/Pair/Share	60	28
Learning Logs	17	8

Table 5

Types of Summative Assessments Used (N=218)

Summative Assessment	*N*	%
Unit Tests	188	86
Major Projects	144	66
Midterm	132	61
Weekly Tests	94	43
Final non-CTE Post Assessment	37	17
Major Papers	36	17
No summative assessments other than the CTE Post Test	6	3

There are many different types of questions that can be implemented on an assessment. Some teachers chose to make their own tests and utilize multiple types of questions, while others may rely on one specific type of question. Table six provides the percentage of teachers who use a specific type of question on their summative assessments. Agriculture teachers indicated that multiple choice (91%), short answer (56%), and fill in the blank (50%) questions were the most frequently used on summative tests with essay and true/false questions used the least. On this question, sixteen teachers indicated that they do not give summative tests other than the CTE Post Assessment unlike the six teachers who indicated on the last question to not utilize summative assessments other than the CTE Post Assessment.

Teachers were also given two perception statements about their beliefs about assessments. These two statements used a Likert-type scale ranging from one to four where: 1) Strongly Disagree, 2) Disagree, 3) Agree, and 4) Strongly Agree. Table 7 reports the results from these two statements.

Research question four aimed to explore North Carolina agriculture teachers' perceptions of the use of test item banks. Two Likert type statements were given to participants and the following scale was used: 1) Strongly Disagree, 2) Disagree, 3) Agree, and 4) Strongly Agree. Table eight displays the mean and standard deviation for these two statements. When asked whether the CTE Post Assessment scores accurately measure students' knowledge and comprehension, 69% of teachers believe the

CTE Post Assessment was not an accurate measure and 66% do not believe that the CTE Post Assessment questions test higher order thinking skills.

Table 6

Types of Questions Used on Summative Assessments (N=218)

Type of Question	*n*	%
Multiple Choice	199	91
Short Answer	122	56
Fill in the Blank	110	50
Matching	107	49
True/False	80	37
Performance	73	33
Essay	54	25
No summative assessments other than the CTE Post Test	16	7

Table 7

Perception of Summative Assessment

Statement	*N*	*M*	*SD*
I prefer to develop my own tests instead of using test item bank questions	210	3.29	0.72
I believe that summative assessments should include appropriate levels of questioning related to cognitive thinking, performance, and attitudes.	207	3.26	0.57

Scale: 1-Strongly Disagree, 2-Disagree, 3-Agree, and 4-Strongly Agree.

Table 8

Perceptions of Teachers Regarding Test Item Bank Usage

Statement	*N*	*M*	*SD*
I believe CTE Post Assessment scores accurately measure students' knowledge and comprehension.	209	2.40	0.72
I believe the CTE Post Assessment questions tests students higher order thinking skills.	209	2.21	0.73

Scale: 1) Strongly Disagree, 2) Disagree, 3) Agree, and 4) Strongly Agree.

Conclusions and Discussion

The North Carolina agriculture teacher considers many internal and external factors and reflects on student achievement when planning and implementing the use of test item bank questions within their formative and summative assessments (see *Figure 1).* Test item bank questions have become a key component of both formative and summative assessments in North Carolina agriculture classrooms. Because the test item banks are easily assessable and provided by the state, teachers rely on these item banks to prepare students for the CTE

Post Assessment; however, their reliance on the test item bank questions are dominating both their formative and summative assessments. This reliance could seem as if teachers are teaching to the test because of the desire to produce high scores on the CTE Post Assessment. While the majority of participating teachers indicated only using the item bank questions three or less times a week on formative assessments, the means associated with frequency of use on formative and summative assessments were 4.09 and 4.92 respectively. This mean indicated that the majority of teachers are using them for 51% or more of both formative and summative. The item banks were created to be a tool used in addition to other instructional activities, yet appears that item bank questions are present on the majority of both formative and summative assessments. When the use of summative assessments become formative assessments, the results of the summative assessment can be questioned for validity (Anderson et al., 2001).

Both internal and external factors equally influence teachers' use of test item banks within their course. With counties and states placing high importance on test scores, teachers feel pressure to produce high test scores especially since it is part of their measure as an effective teacher. While there is pressure from counties to produce high scores on the CTE Post Assessment, teachers also favor the test item banks' ability to generate questions, create assessments quickly, grade assessments instantly, and provide data related to student achievement.

As with any tool, proper training is key to an increased understanding related to that tool's usage and capabilities. With regards to the test items banks, North Carolina agriculture teachers have not been adequately trained on how to use test-item banks for formative and summative assessments. Proper training is needed to ensure teachers are familiar with all of the functions, options, and capabilities of the system. The item banks were designed to be more than a test generator and when used properly they can monitor student progress and provide valuable curriculum data. More training focused on the whole system would help teachers see the item banks as an additional asset to the curriculum already in place, rather than using the banks as a primary mode of instruction.

North Carolina agriculture teachers are using an appropriate amount of different assessments from questioning, worksheets, lab activities, unit tests, quizzes, projects, and other assessments to effectively measure student learning and comprehension. The majority of North Carolina agriculture teachers believe that assessments should contain appropriate levels of questioning related to cognitive thinking, performance, and attitudes. Their beliefs surrounding assessments and the variety of the assessments being used in the classroom is appropriate, but their reported over-reliance on the test item bank questions on the majority of these assessments illustrates their unwillingness to "not teach to the test".

While their perceptions of the test item banks are mixed, teachers do believe the use of item bank questions on their formative and summative assessments lead to higher test scores which ultimately influence student success in their classroom. Teachers feel pressured by their supervisors to perform and meet expectations and sometimes those expectations pressure them to do things that they do not necessarily believe are the best teaching practices nor a good indicator of student knowledge and understanding. The test item banks are both a positive and negative factor influencing a teacher's motivation, reflection, assessments, and instruction.

With the current legislation that is in place, standardized testing is here to stay in

North Carolina education. This key component emphasizes the need for professional development on the best instructional strategies that encourage high test scores without "teaching to the test" by using practices such as "item teaching" or clone questions. Teachers should view item banks as a worthwhile tool that can be incorporated into lessons sparingly while focusing on higher level instruction that teaches 21st century skills desired by industry standards. States utilizing test item banks should analyze and evaluate the item bank questions periodically and incorporate feedback from summative assessments, teachers, and industry leaders to continue to monitor validity and reliability. Agriculture teachers indicated the test items did not challenge students, but were more memorization and recall; however, the teachers still utilize these questions because of pressures from administration related to student success and teacher evaluation. Questions can be improved to incorporate more experiential learning concepts and challenge students to use higher order thinking skills. An analysis of test item bank questions and associated cognitive level will ensure test item bank questions are at the same cognitive level as curriculum objectives. This information would establish credibility with teachers and further validate the test results as an accurate measure of student knowledge.

In addition, administrators need to be educated on the components of a total agricultural education program. While test scores are one component, agriculture education is a three circle model needing evaluation on all three components: classroom and lab, FFA, and supervised agricultural experience. Further research inquiring about a principal's knowledge of a complete agriculture program would provide insight to the awareness of the many responsibilities of an agriculture teacher. Until administration releases some of the focus on high test scores, teachers will continue to make test scores a primary focus within their classroom instruction.

Lastly, an experimental study that compares test scores between a teacher who uses only test item bank questions with one who incorporates test item bank questions half of the course, and one who utilizes experiential learning would help fill in the gaps on the current reasoning and impacts. In some aspects, fear of failure and the consequence of that failure are hindering teachers from incorporating those innovative strategies that teach real world skills in their classrooms. Teachers need to be reminded of the research conducted by Arnold, Warner, and Osborne (2006) that found experiential learning activities improve interest, motivations, and retention of material. After all, most teachers entered the profession because of their desire to make learning exciting not teach to a test.

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