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Documenting Standards Based-Grading through assessments in the CASE Food Science and Safety Curriculum.

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Documenting standards-based grading through assessments in the CASE© Food Science and Safety Curriculum.

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Creative component submitted to the graduate faculty at Iowa State University as partial fulfillment of the requirements of the degree of

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Chapter 1

INTRODUCTION

Curriculum for Agricultural Science Education (CASE) is a system of instructional support, which the likes of which have not been used before in agricultural education. The foundation of the systems is found in 4 key areas. The first area is the curriculum. Once a participant attends the CASE Institute the recipients receives a full year long curriculum. The second area is professional development. Where attendees join in with their peers for a rigorous professional development which takes you through the curriculum by completing curriculum activities or providing work samples for teachers to use the rubrics. The third area is assessment which provides strong guidance nationwide with cut scores that allow certification. Finally, the fourth area of the CASE system is certification which provides a certification that follows the teacher if they should move schools. This certification also ensures there is consistency between programs that carry the same CASE certification. (CASE, n.d.)

With this strong start for CASE curriculum, the question might arise, “What needs to change?” Even a strong curriculum can not turn on a dime when education standards alter or teaching trends change. In recent years, there has been an educational shift to document what standards or concepts the students know and can show proficiency. This shift may be a result of the No Child Left Behind Act which started as state and federal initiatives from the 1980s and 1990s. Using standards to measure learning is not a new concept, as it has been a developing concept over the last two decades. Schools have been slow to adopt the practice. One reason might be that Standards-Based Grading (SBG) is often on a scale from 1-4 (Other scales have been used) and doesn’t translate smoothly to the grading scales as have been used for many decades. Others are in opposition and believe it may taint a teacher to teach to only the standards and miss other objectives that will not be on a summative test.

Even though that might be true, providing our current student population, a list of industry-recognized skills is of great value. Students appreciate knowing what they are skilled at and how those relate to a future occupation. Providing students a sense of accomplishment when completing a course or graduating high school is critical. In

Iowa, we have seen the slow adoption of standards-based grading permeate through our school districts. Sumner Fredericksburg is no different. For the past two years, we have been asked to move our lessons over to 'I can' statements and match them to standards and aligning them with a proficiency scale the students can compare their work to. This has been a slow process for me as I teach 7 different preps. This is where I can see the value of this project in my profession. Having the *Check for Understandings* (CFU) aligned and with a scale on the assessment will provide someone the opportunity to focus on other areas of the curriculum and relieve stress for the educator.

PURPOSE & OBJECTIVES

1. Develop a scale to display on each CFU for the CASE Course Food Science and Safety.
2. Identify and align each question by concept and level of each Check for Understanding.
3. Modify any or all questions to ensure coverage of all concepts at all levels. (2-4)

NEED

Having multiple ways to assess students' learning is of significant value. Once this is complete as an educator they are able to share with CASE Certified (Food Science and Safety) teachers who may need SBG options. It also allows the CASE Institute participant an opportunity to see what skills the students are achieving throughout the course. Standards-Based Grading allows teachers to develop a portfolio which allows students to document their skills to a potential employer or as an indicator of understanding to future educational endeavors. In addition to providing this document to teachers who have the certification, it allows the teacher to reassess students who are not at a proficient level.

DEFINITION OF TERMS

(All definitions are a direct quote from the website given.)

CASE: Curriculum for Agriculture Science Education - CASE is a national curriculum designed to establish a structured sequence of agricultural, food, and natural resource science courses that are rigorous and relevant while including hands-on, student-centered lessons, projects, activities, and labs that prepare students with the skills they need for pursuing 21st-century agriculture careers. (<https://www.sussextech.org/page/3305>)

Formative Assessment - Refers to a wide variety of methods that teachers use to conduct in-process evaluations of student comprehension, learning needs, and academic progress during a lesson, unit, or course. Formative assessments help teachers identify concepts that students are struggling to understand, skills they are having difficulty acquiring, or learning standards they have not yet achieved so that adjustments can be made to lessons, instructional techniques, and academic support. (<https://www.edglossary.org/formative-assessment/>)

Proficiency Scale - In simplest terms, represents a progression of learning goals with three levels of difficulty: (1) the target (level 3.0) content; (2) the simpler (level 2.0) content; and (3) the more complex (level 4.0) content. (https://www.marzanoresources.com/resources/tips/ps_tips_archive)

SBG: Standards-Based Grading - In education, the term standards-based refers to systems of instruction, assessment, grading, and academic reporting that are based on students demonstrating understanding or mastery of the knowledge and skills they are expected to learn as they progress through their education.

(<https://www.edglossary.org/standards-based/>)

Summative assessment - Are used to evaluate student learning, skill acquisition, and academic achievement at the conclusion of a defined instructional period—typically at the end of a project, unit, course, semester, program, or school year. (<https://www.edglossary.org/summative-assessment/>)

Chapter 2

LITERATURE REVIEW

Ensuring students leave the agriculture classroom with marketable skills has been a goal of agriculture instructors since the beginning of agriculture education. Educators pride themselves on the production of students who yield skills they can use in potential careers. Standards-Based grading is traditional education's answer to what was once called agricultural competency portfolios. (Keystone AEA, 2011; Steiber & Berns, 2018.) Although not used through all Area Education Associations (AEA) programs through the state of Iowa, Standards Based Grading has been in place in some locations for two decades.

Another question which may arise about Standards Based Grading which includes who determines what skills or standards are to be met? The Goals 2000: Educate America Act of 1994 defines content standards as “broad descriptions of the knowledge and skills students should acquire in a particular subject area.” (National Academy of Education White Paper, 2009) The list of skills a student is responsible for is considered a local decision in Iowa. In recent years agriculture teachers have been asked to align their curriculum and activities to standards. The Council on Agricultural Education states the following; “The AFNR Career Cluster Content Standards provide state agricultural education leaders and educators with a high-quality, rigorous set of standards to guide what students should know and be able to do after completing a program of study in each of the AFNR career pathways” (The Council, 2012).

One of the benefits of using the CASE curriculum with a Standards Based Grading is that concepts and standards are aligned with The Council’s AFNR nationally developed standards. The most recent publications of the Agriculture, Food, and Natural Resources (AFNR) was in 2015. When a school adopts the CASE curriculum into its program and follows it as prescribed, students are exposed to all the identified standards and concepts. A significant value of a school adopting CASE is the professional development attendees receive in addition to the fully aligned standards which this article from the Journal of Curriculum studies connects. “Curricular coherence can refer both to the ways that policy instruments fit together—standards, assessment, and professional development—and to

features of the curriculum itself” (Schmidt, W.H., Wang, H.C., & McKnight, C.C., 2007). A foundation or understanding of why CASE can be summed in the following quote. “Effective programs—those that changed teaching practices and improved student outcomes—focused on both content knowledge and particular aspects of content mastery related to student learning; they were coherently linked to curricular expectations, involved the sustained participation of teachers over long periods of time, and allowed teachers the opportunity to try new methods in the context of their own practice.” (Boyd, D., Grossman, P., Lankford, H., Loeb, S., & Wyckoff, J., 2008.) CASE provides significant value to the teacher participants because it allows them to improve content mastery, and strengthens their curricular expectations. The research suggests, “standards accompanied by curriculum reform efforts can change the content of instruction, but that standards alone are unlikely to influence practice in a significant way” (Laura S. Hamilton, Brian M. Stecher, and Kun Yuan, 2008). Teachers also are provided with new methods of teaching which can be used in their own classroom. The one area the curriculum does not include is the documentation of the student’s ability against the skill or standard in a traditional (SBG) aspect. This is what my document will attempt to answer.

DOCUMENTING SBG

Documenting a student's skills is nothing new to educators. Educators understand where the standards or concepts are developed and attained. There are multiple benefits to students that are exposed to a SBG system. First, students are aware of the concept that will be covered and the concept should be outlined at the start of each unit. Students also get multiple ways to demonstrate proficiency and can retest if additional learning is required. Finally, students start to feel accomplished as they start to gather skills that they are proficient in.

The SBG system provides benefits for parents, because grades are tied directly to a concept which allows for less abstract grades to be given. Parents can see the list of skills that their students can complete and also know specific areas their students need support.

Besides showing benefits to parents it can also be viewed by teachers who see all students on a continuum striding towards the proficient or mastery levels. This allows a teacher to directly focus the students on tasks or

provide support which allows them to progress. Teachers can easily determine if additional supportive tasks are needed or if you can add enrichment tasks that can take a student further.

SBG will provide students ownership over the concepts that are covered in the food science and safety course. This can be streamlined by providing an outline of concepts that are covered and a score on their proficiency on those concepts. The National Council on Agriculture Education (2018) publishes standards for all eight of the career clusters. This cumbersome task of aligning the standards to teaching tasks has already been completed by CASE staff, allowing the teacher to focus on other areas where our attention is pulled. The curriculum and professional development leads to more teacher's actually changing practice and adopting SBG practices which benefit the student the most. Finally, we look at buy-in from all interested parties. When explained, it seems clear that students have a clearer path of the teacher expectations. It will take adjustments from parents to accept a new method of grade application. But like students, once the outline of goals and concepts are addressed, it seems like all should be fully invested.

Chapter 3

METHOD & PROCEDURES

Beginning this project the Check for Understanding of the Food Science and Safety CASE course was downloaded for the course which included 16 assessments over 7 units of study. A chart was developed and placed on the assessment as a place to mark where the student is dependent on their responses to the questions on the Check for Understanding. Those are meant to be a quick marker for teachers to see what concepts may need to be readdressed.

The next aspect is how the students learning is documented to reflect Standards-Based Grading. In order to develop the assessments in a consistent manner, The following questions will be used.

1. What do all of my students need to know?
2. What should all of my students be able to do to demonstrate they know?
3. What standards do I want to measure?
4. Which outcomes are not being assessed adequately?" (Standards-Based Grading, October 2015)

Building off the work completed by CASE with the alignment of Standards to units, a focus was placed on the specific concepts for each lesson. Once the foundation of what is expected out of the students we can start to develop the questions which will be on the assessment. The four levels the assessments was based on include the following:

1: Getting started. This is the foundational level when students have very little exposure to the topic.

2: Developing. Students are still learning and are not at a level that would be expected of proficiency.

3: Proficient. Learning has occurred and the student understands the concepts that were addressed.

4: Mastery. A student grasps an understanding of the concepts and could teach them to others.

The determination of proficiency will be brought forth by questions from the assessment. Which is key in getting quality responses from students. “Performance standards are best represented by showing pieces of student work that illustrate the quality of an essay or the demonstration of mastery that is expected” (National Academy of education White Paper, 2009). The questions are mastery students will have to make key ties to concepts covered in the unit. Looking at both the standards and concepts in each lesson, questions for each Check for Understanding were developed. Questions followed this basic line of questioning. Level 2 asks students questions that relate to the very basics of understanding in the unit. At this level their learning is still occurring. Level 3 questions relate more to the direct concept and the student’s ability to outline their understanding and demonstrate it at a proficient level. Level 4 is a mastery status and would relate more to the student’s ability to describe in detail a significant understanding of the concept at hand. Most of my questions relate to the real-world application of the concept. No Level 1 questions were included because at this time a person will only beginning exposure. If a student is enrolled in the course and completing activities they should be more advanced and have knowledge that is a Level 2 or higher.

After students complete the assessment they would receive a score dependent on their responses. Based on their score, students will progress to the next activity or they would need to reassess. The reassessment might include the questions being slightly edited or entirely new questions.

Chapter 4

PRESENT THE PRODUCT

Please see the attached product which is all Check for Understandings as edited for SBG.

Chapter 5

REFLECT ON THE PROJECT

The drive and determination it has taken to complete this project has given me the confidence to complete this same structure for my other CASE classes. Not only for myself and how this will strengthen my own program but knowing how it will help other teachers who are also certified in CASE Food Science and Safety. Now that I have this huge component completed for my class which will be easy to put grades in because the concepts I will be testing on are already identified. This also will allow me to look at providing the reassessment if students need it.

Developing Standards-Based assessments, without having the experience in using them has been a difficult task. I am encouraged that conversations will occur with other CASE FSS certified teachers and myself on quality questions. I am sure edits and expansion will happen for both myself and other teachers that I share this with. I still question on if I should have developed proficiency scales for each of the units. In the future, I may develop those for this curriculum. I could see it being helpful to future students who would like the guidelines to follow through the curriculum. I can see the addition of the proficiency scales into a handout or syllabi which would give out at the beginning of the year.

WHAT IS RECOMMENDED

Distribution would be an issue, as CASE curriculum is copyright material. I would like to send it to all teachers who carry the Food Science and Safety endorsement. In addition, I would offer the assessment to teachers who would be in the CASE food science and safety institute that I would Lead Teach. One thing I want to make sure is clear is that this is not endorsed or recommended by CASE. I have to be sure to present this as value-added. I would also like to see if I could share with other FSS endorsed teachers who might share with me SBG assessments for other CASE classes I am endorsed in.

Personally, I would like to seek my school's approval to align our grading scale to the Standards-Based Grading framework I have adopted for this curriculum. Although we have been asked to start developing and changing over to Standards-Based grading, our school has not notified parents or the community of the changeover.

Essentially, have us prepare, but not promote. Without community understanding and support moving over and making such large changes can be a struggle. Even if we don't move over to Standards-Based grading, this project is still of significant value. As I have written about previously, giving students the opportunity to document their learning gives them confidence.

To maintain the integrity of the assessments, a review will need to be made each time when new standards are released or CASE FSS curriculum is released. The curriculum is scheduled every five years for review and updates. Questions should be reviewed, and updated for validity.

DO ANYTHING DIFFERENT

The thought about what I would do differently would have to start with my entire graduate school experience. I had a long time span between my first class and my last class. That would be the thing I would do differently. If I could offer a recommendation, it would be to have a stronger connection with students who have not attended Iowa State University previously. My story starts off with going to high school in Oregon, getting a bachelor's degree in another state. Then moving to yet another state to gain employment. The distance program at ISU was so appealing, but once I was in the depths of it, I didn't feel a close connection to any professor. Why would I? Why would they invest time in me, an unknown? If it had not currently been for a professor who was in the agriculture education field with me, I would have lived the rest of my life with regret. That connection was finally made, but it took so long to do that.

Creative component changes I would have made would have been two things. First I would have requested the new curriculum from CASE since this is a year that a new curriculum will be released. Since it was not available yet I wanted to use what I had on hand, I think my own updates will be done once the curriculum is released. Second, I wish I had included proficiency scales for students to gauge their own learning. That might be something that I further develop at a later date and include in a syllabi at the start of the year.

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