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Dr. D. Mark Meyers, Xavier University

Dr. Thomas Knestrict, Xavier University

EDITORS

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A MESSAGE FROM THE EDITORS

Welcome from the The OHIO Journal of Teacher Education Editorial Team. We are honored and privileged to shepherd this journal for the educational community of Ohio

The OHIO Journal of Teacher Education (OJTE) is an online journal. We invite all forms of article formats, as seen in the publication and manuscript guidelines included inside the journal. However, we do invite authors to utilize the online format. The use of links and other interactive devices will allow the online journal to be more than simply a pdf of articles that you can print at your own workstation. In the future, the hope of the editorial team is to develop a truly functional online journal experience which can open the world of practice to our readership.

We will strive to build upon the solid foundation left by the previous editorial teams and move the OHIO Journal of Teacher Education forward as a resource for pre-service teachers, in-service teachers, and all with an interest in teacher education.

Dr. Mark Meyers and Dr. Thomas Knestrict, Editors





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A CALL FOR EDITORIAL BOARD MEMBERSHIP

The Ohio Journal of Teacher Education (OJTE) is looking for interested individuals to join the Editorial Board of the journal. We are looking to establish a board that represents the Colleges and Universities of Ohio as well as offers a broad spectrum of content expertise.

If interested, please submit a one page letter of intent that includes your College or University, your educational background, and your content area of interest to the co-editors.

Dr. Tom Knestrict at
oatejournal@gmail.com

We look forward to hearing from you.

STEAM in Early Childhood Education: A Blended Module to Investigate Preservice Teachers' Conceptualizations of STEAM Education

Lauren Angelone, Ph.D.

* Correspondence:

Lauren Angelone, PhD
Xavier University
3800 Victory Parkway
Hailstones 311
Cincinnati, OH 45207
angelonel@xavier.edu
513-745-4222
Full list of author
information is available at
the end of the article

Abstract:

This study reports on the development, implementation, and evaluation of a blended STEAM (Science, Technology, Engineering, Art, and Mathematics) module that provided early childhood preservice teachers instruction on STEAM education through an example the early childhood level. The blended STEAM module was developed at the Kindergarten level using the learning cycle, project-based learning, and the engineering design process within a learning management system. Preservice teachers engaged with the STEAM module in a methods course. Their conceptualizations of STEAM education were measured before and after completing the module. Findings include preservice teachers' conceptualizations moving toward integration and away from siloed as well as toward a more instructional rather than discipline-focused view, though Math and Science are still viewed as the most important subjects.

Introduction

Since the report *Rising Above the Gathering Storm* (National Academy of Sciences, 2007), the focus of efforts to strengthen the American workforce starting with K-12 schools has been on STEM (Science, Technology, Engineering, and Mathematics). In 2015, the White House launched the Innovate to Educate partnership focused on STEM education and diversifying the STEM talent pool (The White House, 2015). Additionally, the latest iteration of national science standards, the Next Generation Science Standards (National Research Council, 2014), incorporate a prominent engineering component in both disciplinary core ideas and practices. “Despite the national movement for K–12 STEM education and its corresponding push to develop STEM educators, comparatively little attention has been given to the content of STEM teacher preparation or professional development” (Rinke, Gladstone-Brown, Kinlaw, & Cappiello, 2016). world. Preliminary work investigating how preservice teachers view STEM shows that preservice teachers

“Simply have positive associations with STEM as a way to teach higher level thinking in a real world context (Erdogan & Ciftci, 2017; Madden, Beyers, & O’Brien, 2016). However, conceptualizations of STEM are highly variable and Radloff and Guzey (2016) found that more work needs to be done both conceptually and instructionally.

STEAM (Science, Technology, Engineering, Art, Math), an iteration of STEM that incorporates the arts, is newer than STEM and therefore in need of even more work conceptually. Some conceptual models have been put forth defining STEAM education as problem-based, integrated, and including problem-solving skills (Quigley, Herro, & Jamil, 2017) as well as one in which art plays an essential role in catalyzing STEM (Radziwill, Benton, & Moellers, 2015). With or without research-based conceptual models, STEAM is becoming more prevalent in early childhood education settings serving as an aesthetic context that naturally extends engineering and technology experiences (Wynn & Harris, 2012). It is also theorized that, “by adding the arts into the STEM classroom, increased motivation, engagement, and achievement may result for wider student audiences (Becker & Park, 2011).” This is a particularly important role at this level as there is a lack of science instruction in early childhood classrooms (Lippard, Tank, Walter, Krogh, & Colbert, 2018).

Blended learning is the combination of face-to-face instruction and online learning. Blended learning has been used in higher education settings and has been shown to increase student achievement when used as a cognitive support (rather than a presentational tool) or to increase interaction between the students, teachers, and the content (Bernard, Borokhovski, Schmid, Tamim, & Abrami, 2014). In this STEAM module, materials will be used in the face-to-face classroom, but placed online as a way for students to self-pace, but also as a way for students to interact frequently with materials as a support in preservice teacher learning of the

pedagogical approach as well as the content. Using technology to enhance educative curriculum materials has been tested with elementary preservice science teachers with positive results in supporting teacher subject matter knowledge and confidence (Donna & Hick, 2017). This study will further the work on developing technology-enhanced educative curriculum materials.

The goals of this project were as follows:

- To create a quality blended STEAM module that serves as an educative curriculum material for preservice teachers.
- To understand how preservice teachers conceptualizations of STEAM education change by participating in a STEAM experience with educative curriculum materials as support.

The research question guiding the research is:

- How do preservice teachers' conceptualizations of STEAM education change through participation in a sample blended STEAM module?

Perspectives

Constructivism (Piaget, 1971; Vygotsky & Cole, 1978) and constructionism (Papert, 1986) guided the design and implementation of the STEAM module. Since the myth of the tabula rasa has been erased, students should always be participating in their learning experiences, particularly by constructing materials, and teachers should always be designing the classroom experience so that students may do so. Constructivism and constructionism guided this project in that that preservice teachers constructed their own knowledge of STEAM education by experiencing a sample project with built-in educative curriculum materials (Ball & Cohen, 1996; Davis and Krajcik, 2005). This sample module had students creating a final product as part of the learning.

The STEAM module was created using several constructivist and constructionist strategies considered best practice in science, math, and engineering education, and in line with the current conceptualization of STEAM education. The learning cycle (Bybee, Taylor, Gardner, Van Scotter, Carlson Powell, Westbrook, & Landes, 2006) is a constructivist inquiry-based model used science in which students first gain experience with concepts before naming them and then extend them further. Project-based learning (Krajcik & Shin, 2014) is another constructionist, student-centered approach in which a driving question is used to target significant learning goals by using a project to promote learning. The final approach used within the module was the engineering design process (EIE, 2017), which follows a similar constructionist approach to project-based learning and supports students in constructing knowledge through the engineering process.

The Module



Figure 1.

The STEAM module designed for use in this study was housed in Canvas (see Figure 1), a learning management system, and consisted the five components of the learning cycle (Bybee, 2006), a constructivist approach widely used to teach science. The module also included three reflective discussion boards before during and after the learning cycle.

The module was created as a sample Kindergarten STEAM module focused on geometry and engineering concepts through the study of local architecture that preservice teachers participated in just as Kindergarten students would. In the engage portion of the module, preservice teachers read a children’s book about architecture and looked for familiar shapes in the buildings. In the explore portion, preservice teachers used a 360 degree video to explore buildings in [city] and used shapes to model a building of their choice both two- and three-dimensionally. In the explain portion, preservice teachers shared their models and the professor formally introduced three-dimensional shapes. In the extend portion of the module, preservice teachers were asked to use a project-based learning approach to design a building for their own neighborhoods. They thought about the needs of their neighborhood and then modeled their buildings in two- and three-dimensions. They created a final model of their building using a 3Doodler, a pen that allows students to 3D print by hand. To evaluate their understanding of geometry concepts, students created videos describing the shapes that composed their buildings. For more detail on this module, see [name removed] (in press).

Methods

This study was conducted using a mixed methods approach, utilizing a survey with quantitative and qualitative components. Borrowing a visual methodology utilized to

examine preservice teachers conceptualization of STEM education (Radloff & Guzey, 2016), the preservice teachers that participate in this study were asked to fill out a similar survey (See Appendix A) before and after the STEAM module in order to understand how their conceptualizations of STEAM education have changed through participation in the module. This survey included demographic data (only given on the pre-survey) as well as a visual representation of their conceptualization of STEAM education and their reasoning for the representation (given both in the pre-survey and post-survey). The visual representation aligns with the theoretical framework in that visual representations can help to show how preservice teachers have constructed their knowledge of STEAM education in various ways.

Quantitative data included demographic and background questions (questions 1-7, only given on pre-survey) as well as one ranking of how related STEAM disciplines were perceived to be (question 9). To analyze this data, percentage breakdowns were calculated for the demographic and background information and the ranking of how related STEAM disciplines were averaged and pre-survey and post-survey responses were compared.

Qualitative data included questions defining and explaining STEAM education before and after participating in the STEAM module both in words and pictures (questions 8, 10, 11, and 12). These data were analyzed using the constant comparative method as described by Charmaz (2006) and interrater reliability until reaching at least 88% coder agreement. A priori theorizing was used to code each written/drawn survey response using the coding scheme of Radloff and Guzey (2016), which was based on Bybee's (2013) visualizations of STEM.

Results

Survey Data

Though student conceptualizations of STEAM were varied, through participation in the STEAM module created for this study, students’ conceptualizations of STEAM education shifted toward a more integrated and instructional view of STEAM education and away from a more siloed and discipline-based view. Preservice teachers still tended to see Math and Science as central to STEAM, however, even as their conceptualization became more integrated.

Demographic information.

Demographic Information

	#	%		#	%
Gender			Ethnicity		
Male	0	0	Caucasian	23	92
Female	25	100	African American	1	4
			Asian	1	4
Age			Major		
18-29	22	88	Early Childhood	25	100
30-49	3	12			

Table 1.

This study had a total of 25 participants in two different sections of the same course. As is commonly seen in Education programs in the United States, preservice teachers were overwhelmingly female and white. The majority of preservice teachers were also between the ages of 18-20 as most preservice teachers participating were traditional undergraduates. All preservice teachers were majoring in early childhood education. Question 5 of the demographic data was excluded as many preservice teachers misinterpreted this question as how many years

they had been in undergrad or how many times they had observed in a classroom. See Table 1 for a data summary of this demographic information.

Teaching background.

Teaching background

	#	%		#	%
Throughout K-12			Own classrooms		
Mostly teacher-centered	16	64	Mostly teacher-centered	0	0
Somewhat teacher-centered	8	32	Somewhat teacher-centered	1	4
Somewhat student-centered	1	4	Somewhat student-centered	13	52
Mostly student-centered	0	0	Mostly student-centered	11	44

Table 2.

Table 2 describes the teaching style that preservice teachers experienced in their own K-12 education and the teaching style they wish to adopt in their future classroom. There is a shift from what they experienced in their own education, mostly teacher-centered, to what they would like to provide in their own classrooms, somewhat to mostly student-centered.

Defining STEAM.

Starting with question 8 on the survey, preservice teachers' responses in the pre-survey were compared to their responses in the post-survey. Question 8 asked preservice teachers to explain what characterizes STEAM from other types of instructional methods. Using Radloff and Guzey's (2016) coding scheme, responses were coded as either instruction, discipline, exclusion, or integration. Responses coded "instruction" were those that mentioned STEAM teaching in terms of real-world application, critical thinking, hands-on learning, problem-based learning, or student-centered instruction. Responses coded as "discipline" were those that

mentioned STEAM involving the associated disciplines, which may have been ranked. Responses coded as “exclusion” focused on subjects being excluded from STEAM, such as Language Arts. Responses coded as “integration” were those that mentioned the integration of the STEAM disciplines. In Figure 2, pre-survey data is compared to post-survey data, showing more responses coded as discipline and integration in the pre-survey, and more coded as instruction in the post-survey.

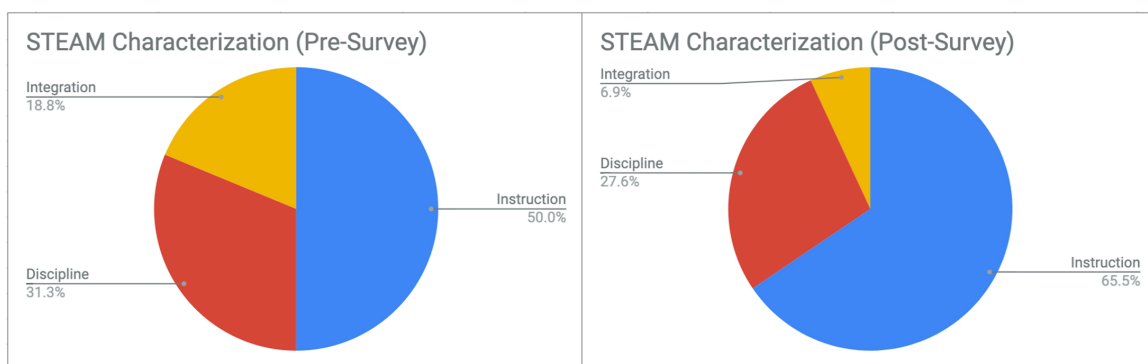


Figure 2.

STEAM relatedness.

Questions 9 and 10 asked preservice teachers to explain how related they perceive STEAM disciplines to be, first numerically and then explaining their response. For question 9, preservice teachers ranked the STEAM disciplines on a continuum from 1 (not connected) to 10 (well connected). In the pre-survey, the average of preservice teacher response to this question was 7.16 and in the post-survey, the averaged response was 8.8. Question 10 then asked preservice teachers explain their ranking in question 9. Again using Radloff and Guzey’s (2016) coding scheme, responses were coded as specialized, general, and other. Responses coded as “specialized” were those that mentioned the disciplines as being dependent on one another, even if ranked, or those that explained that the disciplines were connected by specialized process skills. Responses coded as “general” were those that mentioned that the disciplines were

generally related or connected, but not dependent. Responses coded as “other” were vague or absent. In Figure 3, pre-survey data is compared to post-survey data, showing more responses coded as other and general in the pre-survey, and more responses coded as specialized in the post-survey.

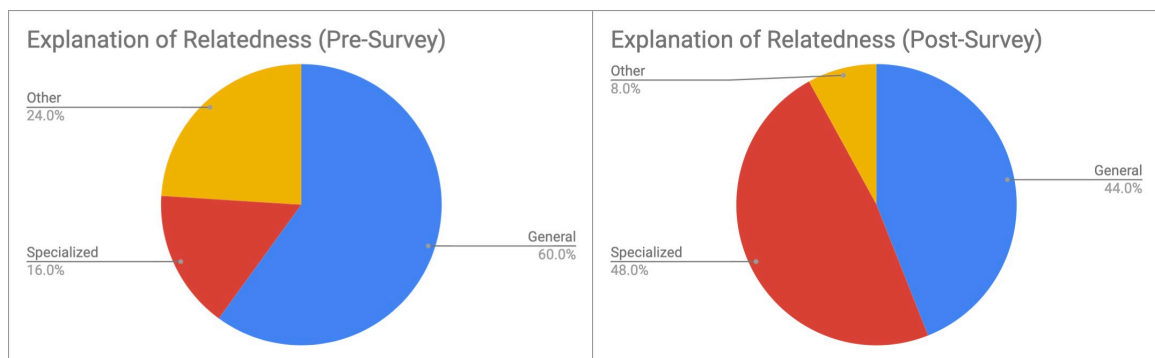


Figure 3.

STEAM visualizations.

Questions 11 and 12 asked preservice teachers to create a visual representation of STEAM and question 12 asked preservice teachers to explain those visualizations. For question 11, preservice teachers were asked to create a visualization that incorporated the letters in STEAM. Again, using Radloff and Guzey’s (2016) coding scheme, responses were coded as nested, transdisciplinary, interconnected, sequential, overlapping, or siloed. Responses coded as “nested” were those which suggested a view of STEAM in which there was one overarching discipline. Responses coded as “transdisciplinary” were those which suggested a focus on the real-world application-based nature of STEAM. Responses coded as “interconnected” were those which included double-arrows between the disciplines. Responses coded as “sequential” were those which represented STEAM as a series of disciplines, typically with single arrows showing a sequence. Responses coded as “overlapping” were those which showed two overarching subjects connected by “lesser subjects.” Responses coded as “siloed” were those which portrayed

each STEAM discipline in isolation from the other, though they could be related (usually with straight lines) or stand alone. Examples of each of these coded responses are available in Appendix B. In Figure 4, pre-survey data is compared to post-survey data, showing more visualizations coded as siloed and transdisciplinary in the pre-survey and more visualizations coded as interconnected and overlapping in the post-survey, with responses coded as nested and sequential remaining the same.

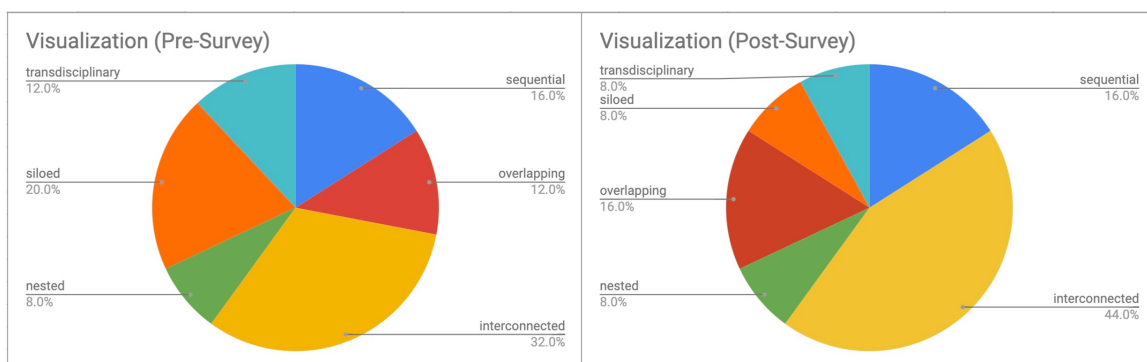


Figure 4.

In question 12, preservice teachers explained the visualizations they created in question 11. These explanations were coded using Radloff and Guzey’s (2016) coding scheme. Explanations were coded as application, related, dependent, ranked, processes, instruction, unique, or some combination. Responses coded as “application” were those which explained their visualization according to the real-world application of STEAM. Responses coded as “related” were those which explained that the disciplines were simply related. Responses coded as “dependent” were those which suggested that the disciplines depended on each other. Responses coded as “ranked” were those which ranked the STEAM disciplines. Responses coded as “processes” were those which suggested that the STEAM disciplines were connected because of necessary thought processes or skills. Responses coded as “instruction” were those which referred to STEAM being used in an instructional setting. Responses coded as “unique”

were those that explained that the disciplines could stand alone or together. In Figure 5, pre-survey data is compared to post-survey data, showing that more preservice teachers explained their visualizations as related and unique in the pre-survey and more preservice teachers explained their visualizations as dependent and ranked in the post-survey, with instruction staying nearly the same and application appearing only in the post-survey.

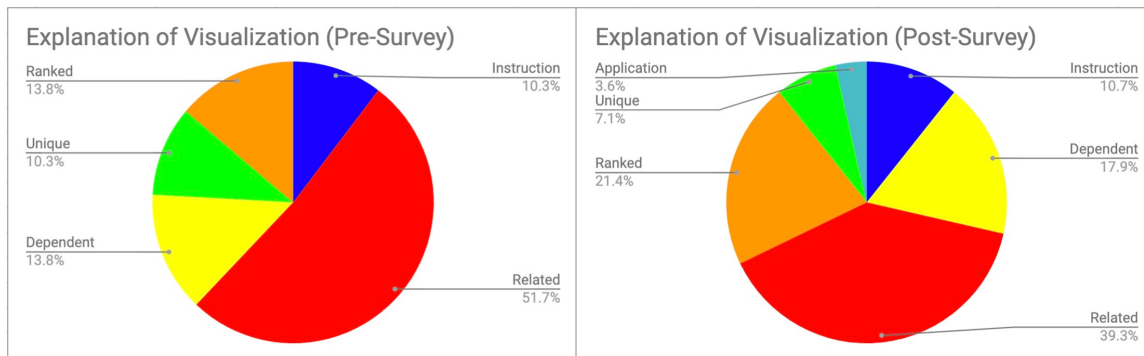


Figure 5.

Discussion

After participating in this blended STEAM module, preservice teachers' conceptualizations of STEAM shifted in several ways. Preservice teachers defined STEAM more instructionally and less disciplinarily. Preservice teachers perceived the disciplines of STEAM to be more related and explained STEAM as a more specialized, and less general field. Preservice teachers conceptualized STEAM, in visual form, as more interconnected and overlapping, and less siloed and transdisciplinary. Preservice teachers then explained those visualizations by describing STEAM education as more dependent, and less generally related, but still prioritized Math and Science.

If we continue to conceptualize STEAM as integrated and problem-based, as described by Quigley, Herro, and Jamil (2017), or with art as a catalyst, as described by Radziwill, Benton, and Moellers (2015), then some of the shift of preservice teachers in this

study is helpful in moving them toward a sound understanding of STEAM in a classroom setting.

The ability of preservice teachers to see STEAM instructionally and as more specialized, integrated, interconnected, and less siloed is in line with the current conceptualization of STEAM. After participating in this module, preservice teachers moved more toward that understanding, with a few caveats. Preservice teachers moved away from a transdisciplinary view of STEAM, which is one in which the content is understood in a real world context.

Preservice teachers also still maintained a nested understanding, placing Math or Science as the most important, and included these same conceptualizations in their overlapping visualizations.

Conclusion

This study made several contributions to the field of STEAM education. To further understand how to shift preservice teachers' conceptualizations of STEAM education, it is helpful to understand their initial conceptualizations. As the preservice teachers in this study began to shift their conceptualizations to ones more in line with current research, perhaps this constructivist, project-based module using the design process is one way to support them in their understanding and eventual implementation of an integrated STEAM approach. This STEAM module was also blended, which contributes to the literature on technology-enhanced educative curriculum materials. Further research should continue the work of module development that can support a more integrated understanding of STEAM, without the emphasis on Math and Science.

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Author:

Biographical sketch: Lauren Angelone is an assistant professor of science education and instructional technology at Xavier University in Cincinnati, Ohio. She is a former middle school science teacher with a PhD in Educational Technology from The Ohio State University. Her areas of interest are science education, instructional technology, cultural studies, and qualitative research.

Educators and Stress: Creating a Healthy Workplace Environment

Evonn Welton, Shernavaz Vakil, and Lynn Kline

* Correspondence:

Evonn Welton
Curricular & Instructional
Studies
University of Akron
Akron, OH 44325
ewelton@uakron.edu

Full list of author
information is available at
the end of the article

Abstract:

As schools face increasingly complex mental health issues (academic, emotional or behavioral) with their students, educators are frequently called upon to address these needs. The cumulative and ongoing effects of these academic and emotional or behavioral needs can result in significant stress, anxiety and burn-out for school personnel. While literature often focuses on addressing academic and emotional or behavioral needs of student when creating a safe and healthy environment, the impact experienced by educators is less recognized. There is increasing recognition that education has become a high stress occupation and that educators may experience stress reactions similar to those experienced by law enforcement, physicians and mental health professionals. This manuscript addresses the impact of vicarious stressors on educators and offers potential methods to address them.

Introduction

Creation of a healthy and safe school environment is essential for student learning and educator morale. The benefits of mental health services in the school setting, early identification of students at risk, and collaboration with outside mental health professionals are now recognized as essential (National Alliance on Mentally Illness, n.d.; Brueck, 2016). The passage of the Every Student Succeeds Act (2015) reflects this recognition and has provided legislative support. While these efforts have been focused upon student mental health and will have the secondary effect of improving school climate, less attention has been focused upon educator mental health. Teachers, administrators and related school personnel are on the front lines of implementation of strategies to identify and assist students with mental health concerns and need to feel that they are supported.

STEAM As society changed, students brought increasingly complex academic and emotional or behavioral needs into the school. The school, family and community could no longer function in isolation and improved coordination of services became necessary. It was also recognized that student mental health services and positive proactive behavioral strategies benefitted all students. These strategies are now found in districts across the United States.

While student learning and academic achievement continue to be the primary responsibilities of educators, it is now recognized that students with significant behavioral or emotional needs cannot learn effectively and educational programming must address the needs of the entire student. With inclusion, students with learning and behavioral needs receive their education in the regular education setting resulting in the regular and special education teacher addressing the students' needs. Not all students qualify for special education services and therefore, meeting the needs of all students falls upon all stakeholders. Not addressing these needs not only impacts learning, but also can put the well-being of students and educators at significant risk.

Meeting these needs is an arduous task and can take a significant toll on the mental health and job satisfaction of the educational staff. There is increasing recognition that education has become a high stress occupation and that educators may experience stress reactions similar to those experienced by law enforcement, physicians and mental health professionals.

Direct and Indirect Educator Stressors

The American Psychological Association (2016) reported that teacher victimization is a significant problem with 80% of teachers nationwide reporting that they had been victimized by students within the past year. This victimization took the form of physical attacks, verbal abuse and physical threats. Verbal abuse and disrespect for teachers were reported to occur on a daily

or weekly basis. Walker (2013) reported that teachers may be also be victimized in the form of harassment, objects being thrown at them and physical attacks. In some cases, the physical attacks are severe enough to warrant medical attention. Property destruction in which their property is stolen or damaged was also reported.

In Connecticut, teacher victimization has become so significant that a dozen teachers testified in front of the Connecticut Legislature and more than 100 submitted written testimony (Rosales, 2019). The Connecticut teachers reported that some incidences were the result of intentional acts of aggression by students in regular education while others were not intentional and/or resulted from children who had special education needs. At times, children as young as five years old demonstrated significant behavioral problems and placed others in danger.

There are other forms of victimization such as teacher victimization by parents or caregivers and cyberbullying. Morrison (2017) reported that while teachers may become the subject of cyberbullying by students, there is little they can do about such public attacks. For the most part, cyberbullying falls under free speech and legal action has a high probability of failure. In some cases, the teacher simply quits teaching in order to avoid the hostility. Public school k-12 educators are not alone when it comes to cyberbullying. Higher education faculty are quite familiar with commercial sites that encourage students publically criticize (or retaliate against for poor grades) faculty members (Macdonald, 2010).

While there are numerous forms of direct teacher/educator victimization, educators may also experience indirect or vicarious trauma and stress by witnessing traumatic experiences of the students in their schools. Howard (2019) reported a significant increase in suicides among adolescents and young adults. In California, schools are putting the phone numbers for suicide crisis hotlines on the backs of student ID cards (Williams, 2019). This rise in suicide increases

the probability that an educator may lose a child or adolescent in their class to suicide and experience the resulting vicarious trauma.

Educators often encounter suspected child abuse and are required to report their suspicions to child protective services. The National Children's Alliance (2014) reported that nearly 700,000 children are abused in the United States annually. Of those children, 1670 children died from abuse in 2014. In the case of suspected abuse, the stress and trauma may result from two sources. First, the educator becomes aware of the child's experiences with abuse or neglect and becomes very concerned for the child's well-being. Secondly, the educator is a mandated reporter. The process of mandated reporting may result in a level of fear of retaliation on the part of the educator. While reporting is anonymous, parents or family members may nonetheless be aware who has reported the suspected abuse or neglect.

While many factors influence the probability of child abuse or neglect, the opioid crisis has also impacted innumerable children who routinely face parents and caregivers who are unable to provide for their basic needs. Mirick and Steenrod (2016) report that parental use of opioids increases that probability of child maltreatment and there has been a significant increase in foster care placement. In addition, educators may be faced with parents or students who overdose in the school setting. The National Association of School Nurses (2015) has recommended that naloxone be incorporated into school emergency plans. The opioid crisis has therefore, increased the possibility of educators facing very stressful circumstances in a number of ways.

Other issues resulting in educator stress and trauma include children with degenerative or terminal illnesses. The American Cancer Society (2018) estimated that 11,060 children under the age of 15 will be diagnosed with cancer in 2019. This suggests that it is possible that an educator

may have a child in class who is facing a life threatening illness. In addition to cancer, there are other serious, and sometimes terminal, medical conditions that educators may encounter in the school setting. Although these are not direct threats to educator, safety the teachers and school may become very involved with such situations and have great difficulty processing through grief issues.

This is certainly not an exhaustive list of stress inducing situations in the educational setting; however, it does exemplify the wide array of events that have the potential to produce a high degree of anxiety and distress whether by an individual event or cumulative effects.

Reactions to Trauma and Stress

Vicarious trauma, secondary traumatic stress, compassion fatigue and burn-out are all terms that have been utilized to describe the serious reactions of those engaged in mental health services with victims of trauma (Deville, Wright and Varker, 2009). These terms are not officially recognized diagnoses; however, serve to describe various stress reactions as a function of occupational or personal exposure to the trauma experienced by another. The terms also serve to facilitate research and recognition that an individual does not have to have a direct threat to experience severe stress reactions.

Post-traumatic stress disorder is commonly associated with direct exposure to very serious and life threatening events; however, the American Psychiatric Association (2013) allows for several different types of stress disorders as a function of how quickly the symptoms first appear, the severity of the symptoms and the nature of the stressors. For example, an educator who was exposed to a school shooting and whose symptoms last beyond one month may meet the criteria for post-traumatic stress disorder. An educator who was also exposed to a serious stressor; however, whose symptoms do not last past three months, may be identified with acute

stress disorder and an adjustment disorder may be identified if the individual demonstrates symptoms as a result of a stressor of any severity.

The American Psychiatric Association (2013) provides a great deal of increased detail for accurate diagnosis of reactions to stressors including how cultural factors, temperament and previous experiences may also impact reactions. It is very important to state that any diagnosis must be made by a qualified professional. What must also be noted is that any time an educator is experiencing distress that may be related to what the educator perceives as a stressful situation, the educator may benefit from seeking assistance from a mental health or medical professional.

If stress is left untreated and unaddressed, it can result in debilitating distress or physical illness (American Institute of Stress, n.d.). The American Psychological Association (2016) lists a number of costs resulting from teacher victimization including teachers leaving the field prematurely, lost wages and Bureau of Workman's Compensation claims. In total, teacher victimization was reported to cost 2 billion dollars annually.

In the most severe situations, these feelings of depression and discouragement may end up in suicide. Rappaport (2010) reports that a teacher committed suicide upon learning that he had been rated as a "less than effective teacher" by a teacher evaluation system. The teacher was reported to love teaching and while the reasons for suicide are often never identified, Rappaport attributes this teacher's death in part due to the performance rating. Specifically, when a teacher gives so much in the classroom and then is unappreciated, it sets up a very high risk scenario that may end tragically.

Potential Interventions for Addressing Stressors in the School Setting

The stress experienced by educators is a significant issue and warrants attention. It is costly to the well-being of the educator, morale and fiscally. There are a number of strategies that

may be helpful for alleviation of the stress experienced by educators in the school setting. These include strategies at the societal level, educator preparation at the university level, and at the district level.

Societal Intervention

It is imperative that those who do not directly work in the school setting have an understanding of stressful educator experiences and the resulting implications and costs. The responsibilities of the educator must not be minimized and considered similar to those experienced individuals employed in the medical field, social services/mental health and law enforcement. While the direct victimization of educators may be observable and at times prosecuted, vicarious trauma has also become a serious, and sometimes, silent problem. Educators may be expected to demonstrate outward composure and resilience, when internally, they are in a great deal of unrecognized distress.

The Federal Commission on School Safety (2018) submitted a comprehensive analysis of issues and recommendations regarding school violence. The focus of that report was on procedures and processes that would facilitate the safety of students as well as early identification of students who were at risk. Should the recommendations made by this Commission be implemented, they will undoubtedly improve school climate for all stakeholders including educators. Similarly, ESSA (2015) supports the implementation of School Wide Positive Behavioral Intervention Support (SW- PBIS) in an effort to improve school climate (Von Ravensberg and Blakely, 2017). While these are all laudable initiatives that will improve school climate, concerns remain about whether this will actually address the broader circumstances involved in educator stress and victimization and are not directly addressed in these broader legislative actions.

Because the serious issues facing educators are very diverse and often go unacknowledged, it is important for professional organizations such as the National Education Association, American Association of Colleges for Teacher Education, American Association of School Administrators, School Superintendents' Association and the American Psychological Association and other related educator professional organizations to advocate for the health and well-being of educators as well as students in the current school setting through education and policy change. It is important for these various professional organizations to bring this important issue to the attention of federal and state legislators so that possible strategies might be considered that will support teachers, administrators and related services staff. It is important to reframe society's perception of the educator from a disseminator of academic content to a broader and more comprehensive identification of the serious issues that educators must address on a daily basis.

There are many possible solutions to this complex problem; however, funding that would support mental health strategies for educators in the school setting could be explored. This funding might initially take the form of research grants that could investigate needs and viable strategies that would enhance educator feelings of self-efficacy, support and job satisfaction. There are a number of educational requirements that, while seemingly far removed from victimization, place undue stressors on educators. Teacher evaluation systems, high stakes student testing and paperwork compliance are areas that need to be reviewed and considered. Have these initiatives truly resulted in improvements and if so, are there ways that they might be done such that there is less pressure on the teachers, administrators and students?

Educator Preparation Programs

Mental health professions recognize and require the professional to be reflective and acknowledge when their own well-being might negatively impact the therapeutic relationship with the client. The American Psychological Association (2017) Ethical Principles of Psychologists and Code of Conduct requires that psychologists recognize when personal problems may impact their ability to provide psychological services to their clients and take appropriate measures to determine the appropriate course of action. While accreditation entities such as the Council for the Accreditation of Educator Preparation (2015) require that educator preparation programs establish and monitor attributes and dispositions, direct emphasis upon maintenance of educator well-being and mental health may not be included in the preparation programs. Perhaps this is because teacher and administrator preparation programs have not traditionally addressed these issues and believe it is the responsibility of educators to independently seek professional assistance when in distress. Unfortunately, the stigma attached to seeking mental health or medical services for stress plus the perceived weakness on the part of the educator may prohibit timely intervention. It may be helpful for teacher and administrator preparation programs to examine the strategies utilized by school counseling and determine if increased collaboration might be of benefit.

District Level

At the district level, there are a number of existing collaborative teams that offer the opportunity for educators to consult and collaborate about individual student issues. For example, schools are expected to implement Multi-Tiered Systems of Support, Response to Intervention strategies (Fletcher and Vaughn, 2009), and Positive Behavioral Interventions and Supports (Ohio Department of Education, 2019) that will enhance learning at the district, building and classroom levels. Special education has meetings for evaluation and reviews of

IEP's. A variety of other formal and informal meetings occur at the building level; however, the meetings are usually focused upon the status of the child rather than providing a safe venue for teachers to share concerns from their perspectives. In addition, these meetings may not offer a great deal of support for the teacher and rather add to the responsibilities of an already stressed educator. To that end, educators must be free to request additional support from building administrators as needed. This support may take the form of an additional assistant or consultation with behavior specialists.

Sommer (2008) stated that counselor education has an ethical responsibility to prepare counselors to recognize vicarious trauma in the counselor during supervision and address this as needed. Supervision for most mental health professionals consists of weekly time periods during which the counselor and the supervisor can discuss client issues in a one to one setting. This type of structured meeting time allows for monitoring and assistance with any issues that may be influencing client progress. On the other hand, there is no such expected or structured time for teachers to meet in a one to one setting with administrators or for administrators to meet with assistant superintendents or other administrators. Individual meetings that take place may not be framed as learning or growth opportunities for the teacher, but rather as reactive to a specific difficult situation. Therefore, the stressors that an educator may be experiencing may well go unnoticed or even be perceived as a weakness on the part of the teacher or administrator.

Admittedly, the ratio of teachers to administrator makes this level of supervision and communication difficult and even impossible. In addition, the administrator serves as the teacher evaluator so the teacher may be very reluctant to share concerns; however, it may be possible for this type of communication or sharing to take place in a different manner with a different structure or with different personnel. Administrators themselves are often in very stressful

situations and they also need resources and a safe manner to share concerns. In addition, it is hoped that both administrators and educators would frame these discussions as opportunities as opposed to vulnerabilities.

At a district level, it may be beneficial if districts would implement specific strategies for creation of healthy workplace environments. Professional development opportunities and consultation with human resource and experts in the field of creation of a healthy workplace environment might be a good initial step. It should be noted that there is research that indicates that while exposure to stressful or traumatic situations may be inevitable, it can sometimes be utilized as an opportunity for personal growth and the development of resilience (Pack, 2014). Educators may need assistance in reframing what seem like very negative experiences into recognition that their experiences may have contributed to their professional growth and development.

In summary, it can be stated that educators and related services school personnel may experience a great deal of stress with limited communication, coping and supports. Limited attention has been given to this much needed area; however, there are a number of strategies that may prove to be of benefit to those that find themselves on the front lines of very difficult situations.

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Authors:

Evonn Welton
Curricular & Instructional Studies
University of Akron
Akron, OH 44325
ewelton@uakron.edu

Shernavaz Vakil
Curricular & Instructional Studies
University of Akron
Akron, OH 44325
svakil@uakron.edu

Lynn Kline
Curricular & Instructional Studies
University of Akron
Akron, OH 44325
kline@uakron.edu

Initiative in ESL Student Teaching: Three Perspectives

Timothy A. Micek, DA.

* Correspondence:
Timothy A. Micek, DA
Ohio Dominican
University/1216 Sunbury
Road/Columbus, OH 43219
micekt@ohiodominican.edu
(614) 251-4675 O;
Ohio Dominican University
513-745-4222
Full list of author
information is available at
the end of the article

Abstract:

Initiative in ESL student teaching was studied. There were three sets of participants: two student teachers, two cooperating teachers, and two university supervisors. All participants were surveyed before student teaching; student teachers and cooperating teachers were surveyed afterwards. Results indicate that (a) initiative is seen as (very) important by all stakeholders and (b) its importance increases over time. Although the overall ratings were generally very close, individual ratings were more varied. Participants' comments (a) help to explain their ratings and (b) reveal differences in their views. Results have implications for ESL teacher educators.

Introduction

The 2019 Ohio TESOL conference has a three-part theme: “Collaborate! Educate! Initiate!” Over the years, a great deal has been written about collaboration, especially between ESL and content teachers (e.g., Davison, 2006; DelliCarpini, 2008; Pawan & Ortlof, 2011). Education, of course, is what TESOL professionals do: they may be in TESOL specifically, but they are in education generally. The third part of the theme, though, may give one pause: what is initiative, and what is its place in TESOL? Assuming from the conference theme that initiative plays a major role in TESOL, one might ask how it is viewed, or experienced, in a critical part of ESL teacher education, student teaching. A study was conducted to address this question.

A web search for the definition of *initiative* gets “about 595,000,000” results. The first result comes from Lexico “Powered by Oxford,” so it seems a good choice. Lexico list four meanings of *initiative*, the first two of which seem most relevant: (a) the ability to assess and initiate things independently and (b) the power or opportunity to act or take charge before others do (*initiative* as defined at lexico.com). With no definition in the literature,

(we must rely on this one. Not only is there no formal definition or description of initiative in the literature, but very little has been written about the construct in TESOL or, for that matter, in education generally. Multiple searches on the topic yielded few results. Included in the search was the subject *professional dispositions*, under which the construct might expected to be found.

Three studies addressed initiative-related themes, two of them involving action or classroom research. Rinchen (2009) studied effects of “moving teaching and learning from teacher-centered classes to independent learning” in Bhutan. Participants were 28 first-year science student teachers, and data were gathered from a variety of sources. Rinchen found that participants were “more open to discussion and interaction,” and their write-ups and views “more analytical and reflective,” after the intervention. Roux and Valladares (2014) carried out a professional development (PD) needs analysis of secondary English language teachers in northeast Mexico and found that “stand-alone and degree courses” were the only PD activities that participants had experienced. Although most of the teachers indicated that training courses had a great impact on teaching, “some of them valued the impact of [PD] practices that involve autonomy, reflection and collaboration.” In a study of content area (CA) instruction in ESL student teaching, Micek and Spackman (2018) found initiative to be the single most important variable in teacher candidates’ preparation to deliver this type of instruction, with half of the participants indicating that, whether or not their cooperating teacher helped them, they had to prepare CA lessons on their own (p. 28).

Despite the lack of research into the topic, initiative has played a role in the evaluation of licensure candidates in the field. Praxis III: Classroom Performance Assessments for Beginning Teachers “comprises a system for assessing the skills of beginning teachers in their own

classroom settings” (CGT&L, 2013). Praxis III has four interrelated domains, including Teacher Professionalism (ETS, 2000, p. 6). At my institution, education faculty changed that heading to Personal and Professional Qualities and developed five indicators for it (V. McCormack, personal communication, October 11, 2019), the second one being “Demonstrated initiative, responsibility, and self-directedness.” The evaluation was used in both early and methods field experience

Initiative, per se, is not part of student teaching evaluation in Ohio, but it is relevant. The Candidate Preservice Assessment of Student Teaching (CPAST) is “a valid and reliable formative and summative assessment” that is used by many educator preparation programs (EPPs) in the state. The assessment has two subscales, Pedagogy (13 rows) and Dispositions (eight rows), and “each of the 21 rows contains detailed descriptors of observable, measurable behaviors to guide scoring decisions” (TOSU, 2019). Within Dispositions, a number of different phrases are used to describe those behaviors, but only two of them, “Takes action(s) based upon identified needs while following district protocols” (part of Exceeds Expectations for T. Advocacy to Meet the Needs of Learners or for the Teaching Profession), and “Proactively seeks opportunities for feedback from other professionals” (part of Exceeds Expectations for U. Responds Positively to Feedback), resonate with the idea of initiative.

Although initiative would seem to be important, then, very little has been written about the topic. The present study seeks to fill that gap in the literature by addressing the following questions:

1. How do student teachers, cooperating teachers, and university supervisors view initiative in ESL student teaching—and why?

2. How, if at all, do those views change over the course of the student teaching experience—and why?

Method

Participants

There were three sets of participants: two licensure candidates, or student teachers (STs); two cooperating teachers (CTs); and two university supervisors (USs). One candidate, Helen (like all names, a pseudonym) was a 35-year old female. She was a non-native speaker of English (NNSE) who had eight years' experience teaching pre-kindergarten "and even younger students" and five years "mentoring preschool/prekindergarten teachers." The other candidate, Edward, was a 28-year old male. Like the remaining participants, he was a native speaker of English (NSE) who had 10 years "part-time ESOL teaching, tutoring, and instructional assisting" experience. Both candidates were excellent students: each carried a GPA of 3.963 into student teaching. Helen did her student teaching at a suburban middle school, Edward his at an urban high school. Helen's CT, Bev, was a 45-year old female who had taught 16 years of middle school and high school ESL and Spanish. Edward's CT was a 64 year-old female who had taught a variety of subjects, including high school Special Education (14 years) and ESL (19 years), for over 33 years. One university supervisor, Michael, was a 64 year-old male with 25 years of experience in ESOL teacher education. The other university supervisor, Angela, was a 70-year old female with 35 years of experience teaching ESL and English and several years supervising student teachers. Only the former US was supervising student teachers during the semester studied; the other was included to expand university supervisor views of the topic.

Materials and Procedure

Before student teaching, all participants were surveyed about their views of initiative in student teaching with a questionnaire. In addition to demographic information, the questionnaire asked participants to rate the importance of initiative in student teaching generally and on five individual criteria: Creating the learning environment, Planning for instruction, Delivering instruction, Assessment, and Professionalism. The individual criteria were drawn from four relevant TESOL assessments or standards: in alphabetical order, CCAST, edTPA (SCALE, 2016), Praxis III, and the TESOL standards for P-12 ESL teacher education (TESOL, 2010). (Except for the demographic section, the questionnaire is replicated in Results.) After student teaching, the STs and CTs were surveyed about the topic. Because only one of the USs was supervising that semester, no post- student teaching survey was administered to them. Results were analyzed for both general and individual ratings, including comments.

Results

Student Teachers

ST responses to the pre-student teaching questionnaire varied somewhat according to the (type of) criterion. On the general criterion, they were one score apart, with Helen giving it a 4 and Edward a 3. Helen's and Edwards's comments scores reveal both similarities and differences in the way they viewed initiative before student teaching. For Helen, student teaching involved initiative, but it also involved collaboration and transaction. The latter, however, would not occur without her taking initiative:

This is a bit of a subjective question. I take initiative with everything I do so this is natural for me. Student teaching is not about following directions and trying to adapt to the cooperating teacher's style Student teaching is also about collaboration and exchange of knowledge. While there may be new things that I will bring to the classroom my cooperating

teacher will share her classroom experience with me and that is extremely valuable. Without me taking the initiative to ask questions and offer the latest educational perspectives, this exchange of knowledge may not happen

For Edward, student teachers must exercise initiative, but they must also take time to observe the classroom in which they have been placed:

Student teachers will get the most out of the experience if they take the initiative in asking questions of their CT and other school personnel, and initiating instructional activities with students, starting with one-on-one and small group activities, and eventually moving on to full classroom teaching

However . . . , as someone who has done a fair deal of teaching without much observation, direction, or coaching from other experienced professionals, I am most eager to sit back and observe effective instruction from my CT

Differences between candidate ratings of initiative are reflected in their views of the construct.

On the individual criteria, the candidates were closer, with Helen averaging 3.4 and Edward 2.9 (a difference of 0.5), yet they were two scores apart on two of those criteria, Creating the learning environment and Professionalism. (Edward gave both a 2 and Helen both a 4.) Candidate differences on Creating the learning environment reflect their different understandings of the construct. “Without a question,” Helen commented, “I want to make the students feel positive and willing to learn when I am in their classroom.” Edward, on the other hand, includes physical aspects of the environment in his response:

If learning environment primarily means the classroom space and layout, then I believe I may take some initiative in this area, but not much

If learning environment includes other things, such as fostering positive student attitudes towards learning, or facilitating cooperation and inclusivity in group activities, then I believe I have a far greater responsibility to exercise greater initiative in these areas

It is not surprising that the ratings of the two STs were so far apart (two scores) on this criterion, given the different meanings they attached to the construct.

Because Helen made no comment, it is impossible to explain the difference between candidate ratings of Professionalism (two scores), but Edward's comment explains why he gave it a 2:

I do not personally have much knowledge of how I can work on advocacy, communication, and professional development during my student teaching. I will initiate in asking questions of the CT and other school personnel about this, but at this time, I am unaware of what I can do to initiate professionalism. Of course, I have the full intention of fulfilling my responsibility to maintain professional standards of appearance, demeanor, and communication throughout my student teaching.

Clearly, lack of knowledge was responsible for Edward's low rating of this criterion.

Results of the post-student teaching questionnaire were somewhat different. On the general rating, candidates were one-half score apart, with Helen checking 4 and Edward 3.5.

Comments indicate that the value of initiative depends on the CT. For Helen, it was productive:

Practicing initiative during student teaching is helpful and necessary. At the beginning, it helped me build rapport with my cooperating teacher and gain her trust. Seeing my confidence and independence in the classroom gave my CT reassurance that I am a partner she can trust and rely on. Having this type of relationship is important when you know that there is a whole semester ahead of you.

For Edward, however, initiative depends on (a) how one defines the term and (b) the relationship between the ST and the CT. ‘I’m a little unclear about these questions,’ he begins, ‘because it depends on the definition of “initiative” being used.’ He gives the two Google definitions cited above and continues:

If the first definition is used, then I believe initiative is very important (4) to student teaching

If the second definition is used my answer may change to be somewhat less important (3 or less). If initiative is about power and taking charge before others, then I believe in certain student teaching experiences this may be problematic. Some mentors may feel they want their class to operate a certain way, and if the student teacher “takes initiative” to change that, then there may be opportunity for conflict to arise. Other mentors may be more flexible, and even encourage student teachers to take initiative independently whenever they have the chance. It all depends on [whom] the candidate is working with, and in what context.

It may go without saying that for Edward, exercising initiative was “problematic.”

Results for the individual criteria were quite different: whereas Helen averaged 4, Edward averaged 2.8, a difference of more than a full score (1.2). Ratings were two scores apart on two individual criteria, Planning for instruction and Assessment. Candidates’ comments do little to explain differences on individual criteria: only Edward made them. For Planning, he wrote, “I tried to [initiate] planning for instruction, but felt restricted by the demands of the cooperating teacher. In certain classes I was able to exercise more initiative, but not the full level of initiative I had hoped for.” For Assessment, he wrote, “I took initiative to build grading rubrics and assign score values to assignments. However, the requirements of those assignments were restricted to what the CT wanted.”

As Table 1 shows, ST ratings, both general and specific, changed relatively little over the course of student teaching. The general rating rose slightly, from 3.50 to 3.75, a difference of .25. Similarly, average scores on individual criteria rose slightly, from 3.15 to 3.40, also a difference of .25. One individual criterion, Professionalism, increased a full score from pre- (3.0) to post- (4.0). This increase can be attributed to Edward, who gave Professionalism 2 before student teaching and 4 afterwards. This change is addressed below.

Table 1

Pre- and Post-Student Teaching Questionnaires—Student Teachers

Question	Pre	Post	Difference
1. On a scale of 1 to 4, with 1 being very little and 4 being a lot, how important do you think it is for candidates to exercise initiative in student teaching?	3.50	3.75	.25
2. Why do you think this is so? (Use as much space as you would like.)			
3. On a scale of 1 to 4, with 1 being very little and 4 being a lot, to what extent do you think you will exercise initiative in each of the following areas?			
a. Creating the learning environment	3.00	3.50	.50
Comment:			
b. Planning for instruction	3.25	3.00	-.25
Comment:			
c. Delivering instruction	3.25	3.50	.25
Comment:			
d. Assessment	3.25	3.00	-.25

Comment:			
e. Professionalism*	3.00	4.00	1.00
Comment:			
4. What else would you like to say about initiative in student teaching? (Use as much space as you would like.)			

*This may include advocacy, communication, and professional development.

In his pre-student teaching questionnaire, Edward said that he little knew how to “work on advocacy, communication, and professional development during [his] student teaching.” In his post- questionnaire, he explained his score as follows:

I took initiative to shadow at eight other schools in three districts as an opportunity for professional development at the end of my student teaching. I also found myself frequently advocating on students’ behalf when I found that they were not receiving the assistance they required. I also took frequent initiative to communicate with my CT and other school staff about a range of issues.

Interestingly, a significant portion of the initiative that Edward exercised in terms of professionalism appeared to occur outside, and at the end, of student teaching.

Cooperating Teachers

The CTs were fairly close in their ratings of initiative at the beginning of student teaching. They were one score apart on the general rating, with Bev giving it a 4 and Sue a 3. Their comments help to explain the difference between these ratings. Bev stresses the importance of student teachers believing in their teaching:

I believe [initiative is] so important because it's hard to teach a lesson that isn't your own. To be a good/engaging teacher, I think it's so important to believe in what you're teaching; if you see the value, then the students are more likely to see it as well.

Sue, on the other hand, sees the need for balance: “Student teaching is a time to learn and explore,” she wrote. “There should be time to learn from the CT and . . . time to try new ideas and explore new ideas, technology, etc. Some routines should stay the same.” Given their different views of initiative in student teaching, it is not surprising that Bev and Sue rated its importance differently.

The CTs were even closer on the individual criteria: Bev averaged 3.4 and Sue 3.6. They never more than a score apart on these criteria, and they had identical scores (4) for two of them, Delivering Instruction and Professionalism. (There was only one CT comment on the individual criteria. Bev, who gave Creating the learning environment a 2, wrote, “We were 1/2 way through the year, so the learning environment is already well-established.”)

The CTs were also close in their ratings after student teaching. Their general ratings were the same (4), for reasons similar to the ones they gave before student teaching. Whereas Bev stresses engagement (“I think it is important for candidates to engage fully in the teaching experience”), Sue believes in balance (“I believe one of the best ways to learn is to ask questions and then try out the theory. Then adjust the process. This must be balanced with listening and following advice”). Their individual ratings were similar, with Bev averaging 3.8 and Sue 3.4. They agreed on three of the five individual criteria, and they were only one point apart on the other two. They made no comments on these criteria.

As Table 2 shows, there was little change in CT views of initiative from the beginning to the end of student teaching. The general ratings increased by one-half score (from 3.5 to 4), and the averages of the individual scores remained the same, 3.5.

Table 2

Pre- and Post-Student Teaching Questionnaires—Cooperating Teachers

Question	Pre	Post	Difference
1. On a scale of 1 to 4, with 1 being very little and 4 being a lot, how important do you think it is for candidates to exercise initiative in student teaching?	3.50	4.00	.50
2. Why do you think this is so? (Use as much space as you would like.)			
3. On a scale of 1 to 4, with 1 being very little and 4 being a lot, to what extent do you think you will exercise initiative in each of the following areas?			
a. Creating the learning environment	2.50	3.00	.50
Comment:			
b. Planning for instruction	3.50	3.50	--
Comment:			
c. Delivering instruction	4.00	4.00	--
Comment:			
d. Assessment	3.50	3.50	--
Comment:			
e. Professionalism*	4.00	3.50	-.50
Comment:			

4. What else would you like to say about initiative in student teaching? (Use as much space as you would like.)

*This may include advocacy, communication, and professional development.

Final comments reveal differences between the student teachers as well as the cooperating teachers. Whereas Bev stressed the role of confidence (“My student teacher has so much confidence and I think this confidence plays a part in exercising initiative”), Sue, again, wanted more balance (“I liked the initiative that was presented. I would have liked a little more listening. I feel he didn’t value some of my guidance”).

University Supervisors

The university supervisors agreed to a great extent about the role of initiative in ESL student teaching. Their overall ratings were the same (3) (and their reasoning was similar), and the averages of their individual ratings were close, 3.4 for Angela and 3.8 for Michael. Their scores were the same for four of the five individual criteria. The only criterion on which they disagreed was Assessment. Whereas Michael gave it a 4 and said, “I think [STs will do their own testing], but I have seen CTs get involved—and then there are standardized tests,” Angela gave it a 2 and said, “STs have quite a bit of freedom with informal assessments, but not much [with] formal.” Angela’s final comment reveals the importance of both personality and team work in student teaching:

So much of the [ST’s opportunity] to use their own initiative depends on the personality of the CT and also how well they work together as a team, which no one can really judge accurately in advance. Some CTs are more willing to be flexible, others not so much.

Michael made a similar final comment.

As Table 3 indicates, the importance of initiative increased slightly or somewhat for both student teachers (7%) and cooperating teachers (14%) over the course of student teaching. (Post-student teaching questionnaires were not administered to university supervisors.)

Table 3

Differences Between Pre- and Post-Student Teaching Questionnaires—All Participants

Participants	Pre-	Post-	Difference	Percent
ST	3.50	3.75	.25	7
CT	3.50	4.00	.50	14
US	3.00	--	--	--

Generally speaking, these differences are reflected in participant comments.

Discussion

This study was conducted to investigate (a) how major stakeholders in ESL student teaching (student teachers, cooperating teachers, and university supervisors) view initiative and (b) how, if at all, those views change over time. Results indicate that (a) initiative is seen as (very) important by all stakeholders and (b) its importance increases slightly or somewhat over time. (Although the overall ratings were generally very close, individual ratings were more varied, with some as much as two scores apart.) Participant comments help to explain their ratings. They also reveal differences in the ways that major stakeholders view initiative in ESL student teaching. Before the experience, for example, the STs recognized the importance of initiative, but they also cited the importance of (a) “collaboration and exchange of knowledge” with, and (b) observation of, the CT. Afterwards, they wrote that the value of their initiative depended on (a) how the CT received it and (b) how the term is defined. Similarly, before

student teaching, the CTs saw needs for STs to (a) believe in themselves and (b) balance their needs or desires with those of the CT. Afterwards, they cited the importance of engagement as well as balance. The USs saw the same need for STs to balance their needs with those of their CT.

Because few related studies have been done, it is difficult to contextualize these findings, but they appear to confirm what the work of Rinchen (2009), Micek and Spackman (2018), and Roux and Valladares (2014), especially the latter, who found that some teachers “valued the impact of professional development practices that involve autonomy, reflection and collaboration.” The same might be said of the participants in this study.

These results must be interpreted carefully, given the study’s limitations (and weaknesses). First, the main construct of the study, initiative, was not defined for participants, who were asked to respond to questionnaires about the topic. (Initiative was not defined in the study because it is not defined in the literature.) Having different definitions of the construct may have led participants to respond differently about it. Second, the study has a small number of participants—only two student teachers, two cooperating teachers, and two university supervisors. A larger number of participants would produce more robust findings. Furthermore, being graduate students, the student teachers are not representative of all student teachers: they are older and typically more mature than most, undergraduate student teachers. Finally, although the responses of each participant must be taken seriously, it is important to recognize that these responses reflect not just the individuals involved but the relationships between them, especially those between CT and ST.

Despite these limitations, these findings are important. Although dispositions are an important part of TESOL, and initiative would appear to be a disposition, little research has been

done on the topic. This is a first look at the topic, and it may also serve as a blueprint for other dispositions. The study indicates that although the primary stakeholders in ESL student teaching— student teachers, cooperating teachers, and university supervisors—play different roles in the process, they have similar, though not identical, views of the role of initiative in the process.

Theoretically speaking, this study may have established a link between initiative and effective student teaching: both student teachers exercised a high level of initiative and both got As in the course. It also raises questions about variety of factors in ESL student teaching, including teaching philosophy, personality, and experience. Practically speaking, if TESOL educators are aware that (a) CTs and STs may view initiative differently, (b) these views may depend, in part, on the relationship between these parties, and (c) these views may change over time, they will be better prepared to mentor student teachers. Ultimately, these educators will be able to help their students “Collaborate! Educate! Initiate!”

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Author:

Timothy A. Micek, DA

Ohio Dominican University/1216 Sunbury Road/Columbus, OH 43219

micekt@ohiodominican.edu

(614) 251-4675 0;

Ohio Dominican University

Tim Micek is Associate Professor, Division of Education, and Coordinator, MATESOL, at Ohio Dominican University. He teaches a variety of TESOL courses, and his research interests include program administration and development, clinical supervision, and professional dispositions.

Project-Based Learning as a Viable Tier One Strategy Within a Positive Behavioral Intervention Systems Model

Thomas Knestrict, Ed.D., Elizabeth Brown, M.Ed., Michael Eubanks, M.Ed., & Lauren Martin, M.Ed.

* Correspondence:

Thomas Knestrict, Ed.D.
Director of Early and Middle
Childhood
7781 West Bay Drive
Mason, Ohio 45040
513-238-4024
knestrictt@xavier.edu
Xavier University
Full list of author
information is available at
the end of the article

Abstract:

Project Based Learning (PBL) has been a valid pedagogical strategy for many years (Chard & Katz, 1998). It has been investigated as a legitimate teaching strategy and has been utilized by early childhood programs, Montessori and Reggio classrooms. Teachers have noticed a higher level of engagement, time on task, academic initiative when using this method (Azevedo,2015). They have also noticed fewer behavioral problems during the times they used this method of instruction (Helm, 2013). PBIS is a ubiquitous framework in schools and is used in over 75% of all schools across the nation. It is a multilevel framework for addressing problematic behaviors using positive methods and an increasingly targeted system of supports. Some critics notice an emphasis on behavioral strategies and the lack of a fully developed and truly universal Tier One approach (Knestrict, 2018). This study investigates the use of PBL as a part of an effective Tier one approach to preventing behavior through a higher level of engagement, and a greater level of commitment to tasks and a higher level of academic proactivity. This study found both quantitative and qualitative data to support the use of PBL as an effective Tier One strategy increasing student engagement significantly and decreasing problematic behaviors.

Introduction

“Tier One” is often configured as a school wide set of interventions, largely behavioral in nature, and said to provide enough support and structure so that 85% of the student population would need nothing else in terms of behavioral support (McIntosh, Jerin, Sterett, Mercer, Strickland-Cohen, Horner, 2015). An increase in restrictiveness and the development of a more specific and individualized focus is seen in “Tier Two” and “Tier Three” interventions. Though the model calls for a more robust set of strategies, tier one interventions are often no more than a system of rewards and punishments that control behavior so that instruction can take place (Knestrict, 2018)...

It is the purpose of this study to investigate the idea that tier one interventions can and should be more than a system of reinforcements and punishments and should feature interventions that focus on what we do “with” children to encourage engagement, autonomy, self-regulation and deep learning. PBIS.org states that tier one systems should have clear behavioral expectations that 80% of the students should be able to identify by the end of the year. Tier one systems should also be focused on teaching these new behaviors by teaching them directly, modeling them, practicing them and practicing them in different contexts. But there is no consideration of any pedagogical practice beyond generalities of teaching, modeling and practicing. Also, it has been noted by several researchers that when we begin constructing the idea of “intervention” this almost always means changing something within the student (Knestrict, 2018). Our study is looking at environmental strategies that can be built into a tier one system of supports. Specifically, a project approach for teaching that has been shown to increase student engagement (Amabile, 1993; Chard, 1998; Cooper, 2014).

Pedagogical considerations are seldom considered as part of a “Tier One” system of supports. Research has suggested that when pedagogy is considered, and is developmentally appropriate, interactive and student directed you increase the likelihood that students will be actively engaged in instruction (Hyson, 2008). The authors go on to state, “student engagement is one of the most well-established predictors of achievement. When students are engaged in academic instruction, they tend to have greater academic and social success” (p.7). Scott, Hirn & Alter (2014) found that this relationship between pedagogy and engagement was negatively correlated to disruptive behavior and that pedagogy is the logical “first target” for assessment in cases of students with behavioral issues. These findings confirm earlier studies that identify the

legitimacy of considering pedagogy before behavioral intervention perspectives (Brophy, 1986; Farbum & Kapman 2005).

The study began with these research questions:

1. Is the use of the Project Based Learning (PBL) approach correlated with an increased level of engagement in learning as measured by observations, enthusiasm, task completion and time on task when measured against more traditional teaching methods?

2. Does the PBL approach qualify as an effective Tier One support as measured using the 85% measure used in PBIS research models?

Maximizing Tier One Supports

Tier One supports are designed to address the behavioral needs of 85% of the students in a given school. They are also school wide. These supports are often configured as a set of procedures, rules and systems of reward. Tier one applies to all students. So even if a student is being supported on tier two or three, they are still also under the influence of tier one supports. They don't disappear when a more restrictive level of support is required.

Knestrick (2018) found that what was being presented as comprehensive tier one systems in most schools were often nothing more than systems of bribes designed to quiet the classroom and encourage higher test score achievement. There was little evidence of a comprehensive well planned, robust tier one support system in most of the schools in this study. A multilevel support system should be founded on a comprehensive tier one system that encourages an internal locus of control, high levels of engagement, intellectual autonomy, proactivity, language and allows for some control over the environment by the students. This more responsive classroom design has been shown to increase engagement which is negatively correlated with disruptive behavior (Scott, Hirn, & Alter, 2014). (Scott, et al) also support the idea of looking at instruction and

pedagogy as a logical first target for assessment in cases of students with behavioral issues. A comprehensive Tier One system has been shown to be an adequate level of support for up to 85% of students (McIntosh, Jerin, Sterett, Mercer, Strickland-Cohen, Horner, 2015).

Pedagogical Considerations: Why Study This Method?

Many studies support the use of Project Based Learning (PBL) as an effective way to increase student engagement, commitment to task (Azevedo, 2015), autonomy and self-regulation (Lillard, 2007), and improving an internal locus of control (Reeve, 2014).

Gandini, L. (2008) states

“Projects provide the backbone of the children’s learning experiences. They are based on the strong conviction that learning by doing is of great importance and that to discuss in a group and revisit ideas and experiences is the premier way of gaining a better understanding and learning” (p.7).

Grant (2002) found that PBL learners are more autonomous as they construct personally meaningful artifacts that are representative of their learning. This is a symbolic act. When language is attached to this learning the concepts they are remembered (Vygotsky, 1979). Project Based Learning is defined as an in-depth investigation of a topic worth learning more about. Posed either by children, the teacher, or a teacher working with children. PBL also includes children making sense of an experience, theorizing, hypothesizing, synthesizing, predicting, checking predictions, finding things out, striving for accuracy, learning to be empirical, understanding cause and effect, persistence, predicting others wishes and feelings, attempting to understand the thoughts and feelings of others.

Units Taught During the Study

The first-grade classroom in this study decided they wanted to investigate birds and bird habitats. As a result, they brainstormed multiple ideas for study that went in multiple directions. The teacher skillfully facilitated a more focused study while still maintaining the integrity of the students wishes, this process is well documented in (Chard & Katz, 1998). In the end the students followed this interest to an in depth, four-week unit on the study of birds and bird habitat. The unit covered 3 English and Language Arts standards, 7 Science standards, four writing standards, five social studies standards and at least five of the states proposed new standards addressing affective skills. This is a rich and rigorous academic accomplishment that actually achieves two purposes. The first is that it covers new curricula material. The second is that it reinforces past learning as well. This creates a perfect situation for maximizing the assimilation and accommodation process (Piaget, 1963) and creates new language, which is the hallmark of this process of integrating new learning with previous learning (Vygotsky, 1977).

The first kindergarten classroom was interested in developing a service project that would entail collecting books and giving them to families who could not afford books. The unit lasted for 60 days. The unit required the following skill sets: planning how to collect the books, store them, organize them, develop an advertising program to let people know that they were collecting books and a marketing plan to inform people how they could get books for their family. In the end this resulted in the students following their interest into organization planning, print and video advertising, planning and writing copy for the videos and print advertising, meeting with adults to plan and implement the distribution of the collected books as well as being the “talent” in the commercials themselves. This unit addressed eleven English/language arts standards, five math standards and four of the proposed new affective skills standards. What was most interesting about this group was the level of language that was created as a product of

this unit. It required clear communication and the development of teamwork and community to achieve the service outcomes the students were aiming for. There were several times during observations when it was necessary for a student to explain a process or procedure to another student. This “scaffolding” was what Vygotsky identified as a crucial element in new learning (Vygotsky, 1979).

The second kindergarten classroom expressed an interest in learning more about robots. This brainstormed into learning about computers, robots, industrial application of robots, the building of robots, the use of coding and robot function, interviewing robot experts, experiencing the programming of robots. This resulted in an in-depth four-week unit of: types of robots, uses of robots, constructing robots, writing code for robot function, interviewing robot experts, experimenting of various uses and functions of robots, writing about robots, conversing about robots, investigating the future of robot use. In the end they covered five writing standards, three reading standards, 5 speech and language standards, one government/civic standard, two math standards and five of the proposed affective skills standards. In this truly integrated unit the students, unknowingly participated in a unit that covered material from the subjects of math, science, English/language arts, civics, and writing.

Anecdotally, these teachers were already collecting data about the effectiveness of this method for students who typically struggle behaviorally in school. They noticed that highly engaged students seek to identify the essential requirements for learning (task analysis), set outcome or process goals (goal setting), and develop a plan for learning (proactivity). Students who proactively engage in goal setting and planning prior to learning are more likely aware of the subtleties of a learning activity as well as the outcomes they hope to accomplish, and methods used to attain these goals. For the purpose of this study “engagement” is defined as

sustained focus on task for at least 15 minutes at a time with the ability to discuss the concepts with peers and observers as well as no behavioral events (Azevedo, 2015). They also observed a noticeable enthusiasm during the learning process. However, studying a project-based approach had never been looked at from the perspective as a behavioral intervention.

Methods

The experimental design of the study consisted of the rating and observation of student behavior during the implementation of a traditional unit of instruction as compared to a Project Based unit of instruction. The working hypothesis was that Project Based Learning was a more engaging pedagogy and it would result in higher interest and investment by the students in the learning and result in a subsequent decrease in disruptive or inappropriate behavior.

Working Hypotheses

This study proceeded with the following hypotheses:

1. When comparing student engagement during a traditionally presented unit of learning and a project-based unit of instruction the level of engagement, as evidenced by the identified engagement characteristics of time on task, discussion with peers/adults, observed enthusiasm, proactivity, and observed expected behaviors will be greater during the project based experience.
2. There is a negative correlation between elevated engaged behavior and inappropriate behaviors.
3. Student feedback will reveal that the students enjoy the project-based experience more than the traditionally delivered unit.

Participants

Students were members of three urban classrooms in two separate large school districts. Two kindergarten classrooms each with 30 students. The third classroom was a first grade with 30 students (N=90). Age ranged from 5 years to 7 years old. The teachers in each classroom were experienced teachers (2-5 years minimum experience) and were also experienced in using the project-based approach in teaching. The unit that was being used for this study was the first project-based experience in that school year that these students had experienced.

Traditional Unit Experience

Initially we observed and rated student behavior and experience during the teaching of a traditionally delivered social studies unit. It lasted for 10 days and was taught once a day for 45 minutes each day. “Traditionally delivered” is defined for the purpose of this study as a unit of learning that is chosen, designed, implemented and measured by the teacher. It consists of at least 50% reading or information imparted by the teacher to the students and the activities designed for reinforcement are more didactic than experiential and determined by the teacher. There is also a set time for beginning the instruction and a predetermined time for the instruction to end.

Project Based Experience

After the teaching and measuring of the traditional unit the students were presented with a project-based experience. Since the topic and the direction of this type of unit is in the control of students it tends to take a longer period of time to complete. The Project Approach refers to a set of teaching strategies which enable teachers to guide children through in-depth studies of real-world topic of their choosing. A project is defined as an in-depth investigation of a real-

world topic worthy of children’s attention and effort (Chard& Katz, 1998). The Project Approach is a clearly structured, three-phase scientific exploration of a topic of interest. There is a complex but flexible framework with features that characterize the teaching-learning interaction. When teachers implement a project successfully, children are highly motivated, feel actively involved in their own learning, and produce work of a high quality (Chard & Katz 1998).

Project work offers children opportunities to experience firsthand research in science and social studies and to represent their findings in a variety of ways. Children also have many occasions in the course of their project work to apply basic math and literacy skills and knowledge. The description of a project can be like a good story with a beginning, middle, and an end. Teachers and children can tell the story with reference to these three phases in the life of the project.

Quantitative Data Collection

The study used a mixed method approach to measure the elements of engagement which have been identified by (Harbour, Evanovich, Swigert & Hughes, 2015; Scott, Hirn & Alter, 2014). These were measured by three independent observers using a rating system (Scott, Hearn & Alter, 2014; Gautier & Droit-Volet 2002). A cohort of students was chosen each of the 30 days observed on engagement characteristics and expected behavior. This allowed us to target specific students for multiple ratings and all students for at least one rating within each type of unit observed. An example of that observation form is provided in **Figure 1.0** below. Observers witnessed the teaching of a traditional social studies unit and then a project-based unit and compared the ratings of the two. An inter-rater reliability score was obtained by comparing the scores of the three independent observers during the first set of observations during the

traditional unit. There was a 90% agreement between the scores. This was done by creating a table that compared the ratings over time between the three observers (Hallgren, 2012). At this time a full statistical analysis has not been completed beyond descriptive data.

Qualitative Themes Identified

The qualitative data was collected during the implementation of the units and consisted of semi-structured questioning and naturally occurring conversations with students. Denzin (1978) states that triangulation means the use of two or more processes of data collection to surround the phenomenon. Chenail, (1997) also tells us that the method is used to “situate the phenomenon and locate it for the researcher and reader alike”. Jick (1983) states that multiple methods can be used to examine the same dimension of a research problem. In this study we used multiple opportunities to collect data and identify the participants ‘reality’ as stated by them in each of these separate data collection opportunities.

Observational data was collected by the three independent observers and the classroom teachers. If an engagement behavior was observed directly by the observers, they would engage that student in conversation and these conversations were documented, coded and themes were identified. These themes were then organized and aligned with the quantitative data collected using the rating system. The forms used to capture the observational data are below in figure 2.0. The verbal communication, conversations and discussions took place during the implementation of the unit itself. These types of discussions have been found to assist students in making sense of and constructing meaning behind newly learned concepts (Vygotsky, 1979).

There were eight themes that became obvious after coding and organizing the anecdotal observations. If these were observed by all three observers, they were considered

viable themes. Patterns that were documented by two or fewer were not used as themes because they were not triangulated. These themes were:

1. Indications of Internal Locus of Control – these were instances when the student or students made internal choices to continue with their task even though there were temptations not to.
2. Discussions with Peers- Instances when students were being encouraged to do something other than the task at hand and they chose to continue working.
3. Discussions with Adults- Instances when the student discussed the learning with an adult. This can include a teacher, observer, or parent.
4. Proactivity in their Learning- instances of seeking out further information then what was required by the unit of learning. It would also include any effort by the student to seek new information outside of the PBL time. This would include students making sure they understand learning intentions and are clear on the focus of the task at hand (William,2017).
5. Evidence of Enthusiasm – Observed and voiced excitement about learning.
6. Positive Statements About their Experience- self explanatory
7. Evidence of Sustained Interest in Topic – evidence that the student continued to talk and have an interest in the topics explored after the conclusion of the unit. Or after school was over.
8. Evidence of Wanting to Extend Time on Task- Times when students were encouraged to transition into new parts of the day, and they were reluctant to do so.

Qualitative Findings

There were multiple anecdotal examples of each of these themes. This paper will review only a few. The analysis is not complete so what is shown in this paper is preliminary. Also, as we continue to look at the data some themes will probably be subsumed by others. However, for the purpose of this paper we are documenting the research “in progress”. The following table will list the themes that surfaced and pieces of the evidence that triangulated it as a theme.

Theme	Qualitative/ Triangulated Evidence	Comments and Implications
Indications of Internal Locus of Control	<ol style="list-style-type: none"> 1. Observation of a first grader on video patiently waiting for a chance to share in the group even when others are not raising their hands. 2. Observation of student in the robot unit working on writing and testing “code” to adjust the pattern of an microbot. Another student trying to get this student to stand upon and dance. He didn't want to. He was working. 3. Students did not have to sign out the micro bots. So, there was no way for the teacher to trace who used what. There were no thefts of the small robots throughout the unit. 4. Personalized Learning: The PBL process allowed for true personalized learning. Students were truly exercising their voice, choice, and path for learning. Teachers allowed students to discover their passions and interests as well as choose how they wanted to pursue them. 	<ul style="list-style-type: none"> - When asked why they were choosing to work students typically said that it was because the robot unit was fun, and they wanted to continue working and learning. - Other items were pocketed during other times in class. Pencils, crayons, etc. But bot the robot unit related materials. - There was an observed level of respect for the materials in the robot unit.
Discussions with Peers	<ol style="list-style-type: none"> 1. There are several documented instances of organic discussions generated by students with each other. Since this type of interaction was encouraged there were lots of discussion occurring during the PBL unit. Noise level was often very loud. 2. The students were quick to engage in discussion that was balanced in both listening and speaking. I was impressed at the peer to peer conversations that were both on task and respectful. Students who were not always apt to participate seemed to light up at the idea of working together to help others. This is where the idea of hosting a book drive was born. 	<ul style="list-style-type: none"> - One student was observed saying” isn't it cool that the microbot shoots around like that? I wonder if we can slow it down, so it just goes really slow?” - “What if we made a huge robot that we could get into and it took us on a ride?”
Discussions with Adults	<ol style="list-style-type: none"> 1. These discussions were encouraged as well, the rule in the room was for the students to ask someone if they have a question. Many times, they used each other as a resource. This 	<ul style="list-style-type: none"> - Gradually there was an observed decrease in using the teacher as the “font” of knowledge in the classroom. The students, during the PBL unit rarely asked the teachers questions that could be

	<p>reliance on a more competent peer aligns with Vygotsky, 1977, Kami, 1983 as well as William, 2017 and encourages what they call “intellectual autonomy”</p>	<p>answered by peers or through seeking out the answers themselves. Again, indicating intellectual autonomy.</p>
<p>Proactivity in Their Learning</p>	<ol style="list-style-type: none"> 1. Students in all three classrooms tended to seek answers to their individual questions by investigating their questions themselves. 2. There was an abundance of resources available to students in all three classrooms that they used to answer their own questions. Many times, the unit would motivate students to investigate other directions to their learning. 3. Students making sure they understood the goal of the task they were approaching or beginning. 4. I felt like facilitating a project that the students felt passionate about really engaged them in their learning. The students truly understood the purpose of the project, and this purpose-driven project lit a fire in them. They understood that what they were working on was larger than themselves- it was a project that would impact their community in a positive way. 	<ul style="list-style-type: none"> - During the implementation of the book unit the students developed and produced their own “green screen” commercial to promote the collection of books to give away. - It was also observed in the problem solving during this unit when a student volunteered to move large quantities of books for the culminating event. He volunteered for this and developed that process himself. - “wait, so I can play with the robot to figure out how his and mine can go together?” That's what we do?” Ok. that's fun!”
<p>Evidence of Enthusiasm</p>	<ol style="list-style-type: none"> 1. All three observers notice an increased level of enthusiasm by students compared to the traditional unit. More anticipation, more talking about the learning, more difficulty getting the students to stop working on the unit. As well as an increased amount of movement, talking and laughter. Also increase in smiles and positive comments about what they were learning. 2. I was impressed how posing the question: ‘How can we help others?’ spiraled into a class discussion about the different ways they could help their community. 3. I felt like facilitating a project that the students felt passionate about really engaged them in their learning. The students truly understood the purpose of the project, and this purpose-driven project lit a fire in them. They understood that what they were working on was larger than themselves- it was a project that would impact their community in a positive way. 	<ul style="list-style-type: none"> - “I can’t wait for robot time today”. - “Ms. Eubanks can we work a little longer today?” - “OOOO that is so cool! Can I do that?” when referring to the programmable robot and track activities. - “I love this Ms. Martin”! - Squealing and excited discussions when the students went outside to place their bird shelters in the trees outside of school.
<p>Positive Statements About their Experience</p>	<ul style="list-style-type: none"> - There was an increased number of positive statements during the PBL units as compared to the traditional unit. In fact, there were no consistent observations of “positive comments’ before, during or after the traditional units in two of the three classrooms. - 	

<p>Evidence of Sustained Interest in Topic</p>	<ol style="list-style-type: none"> 1. A parent noted that “their child had never talked so much about what was going on at school as he did during the Robot unit. In fact, she also eluded to the fact that he wouldn't stop. 2. Time on Task: One of the things that stuck out to me the most was the time on task. In each of the two classrooms I observed, the teachers chose a “bubble kid” to observe. Meaning that these are students who would be considered tier one for behavior, but on the cusp of tier two. In both classrooms, there were times during observations I thought to myself, “He/she won't get the highest rating for time on task” because they “seemed” off task; students were observed talking (maybe while teacher was talking or another peer was talking to the class), physically playing around, laughing, etc. However, when I'd go back to my office to add up the off-task time, it never amounted to more than 4 out of 15 minutes, still giving the best rating for time on task. And, in my opinion, still makes for a great attention span for KINDERGARTENERS! It truly encouraged me reflect on what we really should be expecting of children. 	<ul style="list-style-type: none"> - Each of the three PBL units lasted for several weeks and continued to have momentum into the last weeks of study. The teachers indicate that the unit lasts as long as students continue to want to pursue the topic. This, as compared to a traditional unit that is done when you have completed the targets.
<p>Evidence of Wanting to Extend Time on Task</p>	<ol style="list-style-type: none"> 1. This theme could easily be subsumed by the enthusiasm theme or visa versa. There were instances in each classroom where it was clear that the students wanted to continue their investigations because it was fun and engaging. So, they would ask for more time. Or, the group would be so involved with their learning that they would forget about the schedule and transitions to something else. 	<ul style="list-style-type: none"> - A student was overheard saying “shhh, don't say anything so we can keep working” as they worked on the “coding” of the microbots. - “Ms. Martin can we finish this birds house?” - Students asking for more “robot time” during the day.

There was also untriangulated data that indicated that the teacher behavior changed with the teaching of the PBL unit. It appeared that they were also more engaged, enthusiastic and relaxed. One observer noted that it seemed like in the traditional unit, the teacher seemed more concerned about “covering the curriculum” while during the PBL unit they were more concerned about the students “uncovering meaning”. How might this teacher behavior affect achievement? How would reflecting on this difference encourage improvement in their teaching? How could we encourage this type of teacher behavior in our methods classes? However, this was not

triangulated data and will not be included in the findings of this study. However, it might be a future direction of research on the pedagogy of PBL

Quantitative Findings

Classroom ratings showed a significant improvement in all engagement variables during the implementation of the project-based unit. A full statistical analysis has not been completed, but the preliminary descriptive data suggests a marked increase in all areas in all classrooms. The baseline data represents the ratings of students during the traditional instruction. PBL is the rating assigned during the Project Based Unit of instruction.

Figure 3.0

Baseline PBL

Time On Task	1.3	1.8
Engaged Behavior	1.2	2.4
Enthusiasm	1.2	2.5
Discussion /Peers	2.0	2.5
Discussion /Adults	2.0	2.4
Proactivity	1.5	2.0
Expected Behaviors	2.0	2.4
TOTALS	1.6	2.3

- Increase in every category

Kindergarten #1

* Increase in every category

Figure 3.1

Baseline PBL

Time On Task	1.3	2.2
Engaged Behavior	1.3	2.1
Enthusiasm	1.5	2.1
Discussion /Peers	1.3	1.7
Discussion /Adults	1.5	2.0
Proactivity	1.2	2.25
Expected Behaviors	1.0	2.5
TOTALS	1.3	2.7

Kindergarten #2

Figure 3.2

* Increase in every category

Baseline PBL

Time On Task	2.0	2.6
Engaged Behavior	2.1	2.5
Enthusiasm	2.0	2.8
Discussion /Peers	2.1	2.1
Discussion /Adults	1.5	2.4
Proactivity	2.0	2.0
Expected Behaviors	2.0	2.4
TOTALS	1.9	2.3

1st Grade Classroom

Figure 4.0

	Baseline Data				PBL Data			
Time on Task	Brown 1.3	Martin 2.0	Eubanks 1.3	TOTALS 1.3	Brown 1.8	Martin 2.6	Eubanks 2.2	TOTALS 2.2
Engaged Behavior	1.2	2.1	1.3	1.25	2.4	2.5	2.1	2.3
Enthusiasm	1.2	2.0	1.5	1.35	2.5	2.8	2.1	2.4
Discussion/ Peers	2.0	2.1	1.3	1.6	2.5	2.1	1.7	2.1
Discussion/adults	2.0	1.5	1.5	1.7	2.4	2.0	2.0	2.1
Proactivity	1.5	2.0	1.2	1.35	2.0	2.0	2.25	2.1
Expected Behaviors	2.0	2.0	1.0	1.5	2.4	2.4	2.5	2.4
TOTALS	1.6	1.9	1.3	1.4	2.3	2.5	2.7	2.5

Teachers have noticed a higher level of engagement, time on task, academic initiative when using this method (Azevedo,2015). They have also noticed fewer behavioral problems during the times they used this method of instruction (Schunk, 2001). The table represented by figure 4.0 shows the increases in all areas that were measured under the Project Based Unit of Instruction. Most significantly a .9 increase in time on task. A 1.5 increase in Engaged Behavior. A 1.1 increase in Enthusiasm. A .8 increase in Proactivity and a total increase over the combined average of all variables of 1.1. As it relates specifically to proactivity students were observed to be more concerned about knowing and understanding the activities learning

intentions. This is an indication of both engagement and academic proactivity and has been shown also to indicate students moving towards intellectual autonomy (Wiliam, 2017).

While there are significant differences in the amount of improved engagement and improved behavior between classrooms, these findings suggest that this pedagogical approach significantly improves engagement and therefore improves the behavioral outcomes in these contexts. Our goal with this study was to determine if this pedagogical approach helped to increase engagement and improve behavior and therefore serve as a valid and effective tier one approach within PBIS. The data, both quantitative and qualitative suggest that it is. Further statistical and qualitative analysis is necessary to discern the contextual nuances of each classroom and teacher. Even so, the findings are strong enough to further develop this approach as a useful and valid tier one strategy within PBIS.

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Figure 1.0

Engaged Behavior	15 minutes	15 minutes	15 minutes	15 minutes	15 minutes	15 minutes	15 minutes	15 minutes	15 minutes
Time on Task									
Discussion with teacher/observers									
Observed Enthusiasm									
Discussion with peers									
Observed proactivity in learning more.									
Expected Behavior									

These codes were derived from (Scott, Hearn & Alter, 2014) and (Gautier & Droit-Volet 2002). The rubric scale was developed by investigators along with the input of the classroom teachers and reflects expected behaviors in the Hyde Park School and specific classrooms context. Since generalization was not the goal of this study these ratings are only being used as comparisons with scores attained during traditional unit teaching prior to PBL unit.

Rubric Scale

---student will be observed for 15-minute periods of time. This time period was derived from Gautier & Droit-Volet 2002). During each time period a n observation score of 1-2-3-0 will be assigned. The definitions of each score are below:

1- a score of 1 denotes little engagement. Student is not focusing for more than a minute or two at a time. Is distracted and distracting. Is unable to discuss what is occurring in the class with teacher or observer, is not discussing cogently with peers and is not displaying proactivity in learning more. Behavior was not what was expected for this class period.

2- Student is focusing for at least 10 minutes is not distracted and is focusing on information or process of class. Is showing some enthusiasm during learning. Is able to discuss content and process with observer, teacher and peers. Has demonstrated some proactivity in learning new things. Behavior was what was expected for class period and met minimum expectations.

3- Student is demonstrating a high level of interest enthusiasm during learning. Is displaying a high level of focus and engagement in learning. Is able to enthusiastically discuss content and process with teacher and peers. Is showing a high level of proactivity in learning new things.

Behavior was better than expected and exceeded expectations.

0- Student is not in class due to behavior/discipline event occurring during PBL unit.

Figure 2.0
Anecdotal Observations/Teachers and Observers

Taken during the teaching of the lesson and also at the conclusion of the lesson. It is the aim of this study to collect direct observational data as well as reflective data obtained after the lesson has been taught and the observer/teacher has reflected about the lesson and how each student did in comparison of the contextual expectations. These observations will be coded, and themes developed as analysis continues. Also, conversations with students during the lessons will take place daily to gauge enthusiasm, depth of engagement and depth of learning. Finally, observers will be looking for the manifestation of intellectual autonomy as evidenced by relevant discussions with peers

Discussions with Peers

Discussions with Adults

Observed Enthusiasm

Observed Proactive Learning/Initiative

Social Initiative

Adherence to Expected Behavior

Authors:

Thomas Knestrict, Ed.D.
Director of Early and Middle Childhood
Xavier University
Areas of research- PBIS, Robust Tier One Systems, families raising children with special needs

Elizabeth Brown, M.Ed.
Classroom Teacher
Lakota Local schools
Reading Specialist, Project Based Learning Expert

Mici Eubanks, M.Ed.
Classroom Teacher
Reading Specialist, Project Based Learning Expert
Indian Hill Exempted Village Schools

Lauren Martin, M.Ed
Classroom Teacher
Reading Specialist, Project Based Learning Expert
Cincinnati Public Schools

- All authors can be contacted through:

knestrict@xavier.edu
513-745-3703
3800 Victory Parkway
Cincinnati, Ohio 45207

Bringing Climate Change Education to Ohio's K-12 Classrooms

Elizabeth Schwab, B.S.

* Correspondence:
Elizabeth Schwab

The Ohio State University
(Environmental Science
Graduate Program;
Department of Food,
Agricultural, and Biological
Engineering)
590 Woody Hayes Drive,
Columbus OH, 43210
schwab.175@osu.edu
267-697-9338

Full list of author
information is available at
the end of the article

Abstract:

Climate change is an extremely relevant issue, and connections can easily be made between topics in climate science and content from classes including natural and physical sciences, mathematics, and social sciences. However, many teachers experience barriers to teaching about climate change, and so students may not be exposed to this content in their K-12 classes despite its relevance to their lives. This article explores how teachers can overcome these real and perceived barriers and improve climate science instruction, and suggests ways to bring climate change education to Ohio science classes.

Introduction

Science education should be interesting for students, and it should also be relevant to their world and their lives. Relevant topics in science education certainly include those related to environmental science. Of these, perhaps one of the most salient topics is global climate change, and this issue can be taught at all grade levels, albeit to different degrees. While climate science relies on expertise from numerous fields in science, mathematics, and social sciences, incorporating teaching of climate change into the classroom is not always easy. Many teachers experience barriers, whether real or perceived, that hinder their ability to teach about climate change.

This paper will address these barriers and highlight suggestions for improving climate science education. It will focus on obstacles to teaching climate change, the role of the teacher, improving teaching of climate change, and the courses in which climate science is taught. The paper will conclude by providing suggestions for teaching climate science topics in Ohio classrooms in a way that aligns with state curriculum for different science courses as well as some relevant resources that Ohio educators can use to enhance their teaching.

Obstacles to teaching climate change in grades K-12

A number of studies have identified obstacles to teaching climate change in classrooms at all grade levels. These obstacles include teachers' content-related misconceptions, low teacher knowledge and understanding of climate change, and other factors such as lack of time, cultural differences, and perceived controversy of the topic.

Educators' content-related misconceptions are prevalent; these include limited understanding of global warming and the greenhouse effect (Dawson, 2012; Arslan et al., 2012; Hestness et al., 2011), human impacts and the sources from which scientists gain information about climate change (Wise, 2010), and ozone layer depletion and acid rain (Arslan et al., 2012; Hestness et al., 2011). Such misconceptions may arise because many teachers are self-taught when it comes to climate-related topics (Wise, 2010); representations of climate change in the media may also play a role (Colston & Vadjunec, 2015). Misunderstanding of key topics in science can lead to the perpetuation of misinformation as teachers pass this inaccurate understanding onto their students (Boon & Wilson, 2011).

The extent to which teachers are prepared to teach their assigned science content may also pose a challenge. Educator preparation to teach subjects that include coverage of environmental topics as a core focus of the discipline, such as Earth science or environmental science, may be lower

than their preparation to teach other subjects unless they studied Earth science in school (Bezanson, 2007). As climate change is considered to be a topic best-suited to be taught in Earth and environmental science courses rather than in other science classes (Wise, 2010), lack of educator preparedness is detrimental, and yet Earth and environmental science courses are often taught by teachers with little formal background in the content (Bezanson, 2007).

Even if teachers are well-trained in their content areas, they may feel as if they do not have the proper background to teach about climate change (Liu et al., 2015). However, while for some teachers, this acts as a barrier, for others it increases their desire and willingness to teach the subject (Wise, 2010). Therefore, it is the characteristics of individual teachers that may be most important in deciding whether or not a lack of knowledge is a barrier or a “challenge” to learn more.

Exclusion of topics relating to climate change and the environment from curriculum is often cited by teachers as a reason that they do not teach them (Dawson, 2012; Wise, 2010; Porter et al., 2012). A lack of time to teach additional material is also perceived as a limitation (Dawson, 2012; Wise, 2010).

Cultural differences in values and in perceptions of environmental resources have been identified as challenges to teaching in environmental education contexts (Blanchet-Cohen & Reilly, 2013). Teachers with diverse student populations or different backgrounds than their students should be aware that they will need to be sensitive to cultural differences. Further, effective education addresses the science as well as social factors, including potential threats to values, group and system justification (the tendency to defend the status quo, which can motivate people to be skeptical about climate change (Jost & Hennes, 2013)), and political controversy (Monroe et al.,

2017). However, it may be difficult to address all these concerns, and some teachers may perceive this to be a further limitation to their teaching ability.

Similarly, other studies have identified perceived controversies as a limitation: in an Australian study of 39 science teachers, all of them said that there was controversy associated with climate change (Dawson, 2012); Colston and Vadjunec (2015) found that 92% of Oklahoma teachers surveyed agreed that "...there is a public controversy about climate change". Another study found that preservice teachers' perceptions of controversy or political ties as a barrier to teaching about climate change increased from 13.75% of respondents to 33.73% of respondents after they were exposed to a module about climate change (Hestness et al., 2011). Not only do teachers see that climate science may cause political or other controversies, but they may be even more aware of these potential controversies after receiving further education about climate science. Since the teacher plays a critical role in implementing curriculum, it is imperative that this limitation can be overcome.

Despite widespread acceptance of global climate change across the scientific community, teachers may still choose to present the issue in different ways. A main point of contention is the worth of teaching "both sides", or "teaching the controversy", of the issue.

Wise (2010) found that 85% of their study of Colorado secondary science teachers supported the statement "...In general, do you think Colorado teachers should discuss 'both sides' of this public controversy with students?" The same question asked to Oklahoma science teachers found that 89% agreed with discussing "both sides" (Colston & Vadjunec, 2015). An article in *Science* describes a California school board's policy mandating that teachers explain how they are addressing controversial topics in a "balanced" way (Reardon, 2011), and across the United States, 55% percent of teachers said that they discuss the "controversy" about anthropogenic

climate change (Plutzer et al., 2016). The challenge comes when discussion of “both sides” excludes important scientific information: 27% of surveyed U.S. teachers say that they allow for equal time for discussion of perspectives suggesting that humans are not responsible for causing climate change (Plutzer et al., 2016), and only about 25% of the teachers surveyed by Wise (2010) responded that teachers should emphasize the primary role that humans have played in recent climate change.

The previous findings may seem disheartening to those concerned about teaching the science of this issue. But Colston and Vadjunec (2015) provide examples of why teachers may choose to highlight “both sides” in their teaching: to help students make their own decisions, to increase student ability to discuss issues in science, to prevent alienation of students, to demonstrate how bias affects people’s opinions, and to learn about the tentative nature of science.

Teacher motivation and self-efficacy

While misconceptions about climate science may play a role in determining teacher beliefs about climate change, teachers’ attitudes about climate change may influence their choice to teach about it (Liu et al., 2015; Hestness et al., 2011). External forces, while sometimes serving to dissuade teachers from teaching about climate change, can also be motivating factors in teachers’ decisions to include these topics in their classrooms. Wise (2010) found that the interest levels of students as well as adults in their community were motivating factors for teachers to include climate science in their curriculum.

Motivation to teach leads to the subject of self-efficacy, and some studies have measured self-efficacy across teachers with respect to teaching of environmental topics. Self-efficacy relates to the belief that one’s actions will lead to a particular outcome; in this case, self-efficacy

of teachers measures teacher perceptions of the extent to which they can effectively teach a particular concept (Moseley et al., 2003).

Ellins et al. (2014) found that attendees of a climate curriculum implementation workshop had improved self-efficacy after participating in the workshop; this increased efficacy may influence the extent to which those teachers teach climate science and their approach to teaching it. In contrast, a study of preservice elementary teachers showed that self-efficacy was not increased after completing an outdoor education training program, suggesting that a one-time program might not be enough to influence educator perceptions of preparedness to teach environmental topics (Moseley et al., 2003). Overall, reviews of the role of professional development in changing educator practices (e.g. Whitworth & Chiu, 2015) find that its effectiveness varies depending on many factors, including teacher motivation, school and district leadership, and school culture.

The mismatch between perceived and actual knowledge of environmental issues, as well as between actual knowledge and self-efficacy, is another point of consideration. For example, an Australian study of sustainability education among elementary preservice teachers showed that there was no relationship between actual knowledge about sustainability and teachers' self-efficacy, or between perceived and actual knowledge (Effeney & Davis, 2013). This finding is supported by the theory of overconfidence bias, which explains that people tend to overestimate their knowledge and may be overly optimistic about a certain outcome occurring (Marx & Weber, 2012). Kruger and Dunning (1999) observed, in addition to a general trend in overconfidence in perceived versus actual performance, that people who are most-skilled tend to overestimate ability and knowledge, while lower performers tend to overestimate their

knowledge and ability as compared to their peers’. This mismatch should be taken into account when assessing teachers’ perceived (and actual) preparedness to teach certain topics.

Improving climate science instruction

A number of strategies have been proposed for how teachers can improve their teaching of climate change, including appropriate presentation of material, understanding student misconceptions, and focusing on environmental issues during educator preparation courses. It may be tempting to have outside educators speak to classes about such complicated topics as climate change, but some suggest that this might not be an effective method: a study of middle schoolers in British Columbia found that those who were taught about global warming by their classroom teacher performed better on a post-instruction test than those taught for the same amount of time by outside environmental educators (Porter et al., 2012). The authors suggest that once teachers are well-informed about climate change, they are more effective at teaching their students than other knowledgeable educators who lack an established connection to the students. In addition to having teachers that the students are familiar with delivering content about climate science, teachers must also consider their presentation strategies. Österlind (2005) critiques teaching of concepts with complicated terminology that has not been adequately explained to students, particularly if learning is student-directed, as interpretation of terminology can drastically affect student understanding of material. Avoiding use of words that can be perceived as political or controversial in addition to avoiding confusing terminology when teaching about climate change is crucial to adapting to teaching in classrooms that are becoming increasingly diverse (Blanchet-Cohen & Reilly, 2013). Making sure that students understand the words that are being used to define concepts is an important first step towards developing a strong student understanding.

Teacher adaptation of content can be detrimental to learning if it shifts the way that students engage with the material (a shift towards teacher-centric demonstrations rather than student-centric investigation) (Fogleman et al., 2011; McNeill et al., 2013), and so it is important that teachers do not fundamentally alter the structure of lessons that already include student-centric learning components. Ensuring that students understand terminology used in lessons is also important, but this does not have to be a passive process: active engagement of students with the curriculum, regardless of the activity, can help students learn more in science classes (McNeill et al., 2013), and so ways of making this process more interactive are welcome.

After ensuring that complications with terminology or controversial terms are avoided, teachers must consider the known misconceptions and misunderstandings that are prevalent in climate change-related topics. Common student misunderstandings include the greenhouse effect and its relationship with climate change (Dawson & Carson, 2013; Porter et al., 2012; Shepardson et al., 2009); these (and others) are often similar to the previously addressed misconceptions held by educators (Arslan et al., 2012). Understanding common student misunderstandings will help teachers be better prepared to address problems and help students understand these relevant and important issues.

Early exposure to climate change and environmental education may benefit teachers, and teachers who are specifically exposed to climate change education may be more likely to support the importance of teaching it. For example, before completing a module on climate change, about 76% of teachers surveyed by Hestness et al. (2011) perceived teaching about climate change to be important or very important; this increased to 93.64% of teachers after the module. Educators should have exposure not only to topic-specific science content, but also how to teach it at an appropriate grade level, in their training (Effeney & Davis, 2013; Hestness et al., 2011);

providing teachers with age-appropriate resources is another potential means of helping teachers seek out material that is accessible to their students (Hestness et al., 2011). Partnerships between preservice teachers and teachers who are already excelling at climate science instruction may be another way of meeting this goal (Effeney & Davis, 2013).

Teachers need to understand the connections of climate science to other subjects, as well as the relevance of climate change to their lives and the lives of their students (Hestness et al., 2014).

Topics in environmental science, such as climate science, can be used to connect students to their local place through focus on the local environment (Powers, 2004), thus increasing relevance.

In which courses do we (and can we) teach about climate change?

In Wise's study of Colorado science teachers (2010), high school Earth science teachers were more likely to teach about climate change than teachers of other subjects. Plutzer et al. (2016), in their United States nationwide survey, also found that Earth science teachers were most likely to teach one or more lessons about recent global warming, with nearly 96% of Earth science teachers devoting at least one lesson to the subject during the school year. Biology had the second-highest percentage of responses, followed by chemistry and then physics (Plutzer et al., 2016). Environmental science classes are also prime candidates for climate science instruction, as are social science classes (Wise, 2010), although these courses may not be offered as widely as the science classes previously mentioned.

The potential exists to teach climate change across disciplines as well, particularly in lower grades where one teacher may teach all subjects: in addition to science courses, math and social studies are also connected to climate science (Hestness et al., 2011; 2014). This is an area in need of improvement, as many schools keep content separated by course (Powers, 2004). However, the interdisciplinary nature of climate science poses its own challenges: while environmental

education crosses subject boundaries, most teachers are not trained in how to teach across the curriculum (Blanchet-Cohen & Reilly, 2013), and some may hesitate to agree to interdisciplinary collaboration on one content area, as they may then be pressed to spend more time accommodating similar collaborations in the future (Gayford, 2010).

Introducing climate change education into Ohio high school science courses

This section will focus on topics related to climate change and their potential to be integrated into the standards for Ohio high school science courses. Not all of the classes reviewed are required courses, and there may be a wide variety of other science courses offered in schools throughout the state; however, model curriculum for the following classes is available in *Ohio's New Learning Standards: Science Standards* (Ohio Department of Education, 2010), and *Ohio's Learning Standards: Science* (Ohio Department of Education, 2018) outline the topics that should be covered in a number of science classes. These resources were used as a reference in developing the following table.

Table 1: Standards and topics related to climate change in Ohio's science courses

Course standards	Suggested topics to cover
Physical Science	
PS.EW: Energy and Waves	<p>Energy production and energy efficiency as a means of influencing global climate</p> <p>Changing global temperature and its impacts on energy demand</p> <p>Forms of energy, including radiant and thermal</p>
Biology	
B.E.: Evolution	

Differential survival and reproduction under changing climates due to advantageous characteristics

B.DI: Diversity and Interdependence of Life

Global temperature change effects on growing regimes, limiting ecosystem carrying capacity

Impacts of the Anthropocene

Chemistry

C.IM: Interactions of Matter

Gases, including greenhouse gases, and their role in influencing climate

Gases and their role in ocean acidification

Environmental Science

ENV.ES: Earth Systems: Interconnected Spheres of Earth

Evolution and adaptation of organisms to changing climate

Climate change impacts on biodiversity

Climate change impacts on the hydrosphere

Influence of atmosphere on climate

Differences between weather and climate

Energy transformation

Cause and effect of climate; climate change throughout Earth's history

ENV.ER: Earth's Resources

Greenhouse gases and their role in influencing climate

Energy sources and alternative energy sources

Influence of climate change on desertification

Impacts of climate change on wildlife

ENV.GP: Global Environmental Problems and Issues

Global impacts of climate change, including effects on human population, water availability, and sustainability

Physical Geology

PG.EH: Earth's History

Evidence of climate change through observation of the rock record

PG.PT: Plate Tectonics

Paleoclimatology and comparisons with current climate

PG.ER: Earth's Resources

Energy sources and energy efficiency

Greenhouse gases

Influence of climate change on desertification

PG.GG: Glacial Geology

Glaciation and its causes

Ice core data providing evidence of climate change

Physics

P.E: Energy

Role of conservation of energy in Earth's energy balance

Resources for educators in Ohio and beyond

While this is by no means a comprehensive list of suggested resources, topics, or ways to incorporate climate change education into Ohio science classes and meet the Ohio standards, the

following table provides some guidance towards selecting resources that educators might find useful.

Table 2: Resources for Ohio educators

Resource	Short description
Online resources	
Ohio State University’s Byrd Polar and Climate Research Center (https://byrd.osu.edu/)	K-12 lessons on climate and polar topics
Ohio Sea Grant Great Lakes Climate Change Curriculum (http://ohioseagrant.osu.edu/products/nykht)	K-12 education resources including teacher’s guides, content alignment to different standards, and activities. Some lessons focus on impacts of climate change on the Great Lakes region.
National Oceanic and Atmospheric Association (NOAA) climate education resources (https://www.noaa.gov/education/resource-collections/climate-education-resources)	K-12 lesson plans, data sets, videos, background information, and more related to climate education and climate change
U.S. Global Change Research Program (https://www.globalchange.gov/)	Provides Federal resources and reports from their own as well as different agencies (e.g. EPA, climate.gov)
Online databases	

Science Education Resource Center at Carleton College (SERC) (https://serc.carleton.edu/index.html)	K-12 education resources encompassing all areas of science. Database is searchable.
Climate Literacy & Energy Awareness Network (CLEAN) (https://cleanet.org/clean/educational_resources/collection/index.html)	Hundreds of free online climate and energy education resources for K-16. Resources are reviewed for content and quality by scientists and educators.
Published collections of resources	
Anderson (2013)	List of freely available climate change-related resources, lesson plans, and videos for educators
Kamenetz (2019)	Free online resources suggested by the author and NPR readers
Published programs	
Mahaffy et al. (2017): Visualizing the Chemistry of Climate Change program	Online resources relating climate change and chemistry
Ellins et al. (2014): EarthLabs program	Freely available modules addressing Earth system and climate topics; modules contain teaching materials, labs, and additional resources

Conclusion

Whether it is individual teachers who are motivated to include climate change in their curricula or school districts or states mandating a change, teachers have a wealth of resources to draw from in preparing to address these topics in their classrooms. Understanding and overcoming perceived and actual barriers to teaching climate change can help K-12 teachers highlight the role that science content plays in understanding current issues, thereby making science more engaging and preparing students for the future.

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Author:

Elizabeth Schwab is a master's student studying Environmental Science with additional specialization in Teaching in Virtual Environments. Elizabeth is interested in secondary and post-secondary science education, particularly in the agricultural and environmental sciences, and wrote this paper while participating in field experiences in Columbus high school science classrooms.

The Little Makerspace that Could

Sue Corbin, Ph.D.

* Correspondence:
Sue Corbin, Ph.D.
299 North St., Chagrin Falls,
OH 44022
scorbin@ndc.edu
216.373.5429
Full list of author
information is available at
the end of the article

Abstract:

A practitioner focused exercise utilizing a Makerspace, and the intended and unintended usages that are discovered.

Introduction

The Maker Movement has been gaining momentum over the past 14 years with the publication of MAKE magazine in 2005 and the first Maker Faire sponsored by John Dougherty. The book titled *Invent to Learn, 2nd Ed.* (2019) has become what is known as the Maker's Movement Bible. Written by Sylvia Libow Martinez and Gary Stager, the book goes into detail about how teachers and students can let loose their creativity in a myriad of ways if they are provided with space and materials to do so.

There have always been “makers” who used their hands, brains, and hearts to invent and produce the things that people use for work and play. Classrooms have long been known as places where students could be caught making things on any given day. Why the hype about maker spaces, then?

It Perhaps it has to do with the disconnect that appears to have occurred due to the technology revolution that has moved learning through exploring with material objects to learning from screens. On our small campus in Northeast Ohio, we have seen a constant move toward emptying the library of books and journals in favor of digital texts. Getting a hard copy of a textbook from publishing companies is becoming more of a challenge as well. Students on all levels rely more on Google than library stacks to conduct their research. It may be that the pendulum, as it always does, is beginning to swing the other way, and humans are craving the need to get back to hands-on learning that can leave printing ink on your hands, and clay under your finger nails.

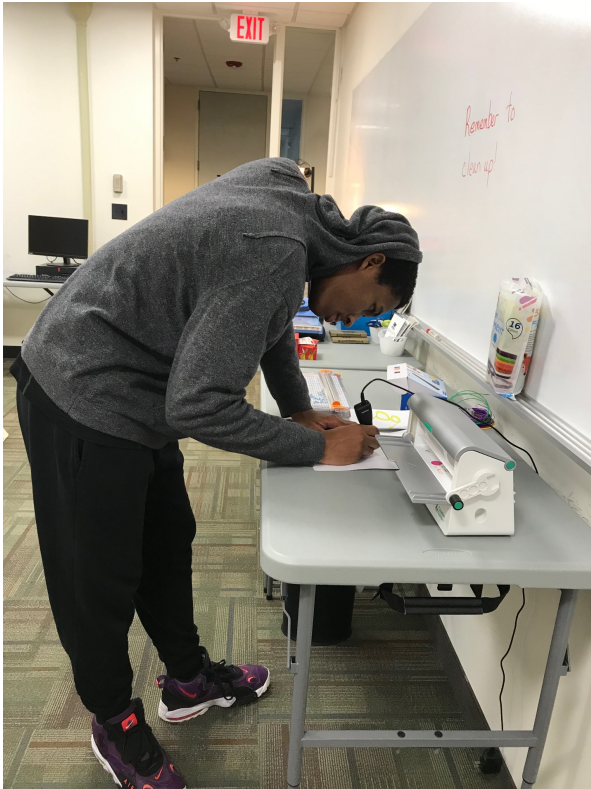
In 2017, the Division of Professional Education at Notre Dame College in South Euclid Ohio began to seek grants to create a maker space for teacher candidates to produce projects for field and student teaching experiences. Other educator preparation programs in our area have such facilities, and we believed that our teacher candidates deserved to have access to materials and equipment as well.

The grant that we were hoping for did not materialize, but we did not give up hope. In November of 2018 a beloved member of our faculty who had been a tireless advocate for the idea of a maker space passed away. Feeling the need to create a lasting legacy for her dedication to early childhood education and the creation of a maker space, friends and family members donated over \$5000.00 for us to purchase the needed equipment and materials. The college administration generously allotted two adjoining classrooms so that we could create a teacher demonstration classroom with flexible seating and a large classroom library stocked with books from our faculty members' personal children's and YA book collections with the maker space right next door.

That initial donation allowed us to purchase two book cases, a 3-D printer, two 3-D printer pens, a die cutter, a laminator, a paper cutter, and materials for creating bulletin boards and other classroom projects for all grade levels. We recently added a Makey Makey for creating keyboards out of nearly everything imaginable. There are bins of beads and blocks, stacks of construction paper and card stock in rainbow colors, jars of clay and Play-Doh, finger paints, crayons, and markers. Users can choose from pads of stick-on words and phrases to decorate bookmarks and create book covers. Giant paper rolls are good for projects and games that call for murals or life-sized paper cut-outs. Game pieces for board games are easily created with the 3-D printer pens or the large 3-D printer. Interactive notebooks and vocabulary scrapbooks take on new dimensions with foldables and handmade objects.

What began as a space to create materials for field experiences and student teaching classrooms is slowly changing to include class projects for education classes and “makerspace therapy” sessions for students and faculty to take some time to relax and mingle with other makers.

Now, other divisions on campus are taking an interest in the movement and asking to collaborate with makerspace projects. For example, the 3-D printer will be used by a psychology major who is researching neuromodulation and prosthetics and creating working models for developing countries. Our teacher preparation candidates can learn from this by planning similar social action projects for our partner P-12 schools.



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Author:

Title: The Little Makerspace That Could
 Submission date: January 23, 2020
 Author: Sue Corbin, Ph.D.
 Degree: Ph.D. in Curriculum and Instruction
 Address: 299 North St., Chagrin Falls, OH 44022
 Email: scorbin@ndc.edu
 Business phone: 216.373.5429
 Cell phone: 216.225.0415
 Institution: Notre Dame College

I chair the Division of Professional Education at Notre Dame College where I teach graduate and undergraduate courses in literacy education, oversee accreditation, and serve as the licensing officer for teacher preparation candidates. I have been in education on many different levels since 1973 after graduating from Kent State University with a bachelor degree in English and Secondary Education. My master's is in Reading and my doctoral dissertation focused on struggling readers and their responses to children's literature. My areas of interest include diversity in children's and YA literature, struggling readers, and inclusive teacher preparation. This manuscript is taken from the EdPrep Matters blog, November 20, 2019.

A Look Back to Move Forward: Transforming an Education Department Toward Multiculturalism

Adreinne C. Godd, Ph.D., Ronald D. Kieffer, Ph.D., Diana K. Garlough, Ed.D., Kevin Cordi, Ph.D. & Albert Akyeampong, Ph.D.

* Correspondence:

Adrienne C. Goss, Ph.D.
217-6 Henry Barnard
School
600 Mt. Pleasant Avenue
Providence, RI 02908-1991
401-456-9070 (Office)
401618-5105 (Home)
agoss@ric.edu
Full list of author
information is available at
the end of the article

Abstract:

This study examined the efforts of a private, liberal arts university's education department to transform into a multicultural organization, beginning with course content. The investigation was theoretically grounded in the Multicultural Organization Development model and the Practice Dimensions of Multicultural Teacher Education. Results of an evaluation of the purposes behind faculty members' assignments showed evidence across the levels of criticality with a majority in Teaching with Multicultural Competence and in the Affirming organizational stage. Some courses would benefit from activities that challenge students to think about the sociopolitical context of teaching and social activism.

Introduction

According to the U.S. Department of Education, over half of the students in U.S. public schools in 2015 were nonwhite, and this demographic is expected to continue to grow (de Brey et al., 2019). This increased racial diversity is coupled with an increase in linguistic diversity, with nearly 5 million emergent bilingual (and multilingual) students learning English in public schools (de Brey et al., 2019). Students in U.S. public schools are also diverse by ethnicity, culture, gender, sexual orientation, religion, and family structure, among a myriad of other factors (Fraser, 2016; “Get to Know,” 2018; Herman, Flores, Brown, Wilson, & Conron, 2017). Increasingly, there is a need for educators who can promote equitable opportunities for students from diverse backgrounds in public schools. Teacher educators are uniquely positioned to prepare pre-service teachers (PSTs) to work with a rising diverse K-12 student population (Lawyer, 2018).

This Thus, as the authors of this study, we decided to examine ourselves, particularly our teaching practices and individual dispositions toward multiculturalism, and document our efforts to transform ourselves into a multicultural organization. We report on an evaluation of our education department's course content, and the degree to which we are preparing our PSTs for multicultural classrooms.

Nationwide, institutions of higher education (IHEs) are examining how their organizations address efforts for the eradication of oppression and to promote awareness of equity and justice. Particularly between 2014-2016, students on numerous U.S. college campuses expressed their despair, even outrage at the lack of responsiveness to racism and issues of diversity (Wong & Green, 2016). Some universities responded with inclusivity/diversity training initiatives, incorporating diversity courses, and forming “working groups” and conversations around race and diversity (Wong & Green, 2016). Yet a few new programs, an additional diversity course, or a conversation or two is unlikely to create long-term, institutional change (Jackson, 2005). Many teacher education programs in particular, through accreditation standards and strong beliefs about the importance of multiculturalism, are committed to developing awareness concerning issues of diversity with their PSTs. In fact, some education programs have focused on a variety of organizational structures, including revising their vision and mission statements, drafting new conceptual frameworks, mapping curriculum, and analyzing their individual and group identities. The construct of the organizational change process has been used relative to reducing institutional oppression in organizations such as IHEs and nonprofits (Cross, Katz, Miller, & Seashore, 1994; Gavino, Eber, & Bell, 2010).

Literature Review

Diversity initiatives in IHEs often result from a response to federal or state mandates, student protests, a desire to support underrepresented students (or faculty and staff), or a need to help dominant (white) students, faculty, and staff increase their diversity awareness (Marchesani & Jackson, 2005). Examples of IHEs implementing diversity initiatives vary. Some, like Saint Xavier University, require undergraduates to take diversity courses (Gavino, Eber, & Bell, 2010). Others focus on increasing recruitment of faculty and staff from diverse racial and ethnic backgrounds (Gavino, Eber, & Bell, 2010; Krishnamurthi, 2005). At least one implemented a Summer Diversity Institute designed to help faculty learn to incorporate multicultural teaching practices (Booker & Campbell-Whatley, 2015). Some IHEs are comprehensive in their efforts. Northern Illinois University's (NIU) multicultural transformation included four broad categories: people (recruitment and retention of diverse students, faculty, and staff), institutional issues (mission, vision, funding priorities, and governance), curricula (content, pedagogy, and scholarship), and support services (e.g. counseling, employment, student organizations, awareness programs, and faculty development) (Krishnamurthi, 2005).

In addition to diversity initiatives at the institutional level, faculty in many teacher education programs are examining the content and experiences they provide their PSTs to prepare them for future opportunities locally and globally (Carter Andrews, Richmond, & Floden, 2018). Teacher educators at Michigan State University made a concerted effort to further social justice within their teaching while responding to oppressive structural elements in their institutions (Carter Andrews, Richmond, & Floden, 2018). Teacher educators at Ball State University responded to the need to transform teaching and learning for PSTs by developing a program incorporating community-engaged teacher preparation (Zygmunt et al., 2018).

Regardless of the effort taken, IHEs will likely face some level of resistance. Not all faculty at NIU were “on board” with the initiatives right away (Krishnamurthi, 2005). Some insisted that multiculturalism was not relevant to their content areas, they did not have space in their syllabi to teach it, or there was no incentive for them to engage in this work. At Saint Xavier University, most university members were open to change, but some felt that “everything was fine” and “nothing was broken” (Gavino, Eber, & Bell, 2010). Researchers evaluating the Summer Development Institute found low levels of implementation of multiculturalism in a sample of the faculty members’ courses offered during the fall semester following the training (Booker & Campbell-Whatley, 2015). Other challenges to this work may be harder to identify. While teacher educators search for ways to help their mostly white PSTs better understand their racial privilege, many rely on critical pedagogies situated within white supremacy (Berchini, 2017). These pedagogies often create harmful generalizations about the very students in their classrooms.

Even when an IHE offers intensive and ongoing support, multicultural curriculum transformation can be challenging (Booker & Campbell-Whatley, 2015). Merely modifying existing courses is not enough for curricular reform (Oliver & Hyun, 2011). The authors of this study realized early in this process a need to overcome the aforementioned challenges to innovation. We developed a shared vision, in part, through conversations that emerged from regular book studies as a department. We were inspired by what we learned about race in the U.S., which we used as a starting point to change our curriculum and understandings.

Theoretical Framework

Multicultural Organization Development

In Spring 2015, our department decided to document our transformation to becoming more multicultural in our orientation and practices. This article is part of a larger project in which we attempted to address the question: How does the department of education in a small, private university approach transforming its identity in order to better prepare its PSTs for a diverse society? To address this question, we used the Multicultural Organization Development (MCOD) model (Jackson 2005). This model was one of the first that integrated organizational development, social justice, and diversity (Jackson, 2005). We adapted this model to fit the needs and goals of our department.

The MCOD model applies to IHEs that want to make systemic changes in curriculum, faculty and student recruitment and retention, and university policies and procedures. The model targets the system as the agent of change instead of individuals within the system. Jackson (2005) argues that although raising individual consciousness is important, it is insufficient to create and sustain change. Change must take place in the core elements of a university, such as in the "mission, management practices, teaching and learning approaches and content, personnel profile and the general learning/working environment" (Jackson, 2005, p. 6). We argue, however, that changing the core elements of the university is insufficient if the individuals in the university do not interrogate their values and understandings about diversity and commit to multicultural practices in their work (Tang, 2011). For this reason, we begin with MCOD on the organizational/departmental level, but we also consider individual practices in this research project, including individual awareness of, and knowledge and skills with teaching toward multiculturalism.

The MCOD model assumes that organizations exist somewhere along a continuum from monocultural to multicultural, with no organization being entirely monocultural, nor perfectly

multicultural. There are six developmental stages along this continuum (see Table 1). The first stage is Exclusionary, and reflects a desire by the dominant group to maintain power and privilege in the organization. An exclusionary system will not consider multiculturalism or seek social justice or diversity. The second stage is the Club. The Club will consider inclusion of highly qualified individuals from the “minority” so long as they do not threaten the power of the dominant group. The third stage is Compliant. At this stage, the organization is committed to not discriminate, yet it is still interested in maintaining the culture and structure of the organization. Any minority members who seek entrance into this system must be highly qualified and not openly challenge the organization’s structure. The fourth stage is Affirming. At this stage organizations seek to eliminate practices that provide advantage to the dominant group. The organization also works to develop the talent in the minority members of the organization, preparing them for “upward mobility” (Jackson, 2005, p. 10). At stage five, Redefining, the organization values and actively seeks the perspectives of members of the diverse groups represented in the system. These perspectives are included in determining the organization's mission and operations. At the final stage, Multicultural, the organization's mission, operations, and products or services reflect these diverse perspectives present in the system. Diverse group members participate in critical decisions affecting the organization, and the organization educates others about multiculturalism. According to Jackson (2005), no organization yet exists at this stage, but one should believe in the possibility to reach this stage.

Multicultural Teacher Education

Our theoretical framework also draws from Gorski’s (2009) Practice Dimensions of Multicultural Teacher Education (MTE). Although MCOE focuses on systems, the small size of our department allowed us to also examine each faculty member's curriculum. This was

important because how our organization changes depends upon the individual transformation that we experience during this process, and the degree to which we incorporate multicultural education in our individual courses. Ideally, however, as we implement multicultural content into our courses, we hope to lay a foundation that others will build on as responsibilities for these courses change hands or after faculty members leave.

Multicultural teaching often manifests as a celebration of diversity or understanding “the other” (Banks, 2010; Gorski, 2009). This narrow view of multiculturalism, however, fails to encompass more critical aspects of the paradigm (Banks, 2010; Gorski, 2009; Lawyer, 2018). Building on the work of other scholars, Gorski developed a typology to classify the levels of criticality in the syllabi of multicultural teacher educators. These levels align almost perfectly with the levels of MCOB, and offer a method for us as a department to specifically assess our development along the MCOB continuum in the area of curriculum.

Table 1 shows the alignment between the two theoretical frameworks. First, an exclusionary organization will not consider multiculturalism, which means that people in the organization provide no consideration to multiculturalism. Thus, this stage is not reflected in Gorski’s Practice Dimensions. The Club will include a select few members of ethnic minority groups as long as they do not disrupt the power structure. This is possible when the ethnic minority representative has a worldview similar to those in power, or is willing to conform (or appear to conform) to it. Members of The Club may be aware of, and even willing to teach about a few people of color. Thus, in the classroom there may be discussions about Martin Luther King Jr. or Rosa Parks, but not details that illustrate King’s opposition to mainstream ideologies or controversial policies (e.g. capitalism or the Vietnam War), or Parks’ involvement in organizing and activism long before she gave up her seat on a bus.

A Compliant organization does not want to discriminate, but still maintains the power structure. This suggests that the organization is aware that it has the ability to discriminate, but it does not require an understanding of institutional discrimination more broadly, or one's role in it.

Table 1. Alignment between Theoretical Frameworks

Level	Practice Dimensions of Multicultural Teacher Education (Gorski)	Multicultural Organization Development (MCO) (Jackson)
0		Exclusionary <i>No consideration of multiculturalism, social justice, or diversity</i>
1	Conservative: Teaching the "Other" <i>Prepare teachers to work effectively with a diverse student population by studying cultures, values, lifestyles, and worldviews of identity groups and how to assimilate them into the education system</i>	The Club <i>Inclusion of select few, highly qualified members of minority groups; must not disrupt power structure</i>
2	Liberal: Teaching with Cultural Sensitivity and Tolerance <i>Prepare teachers to tolerate difference and to be aware of and sensitive to diversity, particularly through an examination of personal biases and prejudices</i>	Compliant <i>Committed not to discriminate; maintain organization's structure and culture</i>
3	Liberal: Teaching with Multicultural Competence <i>Equip teachers with the knowledge and practical skills necessary to implement multicultural curricular and pedagogical strategies, enabling them to meet diverse learning needs of students</i>	Affirming <i>Eliminate practices that advantage dominant group; prepare minority members for upward mobility</i>

4	<p>Critical: Teaching in Sociopolitical Context <i>Engage teachers in a critical examination of systemic influences of power, oppression, dominance, inequity, and injustice on schooling, including own practice and institutional and federal education policy</i></p>	<p>Redefining <i>Values and actively seeks perspectives of all members of diverse groups represented. These perspectives are included in determining organization's mission and operations.</i></p>
5	<p>Critical: Teaching as Resistance and Counter-Hegemonic Practice <i>Prepare teachers to be change agents through critical examination and studying strategies for, and engaging in, counter-hegemonic teaching and social activism</i></p>	<p>Multicultural <i>Mission, operations, products, services reflects diverse perspectives present in system. Organization works to educate others.</i></p>

A teacher working in an organization at this stage might teach students to think about individual discrimination and personal biases. Affirming organizations seek to eliminate practices that advantage the dominant group, meaning there must be individual members of the organization who are resisting the dominant structure. These individuals must have an awareness of these structures and how they work to privilege or marginalize certain groups. These individuals, therefore, have the potential to teach in ways that expose such inequities in society. This does not mean that they necessarily will, of course, or that they have all of the resources needed to do this effectively, but they have the awareness that is required.

Redefining organizations seek to draw from all of the diverse perspectives in the organization for decision-making. This necessitates that members of the organization are aware of the dominant structure and are taking actions to disrupt this structure and promote equity in the organization. Individuals who are driven to disrupt the existing structure in this way also have the wherewithal to encourage this disruption in the classroom. If they are willing to

redefine the organizations in which they work, they at least have the disposition to help their students examine inequities in institutions, including the education system. Multicultural organizations would not only incorporate diverse perspectives, but they would seek to educate other organizations about becoming more multicultural. Members of a multicultural organization would, therefore, be committed to promoting equity beyond their own sphere of influence. Consequently, these individuals would undoubtedly challenge students in their classrooms to not only examine inequity, but to engage in social activism.

Research Design

The MCOB model includes a four-step process for organizations to follow (Jackson, 2005): (a) identifying the change agents; (b) determining system readiness; (c) assessment and benchmarking; and (d) change planning and implementation. Our department did not have the luxury of being able to identify a subset of people to conduct this work, although we did have an external consultant that helped to start this process. Our external consultant led us through a two and a half day retreat in February 2015, helping us to figure out our identity and values as a department. At the time of this study, we were a small group consisting of six full-time faculty members and three staff. Although our student population was predominantly white, the faculty in our department was relatively diverse racially (compared to other departments at the university), consisting of one Black woman; four white women; one Asian woman; one Black man of West African descent; and two white men. Five of the six faculty members and one of the three staff members participated in the research process, so we considered ourselves to be the change agent team. The sixth faculty member, the department's only visiting professor, opted not to participate because she was completing a dissertation at the time of the study.

In determining system readiness, an organization must know that it has the support necessary for any multicultural initiatives to succeed (Jackson, 2005). Our readiness assessment was mostly an informal discussion as a department about our interest in this work. Our department chair was instrumental to starting this work and supporting its development.

Assessment and benchmarking is used to determine where the system is operating along the MCOB developmental continuum. A “data-driven, evidence-based process” to assess our efforts is essential to MCOB (Gavino, Eber, & Bell, 2010, p. 395). Because we focused just on our small department and not the university as a whole, we followed the example of other organizations that took a qualitative approach to assessing and benchmarking (Hyde, 2003, 2004). We assessed ourselves individually by writing cultural autobiographies, using prompts and guided questions provided by the principal investigator (PI). We each examined our cultural backgrounds and early experiences that helped to shape the ways in which we currently understand race and culture. We attempted to identify our stage of racial identity development and how that stage influences our personal lives and professional work (Sue & Sue, 2013). We also began to examine where we were as an organization overall—how well our mission and vision and institutional practices aligned with multiculturalism.

Finally, once the organization identifies the areas in which it wishes to focus improvement, it should prioritize those that can be addressed within 18 months to two years (Jackson, 2005). This research on our transformation process was designed to continue over the course of a few years but for the purposes of this article, we focus on how we addressed steps 1-3.

Method

This is a program evaluation using qualitative data and methods. We collected and analyzed data using applied thematic analysis (Guest, MacQueen, & Namey, 2012). Applied thematic analysis is a systematic approach which requires clear analytic objectives and consistency in data collection. It is appropriate for team-based research and large data sets, and allows for the quantification of qualitative data when appropriate (Guest, MacQueen, & Namey, 2012). To generate the data, one member of the department created a Google spreadsheet that listed each faculty members' courses. Each of the five participating faculty members then spent several weeks listing all of the readings, assignments, and other activities that we did in each class during the 2015-2016 academic year that addressed any aspect of diversity (e.g. race, ethnicity, language, gender, ability, religion, etc.). Courses that were not taught that year, that were taught by an adjunct, or that were taught by the visiting professor were not included. Of course, in order to complete program requirements, students took classes outside of our department. Given that all of the courses taught by the five, full-time, tenured or tenure-track faculty in the education department were part of the evaluation, we feel confident that we completed an accurate assessment of our department as an organization. (See Table 2 for the full list of courses in the evaluation.)

We used an a priori, or pre-existing theoretical framework, which in our case was Gorski's typology. The PI used Gorski's typology to develop a coding manual for the faculty to use. To use the manual, we asked ourselves, "What is the purpose of this reading, assignment, etc. with regard to preparing PSTs to work with a diverse student population?" We recorded that purpose next to each assignment in a Google spreadsheet. Finally, we coded our assignments using Gorski's typology, and provided a written rationale for that coding. For instance, if the purpose of the activity, assignment, reading, etc. was primarily "to prepare teachers to work

effectively with a diverse student population by studying the cultures, values, lifestyles, and worldviews of individual identity groups and how to assimilate them into the education system,” then we coded that task “Conservative: Teaching the Other.” Most of the faculty participated in the process of testing the reliability of the codes for one of their courses. We met as a department to discuss our process and make sure that we were viewing the codes similarly and in line with Gorski’s descriptions. One faculty member was not present for that meeting, so the PI individually reviewed those codes. Next, we completed our application of the codes to all of the available data. Once this second round of coding was completed, the PI reviewed each faculty members’ codes again to make sure that the work was done consistently.

Because the numerical frequency of the presence or absence of a theme can be “highly informative” (Guest, MacQueen, & Namey, 2012, p. 172), we completed our analysis by examining the number of assignments and activities that were coded at each level of the typology, and examined carefully at which levels were missing in some of our courses.

Findings

Table 2 shows the record of the number of assignments, activities, etc. that each faculty member coded in accordance with Gorski’s typology. The numbers matter less than the absence or presence of something in each space. For instance, some faculty grouped their readings together as one assignment while others separately listed them. Thus, in order to count one assignment for one course as equal to one assignment in another course, we would have to determine how to weight one assignment against another, whether by hours to complete, or number of words in the reading, degree of rigor, or even percentage of overall grade. Still, we did pay some attention to the numbers. We noticed that the median number of multicultural tasks in each course was three, and one-third of all courses listed had exactly three multicultural

Table 2. Coding Record of Assignments and Activities

	Level 1	Level 2	Level 3	Level 4	Level 5
Assessment of Reading Instruction		1	2		
Children's Literature in the EC ¹ Classroom	2	1	2		
Culture and Schooling		1	4	3	2
Curriculum and Assessment		1			
EC Math Methods			4	2	
edTPA	1				
Education Technology		2	1		
Educational Assessment		2	1		
Foundations of Literacy		1	1		1
Integrated Language Arts			3		
Introduction to EC Education	2	1	3		
Introduction to MC Education	2	1	3		
Leadership Seminar		1			
Literacy in the Content Area			1	2	
Literacy in the Content Areas, EC and MC		2	7		
MC Math Methods			4	3	
Teaching Phonics			1		
Young Adolescent Literature for the MC Classroom		2	3	1	
Totals	7	16	40	11	3

¹Note: EC = Early Childhood and MC = Middle Childhood

Level 1: Conservative: Teaching the "Other"

Level 2: Liberal: Teaching with Cultural Sensitivity and Tolerance

Level 3: Liberal: Teaching with Multicultural Competence

Level 4: Critical: Teaching in Sociopolitical Context

Level 5: Critical: Teaching as Resistance and Counter-Hegemonic Practice

tasks listed (making it also the most common number). Using the average number of tasks per course (4.3) could be misleading because seven out of eight of the courses with more than three tasks represent the work of only two faculty members. So instead of making conclusions based on these numbers, we focused on which codes were not used at all (or in a limited manner) for a particular course. For instance, only four courses did anything that challenged PSTs to think about teaching in a sociopolitical context; these four courses represent the work of three faculty members. Only two courses reached the level of teaching as resistance and counter-hegemonic practice. On the other hand, only four courses included work at the most conservative approach, and with one exception (edTPA) they each also engaged in work that was coded at the liberal levels of practice.

Teaching the “Other”

Faculty coded assignments across the spectrum of Gorski’s framework. We coded only seven course activities under the most conservative approach, Teaching the “Other.” Gorski describes this approach as having the goal of preparing teachers to work effectively with diverse students and assimilate them into the mainstream. Teaching the “Other” appeared in the Introduction to Early Childhood, Introduction to Middle Childhood, Children’s Literature, and edTPA (Special Topics in Education – Assessment Practicum) courses. These courses were divided among four of the faculty members. Assignments fitting this code included a photo essay, which required PSTs to identify strategies that their cooperating teachers used to connect

to diverse students in their classrooms. Primarily, PSTs looked for evidence of acknowledgment of diversity by identifying multicultural literature in the classroom, or possibly noticing seating arrangements that integrate genders in the classroom, or ways that the classroom is made accessible to students with physical disabilities. Other tasks coded as Teaching the “Other” included reading assignments and edTPA tasks that asked PSTs to review the cultural and social impacts that might affect learning.

Teaching with Cultural Sensitivity and Tolerance

Faculty coded more tasks (n=16) under the second theme, Teaching with Cultural Sensitivity and Tolerance. Gorski describes this approach as one that prepares teachers to tolerate and be sensitive to difference, primarily by examining personal biases and prejudices. All five of the faculty members had courses with activities in this category. Some examples of activities included a video on Islamophobia and a discussion about stereotypes of Arab Americans and Muslims in the Culture and Schooling class. In Introduction to Middle Childhood Education, students were challenged to examine their biases against LGBTQ+ students, and helped to understand their responsibility to protect all students from bullying and harassment. In the Children’s Literature class, students watched and discussed *In Whose Honor*, a film that challenges the assumption that naming sports teams after Native Americans is done to honor them. In Curriculum and Assessment, the class had a discussion on what it means to have a name (i.e. connection to culture, family, identity) and the importance of learning to accurately pronounce students’ names as a sign of respect.

Teaching with Multicultural Competence

Faculty coded many assignments (n=40) as Teaching with Multicultural Competence. Gorski describes this approach as exposing teachers to multicultural instructional strategies that

meet learners' diverse needs. Faculty coded assignments in all but three of the courses.

Assignments that fit this category included unit plans and learning centers to meet the needs of diverse populations, multicultural author studies, peer teaching strategies for emergent bilingual students, and reflections on readings, videos, and educational software. In Assessment of Reading Instruction, PSTs completed assessments and prepared case study reports that accounted for the diversity of students' backgrounds, literacy strengths, weaknesses, attitudes, and interests. PSTs then used that information to propose recommendations for future instruction.

Teaching in Sociopolitical Context

Faculty coded eleven assignments as Teaching in Sociopolitical Context. Gorski describes this approach as one that engages teachers in a critical examination of systemic inequity. Courses that had assignments with this approach included the Culture and Schooling course, each of the math methods courses, the Leadership Seminar, and Literacy in the Content Area. The major assignment for Culture and Schooling was a cultural autobiography, with which students critically examined how their position in society (including their educational opportunities) resulted, at least in part, from systemic inequity that gave them advantages (or disadvantages) in certain areas of their lives. It served as a foundation for the examination of systemic inequity later in the course. In the Leadership Class, the text that was used was designed around the idea of social justice issues. This text examined how social and political climates can affect teaching and learning. In the Literacy in the Content Area class, students conducted a language assessment that connects language to power structures. Students began to see the typical hierarchy of the classroom and question the structure. Another assignment was to examine how a text shares language concerning the Civil Rights Movement and in particular the

work of Rosa Parks. Students examined how language choice can affect the impression of the reader. They also examined what was not being said and what voice was not represented.

Teaching as Resistance and Counter-Hegemonic Practice

Faculty coded few assignments (n=3) for the fifth theme, Teaching as Resistance and Counter-Hegemonic Practice. Two assignments carried the purpose of helping PSTs understand and engage in counter-hegemonic teaching and social activism. These two assignments were part of the introductory education class Culture and Schooling. Guest speakers from two teachers' unions, National Education Association and The American Federation of Teachers, talked to the class about the role of unions. The intent of having these speakers visit the class was to help PSTs make informed decisions about participation in unions when they enter the profession, to be able to articulate what unions do for teachers, and to consider the political nature of teaching. The second assignment was to view videos on neoliberalism and its influence on public education. The intent was to help PSTs decide on how they will position themselves within the educational system, to understand the political and corporate influences on public education, and develop critical dispositions toward these influences in order to effect change, or make a conscious decision to be complicit with these influences.

The third assignment coded with this category was part of the Foundations of Literacy class that early and middle childhood education majors typically take during their second year of the program. One of the texts that students read throughout the Foundations of Literacy Course is *Critical Literacy: Context, Research, and Practice in the K-12 Classroom* (Stevens & Bean, 2007). The purpose for using this text was to help PSTs not to focus solely on narrowly defined content and pedagogy, but to remember that there are multiple lessons taught through specific instructional materials and discussion topics that teachers choose or do not choose to bring into

classrooms. PSTs were directed to focus their attention to the chapter on teacher identity and how that identity develops. Instructional material and topics of lessons were largely determined by teachers' identities and the awareness of teaching as a political act.

Discussion

This study examined the efforts of a private, liberal arts university's education department to transform into a multicultural organization, beginning with course content. The investigation was theoretically grounded in the Multicultural Organization Development model and the Practice Dimensions of Multicultural Teacher Education. It would be difficult to pinpoint our department identity definitively on the MCOOD scale based on the results of this study, but we could comfortably conclude that as instructors, most of our work spanned the Compliant and Affirming stages. Roughly half of the tasks that we coded lie at or below the level of "Teaching with Multicultural Competence," which aligns with the Affirming stage on the MCOOD scale, and the other half are at or above this level. Because we have more assignments below this level than above it (23 versus 14), we suspect that our department may lean toward the Compliant stage. It is clear from many of the assignments that some faculty members are committed to helping PSTs examine issues of oppression and inequity in the classroom. Yet there are some courses that do not broach the topic. It may be reasonable not to expect every course to address multiculturalism in depth, but there are some courses that by their nature should include more than they do.

The median number of multicultural tasks in each course was three. EdTPA was the only course to have one multicultural task at the most conservative level: Teaching the "Other." The Leadership Seminar and Curriculum and Assessment were the only two courses to have just one multicultural task at the first liberal level: Teaching with Cultural Sensitivity and Tolerance. The

edTPA course is a 1-credit-hour course PSTs take the semester before their semester of student teaching. The course prepares students to complete a portfolio assessment during their student teaching semester. Tasks 1, 2, and 3 of the edTPA has the potential to help PSTs plan for the diversity in their classrooms, but unless the instructor intentionally challenges PSTs to critical practice dimensions of multiculturalism, PSTs are likely to resort to conservative approaches. The Leadership Seminar is taken during the semester of student teaching. These final two semesters are ideal for PSTs to connect all that they have learned over the course of their program and incorporate it into their practice. The absence of any class discussions or assignments that challenge our most advanced students to think about the sociopolitical context of teaching or social activism is problematic.

Curriculum and Assessment points to another serious weakness in the program. Most of our licensure programs require PSTs to take seven 3-credit-hour classes in education, edTPA, a leadership seminar, and a semester of student teaching. Curriculum and Assessment is the perfect opportunity for students to build on what they learn in Culture and Schooling to develop culturally responsive curriculum and assessments. It also provides a great opportunity for students to interrogate the sociopolitical context of teaching, including who makes decisions about curriculum and assessments, how those decisions get made, and the opportunities and limitations that teachers have to challenge or influence those decisions.

Teaching Phonics is the final course that only had one multicultural task, coded as Teaching with Multicultural Competence. Although the phonics class was not taught with specific culturally relevant practices, it was taught developmentally. This emphasis works against a deficit mindset in which students are compared to grade level standards. Additionally, with each stage of development, PSTs discussed how English word structures might be

confusing for emergent bilingual students, or connections emergent bilingual students might have.

As a department, we made many multicultural connections in our courses, but there is much more that can, and should be done. Teacher education programs should offer tools to critique the structure of society and the role that schools have in maintaining the power relations in the larger society (Baltodano, 2015; Lawyer, 2018). Baltodano (2015) insists that teacher education programs must use problem-posing and dialogical pedagogy; require social justice and social action in the curriculum, field placements, and service-learning opportunities; and provide space for students to explore their biographical identities, their ideological positions, and how their personal histories influence their teaching. These are changes that we are doing, but on a very limited scale in just a handful of classes. It is likely that we have placed too much focus on the skills-based aspect of teacher preparation and not enough on socio-cultural understandings (Baltodano, 2015; Ladson-Billings, 2006). Teacher education is conservative by nature and the dominant ideology is rationalism (Baltodano, 2015). Rationalism reflects themes of “control, methodologies, efficiency, testing, and standardization” (Baltodano, 2015, p. 31). Under rationalism, mastery of skills such as writing lesson plans becomes the most important thing to learn. Historical ideologies, state policies, and accreditation requirements are largely influential in promoting rationalism. It is up to us to push ourselves beyond this conservative leaning so that we can engage our students in more critical work.

Of course, our students are unlikely to engage in critical work unless we as a faculty engage in it ourselves. We have taken some steps toward this. Writing and reflecting on our cultural autobiographies and participating in monthly book club meetings have been effective ways for us as a department to wrestle with difficult questions about identity and oppression. As

faculty have looked within to better understand their own racial/cultural identities, many have found outward expressions of this development through changes in professional practices, scholarship, curriculum, and additional experiences for PSTs. One faculty member elected and was selected to serve on the Teaching Tolerance Advisory Committee with the Southern Poverty Law Center. Another faculty member collaborated with a sociology professor to develop a multicultural picture book website along with a protocol to be used to guide reading the books aloud. The protocol is based on Howard's (2016) work on how white educators can promote racial healing in classrooms. This work led to presentations at conferences and on campus, one publication, and two research studies.

Some of the faculty indicated that they plan to add more multicultural content to their courses as a result of the work that we have done. Curricular changes that resulted from this departmental work include PSTs in the Phonics class Skyping into a classroom for emergent bilingual students. The online meeting helped PSTs better understand practical ways of meeting students' individual needs. Other curricular changes included adopting textbooks with a multicultural orientation. The primary textbook for middle childhood social studies education majors changed to *Un-Standardizing Curriculum: Multicultural Teaching in the Standards-Based Classroom* from the Multicultural Education Series (Sleeter & Carmona, 2016). PSTs learn to teach social studies while increasing awareness of how their identity work influences their teaching, as well as deepening their understanding that teaching is a political act. The name of the children's literature class was changed from Children's Literature in the Early Childhood Classroom to Multicultural Children's Literature in order to better represent the content. Prior to the change in the name of the course, the faculty member that taught the course changed texts to *Multicultural Children's Literature: Through the Eyes of Many Children* (Norton, 2012). When

PSTs in this literature class do presentations on literature of various cultures, they now present to groups off campus so that area teachers and/or librarians can gain an appreciation of the wide variety of children's literature as well as becoming better acquainted with various authors; book awards; and values, themes, and issues represented in the literature.

Because the faculty are implementing diversity into more of the courses, PSTs are asking more questions. At least one faculty member has involved PSTs in a research study as a result of the department's work. The student research group began implementation of a qualitative study about white racial identity development in PSTs using a specific teaching protocol and multicultural picture books. The PSTs presented at a state-wide teacher education conference and made plans to work on data analysis and write up findings.

We would be remiss if we did not note that this work is politically risky. Baltodano (2015) cautions that in order to successfully transform a program at a university, one needs to form alliances across racial and gender lines, at multiple levels of the university (students, colleagues, chairs, higher level administrators). Importantly, faculty need to keep in mind the influence of neoliberalism on universities. The bottom line financially tends to overshadow the advancement of social justice or diversity issues (Baltodano, 2015; Hyde, 2003, 2004). At Saint Xavier University, for instance, there was a financial commitment for the first two years, but uncertainty regarding the university's long-term commitment (Gavino, Eber, & Bell, 2010). Budget cuts at our own university made it unlikely that we would be able to promote systemic change campus-wide, at least for the time being. Without any incentives, heavy workloads make it difficult to prioritize the additional work required with diversity efforts (Gavino, Eber, & Bell, 2010; Hyde, 2004). If the grievances at universities across the country are any indication, diversity efforts are clearly a priority for many students and faculty. Advancement of diversity

and equity issues require administrative and financial support, and prioritization at the institutional level as well.

Limitations

This study serves as a model for other departments that are committed to multiculturalism. Although the findings are not generalizable, the process of undertaking this study can be. Admittedly, our department was unique in many ways. It was small in number, and racially and ethnically diverse. The cultural norms of the department encouraged weekly attendance at meetings, which is where much of the work for this study was accomplished. Although participation was voluntary, we had nearly unanimous participation in this process. Administrative support was critical; the department chair allocated time for the department to devote to this work, and invested financially in texts for our book study. The chair also invested time and money for the department to have a two and a half day intensive retreat to help us start the process. Importantly, our faculty was generally cohesive and expressed a commitment to this work. Departments that are fraught with interpersonal conflict, or a general unwillingness to examine issues of equity and justice will face considerable challenges with this work. Such departments will need additional guidance and support from an external consultant.

Conclusions

The authors' department of education has only scratched the surface of what is possible, and what is necessary for the preparation of teachers for a multicultural society. There are only a few assignments or activities that challenge students to engage in critical analysis of the sociopolitical context of education. Most of our work addressed diversity in terms of meeting the needs of diverse learners. This is certainly important work, but our efforts cannot rest here. Importantly, there are critical gaps in our program, and our adjunct faculty members are not yet

involved in this transformation process. “Because power never gives up by itself, any significant change will happen only at the price of serious, organized strategic efforts” (Baltodano, 2015, p. 88). Now that we see where we stand as a department, it is time to identify some strategic steps—as an organization and as individuals—to become a multicultural organization that prepares pre-service teachers for a diverse society.

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Authors:

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Bios

Adrienne C. Goss, Ph.D.

Rhode Island College, 600 Mt. Pleasant Avenue, Providence, RI 02908
agoss@ric.edu

Dr. Adrienne Goss is an Assistant Professor of Education and Social Policy at Rhode Island College. Her research focuses on how education policies affect minoritized and low-income children and youth, and how parents and community members can become more involved in the process of school reform. Her teaching experience and expertise encompasses education policy, organizational theory, multiculturalism, mathematics pedagogy, and middle childhood education.

Ronald D. Kieffer, Ph.D.

Ohio Northern University, 525 S. Main Street, Ada, OH 45810
r-kieffer@onu.edu

Dr. Ronald Kieffer is a retired Associate Professor of Education from Ohio Northern University. His research focuses on authentic assessment, literacy instruction, and early childhood education.

Diana K. Garlough, Ed.D.

University of Findlay, 1000 N. Main Street, Findlay, OH 45840
diana.garlough@findlay.edu

Dr. Diana Garlough is an Associate Professor and the Chair of Licensure and Endorsements at the University of Findlay. Her research interests include literacy instruction, aspects of multicultural education, and various leadership topics. Garlough is a member of the Ohio Association of Colleges of Teacher Education Board of Trustees, serving on its Inquiry Committee, is the Ohio Association of Private Colleges of Teacher Education President-Elect and the representative to the Educator Standards Board subcommittee for standards for the teaching profession.

Kevin D. Cordi, Ph.D.

Ohio University Lancaster, 1570 Granville Pike, Lancaster, OH 43130
kcteller@sbcglobal.net

Kevin D. Cordi, Ph.D. holds a Doctorate in Drama, Literature, Reading and Culture with an emphasis on Storytelling and Education from The Ohio State University. He serves as an Assistant Professor and Middle Childhood Coordinator at Ohio University Lancaster. His research interests are the use of narrative in education and content and disciplinary literacy and pedagogies around equity. He is the author of *You Don't Know Jack: A Storyteller Goes to School*, *Playing with Stories: Story Crafting for Writers, Teachers, and Other Imaginative Thinkers* and is currently editing a collection on *Social Action Stories*. He serves on the National Advisory Board for Teaching Tolerance. You can find out more at www.kevincordi.com

Albert Akyeampong, Ph.D.

Ohio Northern University, 525 S. Main Street, Ada, OH 45810
a-akyeampong@onu.edu

Dr. Akyeampong holds a Doctorate in Instructional Technology from Ohio University. Akyeampong is an Assistant Professor at Ohio Northern University. Akyeampong teaches courses in computer technology in education, digital storytelling, diversity, curriculum and assessment. Akyeampong's current research interests include the use of digital storytelling in education, and the use of computer technology in the development and delivery of instruction in online and face-to-face environments.



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