

This quarter...

- *Research poster briefs from ACTER conference*
- *Strategies for working with youth from impoverished backgrounds*
- *Educational Technology Tips*



Professional Development and Dialog for CTE Professionals!

Professionalism

To practice

Why we are here...

OTT is committed to helping our members grow as Career and Tech Education professionals! With this goal in mind, our organization is excited to announce this launch of professional development resources for our membership as well as other CTE professionals!

Welcome back to PtP, a quarterly publication designed to highlight best practices of CTE professionals!

Despite hectic schedules and travel arrangements, attending conferences is still one of my favorite parts of being a faculty member. Having the opportunity to talk with others about educational trends and research never fails to reenergize me, even during the most stressful times in the semester. I always come back full of ideas and that allow me to rethink some of what we do in our program, and implement changes for the better. As we begin to get articles in for this publication, I get to feel some of the same excitement that I experience at conferences. I greatly enjoy seeing the creativity and ideas of my colleagues from across the country and how they are incorporating those ideas in their university programs

Professional development only exists if we are willing to share our ideas with others. The act of sharing not only helps to strengthen our existing programs, but it generates new strategies that makes CTE stronger. Please consider submitting articles, research and innovative ideas for conferences, publications like this one, and across social media. While hard to fit into our busy schedules, this sharing is important for our programs and for our growth as professionals. Thank you for all that you do for CTE!

Dr. Kristin Stair,
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Research Brief:

Does the Quantity of Agricultural Mechanics Training Received At The Secondary Level Impact Teacher Perceived Importance of Agricultural Mechanics Skills?

OTT is proud to serve as the host of the Association for Career and Technical Education Research Conference poster session. Research briefs highlight poster research conducted during the conference.

Does the Quantity of Agricultural Mechanics Training Received At The Secondary Level Impact Teacher Perceived Importance to Teach Agricultural Mechanics Skills?

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Introduction

Secondary agricultural education programs in Iowa have local control affording teachers the ability to develop curriculum based on student and community needs (Iowa Department of Education, 2011). However, teachers are not always adequately prepared or comfortable teaching the agricultural education courses a community perceives as important (Shelley-Tolbert, Conroy, & Dailey, 2000). Wells, Perry, Anderson, Shultz, and Paulsen (2013) reported 54 mechanics skills that agricultural education teachers indicated were appropriate for secondary agricultural mechanics courses. The large number of skills deemed appropriate for agricultural mechanics highlights the broadness of the subject. This range of skills adds to the complexity of choosing what is important, and makes it difficult to be adequately prepared to teach those skills.

Theoretical Framework

The theoretical framework guiding this study is Vygotsky's social development theory. Vygotsky (1978) indicated that "every function in the child's cultural development appears twice; first, on the social level, and later, on the individual level; first, between people (interpsychological) and then inside the child (intrapsychological)" (p. 57). The agricultural mechanics skills received at the secondary level align to the students' interpsychological development on the social level due to their proximity to the instructor and other students. The teacher's perceived level of importance of agricultural mechanics skills is aligned to the intrapsychological development, which emerged as a result of their interpsychological foundation. This lead the researchers to ask if the agricultural mechanics skills received at the secondary level impacts teachers perceptions of what agricultural mechanics skills are important to teach.

Purpose and Objectives

The purpose of this study was to determine if the quantity of agricultural mechanics training received at the secondary level impacts teacher perceived importance of the agricultural mechanics skills that they teach at the secondary level. This research aligns with section 2c subsection B of the AAAE national standards for teacher-education in agriculture, which specifically states that teacher candidates need to be competent in agricultural and mechanical systems (Doerfert, 2011). The following objective was identified to address the purpose of this study: Describe the relationship between teacher perceived importance of agricultural mechanics skills and the quantity of agricultural mechanics training received at the secondary level.

Methodology

This study utilized descriptive research methods to summarize characteristics and attitudes of a norm (Ary, Jacobs, Razavieh, & Sorenson, 2006). The population consisted of 130 Iowa secondary agricultural educators that attended the Iowa agricultural education teachers' conference. A print based survey was distributed to the 130 secondary agricultural education teachers at the teacher's conference. Of the 130, ($n =$

103) surveys were returned for a response rate of 79.2%. We examined the relationship between the quantity of agricultural mechanics training received at the secondary level and the teachers' perceived level of importance to teach agricultural mechanics skills. PASW Statistics 18 was used to analyze Spearman Rho correlations to determine if any significant ($p < .05$) relationships existed. It should be noted that each skill area was correlated within the respective area and not representative of a composite of all sub-constructs. For example, Electrical Safety received at the secondary level is correlated to perceived importance to teach Electrical Safety.

Results/Findings

There was a significant positive correlation between 32 of the 54 skills. The five highest correlations are included in Table 1; and includes woodworking power tools, oxy-acetylene brazing, legal land descriptions, small engine services- 2 cycle, and wiring skills (switches & outlets).

Table 1

Spearman Rho Correlational Relationships between the Quantity of Agricultural Mechanics Training and Skills Received at the Secondary Level and Teachers Perceived Importance

Skill Area	<i>n</i>	Spearman Rho Correlation
Woodworking Power Tools	91	.473**
Oxy-acetylene Brazing	91	.437**
Legal Land Descriptions	83	.429**
Small Engine Services - 2 Cycle	83	.340**
Wiring Skills (Switches & Outlets)	89	.320**

Note. ** $p < .05$

Conclusions/Implications/Recommendations

The results of this study indicate that skills taught in secondary schools had a significant relationship with the teachers' viewed importance of teaching those same skills. The findings from this study supports Vygotsky's (1978) social development theory. The content teachers were exposed to in the social setting (as students), has reemerged intrapsychologically today in their teaching. Knowing that experience at the secondary level has an impact on content teachers view as important, post-secondary teacher educators and industry should continue to help beginning teachers receive additional training and support in agricultural mechanics at the local level. It should be noted that limitations within this study may exist including a teacher's ability to remember the content they learned in high school, if in fact they were actually exposed to agricultural mechanics in the secondary level, and if the technology existed when the participants were enrolled in an agricultural mechanics course.

References

- Ary, D., Jacobs, L., Razavieh, A., & Sorensen, C. (2006). *Introduction to research in education*. (7th ed.). Belmont, CA: Wadsworth Publishing
- Doerfert, D.L. (Ed.) (2011). *National research agenda: American Association for Agricultural Education's research priority areas for 2011-2015*. Lubbock, TX: Texas Tech University, Department of Agricultural Education and Communications.
- Iowa Department of Education (2011). How the Iowa Education System Works. Retrieved from http://educate.iowa.gov/index.php?option=com_content&task=view&id=277&Itemid=1
- Shelley-Tolbert, C.A., Conroy, C.A., Dailey, A.L. (2000). The Move to Agriscience and Its Impact on Teacher Education in Agriculture. *Journal of Agricultural Education*. 41(4). doi: 10.5032/jae.2000.04051
- Shultz, M.J., Anderson, R.G., Shultz, A.M., & Paulsen, T.H. (2014). Importance and Capability of Teaching Agricultural Mechanics as Perceived by Secondary Agricultural Educators. *Journal of Agricultural Education*, 55(2), 48-65. doi: 10.5032/jae.2014.02048
- Vygotsky, L. S. (1978). *Mind and society: The development of higher mental processes*.
- Wells, T., Perry D.K., Anderson, R.G., Shultz, M.R., Paulsen, T.H. (2013). Does Prior Experience in Secondary Agricultural Mechanics Affect Pre-Service Agricultural Education Teachers' Intentions to Enroll in Post-Secondary Agricultural Mechanics Coursework? *Journal of Agricultural Education*. 41(4), 222-237. doi:10.5032/jae.2013.04222

Research Brief:

The Balancing Act: Career and Family Expectations of North Carolina Agriculture Teachers

OTT is proud to serve as the host of the Association for Career and Technical Education Research Conference poster session. Research briefs highlight poster research conducted during the conference.

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Introduction

A persistent concern in agricultural education is the shortage of agriculture teachers (Kantrovich, 2010). In an effort to combat the challenge of the on-going teacher shortage, the National Association of Agricultural Educators (NAAE) initiated the National Teach Ag Campaign, which is designed to promote careers in agricultural education (NAAE, 2015). While increasing the visibility of agricultural education through recruitment campaigns is a worthwhile effort, it is also important to retain quality agriculture teachers currently in the classroom (Ingersoll, 2001). To that end, researchers have investigated why teachers stay in the profession (Crutchfield, Ritz, & Burris, 2013) while others have sought to determine why they leave (Tippens, Ricketts, Morgan, Navarro, & Flanders, 2013; Wood, 2014).

Conceptual Framework

In order to further explain the work done by researchers on teacher retention it is important to unpack the reasons for which teachers leave or remain in the classroom. Accordingly, studies have looked at the problems agriculture teachers face, hours worked, barriers, and the challenges of the personal-professional balance (Boone & Boone, 2009; Chaney, 2007; Hainline, 2014; King, Rucker, & Duncan, 2013; Sorenson & McKim, 2014). This study attempts to add to that literature by investigating the factors involved with North Carolina agriculture teachers' perceived ability to balance personal and professional commitments.

The following research objectives guided this study:

1. Describe the amount of time agriculture teachers invest in the total agricultural education program.
2. Examine the job responsibilities that serve as barriers to family involvement.
3. Examine teachers' perceived ability to balance career and family expectations.

Methodology

The population for this study included all North Carolina agriculture teachers (N = 411). The study used a questionnaire developed and used in a previous research study by Murray, Flowers, Croom, and Wilson (2011). It included questions on four specific areas: the agricultural education program; responsibilities, barriers, and challenges; ability to balance career and family; and demographics. One hundred twenty-nine teachers completed the entire questionnaire for a response rate of 31.3%.

Findings

Objective One

Teachers invested an average of 48 hours a week in the total agriculture program. Teachers reported they spent an average of 34 hours per week on activities related to classroom and/or lab instruction. They spent an estimated 14 hours on classroom and/or laboratory preparation, seven hours on FFA activities, eight hours on maintenance of facilities, and eight hours on paperwork.

Objective Two

Using a scale from 1 = *not a barrier* to 10 = *major barrier*, teachers were asked to rate seven job responsibilities that were identified as possible barriers to family involvement. Any score over a five was considered to be a legitimate barrier. All seven were determined to be legitimate barriers and included excessive work responsibilities (7.52), fatigue from completing work responsibilities (7.46), long work days (7.43), after-school responsibilities (7.16), inability to leave during the school day (6.51), taking home work to complete (6.32), and weekends away for FFA events (6.30).

Objective Three

Teachers were asked about their perceived ability to balance career expectations and family expectations. Almost half (n = 49) of the respondents felt they were able to balance the expectations of both work and family, but encountered some difficulty at times. Thirty-seven percent (n = 37) found it always difficult to find balance between career and family expectations, and 12% (n = 12) felt they were able to always maintain balance. When asked about the level of stress associated with balancing career and family expectations, approximately 50% (n = 53) reported they experienced daily or weekly stress. Twenty-six percent (n = 26) experienced minimal or no stress when balancing their career and family expectations.

Conclusions

Based on the findings of this study, it can be concluded that North Carolina agriculture teachers work more than the traditional 40 hour work week and invest a considerable portion of that time engaged in activities related to classroom or laboratory instruction. Additionally, it can be a considerable challenge to achieve career and family balance as there were numerous job-related barriers to family involvement, resulting in a perceived inability to balance the expectations associated with both the agriculture teaching profession and family life.

Implications

These barriers also seem to manifest themselves into higher stress levels of agriculture teachers. Further research should probe for the strategies used by those who are easily able to balance work and family obligations, and those who reported minimal to no stress. Are these teachers reporting less stress and better balance because they simply aren't as involved as other agriculture teachers, or do they possess skills and strategies that can be taught to other teachers to achieve the same outcomes?

References

- Boone, H. N., & Boone, D. A. (2009). An assessment of problems faced by high school agricultural education teachers. *Journal of Agricultural Education, 50*(1), 21-32. doi:10.5032/jae.2009.01021
- Chaney, C. A. R. (2007). *Work-life variables influencing attrition among beginning agriscience teachers of Texas* (Unpublished doctoral dissertation). Texas Tech University, Lubbock, TX.
- Crutchfield, N., Ritz, R., & Burris, S. (2013). Why agricultural educators remain in the classroom. *Journal of Agricultural Education, 54*(2), 1-14. doi: 10.5032/jae.2013.02001
- Hainline, M. S. (2014). *Influence of gender on career and family balance of Texas agricultural science teachers* (Unpublished masters thesis). Texas Tech University, Lubbock, TX.
- Ingersoll, R. M. (2001). Teacher turnover and teacher shortages: An organizational analysis. *American Educational Research Journal, 38*(3), 499 - 534.
- Kantrovich, A. J. (2010). *The 36th volume of a national study of the supply and demand for teachers of agricultural education from 2006 - 2009*. West Olive, MI: Michigan State University.
- King, D. L., Rucker, K. J., & Duncan, D. W. (2013). Classroom instruction and FFA/SAE responsibilities creating the most stress for female teachers in the Southeast. *Journal of Agricultural Education, 54*(4), 195-205. doi:10.5032/jae.2013.04195
- Murray, K., Flowers, J., Croom, B., & Wilson, B. (2011). The agricultural teacher's struggle for balance between career and family. *Journal of Agricultural Education, 52*(2), 107-117. doi:10.5032/jae.2011.02107
- National Association of Agricultural Educators. (2015). *What is the National Teach Ag Campaign?* Retrieved from <http://www.naae.org/teachag/>
- Sorenson, T. J., & McKim, A. J. (2014). Perceived work-life balance ability, job satisfaction, and professional commitment among agriculture teachers. *Journal of Agricultural Education, 55*(4), 116-132. doi:10.5032/jae.2014.04116
- Tippens, A., Ricketts, J. C., Morgan, A. C., Navarro, M., & Flanders, F. B. (2013). Factors related to teachers' intention to leave the classroom early. *Journal of Agricultural Education, 54*(4), 58-72. doi:10.5032/jae.2013.04058
- Wood, M. M. (2014). *Plugging the holes in the bucket: A qualitative study to determine perceptions of agriculture teachers who have left the agricultural education profession* (Unpublished doctoral dissertation). North Carolina State University, Raleigh, NC.

Professionalism to Practice:
Best Practices in Undergraduate and Graduate Education
in Career and Technical Education

Poverty in Education: Use of Differentiated Learning

By: Sally E. Arnett-Hartwick, Ph.D., Josh Brown, Ph.D., and Chris Merrill, Ph.D.
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The Carl D. Perkins Career and Technical Education (CTE) Improvement Act (2006) in its reenactment called for increased access to CTE programs for Special Populations who face unique challenges that may hinder academic and career success. One group within the Special Populations is economically disadvantaged students, also known as students in poverty. The Perkins Act (2006) defined poverty as any individual or member of a family who receives need based financial assistance, or whose income is at or below the poverty level as defined by the U.S. Department of Health and Human Services. As part of addressing this problem, differentiated instruction and engagement strategies have been identified that are important to successful teaching.

Numerous studies of risk and resiliency in children have shown that family income correlates significantly with children's academic success (van Ijzendoorn, Vereijken, Kranenburg, & Walraven, 2004). School-aged children living in poverty are more prone to academic failure and unfortunate behavior issues (Jenson, 2009). Specifically, living in poverty involves a complex array of risk factors, such as health issues, stressors, and emotional challenges which has insidious effects on learning and behavior in the classroom. To help curb absenteeism, lack of attention, effort and memory, and to increase cognition and motivation, Jensen (2013) recommended the use of engagement by teachers as a solution to increased academic performance and behavior with poverty-stricken students.

Disturbingly, Yazzie-Mintz (2007) found that 98% U.S. students said they were bored in school with 75% claiming the material taught was

not interesting. Furthermore, Finn and Rock (1997) found school engagement was the main reason cited in whether students living in poverty stayed in school. Research confirms that teachers can completely offset the devastating effects poverty has on students' academic performance (Hanusheck, 2005). To get students to graduate, they need to be in school; to keep them in school, the classrooms need to be relevant, engaging, and full of affirming relationships (Jensen, 2009). One such strategy for student engagement (or interest) is differentiated instruction by the teacher.

While each student is different, students living in poverty have specialized personal and educational needs. Thus, differentiation instruction and engagement strategies are key for teachers to improve academic performance among the students (Jensen, 2009). Differentiation allows a teacher to customize any activity for each student for ample learning to occur. To differentiate any activity,

Jensen (2009) explains a teacher needs to have a shift in attitude, application, and boundaries (context). Below provides a description of each of the strategies:

- *Shift your attitude.* Reexamine activities purposes with an open-mind- forget the labels and forget perfection. For example, there is no such activity only for ‘special education’ students or for ‘gifted’ students. A teacher can take any activity and tweak the application and boundaries (context).
- *Shift the application.* Change how you use an activity. For example, take an existing activity and apply it to the local community of the students, instead of a “textbook example.”
- *Shift the boundaries (context).* Change the rules of any activity. For example, give students additional time to complete work in class or allow students to work in pairs to complete an assignment.

Differentiating learning has proved to be a positive strategy for classroom improvement. The end goal of differentiated learning is for automation to occur by simplistically adapting existing curriculum or the inclusion of new curriculum in a customized, tailored delivery approach to reach each student.

To help teachers become comfortable with differentiated learning, support must be garnered from school stakeholders. So, specifically what can local education associations do to ensure that students living in poverty receive instruction that is differentiated and personalized to meet the student’s learning needs, interests, and aspirations? Jensen (2013) uses the acronym SHARE to describe the five overarching characteristics of school-wide success factors of high poverty high achieving schools.

- **Support for the Whole Child.** Students living in poverty are not having their social, academic, emotional or health needs met and until these issues are addressed academic excellence is highly unlikely.

Support is needed to be able to offer one or two much needed areas of support. These supports include an on-site nurse, private psychologist on-site for therapy at no-cost, tutoring in struggling subjects, offer on-campus internships for students to be able to value work, and use of active and appropriate accommodating IEPs or 504 plans. Action steps include survey student needs, include parents and provide adult support and outreach, and develop community partnerships. Securing the well-being of a child is a first step in improving academic skills.

- **Hard Data.** Successful schools collect their own data in addition to testing data on student performance, effectively analyze the information and then modify school policies, allowing teachers to continually adjust their instructional strategies accordingly to the current data set. On-going data collection can drive achievement gains (Herman & Gribbons, 2001). Action steps include develop criteria for the data needed, gather the data needed, analyze and share the data in easy to read terminology and results, and finally develop plans to apply the data.
- **Accountability.** Every teacher is accountable for his/her own actions. For teachers to get the best from their students, they must expect and demand the best from his/herself first. To increase the passion, the administration needs to praise staff for their dedication to education. Action steps include increase teachers’ control and authority (staff development, budgeting decisions) and value teachers (celebrate successes, acknowledge staff).
- **Relationship Building.** Secure attachments and stable environments are severely lacking in low-income homes. Teachers who are sensitive to their students and who openly share their enthusiasm for learning and their belief in their students’ abilities can help buffer low socioeconomic kids from the many risks and stressors they experience in their lives (Zhang & Carrasquillo, 1995). Action steps include build relationships among staff (as a model for students to see),

build relationships among students (working in teams), build student-staff relationships (never demand, avoid raising your voice, be consistent and fair, follow through), and develop mentoring programs.

- **Enrichment Mind-Set.** Stop thinking remediation and think enrichment. The enrichment mind-set means fostering intellectual curiosity, emotional engagement, and social bonding. Action steps include create a strong environmental message (no graffiti, teach lessons outdoors, post stress-relieving posters, bring in plants and flowers), create staff-wide enrichment mind-set (host a book drive where teachers donate books to get enriching materials in the home), and always look for one more enriching edge (encourage healthy eating in the cafeteria, post information about how different foods affect the brain).

To initiate the SHARE success factors, the faculty and staff must have a deeper understanding of poverty, the risk factors associated with poverty, learn empathy, and gain cultural knowledge. Other areas of education needed for poverty students are conflict resolution strategies, stress reliever techniques, and resources. An investment in faculty and the students is the pillar to closing the achievement gap among economically disadvantaged students.

The interventions mentioned can be effective in reducing poverty's impact in education. Stakeholders must be vested in a new mission to help all students reach their potential with the identified engagement strategies. Regardless, students deserve nothing less than a teacher's best effort to help students succeed.



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References

- Carl D. Perkins Career and Technical Education (CTE) Improvement Act (2006). Special populations as defined by the Perkins act. Retrieved from http://ctsp.tamu.edu/webcasts/08_09/Special%20Populations.pdf
- Finn, J. & Rock, D. (1997). Academic success among students at risk for school failure. *Journal of Applied Psychology*, 82(2), 221-234.
- Hanusheck, E. (2005). The economics of school quality. *German Economic Review*, 6(3), 269- 286.
- Herman, J., & Gribbons, B. (2001). *Lessons learned in using data to support school inquiry and continuous improvement: Final report to the Stuart Foundation*. Los Angeles: Center for the Study of Evaluation.
- Jensen, E. (2013). *Engaging students with poverty in mind*. Alexandria, VA: ASCD.
- Jensen, E. (2009). *Teaching with poverty in mind*. Alexandria, VA: ASCD
- Van Ijzendoorn, H., Vereijken, C., Kranenburg, M., & Walraven, M. (2004). Assessing attachment security with the attachment q sort: Meta-analysis evidence for the validity of the observer AQS. *Child Development*, 75(4), 1188-1213.
- Yazzie-Mintz, E. (2007). *Voices of students on engagement: A report on the 2006 High School Survey of Student Engagement*. Bloomington, IN: Center for Evaluation and Education Policy, Indiana University. Retrieved from <http://ceep.indiana.edu/hssse/images/HSSSE%20Overview%20Report%20-%202006.pdf>
- Zhang, S., & Carrasquillo, A. (1995). Chinese parents' influence on academic performance. *New York State Association for Bilingual Education Journal*, 10, 46-53.

Guest Post:
21st Century Ag Teacher
Nicole Ray

Move Feedback & Student Learning to the Forefront with Doctopus

Doctopus is a google sheets addon that will change your teaching life!

Doctopus allows users to organize shared documents, provide feedback quickly and easily, allows peers to provide feedback and MUCH more. Doctopus can even integrate with Google Classroom for those teachers who have access as a google school.

The unfortunate part of most technology use in classrooms is it fails to engage students in collaboration and critical thinking. Google drive has surfaced as a tool many teachers are utilizing to support the paradigm shift from the teacher, to the student centered learning model. Doctopus has emerged as a valuable instrument to help teachers manage distributing assignments to students as well as allowing for collaboration. Teachers and students can use these tools for free anywhere, any time.

Although hardware and software are more widely available now than ever, there is a deficiency in the ability to implement them in education. Pitler et al. (2012) summarized Schacter and Fagnano's (1999) research "applied effectively, technology not only increases student learning and understanding, and achievement but also motivates students to learn, encourages collaborative learning, and helps develop critical thinking and problem-solving skills" (p.3). A classroom with a focus on technology utilizes teacher facilitated, not teacher reliant learning. Students are inspired to move beyond finding the right answers and truly engage in the learning process (Cuban, 2001).

How it works

Google Drive and Doctopus can facilitate the shift to teacher facilitated learning. Once teachers and students have gmail accounts teachers can use the following steps to share assignments and begin collaborating:

Teachers begin by creating a new Google Sheets and adding the Doctopus add-on.

Doctopus will walk teachers through the step by step process of creating and distributing an assignment.

Doctopus Step 1: teachers can choose to use an existing google classroom assignment or use an existing roster (or create a new one) to create a new assignment.

Doctopus Step 2: Doctopus creates folders for the class.

Doctopus Step 3: Teachers determine which sharing arrangements they'd like for their project: individual-all the same, individual-differentiated, group project, or whole class single shared

document. Teachers then determine access for the whole class as well as individuals. Viewing allows students to only view the document. Commenting allows text to be selected and comments to be made. These comments appear in the margin, others can respond to these comments as well. Editing allows edits directly to the document.

Doctopus Step 4: Teachers choose the project template or assignment they'd like to assign.

Once shared the documents will appear in students shared Google Drive. Teachers can monitor student progress from their dashboard, and when the assignment is complete teachers can prevent students from making any further edits for as long as they choose.

Impacts

Google Drive is an invaluable collaboration tool, when combined with Doctopus this software can transform teachers classrooms into centers of great thought. The benefits of collaborative work are well documented, and is certainly required as part of the 21st Century Skills. Google Drive and the Doctopus add-on have several benefits:

Flexibility in sharing arrangements for teachers - Group, individual, or whole class projects are possible depending on the intended learning objective.

Organized shared files - Saves teacher's and student's time and frustration by organizing files into classes on Google Drive.

Allows for collaboration of students and teachers anytime, anywhere through the commenting, suggesting and edit functions. With group and individual projects classmates can provide feedback.

Progress monitoring tools - Teachers can monitor student progress by having access to every document via individual links on the teacher dashboard. Teachers can also view data on the word count, number of comments the teacher, students and peers have made and resolved, and the number of comments students have made on others documents.

Provides a teacher feedback mechanism- Teachers can comment on text selections. Additionally, teachers can work in suggesting mode, which shows students the suggestions the teacher is making directly in the text. Students can choose to accept or reject the suggestions.

Provides an assessment mechanism- Summative assessment teachers can leave feedback and a score to be emailed to students from the teacher dashboard as well as comments on the document.

Advice on getting started

There are a myriad of tutorials in existence on YouTube, as well as other platforms to assist teachers in getting started with this resource. Although not required, a Google Educator Certification would serve as a valuable tool for those teachers who might not yet be familiar with Google's capabilities. An additional Google app called Goobric permits teachers to create rubrics and utilize them for summative and formative assessments. This app is intended to be used in conjunction with Doctopus, and certainly adds more valuable feedback for student's, and ease of use for teachers in regards to technology related assignments.

Costs/resources needed

Google Chrome is free to download as is the Doctopus add-on. Google Drive can be used on any web browser; but it works best when used on Google Chrome. Teachers and students will need a google account.

Acknowledgements

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*For more technology tips and tricks, visit Nicole's blog at:
<http://21stcenturyagteacher.weebly.com/>*



Nicole Ray is a high school agriculture teacher in California. Follow her blog at <http://21stcenturyagteacher.weebly.com/>

References

- Cuban, L. (2001). *Oversold and underused : computers in the classroom*. Cambridge, MS: Harvard University Press.
- Pitler, H., Hubbell, E. R., & Kuhn, M. (2012). *Using technology with classroom instruction that works (2nd ed.)*. Alexandria, VA: ASCD.

Want to become a part of the conversation?

The next issue of P2P will be released in October here is what we are looking for:

Research Poster Abstracts: If you had a poster to ACTER this past November, we invite you to submit the revised version of your abstract to share on our webpage www.OTTonline.org

Professionalism to Practice Articles: We are accepting submissions for professional development articles that highlight novel ideas, innovative programs, and new methods of interest to career and technical education at the university level. These articles should be journalistic in nature and should be formatted to:

- present an issue, problem, trend or concern
- move into solutions, options, how-to's, etc.
- end with the results to date or how the solution has benefitted CTE at the university level

These articles should be used to highlight work in the field that contributes to outstanding CTE professionalism, innovative teaching, or research methodology. Each article should have a maximum length of 2,500 words (any tables, graphics, or references are not included in the word count). Selected articles will be reviewed, given feedback and, if selected will be featured on social media and published on the OTT website at www.OTTonline.org.

Commentary: Will be reviewed by the National OTT advisor. These articles will offer a challenge or present a thought-provoking opinion on an issue of concern to career and technical education. ACTER presidential retiring addresses or summaries of the addresses are welcome. Maximum length: 1,500 words (any tables, graphics, or references are not included in the word count).

Articles and commentary will be accepted on an ongoing basis, and will be published quarterly. To be considered for next online release, all articles (not including featured research) should be submitted to Dr. Kristin Stair (kstair@lsu.edu) by September 1. At least one author should be a member of OTT

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