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A Critical Pedagogy of Agriculture

Katherine Hartmann[1] and Michael Martin[2]

Abstract

Socio-cultural issues within our agrifood system such as social inequality, personal and community health, and the environment have been the subject of interdisciplinary inquiry and curriculum from inside and outside of education, but exploration of these topics from within Agriculture Education is lacking. The importance of these issues, as well as the responsibility that agriculture educators have to fostering agency and consciousness in the next generation of agriculturalists, requires that School Based Agriculture Education formulate a pedagogical framework to address them. This paper introduces a new pedagogical approach to be applied across SBAE programs- a critical pedagogy of agriculture. In order to accomplish this, (a) the need for a critical pedagogy of agriculture is discussed, (b) the history of critical theory and critical pedagogy is explained as well as other critical pedagogies that have emerged to address similar and overlapping issues with agriculture, and (c) suggestions for how to reimagine an entire SBAE program, including the FFA Chapter and Supervised Agricultural Experiences, through a critical lens are offered. Through a critical pedagogy of agriculture, the transformative potential of SBAE programs to empower students and address related social justice issues can be realized.

Keywords: critical pedagogy; critical theory; school-based agriculture education; FFA; Supervised Agricultural Experiences

Introduction

School-based Agricultural Education (SBAE) courses emphasize the importance of teaching about agriculture by discussing the need to feed the growing world population, how agriculture supports regional and national economies, and how agriculture can impact students' careers (Newcomb et al., 2004; Phipps et al., 2008; Talbert et al., 2005). But seldom mentioned in both agricultural education teacher preparation textbooks and research studies are curricula which addresses how agriculture can improve communities, enhance ecosystems through farming, and how people are impacted differently by the agricultural industry (McKim et al., 2019; Newcomb et al., 2004; Phipps et al., 2008; Talbert et al., 2005; Vincent et al., 2014). Agriculture hosts many key social justice and ecological concerns of our time including pollution, global warming, social inequities, and equitable access to healthy food. Many academic and educational disciplines have used agriculture as a context for addressing these and other social justice and ecological issues, and SBAE can embrace agriculture's role in these issues as well.

The topic of agricultural education has grown in popularity over the past five decades with the food movement and stretched beyond its historical boundaries within agribusiness, the United States Department of Agriculture, the Land Grant System, and SBAE. Health advocates (DeBono et al., 2012), sociologists (Beus & Dunlap, 1990; Guthman, 2004), food studies scholars (Nestle, 2009; Pollan, 2006), human geographers (Gatrell et al., 2011), nutritionists (Rose & Rickelle, 2004), general education practitioners (Weaver-Hightower, 2011), action researchers (Wakefield,

[1] Dr. Katherine Hartmann is an Adjunct Assistant Professor of in the Department of Agricultural Education and Studies at Iowa State University, 201 Curtiss Hall, Ames, IA, kh4@iastate.edu
[2] Dr. Michael J. Martin is an Associate Professor in the Department of Agricultural Education and Studies at Iowa State University, 201 Curtiss Hall, Ames, IA, mjm4@iastate.edu

2007) and others have taken an interest in our agrifood systems. Scholars within the fields and subfields of environmental education, education for sustainable development (Arbuthnott, 2009), outdoor and place-based education (Hayman et al., 2018; Sobel, 2004), and social and ecological justice education (Alkon & Agyeman, 2011; Bowers, 2002) have also researched issues and curriculum based on agriculture. Despite the fact that agriculture has been used in this interdisciplinary way to address issues from inside and outside the field of education, curriculum and pedagogy for social justice in SBAE itself is still lacking.

It is imperative that SBAE students critically understand the connections between agriculture and other key social, cultural, economic, and ecological issues such as food justice, social inequalities in the agriculture industry, and the ecological implications of agriculture. Moreover, SBAE students should recognize how educational programming can address these issues, both locally and globally. The creation and implementation of a critical pedagogy of agriculture framework in SBAE is required to meet these demands. To make this argument, we will address why these issues are critically important to SBAE and its future. Then, we will give an overview of critical theory and critical pedagogy and apply these theoretical frameworks to SBAE. Last, we will discuss how to incorporate a critical pedagogy of agriculture into the entire SBAE program, including curriculum, the FFA chapter, and in Supervised Agricultural Experiences.

The Need for Incorporating a Critical Pedagogy of Agriculture

The US and, by extension, public schools are becoming more diverse, but SBAE programs have not kept up (Lawrence et al., 2013; Vincent & Torres, 2015). Large gaps have historically existed between the racial and ethnic demographics of teachers and students in SBAE, with the majority of teachers being White males (Lawrence et al., 2013; Vincent et al., 2012). The National FFA Organization (2020) reported that 66% percent of its membership is Caucasian, 65% of current agriculture teachers identified as White (31% of the population identified unknown), and 87% of agricultural education graduates are White. All three demographic areas over-represented Caucasians compared to the US population. In terms of gender, 46% of FFA members are female which is underrepresenting the United States population, however, 74% of agricultural education graduates are female (National FFA Organization, 2020). These issues are known to agricultural education professionals, with only 27% of respondents agreeing that FFA members reflect the diverse populations of their communities (National FFA Organization, 2020).

Traditionally, students with a background in agriculture have been targeted for recruitment by higher education agriculture programs (Elliott & Lambert, 2018; Esters, 2007; Martin & Kitchel, 2015a), but because of an increasingly urban population and interest in equitable access for all students, there is interest in agriculture in urban settings (Bird, Tummons, et al., 2013; Brown & Kelsey, 2013; Martin & Kitchel, 2015b; Rubenstein et al., 2016). Moving into urban agriculture necessitates addressing the interests and issues from a more diverse racial and ethnic student body (Elliott & Lambert, 2018; Martin & Kitchel, 2015a). Even though SBAE leaders have tried to recruit and retain a diverse population of students, teachers, and college faculty, they have failed to keep the levels as high as necessary to meet demand (LaVergne, 2011; Smith & Baggett, 2012).

These statistics speak to a two-pronged need in SBAE: (1) to increase access for diverse students and potential teachers in terms of race, ethnicity, gender, and in urban environments, and (2) to educate current teachers, predominantly White men, about the needs of their increasingly diverse classroom. This will truly recognize that it is important to open access to agricultural education, knowledge, and careers to all students and for SBAE classrooms to reflect the diversity of schools, local communities, and the country.

Despite diversity in SBAE being stated as a priority (Doerfert, 2011; Roberts et al., 2016), there is evidence that this is and has been a challenge. For example, of the 40 characteristics that Roberts and Dyer (2004) developed to describe an effective agriculture teacher, none of the 40 represented a culturally competent teacher of diverse populations. Current and future SBAE teachers must be prepared in terms of education and pedagogy to be successful amid the complexities of an increasingly diverse student population, but many pre-service teachers are not receiving diversity or multicultural training during their undergraduate career or outside of a college or university requirement (LaVergne et al., 2012; Talbert & Edwin, 2008; Vincent et al., 2014). Also, it has been shown that pre-service SBAE teachers have significant concerns about understanding the culture among diverse students' families and using strategies and techniques to teach diverse students (Vincent et al., 2012; Vincent & Torres, 2015).

Researchers have investigated ways to recruit and engage students from diverse backgrounds in order to assist teachers with meeting the changing needs of their students (LaVergne et al., 2012; Roberts et al., 2009; Warren & Alston, 2007). Minority students and students from urban backgrounds have more negative perceptions of agriculture, the FFA, and SBAE and have difficulty seeing themselves pursuing agricultural careers (Martin & Kitchel, 2014; Phelps et al., 2012; Talbert, 1995). Teaching agriculture in a way that connects it to the lives and concerns of students is important to remove these enrollment barriers. LaVergne et al. (2008) discovered six recruitment strategies that are successful in countering negative agriculture perceptions among African American students. These included making connections between student's everyday lives and agriculture; teaching subjects that are more relevant to students' lives such as ecology, urban horticulture, and veterinary science; knowledge of the various cultures of underrepresented students; and creating community awareness of local agricultural programs. These strategies speak to the need to take students' experiences, culture, and communities into account and the importance of creating relevant change through agriculture.

Applying a critical framework to agriculture is a resource for educators to use when addressing issues of diversity and inclusion because it allows for the incorporation of all students' voices, lived experiences, and community interests. This is a way to increase access and decrease engagement barriers for underrepresented students. However, we wish to emphasize that issues of power, privilege, and social justice are important for all students to investigate, regardless of their identities. Acknowledging that SBAE can provide powerful tools for social change is important in any classroom or community and can engage all students in the transformative process that addresses the issues important to them and prepares them for life after graduation.

Critical Theory as a Framework

Critical Theory (CT) emerged out of a variety of philosophical and intellectual traditions, but all share the idea that people exist within asymmetric systems of power and privilege and the goal of liberation and emancipation of oppressed populations. Critical pedagogy, keeping with this underlying commitment, seeks to critically interrogate the pedagogical relationships between history, culture, economics, ideology, and power in order to promote transformation of existing inequalities in the education system (Darder, 2017). The power of critique in this framework is to reveal and analyze social inequalities and oppressive systems in order to transform them through action. A CT perspective recognizes that the knowledge produced through education can change existing oppressive structures and challenge oppression through the empowerment of oppressed people. Knowledge should be in the context of action and the search for freedom (Crotty, 1998).

Hegemony, the dominance of one group over another, affords the dominant group social control that is carried out through moral and intellectual control (Gramsci, 1971) and serves to

protect existing power relations. Dialogue challenges hegemony and enables an emancipatory educational process that empowers students to challenge the dominant discourse. "Problem-posing education," as developed by Freire (1971), is important to create a foundation for reflection and action, allowing for both the teacher and student to contribute to the creation of knowledge by posing questions together. This brings the lived experiences of all involved into the learning process, humanizing education, and bringing awareness to the social realities of the system. The dialectical nature of CT allows the student and educator to use the transformational and emancipatory power of knowledge and not see the systems of power and oppression in society and the school system as fixed (Darder, 2017).

It is important to consider how the construction of knowledge implies the construction of values. Learning and teaching have societal implications and the system of education is related to larger issues of social production and reproduction. The ways in which we teach and what we teach creates and perpetuates social knowledge and relations of power (Guba, 1990). In this way, power is important in acts of resistance, acts that are produced as people interact with the systems of power and oppression. This more complex conception of power as it relates to individuals and society opens possibilities for discursive action within a knowledge-creating system (Darder, 2017). In education, critical pedagogy can be used to interrogate the contradictions that exist between the system and the lived experiences of students, how knowledge is created within a historical context, and the goodness criteria of knowledge and associated epistemologies.

Purpose and Objectives

The purpose of this study is the apply the tenets of Critical Theory and critical pedagogy to the subject of agriculture by developing a critical pedagogy of agriculture framework. The following objectives guided this study:

1. Develop a critical pedagogy of agriculture framework by examining pre-existing critical pedagogy frameworks closely connected to agriculture and agricultural education.
2. Theorize how a critical pedagogy of agriculture would function in a School-Based Agricultural Education program.

Methods

This paper endeavors to apply the tenets of CT and critical pedagogy to the subject of agriculture and SBAE programs through a philosophical analysis (Burbules & Warnick, 2006; Ruitenberg, 2009). The appropriate methodological tools for conducting philosophical research include content, historical, comparative, and theoretical analysis (Guba & Lincoln, 2005). This study utilized comparative and theoretical explorations of various critical pedagogies that have important overlaps with topics in agriculture to investigate what is transferable to a critical pedagogy of agriculture. Then, topics that are specific to SBAE can be incorporated into the critical pedagogy framework. Last, theory is translated into practice by exploring how practitioners can incorporate a critical pedagogy of agriculture across SBAE programs.

The comparative analysis of pre-existing critical pedagogy frameworks to develop a critical pedagogy of agriculture was completed in two general steps. Frist, a review literature was conducted to identify relevant critical pedagogy frameworks which had relevancy to agriculture and agricultural education. There exists a growing list of critical pedagogy frameworks, such as multicultural education and anti-racism education. While all critical pedagogies have similar tenets focused on justice and equality, we recognized that some critical pedagogy frameworks would have

important contextual similarities to agriculture and agricultural education. We identified critical indigenous pedagogy, critical pedagogy of place, and critical ecology pedagogy as frameworks to inform and be incorporated into a critical pedagogy of agriculture. The resulting comparative analysis found that a critical pedagogy of agriculture framework would have the following tenets as guiding principles: personal and community health, equity and access, food justice, and environmental impact.

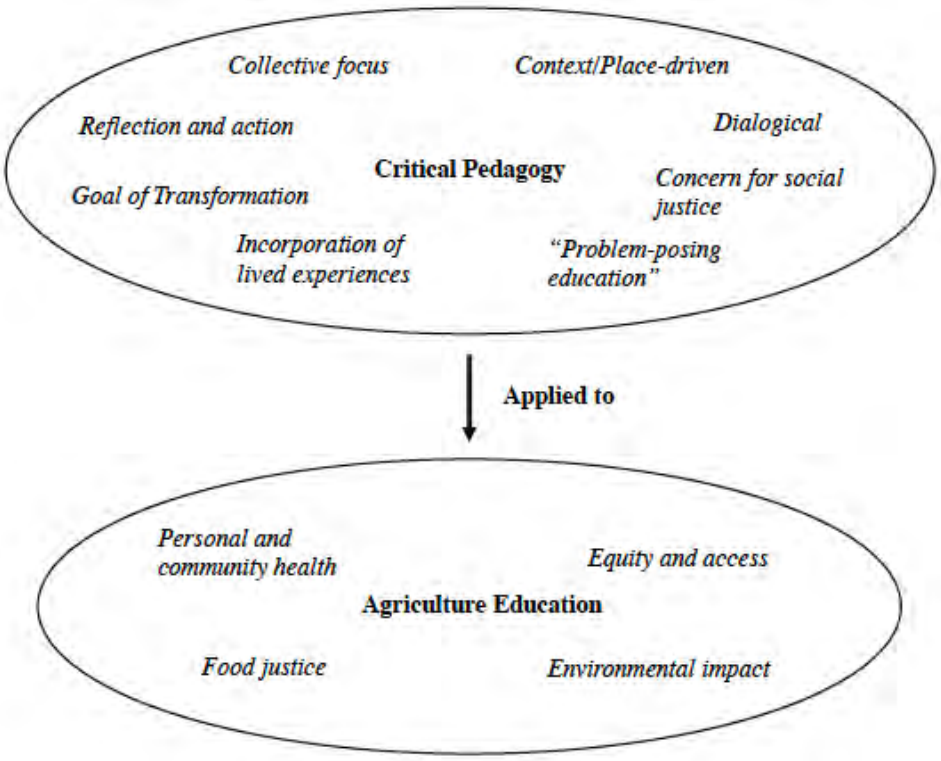
The theoretical analysis method allowed us to apply the critical pedagogy of agriculture framework to the specific context of agricultural education and SBAE. The four tenets which emerged from the comparative analysis were applied to SBAE specifically during the theoretical analysis process. The three components of SBAE (classroom instruction, FFA chapter, and Supervised Agricultural Experiences) were conceptualized under a critical pedagogy of agriculture framework. This process included providing examples and/or guiding principles to articulate each component of SBAE.

We were cognizant of our positionality during the research process in order to maintain a high level of rigor. One member of our research was an insider to SBAE, including being a former SBAE student, FFA member, FFA state degree holder, SBAE teacher, FFA advisor, and researcher in agricultural education and SBAE. The other member of the research team was an outsider to SBAE, yet has experience teaching high school and working in informal education contexts with marginalized communities and critical approaches to agricultural education research. Our insider and outsider standpoints allowed us to build credibility in our research through the debriefing and research process (Ary, Jacobs, & Razavieh, 2002).

Applying the principles of critical pedagogy to agriculture would allow educators and students to question, negotiate, and transform our understanding of knowledge, institutional power structures, and relationships surrounding agriculture and society. In this way, critical pedagogy in agriculture enables us to identify and work towards improving social and ecological issues impacted by the agriculture industry. Through reflexive and dialogical practice, participants are asked to consider how their lived experiences intersect with our agrifood, social, cultural, and ecological systems. Schools are sites of cultural reproduction, where values, norms, language, and world-views are transmitted (McLaren, 2003); these frame how we understand and interact with our agrifood systems. When these tenets of critical pedagogy are applied to agriculture and SBAE (Figure 1), critical pedagogy opens up the conversation about agriculture, emphasizing connections to personal health, food justice considerations, equity and access in agriculture and SBAE, and the ecological implications of our agrifood production and consumption behaviors.

Figure 1

Critical Pedagogy as Applied to Agriculture Education



Findings

The findings section is subdivided into two parts which align to each of the research questions in order. The first section, Developing a Critical Pedagogy in Agriculture, articulates the pedagogy by exploring related critical pedagogy frameworks through the context of agriculture. The second section, Theory to Practice: Creating a Critical Program, focuses on adapting the critical pedagogy of agriculture framework to the components of a SBAE program. This section includes detailed examples and activities for educators to use in their curriculum development process.

Developing a Critical Pedagogy in Agriculture

A critical pedagogy of agriculture can be informed by various other forms of critical pedagogy that have developed to address specific issues within critical discourse and have implications and overlaps with agriculture. Critical indigenous pedagogy, place-based pedagogy, and ecological pedagogy, just to name a few, have important similarities between themselves and a critical pedagogy of agriculture that can make contributions to an SBAE classroom. They are examples of how critical pedagogy has been applied to other educational areas, often using agriculture as a context for social change, and give a foundation to how SBAE scholars and practitioners might begin to think about and incorporate critical pedagogy into SBAE.

Critical Indigenous Pedagogy

Scholars have conceptualized Indigenous and decolonizing pedagogies that decenter Eurocentric ways of knowing and learning and center Indigenous epistemologies and voice. While some scholars use either "Indigenous" or "decolonizing" to describe their pedagogy and some use both, "Indigenous pedagogy" tends to be used in the context of practices such as using Indigenous epistemologies in teaching, valuing Indigenous knowledge, and incorporating Indigenous culture (Battiste & Youngblood, 2009; McKeon, 2012). Denzin, Lincoln, & Smith (2008) call for a critical pedagogy that takes the unique social, historical, cultural, and epistemological considerations of Indigenous communities into account when integrating systems of power and privilege in the educational system, specifically emphasizing the effects of colonization. They call this critical Indigenous pedagogy (CIP). CIP values the transformative power of Indigenous, subjugated knowledges and it values the pedagogical practices that produce these knowledges; it seeks forms of practice and inquiry that are emancipatory; and it embraces the contributions by Indigenous scholars to decolonize Western methodologies and how the academy has been a part of the colonial system.

In practice, scholars have called for various ways of indigenizing pedagogy. Battiste and Youngblood (2009) advocate for the inclusion of Indigenous Knowledge (IK) in education. IK "exists in the context of their learning and knowing from the places where they have lived, hunted, explored, migrated, farmed, raised families, built communities, and survived for centuries despite sustained attacks on the peoples, their languages, and cultures" (pg. 5). IK has been taken up by various educational disciplines, but maybe none so much as ecological and environmental education. Traditional Knowledge or Traditional Ecological Knowledge (TEK), as it is often referred to in that context, has emphasized the holistic, relational values in Indigenous cultures, emphasizing the connectedness between people, communities, and the natural world (Berkes, 1999; Cajete & Pueblo, 2010; Latulippe, 2015). Also, the concept of "Two-Eyed Seeing" is a way that educators have incorporated IK and pedagogies into their practice, again mainly in the context of science and environmental education (Michie et al., 2018). This approach attempts to "weave indigenous and main-stream knowledges together within today's educational curricula" to give the "gift of multiple perspectives" (Bartlett et al., 2012). When this can be achieved, the strengths of both IK and Western knowledge can be utilized to their highest benefit, and in recognition that they are both complete knowledge systems side by side. "Two-Eyed Seeing" also takes advantage of many of the positive aspects of critical pedagogy such as honoring students' histories and cultures and connecting learning to students' lives through action (Brayboy & Castagno, 2008).

Indigenous community's connection between food, land, and tradition provide an important lens through which agriculture can be seen. Grey and Patel (2015) explain that Indigenous peoples extend their social relations to the extant cosmos, a very different view than the commodification of food in capitalism. Therefore, "food can be seen as the most direct manifestation of the relationships between Indigenous Peoples and homelands, and it consequently occupies a central place in traditional thought" (p. 437). As Ruelle (2017) describes, "A food system is comprised of ecological relations between humans, other living beings, and nonliving entities. For many indigenous communities, such relations are sacred and profound, and therefore acknowledged on a regular basis" (p. 115). Indigenous rights movements have used these ideas to resist the colonization of Indigenous place, recognizing that Indigenous food and foodways are inseparable from cultural, social, and political resurgence, and have incorporated agriculture and food as part of their social justice work.

Critical Pedagogy of Place

Place-based education uses the local community and environment as the starting point and inspiration to teach the subjects required in K-12 education. It emphasizes hands-on, real-world experiences in order to allow students to develop ties to the community, appreciation for the environment, and to connect what they are learning in the classroom to issues in the real world. Additionally, place has cultural, social, political, economic, and psychological components that extend beyond just the physical attributes of a place (Ardoin, 2006; Gruenewald, 2003).

Gruenewald (2003) combined the frameworks of place-based education and critical pedagogy into what he called a critical pedagogy of place, being concerned with the value of learning from and nurturing specific places and interrogating important social justice issues unique to place. Place affects how and where people find themselves in power dynamics and their ability to act against them. Experience has a geographical context and understanding that allows for investigating how social and ecological concerns are impacted by place and the role of places in education. It also allows communities to evaluate their situations and address issues related to the specific racial, economic, and political place they find themselves. Critical pedagogy of place brings the concerns of rural and urban, Indigenous, and environmental issues together to emphasize that local communities and their specific concerns are both important on the small scale and have impacts on global development. Agriculture also functions in this way, with the social, cultural, and environmental peculiarities and issues of a specific place being instrumental in shaping the agrifood system situated there, while adding up to create the national and global agrifood industry.

McKim et al. (2019) explore "land-based learning" in Agriculture, Food, and Natural Resources Education (AFNR) in order to address socio-ecological issues such as pollution, climate change, and environmental destruction. Importantly, they call attention to criticisms of place-based pedagogy, including that early scholars emerged out of a settler colonialist paradigm that failed to acknowledge the contributions of Indigenous agricultural practices. With this more inclusive and decolonized theoretical framework, they explain applications, process, and outcomes of infusing AFNR with land-based learning.

Hayman et al. (2018) use the decolonization and reinhabitation potential of the critical pedagogy of place as a framework for how the Osage Nation in Oklahoma could develop an SBAE program that focuses on, "fostering Osage-specific place-based identities in the next generation of agricultural leaders" (p. 1). Here, critical pedagogy of place fosters the connection of indigeneity and, specifically, Osage identities to the land and encourages responsible stewardship of the natural resources found within the Nation's boundaries through cultural and community development efforts. They proposed the development of an SBAE program aimed at, "cultural healing and the ongoing adaptation and vitality of Osage ways, as much is it is about agro-economic development" (p. 2). This brings together the ideas of Indigenous pedagogy, critical pedagogy of place, and agriculture; the goal of creating Osage SBAE programs was to disrupt the current power dynamics of the educational system which had traditionally marginalized Indigenous knowledges and worldviews about place, land, food, and agricultural systems. They call for local 4-H and FFA programs, a focus on agro-entrepreneurship development, and sustainable ranching skills through cultural mentorship.

Critical Ecological Pedagogy

Critical ecological pedagogies are a well-developed and theorized subgroup with arguments for and critiques of critical pedagogy centered around ecological and environmental education. The first scholars concerned with environmental education, predominantly White, male,

and middle-class, are now accused of viewing nature in outdated and essentialized ways. Kahn (2010), summarizing other scholars such as Adamson et al. (2002), states that these views have been harmful to the advancement of, "richly multiperspectival ecological politics and environmental justice strategies, which seek to uncover collective social action across differences of race, class, gender, species, and other social categories" (p. 7). Darder (2017) expands on this critique from ecological scholars in the Indigenous context stating that, "critical educators are accused of intensifying or reinscribing dominant values, particularly within contexts where non-Western traditions or indigenous knowledge challenges critical pedagogical definitions of the world" (p. 17).

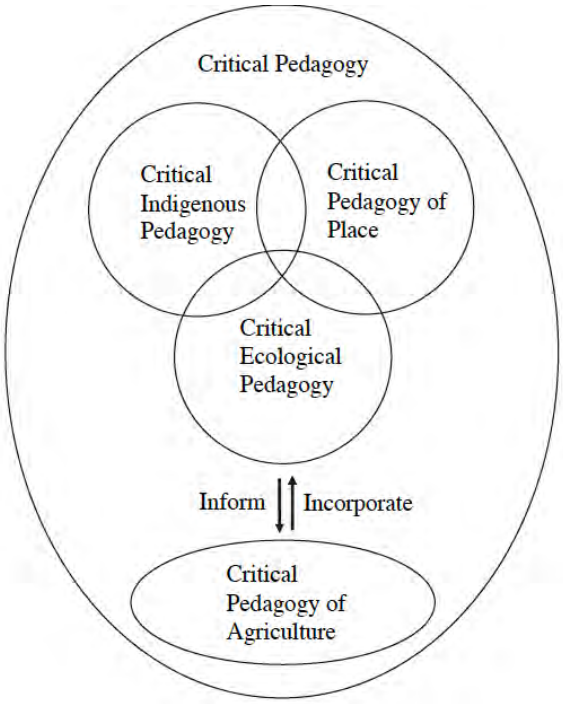
Because of these concerns, as well as the politically and socially charged nature of environmental studies in the face of rapid environmental change, Kahn (2010) and others have called for a critical ecological pedagogy. This has received various names from different scholars including ecopedagogy (Kahn, 2010) and eco-justice pedagogy (Bowers, 2002). In Kahn's (2010) definition, ecopedagogy comes directly from critical pedagogy, with:

> Quintessentially Freirian aims of the humanization of experience and the achievement of a just and free world with a future-oriented ecological politics that militantly opposes the globalization of neoliberalism and imperialism, on the one hand, and attempts to foment collective ecoliteracy and realize culturally-relevant forms of knowledge grounded in normative concepts such as sustainability, planetarity, and biophilia, on the other (p. 18).

Bowers (2002) defines eco-justice pedagogy to consider the, "relational and interdependent nature of our existence as cultural and biological beings" (p. 29). His conception of eco-justice pedagogy includes teaching about environmental racism and class discrimination, a rejection of the commodification of knowledge, relationships, and materials, and our responsibility to future generations.

Figure 2

Comparative and Theoretical Exploration of Various Critical Pedagogies' Connections to SBAE



A critical pedagogy of agriculture takes advantage of many of the theoretical ideals from these, and potentially other, pedagogies concerning peoples' relationship to place, food, culture, and experience, with an emphasis on transformation and action. While all of these pedagogies have their own domains and issues, these are just some of the many examples of existing critical pedagogies that can inform a critical pedagogy of agriculture and suggest implications and applications (Figure 2). As a critical pedagogy of agriculture advances, more similarities and differences in disciplines will be developed.

Theory to Practice: Creating a Critical Program

The act of incorporating a critical pedagogy of agriculture in a SBAE program must be carried throughout the whole agriculture program including classroom instruction, the FFA chapter, and Supervised Agricultural Experiences (SAEs). The highest impact for students will be through incorporating this theoretical and pedagogical approach universally, as opposed to segregating it to a small part of the program. For example, including a lesson(s) about the loss of African-American student identity in the FFA after the merger with the NFA would have little power if all students could not find meaningful opportunities to engage with those concepts in the FFA chapter and potentially in their SAE. Importantly, this process should not be passed over if a program does not serve students of color; a critical pedagogy of agriculture approach serves all students by examining injustices and working to the betterment of everyone. Highlighting the historical cultural oppression in the FFA in the classroom without working to correct any current cultural barriers in the FFA (Elliott & Lambert, 2018; Martin & Kitchel, 2013; 2015a; Phelps et al., 2012) would be incomplete.

Given the importance of conceptualizing all parts of a program through a critical pedagogy lens, we will explore how this can be done in classroom curriculum, the FFA chapter, and in SAEs. This is not a program or a recipe; it is an ever-evolving mode of inquiry, which fosters critical questioning, thinking, and analysis, and strives to achieve emancipatory outcomes. In addition to the topics suggested here, SBAE teachers should also listen to students' voices and include issues and topics important to their community contexts, while applying a critical lens.

Critical Pedagogy in the Classroom Curriculum

This section presents key social and ecological issues related to agriculture that could be covered in the SBAE curriculum and suggests topics as a starting point for dialogue and instruction. These issues are fluid and have overlapping connections that can be tailored to specific classrooms and students' needs, but all consider the important themes discussed above including incorporating community- and culturally-relevant issues into SBAE instruction, connecting agriculture to the lives and experiences of students, and allowing for transformation and social change through knowledge and action. Educators may not be able to address all of these issues, yet given the applied nature and wide range of topics within the discipline, critical pedagogy is relevant to topics in almost any agricultural course.

Food Justice and Health

Ensuring people have access to healthy food is a daunting problem in many communities. Physical, mental, social, and spiritual wellbeing are related to healthy food access and consumption. *Food deserts* are areas that have poor access to healthy and affordable food and there is evidence for disparities in food access based on income and race (Beaulac et al., 2009). Research suggests that people with better access to supermarkets tend to have healthier diets and lower levels of obesity, but people from low-income, minority, and rural neighborhoods often don't have access to supermarkets. Further, the availability of fast-food restaurants with unhealthy, calorie-dense

foods are found more often in lower-income and minority neighborhoods (Larson et al., 2009). A comprehensive article arguing for educators to pay attention to food was written by Weaver-Hightower (2011) and covers the health, biodiversity, economic, cultural, and social justice implications of our food system.

Similar to food justice, the idea of food sovereignty is growing in popularity in food studies and sociology. It emphasizes the importance of people's right to healthy, sustainable, culturally-relevant food, and their right to define their own food and agriculture systems. As described in Indigenous pedagogies above, food and land have significant cultural importance to Indigenous communities, and food sovereignty's emphasis on autonomy over a group's food system has made this idea important in Indigenous rights movements. Both food sovereignty and Indigenous rights movements hold the ideals of autonomy and self-determination at their core (Grey & Patel, 2015) allowing for decolonization through agriculture.

Social Inequality and Agriculture

Migrant and immigrant workers exist in the shadows of our agricultural industrial complex, harvesting, processing, and serving the food we eat. Our cheap food comes at the expense of these exploited workers (Schlosser, 2012) as many agricultural workers in America live below the poverty line (Villarejo, 2003). Physician and anthropologist, Holmes (2013) details the dangerous path that agriculture workers take from their hometowns in Mexico to the strawberry fields of California and Washington, their horrible living conditions while on the farms, the racism they endure, and the life-long effects that their lack of access to healthcare produce. He describes an agricultural industry that would be brought to its knees without the labor that these people bring and the political system that can't afford to give them legal status because that would necessitate giving them access to education, healthcare, and other rights.

Additionally, toxic chemicals disproportionately impact low-income and minority populations based on a political process that determines where waste sites will be located (Bowers, 2002). Williams (2018) details the historical-geographical specificity of pesticide intensification to investigate what he calls *agroenvironmental racism*. He uses the Mississippi Delta of the American South during the plantation era to investigate how anti-Black racism shaped the politics of pesticides that were destructive to both the environment and human welfare. Cotton plantations, a highly pesticide-dependent crop, led the US in the use of pesticides by the mid-20th century. Millions of pounds of the pesticides were used in the state of Mississippi alone, concentrated in the majority-Black region of the Delta.

Agriculture and the Ecosystem

Given the ecological implications of industrial agriculture, it is imperative that we open dialogue and reflect on our own knowledge about different types of agricultural practices. Maintaining and enhancing the functions of our ecosystems is critical for biodiversity and agriculture (Dale & Polasky, 2007). The scientific evidence regarding the ecological implication of industrial agriculture is overwhelming. Industrial agriculture is responsible for approximately one-third of all anthropocentric greenhouse gas emissions (Gilbert, 2012). These practices are key drivers of deforestation, biodiversity loss, salinization and erosion of soils, eutrophication, water use, pollution of waterways by synthetic fertilizers, and ecosystem degradation (Pimentel & Pimentel, 2007; Swinton et al., 2007; Tilman et al., 2011).

Environmental educators are already incorporating some issues from agriculture into their work. Bowers (2001) discusses the commoditization of seed genetics; Kahn (2011) discusses the

"hegemony of speciesism" in his vegan movement and animal liberation work; and Vallianatos et al. (2010) examine how farm-to-school programs save farms, prevent urban sprawl, and introduce students to seasonal foods. Wight (2013) connects food production, health concerns, the destruction of the environment, and critical pedagogy by advocating for an "AgroEcological-Educator" to bring these issues forward in community development.

History of Agriculture

The history of agriculture is a topic not often taught in SBAE classrooms, yet it is important to examine our history in order to make sense of the cultural, social, and political outcomes we see today. The history of agriculture provides a rich and informative curricular space to apply critical pedagogy and the subgroups of critical pedagogy discussed. The history of SBAE itself provides two examples that underlie the very history of the United States in general, Indigenous land dispossession and race.

From the moment that White colonists arrived on North American soil, they needed to overpower the Indigenous peoples they encountered in order to acquire land for political power and monetary gain. They did this by enacting laws and treaties that both allowed for the dispossession of land and also established Indigenous peoples' right to agriculture education. Through the Morrill Acts of 1862, 1890, and 1994, land dispossession for the creation of Land Grant Institutions was institutionalized and Cooperative Extension was created. While Extension offices are found in nearly 100% of US counties, they can be found in less than 10% of Indigenous communities (Brewer et al., 2016; NCAI, 2010). Land Grant Institutions and Cooperative Extension have legal and moral responsibilities to Indigenous communities to provide equitable access to the benefits of this system due to the history of Treaties and Acts and the damage done to Indigenous communities through the dispossession of Indigenous lands.

In another example, the FFA was established in schools in 1928 and, due to segregation, most Black students were not able to participate. The New Farmers of America (NFA) was an organization for Black boys studying agriculture in segregated public schools in 18 eastern and southern states. When Congress passed the Civil Rights Act prohibiting segregation in public schools in 1964, the NFA and FFA merged and all Black students became members of the FFA. The merger required the NFA to give up its name, constitution, bylaws, emblems, and money to the FFA. At the time, the NFA had more than 1,000 chapters, more than 58,000 active members, and participation of African Americans in the field of agricultural education had increased rapidly. The merger eroded the infrastructure that maintained key roles for African American students and professionals in leadership positions and, after that, the numbers of African Americans in agriculture declined drastically (Wakefield & Talbert, 2003). As seen in the FFA demographics section above, FFA membership by Black students is still underrepresented today.

Critical Pedagogy in the FFA Chapter

A critical pedagogy of agriculture approach to the FFA Chapter includes shifting the focus towards more inclusive practices. Activities which build community and foster student development should complement more traditional vocational and competition-based activities. For example, the FFA Chapter should engage in community building activities such as social events that incorporate the culture and concerns of the community such as an intergenerational family night that include educational and service opportunities. Also, the FFA advisor should ensure that every student has an opportunity to participate in FFA events. The FFA Official Dress could prove to be either a financial or cultural barrier for some students. These barriers range from cost of the FFA jacket, cultural values represented by the FFA jacket, to the gendering effects of FFA Official

Dress (Martin & Kitchel, 2013; Phelps et al., 2012). The FFA advisor should limit the number of instances at which FFA Official Dress is required, choosing inclusivity instead of tradition.

Another guiding principle for the FFA Chapter following the critical pedagogy of agriculture approach should be engaging the concerns and culture of the local community when deciding on educational experiences for students. The FFA advisor could frame a career exploration event as a community-based event. For example, instead of visiting a large-scale crop farm to learn about crop science careers the FFA Chapter could visit local community gardens or small-scale farming operations to explore local agricultural opportunities and participate in local food systems. This shift of focus would be inclusive because more students might work in a local garden or have one of their own, than those that might have a career in large scale crop production or a related field. Moreover, the FFA Chapter should balance the intentionality of FFA activities in the community. FFA Chapters should view their local community as partners in education, places and contexts for learning, and recipients of the educational outcomes of the Chapter, rather than just using the local community as a means to raise money (McKim et al., 2019).

Critical Pedagogy in Supervised Agricultural Experiences

The same critical pedagogy of agriculture principles applies to the Supervised Agricultural Experiences (SAEs). Students need SAE opportunities which reflect their lived experiences and work towards a more just society and agricultural sector. SAEs have historically favored the dominant hegemony in agriculture of large-scale agricultural practices such as large animal production and row and commodity crop production (Bird, Martin, & Simonsen, 2013). These types of SAEs should not be advocated for at the expense of experiences which align more with students daily lives and place the environment and well-being of society at risk. Envisioning SAEs from a critical pedagogy of agriculture perspective would bring a spotlight onto a greater variety of experiences, such as experiences which focus on the health of a community, food justice, or environmental issues. A complete programmatic alignment in SBAE is crucial for a critical pedagogy of agriculture transformation.

The recent conceptual change in SAEs (The National Council for Agricultural Education, 2012) allows for more seamless integration of critical pedagogy of agriculture principles. An example which emerges from Indigenous pedagogy and historical analysis would be a class-wide immersive SAE focusing on analytical research experience. Students could do research projects, public reports, and demonstrations which highlight the rich traditions of Indigenous agriculture, food, and ways of life. Another immersion SAE could be an ecological service project in the local community. This would also be an intensive class wide SAE. Finally, a foundational SAE with a focus on personal planning and management could be centered on food justice, health, and place. The long-term goal of this SAE would be to help students learn about their local food systems and how they participate in those systems responsibly. The financial aspect would focus on how students spend their resources on food, while the food justice and health aspects would center on how their choices impact their own health and vitality of their local community.

Conclusion

Framing a SBAE program through critical pedagogy of agriculture helps students think through social justice issues, make connections to their coursework and local communities, and asks them to build a better future through agriculture. This paper has described critical pedagogy and its applications, described how these can be used in an agricultural context, and given examples of important social justice issues in agriculture that can be taught in an SBAE program from a critical perspective.

CT perspectives require that dominate hegemony be challenged through a dialogical process (Darder, 2017; McLaren, 2003). The overall goal is that oppressed students and people participate in their emancipation through education and action. While CT demands that we include the emancipation of all oppressed peoples within the boundaries of a school or class space, we want to explore this process from the perspective of SBAE students. In other words, can the current structure of SBAE, even applied with a critical pedagogy agriculture framework, fulfill the mission of CT? The conclusions from this research indicate that there will still be significant barriers for oppressed students, but that critical pedagogy in SBAE is a tool towards this goal.

First, the ideology and type of agriculture that dominates in the SBAE classroom and curriculum presents issues. The historical legacy of agriculture and its tendency to favor a more conservative view of agriculture (Brown & Kelsey, 2013; Martin & Kitchel, 2013, 2015) means that oppressed students will struggle to find room for their voices in these contexts. This issue is not necessarily unique just to agriculture. Indeed, people of color face issues of Whiteness in society at large (Omni & Winant, 1994). This issue is not easily overcome for most SBAE teachers alone. They must push beyond the norms of SBAE classroom curriculum and SAEs to find knowledge bases and systems of agriculture and food which are inherently more liberating and connect to the lives and experiences of their students.

The previous issue leads to a second issue within SBAE as we theorize how to apply critical pedagogy of agriculture. While a teacher could find ways to break the dominate hegemonies within classroom curriculum and SAEs, the FFA presents a greater challenge. The individual SBAE teacher, acting as the local FFA chapter advisor, can set-up a more inclusive local FFA chapter. However, these actions in no way break the dominate hegemonies which exist at the regional, state, and/or national levels within the FFA (Martin & Kitchel, 2014; Phelps et al., 2012; Talbert, 1995). For all students to find success in the FFA, they must have the chance to rise through the award structure and experiences of the FFA beyond the local level, which is beyond the control of the local FFA advisor. The dominate ideologies of the FFA, including Whiteness and conservative ideologies (Martin & Kitchel, 2013; Martin, 2014), force oppressed students to adopt positions and actions which reinforce the dominate hegemony. The National FFA Organization is currently working on these issues, including the Agricultural for All program (2020) which focuses more on empathy, inclusivity, and equity, however these initiatives have only just recently begun. Thus, for SBAE to truly become more aligned with CT, the institution of the FFA would need to be re-envisioned and a critical pedagogy of agriculture will be a tool towards this goal.

The implications of applying a critical pedagogy of agriculture framework to SBAE practice is important for researchers to conceptualize. The need for this pedagogical framework stems from a general dearth of this topic in the research, promising practice literature, and thus, presumably practice. The outcomes from a critical pedagogy of agriculture programmatic approach would be different than other approaches, such as science or career readiness approaches. We must be ready to observe and examine different programmatic outcomes. Academia and the research produced are often guided by precedence. The outcomes of a critical pedagogy of agriculture centered SBAE program are not typically outcomes examined in agricultural education research. A critical pedagogy of agriculture approaches in agricultural education pedagogy would demand more critically-orientated research from agricultural education researchers.

Numerous recommendations for critical pedagogy of agriculture practice have been laid out in this paper, including four specific examples related to classroom curriculum and some promising practices for an FFA chapter and SAEs. This list is not exhaustive and there are a plethora of examples which could be developed. We encourage practitioners to always adapt and be

innovative based on local conditions and contexts. We also know that this may be a challenge for practitioners who are not curriculum and pedagogy experts. A guiding principle for action for developing a SBAE program which follows a critical pedagogy of agriculture framework would be that practitioners should start by framing their classroom curriculum, FFA chapter, and SAE activity from the tenets of critical pedagogy of agriculture by improving personal and community health, creating more equity and access, promoting food justice, and limiting environmental impact in and through agriculture. When these tenets become muddled or water-downed, then practitioners risk losing the meaning and power of critical pedagogy of agriculture.

The outcomes of a SBAE program framed through a critical pedagogy of agriculture lens are transformational for both students and communities. Some of these outcomes might include community development, increased knowledge of ecological issues, deeper connection between people and the places they live, wider understanding of agriculture's role in history, society, and culture, awareness of social inequities, and creating consciousness and agency within students to empower them to create change through agriculture. As agricultural educators, it is our responsibility to prepare the next generation of farmers, gardeners, ranchers, and community leaders through emancipatory and transformative pedagogy.

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